

EUROPEAN INSTITUTE FOR
CRIME PREVENTION AND CONTROL
AFFILIATED WITH THE UNITED NATIONS

MINISTRY OF JUSTICE
THE NETHERLANDS

Computerization in the Management of the Criminal Justice System

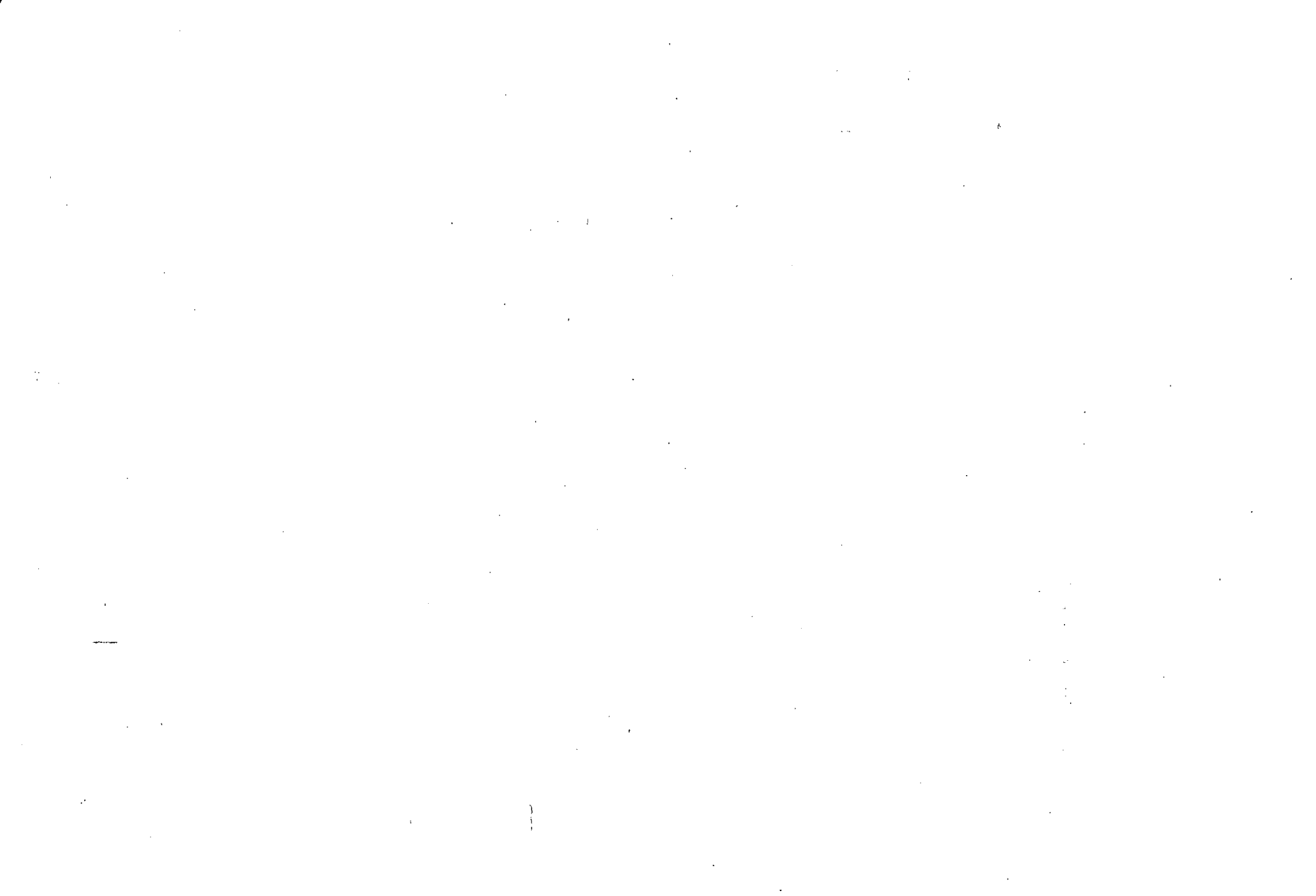
Richard Scherpenzeel

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**European Institute for
Crime Prevention and Control
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**Ministry of Justice
The Netherlands**

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**COMPUTERIZATION
IN THE MANAGEMENT
OF THE CRIMINAL JUSTICE SYSTEM**

**Proceedings of the Workshop and the Symposium on
Computerization of Criminal Justice Information
at the Ninth United Nations Congress
on the Prevention of Crime and the Treatment of Offenders**

Cairo, Egypt, 29 April - 8 May 1995

Edited by

Richard Scherpenzeel

Helsinki/The Hague, April 1996

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Richard Scherpenzeel
Consultant**

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FOREWORD

At a time of increasing workloads and shrinking budgets, the administrator and planner in criminal justice often faces the near-impossible task of trying to do more with less. Crime rates appear to be rising in many countries, increasingly complex crimes become more difficult to investigate, and the processes of criminal justice require more information from more sources.

Practitioners and policy-makers in criminal justice have been turning to computer technology, to recent developments in communications and to modern developments in information management in order to maintain and even improve their level of efficiency. In so doing, however, they have found a host of new problems: the process of computerization goes slowly, it is expensive and it does not always match expectations; the process requires considerable investments not only in hardware and software, but also in training; and the process raises new issues in the protection of human rights and the interests of due process.

Given the extensive experience that has been accumulated in countries around the world, the United Nations Economic and Social Council decided that one of the Workshops at the Ninth United Nations Congress should deal with these cutting-edge issues in criminal justice. The Workshop, and the associated Symposium, brought together experts from around the world to deal with such issues as computerization, computer crime, controls and legal safeguards, the use of criminal justice information, and the exchange of information.

The complex preparations for both the Workshops and the Symposium were coordinated by Mr. Richard Scherpenzeel, Ministry of Justice of the Netherlands, for which the European Institute would like to express its sincere appreciation.

As was the case with the corresponding proceedings at the previous Congress in 1990, the proceedings at the Ninth Congress Workshop and Symposium were edited by Mr. Scherpenzeel, and the printing was done at the Ministry of Justice. Again, we wish to express our appreciation for this contribution to international cooperation.

Matti Joutsen
Director
European Institute for
Crime Prevention and Control
Helsinki, May 1996

EDITOR'S NOTES AND ACKNOWLEDGEMENT

It is a great pleasure to present herewith the Proceedings of the Workshop and the Symposium on Computerization of Criminal Justice Information, held at the Ninth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, (Cairo, Egypt, 29 April - 8 May 1995).

The Workshop and the Symposium on Computerization of Criminal Justice Information represented the culmination of United Nations Crime Prevention and Criminal Justice Network efforts during several years to assist countries in promoting more effective administration of criminal justice, including the use of information systems, with the view to facilitating the exchange of experience and expertise between Member States.

The Workshop and the Symposium were coordinated by the European Institute for Crime Prevention and Control, affiliated with the United Nations, together with the United Nations Interregional Crime and Justice Research Institute (UNICRI), the Asia and Far East Institute for the Prevention of Crime and the Treatment of Offenders (UNAFEI), the Office of International Criminal Justice at the University of Illinois at Chicago (OICJ), and the Ministry of Justice of the Netherlands.

I wish to express my warm gratitude to the colleagues of HEUNI, UNICRI, UNAFEI and OICJ for contributing time, effort and creativity to the organization of the Workshop and the Symposium; to the Director of HEUNI, Dr. Matti Joutsen, for his engagement to the Workshop and the Symposium and his unflagging inspiration and encouragement; to the Director of UNAFEI, Mr. Kunihiro Horiuchi, for hosting an ad hoc expert group meeting as a contribution to the preparation of the Workshop and the Symposium; to the fine corps of speakers for their substantive contribution to the Workshop and the Symposium; to the staff of the Cairo International Conference Centre for their warm friendship and support in the organization of the Workshop and the Symposium; to Ms. Anneke van der Meij for her work on text editing.

I was very privileged to be the scientific coordinator of the Workshop and the Symposium.

Richard Scherpenzeel
HEUNI Scientific Coordinator
Workshop and Symposium
Computerization Criminal
Justice Information
The Hague, May 1996

**REFLECTIONS ON THE WORKSHOP AND THE SYMPOSIUM
ON INTERNATIONAL COOPERATION AND ASSISTANCE
IN COMPUTERIZATION OF CRIMINAL JUSTICE INFORMATION**

*Richard Scherpenzeel*¹

INTRODUCTION²

The Economic and Social Council, in its resolution 1993/32, endorsed the programme of work for the Ninth United Nations Congress on the Prevention of Crime and the Treatment of Offenders (Cairo, Egypt, 29 April - 8 May 1995), including the holding of, inter alia, a two-day Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System: Computerization of Criminal Justice Operations and the Development, Analysis and Policy Use of Criminal Justice Information. The Workshop was embedded in the larger framework of a one-week Symposium and Exhibition on Computerization of Criminal Justice Information.

Further, the Economic and Social Council, upon the recommendation of the Commission on Crime Prevention and Criminal Justice, in resolution 1994/19, recommended that the Workshop and the Symposium should evaluate progress in computerization and the policy and management use of information. The Council also recommended that the Workshop should consider controls and legal measures to safeguard respect for privacy and to prevent data from being used for purposes incompatible with the International Covenant on Civil and Political Rights (General Assembly resolution 2200 A (XXI), annex), bearing in mind data protection principles related to personal privacy.

The Workshop and the Symposium should provide a forum in which to discuss issues in the development and use of national and international crime and criminal justice information and in the introduction of information technology in the administration of criminal justice for policy makers responsible for the operation of criminal justice. They should also provide an opportunity for an exchange of expertise and experiences between government representatives, criminal justice administrators, criminal justice statisticians, practitioners in the criminal justice system, researchers, and experts on computerization.

¹ Ministry of Justice of the Netherlands - European Institute for Crime Prevention and Control, affiliated with the United Nations (HEUNI). Served as Scientific Coordinator for the Workshop and the Symposium.

² These reflections draw upon the "Background Paper for the Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System: Computerization of Criminal Justice Operations and the Development and Policy Use of Criminal Justice Information", Report of the Secretariat, Rapporteur R. Scherpenzeel.

The Workshop and the Symposium were coordinated by the European Institute for Crime Prevention and Control, affiliated with the United Nations³, together with the United Nations Interregional Crime and Justice Research Institute (UNICRI), the Asia and Far East Institute for the Prevention of Crime and the Treatment of Offenders (UNAFEI), the Office of International Criminal Justice at the University of Illinois at Chicago (OICJ), and the Ministry of Justice of the Netherlands. The Workshop and the Symposium should build on the results of the previous Workshop on Computerization of Criminal Justice Information, organized within the framework of the Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders (Havana, Cuba, 27 August - 7 September 1990)⁴.

The Workshop held at the Eighth United Nations Congress provided the first major opportunity to discuss issues related to computerization of the administration of criminal justice. The discussions resulted in the adoption by the General Assembly of resolution 45/109, on computerization of criminal justice. That resolution, inter alia, laid down a conceptual framework for a technical cooperation programme for the computerization of criminal justice with a plan of action for the United Nations that included the establishment of a technical cooperation programme for the computerization of criminal justice administration and monitoring its activities, including the formulation of information programmes and statistics regarding crime and criminal justice.

Following the successful results of this first Workshop, the Workshop and the Symposium at the Ninth United Nations Congress was the second organized attempt in this field to bring countries together on this level world-wide. The programme for the Workshop and the Symposium featured the following main elements:

- Changes in computerization and the policy use of information;
- Benefits of computerization;
- Prerequisites for improved management of the criminal justice system and the necessary controls and legal safeguards;

³ Formally called the Helsinki Institute for Crime Prevention and Criminal Justice, affiliated with the United Nations (HEUNI).

⁴ The Proceedings of the Workshop have been published by HEUNI in cooperation with the Ministry of Justice of the Netherlands in two publications: HEUNI Publication Series No. 19 (in English and Spanish) and No. 20: Proceedings of the First United Nations Workshop on Computerization of Criminal Justice Information (R. Scherpenzeel, ed.), Helsinki, Academic Bookstore, 1992; and Monsey, N.Y., Criminal Justice Press, 1992.

- The use of criminal justice information in management and policy formulation: selected examples from both developed and developing jurisdictions;
- Issues in international cooperation, including communications and the exchange of information, surveys in crime prevention and criminal justice, training and education, and needs assessment;
- Exploration of modalities for United Nations technical cooperation activities in the area of computerization and the use of criminal justice information in policy-making.

THE NEED FOR INTRODUCING COMPUTERIZATION IN THE MANAGEMENT OF THE CRIMINAL JUSTICE SYSTEM

The necessity for introducing computer-based information systems tends to arise as a result of four problems. First, the sheer volume of information collected by existing manual information systems makes the availability of timely and accurate information increasingly unlikely. As the volume of criminal cases increases, it becomes increasingly less cost-effective to use only human resources to cope with manual record-keeping. Several problems are likely to arise. Backlogs will develop and the information recorded in the manual system will be inaccurate and out-of-date. In addition, the pressure of coping with the increasing tide of information will inevitably increase the potential for error. Incorrect information placed in the hands of both administrative and operational personnel leads to a high potential for undesirable outcomes. The reduction in costs both to the system and to society is a primary benefit flowing from computerization.

Second, as society and the nature of crime grow more complex, the structure of the data required to properly administer the criminal justice system becomes more complex as well. These complexities soon overwhelm the abilities of a manual system and even of some rudimentary computer-based systems. To properly investigate the more complex crimes found in today's society today and to more efficiently allocate scarce criminal justice system resources, administrators require more information about criminal events. The way the information is used changes over time. Instead of using simple statistics such as counts of events, administrators will more intensively process the data using statistical models. In addition, new and more powerful graphical and spatial forms of analysis can be employed. Those methodologies require the speed, access and dimensionality of data that are not supported by manual systems.

Third, the need of administrators and organizations to share data increases as the scope and complexity of crime increase. Much of the data captured in a typical criminal justice information system has utility to multiple organizations in the same government. This

presents two problems. First, the data are captured many times with all the inherent data capture costs and the costs of redundant storage. Second, this introduces the potential for inconsistency since the data may be generated at different times and are potentially measured in different ways even though the underlying concept is the same. Both situations can create problems for criminal justice administrators.

Fourth, offenders do not necessarily confine their activities to a single jurisdiction. Thus, there are increasing needs and opportunities to share information across jurisdictional or national boundaries. As in all of the other cases the value of information varies with its timeliness. While conceptually it is possible to share information even between manual systems, the timeliness and accuracy of such information is suspect, and consequently so is its value. In the final analysis manual systems can provide little of the functionality required for effective and efficient information-sharing.

Any future planning of criminal justice information systems should recognize the importance of four distinct types of systems:

- Case management systems, which are designed to support the operations of prosecution and the courts. These systems cover all aspects of case monitoring including case and defendant tracking, case inquiry, court scheduling, the generation of documents, notices, etc., and the generation of caseload and operational statistics.
- Tactical information systems, through which relevant information is gathered from various sources, including archival systems, and analyzed to support decisions on tactics for addressing specific situations. Typical uses for tactical information systems include the provision of the data needed in making pretrial detention decisions, sentencing decisions, planning of investigations, and the execution of planned arrests.
- Strategic information analysis systems, including expert systems, through which a broad spectrum of information is gathered and analyzed to detect trends and conditions in an environment. Strategic information can be used to support planning of law enforcement strategies, programmes, and general resource deployment, as well as to evaluate the success of existing programmes. Examples of strategic information include the analysis of trends in crime rates and in the socio-cultural profile of a community.
- Archival information storage systems, in which pieces of information are stored for later retrieval and analysis. Examples are: identification databases, criminal history records systems, stolen motor vehicles registries, crime-related statistical systems, and demographic statistical systems.

PREREQUISITES FOR IMPROVING THE UTILIZATION OF INFORMATION IN THE MANAGEMENT OF THE CRIMINAL JUSTICE SYSTEM

Governments seeking to improve the quality of their criminal justice system are, often, likely to look first to technological solutions. Indeed, there is an increasing array of options for using information technology offering the potential for achieving the desired end. However, in view of the complexity of the structure of the criminal justice system the application of information technology may be severely limited or may not be cost-effective if it is employed in an inappropriate environment. At the same time, many criminal justice authorities are struggling to meet a growing list of demands with limited resources. This situation is particularly acute in countries in transition and developing countries. Therefore, within the context of current resource constraints, the introduction of computerization in the administration of criminal justice need to be addressed by identifying and implementing the right technologies for solving the problems faced.

There are a number of guidelines that are critical to the success of the introduction of information technology in the criminal justice system. Of these guidelines, probably the most critical is the clear establishment of the scope and scale of the information system that is consistent with the organization's requirements and resources. These dimensions need to be established by the conduct of a thorough needs assessment. The participants in conducting the needs assessment should include policy-makers, criminal justice administrators, criminal justice researchers and the end-users of the system.

The needs assessment study has two fundamental objectives: first, to determine whether there is a need for computerization within the organization in question, and second, to decide on the scope or extent of the computerization⁵. The achievement of both objectives is crucial. If computerization in the administration of criminal justice is initiated without first conducting a needs assessment, it is almost certain that it will fail to have the desired effect and that the costs will exceed the benefits. An additional drawback is that future computerization projects may well be looked upon unfavourably. If the scope or extent of computerization projects is too broad or too narrow, either the costs will not correspond with the benefits or the benefits that could have been gained at little additional cost will be lost. A thorough needs assessment study may even show that computerization in certain areas is not necessary, or that the problems noted could be resolved by reorganizing the structure of the criminal justice agency in question.

⁵ Within the terms of reference of the United Nations programme on the computerization of criminal justice information (see General Assembly resolution 45/109), on the basis of the needs assessment, external resources can be sought and deployed for activities that are most needed within the overall justice programme of the country and for which there are insufficient government resources.

The needs assessment study should identify projects that have a high probability of success and whose potential benefits substantially outweigh their costs.

Once the needs assessment study has determined the purpose of computerization and has indicated its direction, the next step in the planning process should be to develop an overall strategy that will:

- Clearly identify the goals and objectives of the organization as a whole;
- Define the information needs of the organization as a whole and of the component parts of the organization;
- Identify the impact of information on the way the organization works, in order to determine factors that may critically affect the achievement of the objectives;
- Clearly specify how computerization can help the organization to improve the flow of information.

In developing the strategy, consideration should be given to the merits of proceeding with a comprehensive criminal justice information system, in contrast to a series of independent, function-specific systems (police, courts, corrections etc.). In addition, the costs and benefits of building a custom-designed system, as opposed to transferring technology from elsewhere, or tailoring packaged systems, should be examined. Since the organization, and even perhaps its structure, is likely to be affected, top management must play a significant role both in the needs assessment exercise and in developing the strategy.

The second critical guideline is the involvement of senior executives charged with managing (parts of) the criminal justice system. Criminal justice faces challenges of competing needs. The design and operation of information systems generally requires extensive resources. Further, the organization and its structure are likely to be affected by the introduction of information technology. Because of these considerations, senior executives in criminal justice administration, who can provide the authority for the development, must be involved in the planning of criminal justice information systems from their inception.

Third, there must be sufficient human and financial resources available to not only construct but also maintain the system once operational. All too often the cost of constructing information systems is underestimated and the resources required to keep the system running are completely ignored. The result is that the original design of the system is reduced and there is a corresponding reduction in benefits. Similarly, a system is likely to fall into disrepair if its scope is such that the cost and complexity of operating and maintaining it exceed the benefits received. The human resources that are needed to operate and utilize the

output of the system must be identified or developed. For all information systems there are implicit assumptions about the skill and training of the people who use, operate and maintain them. Those assumptions must be clearly specified so that the requirements of the system are met by those who will interface with it. Any gaps must be closed by developing and implementing training programmes or by altering the design of the system. Finally, the physical environment required by the technology chosen for implementing the system must be in place.

Fourth, the statutory and regulatory environment necessary for the authorized collection and distribution of data as well as for the protection of privacy and human rights of the citizens should be provided. Often, legislative work will be needed to enforce reporting requirements for data required by the system. At the same time, there is a need to provide controls on the use of the data to reduce and if possible eliminate any potential damage from unauthorized disclosure.

CRIMINAL JUSTICE INFORMATION IN MANAGEMENT AND POLICY FORMULATION

The main purpose of having criminal justice information is to create conditions for making informed decisions related to crime prevention and criminal justice. Planning, monitoring and evaluation should rest on comprehensive, reliable and timely data that must be purposefully produced, processed, analyzed, utilized and made available to the public. Such data are needed:

- To keep planners of criminal justice policy informed, increasing the accuracy of predictions about crime rates and crime trends, costs, personnel requirements, demand for services etc.;
- To identify problem areas of common concern to different levels and sectors of government (for example, in order to initiate adequate local and national policies and programmes);
- To assess the impact of legislative and policy changes (for example, to ensure that those changes have the intended effects);
- To provide a basis for planning resource allocation, for monitoring, evaluating and controlling performance and service delivery (for example, in order to determine when to increase or decrease the level of investment in law enforcement and criminal justice, or to reduce inconsistencies in policy in different sectors of a criminal justice system).

Apart from the above-mentioned purposes, which are government-oriented, another important purpose, public accountability, stands out. It consists of components such as the following⁶:

- Informing the public about crime and government responses to crime, including data on how citizens are dealt with by the justice system;
- Making available indicators on governmental spending on crime and the administration of criminal justice and related efficiency, effectiveness and fairness;
- Providing international comparisons;
- Promoting rational public debate about crime and criminal justice.

In addition, there are other persons in the academic and research community who might use criminal justice information to advance knowledge and understanding of the relationship between crime, responses to crime and other social policies and between crime and social change or development.

Criminal justice programmes face the challenges of competing needs and interests usually in an environment of limited resources and changing and expanding demands. Therefore, a solid management process is needed to establish, confirm or change strategic direction; to verify and modify users requirements; determine priorities; to develop strategies for allocating resources; and to establish and review, if needed, procedures for monitoring, evaluating and controlling operational planning and adjustment of the strategic programme.

Experts in crime prevention, victimization and criminal justice policy, programmes and administration must play key roles in designing the statistical projects and series, in determining concepts and definitions, in planning and conducting analysis and in preparing recommendations. Highly specialized personnel is an important requirement for the development, operation and strategic use of a criminal justice information system.

The ease with which offenders cross jurisdictional borders and with which criminal organizations spread their activities over several States illustrates the importance of information-sharing and coordination between different Member States and between different levels of government. Such international cooperation between law enforcement agencies already exists in some regions, most notably in Europe, North America and southern Africa.

⁶ See also the report of the Secretary-General on Progress Made on the Fourth and Fifth Surveys of Crime Trends and Operations of Criminal Justice Systems, and Other Initiatives Under Way to Acquire, Process and Distribute Crime Prevention and Criminal Justice Data (E/CN.15/1994/2, paras. 4-5).

Jurisdictions that are planning information systems should take into account information-sharing needs and seek, whenever possible, to coordinate their systems planning with other jurisdictions. On the national level, systems planning must also seek to achieve compatibility of information collection and reporting formats among jurisdictions. Such compatibility could facilitate information-sharing and reduce costs.

In some cases, various agencies within a single governmental jurisdiction each maintain separate information systems that are designed and implemented to meet their particular needs⁷. Although the overall information needs of different agencies may vary, separate agencies may have some similar or shared information needs. Therefore, policy makers should seek government-wide, coordinated inter-agency planning of the development of information systems. Such coordinated development should seek to eliminate unnecessary duplication of effort, to consolidate or integrate separate information systems when feasible and to ensure the compatibility of separately maintained information systems.

Regarding further efforts to promote international cooperation, particularly among developing countries⁸, experience indicates that:

- An understanding of the factors underlying the development of crime and criminal justice processes does not unfold simply from the production and distribution of information;
- Before introducing advanced technology, it is necessary to have a clear understanding of the purposes of criminal justice information systems and the requirements for its proper operation, maintenance and development;
- The value of a criminal justice information system is directly linked to the reliability of the information that it provides.

CONTROLS AND LEGAL SAFEGUARDS

The accuracy, completeness and timeliness of information in criminal justice databases is of paramount importance. Criminal justice personnel rely on the databases to make decisions that considerably affect individuals and public safety. In a number of countries, businesses and private organizations may also rely on government databases, such as criminal history record systems, to assist them in making decisions regarding employment, financial

⁷ Portions of this text are based on National Criminal Justice Association (United States of America), "Policy Statement", 3 June 1993.

⁸ See also section "Future Directions of International Cooperation" below.

matters or volunteer appointments. Inaccurate, outdated or otherwise misleading information could threaten the privacy of individuals.

In the performance of their legitimate duties, criminal justice authorities compile sensitive personal information about individual citizens. Inappropriate use of that information constitutes a violation of personal privacy. This raises the question of the provision of appropriate legal protection of such privacy, as provided for under article 17 of the International Covenant on Civil and Political Rights (General Assembly resolution 2200 A (XXI), annex) and in accordance with the guidelines for the regulation of computerized data files (E/CN.4/1990/72), adopted by the General Assembly in its resolution 45/95. Therefore, in the design and operation of information systems, all possible steps must be taken to ensure the security and proper use of personal information.

The privacy and security interests of citizens must be considered carefully throughout information system planning. The information gathered in criminal justice information systems should be limited strictly to those types of information that are truly necessary for legitimate criminal justice purposes. Clear policies must also be established limiting the access to and the use and dissemination of sensitive personal information in order to prevent invasive or illicit uses of that information. In addition, agencies responsible for such information systems should promulgate administrative regulations that set forth specific standards for the inclusion or exclusion of certain types of information; guidelines for analyzing the information contained in the system and making inferences from it; standards for securing and disseminating personally identifiable information; standards for the dissemination of reports produced through the system; and a procedure by which aggrieved persons or organizations who have been publicly identified by the system may challenge the accuracy of the information released by it.

The greater use of computers in society as a whole, and not only within the criminal justice system, has drawn attention to computer-related crime. The issues involved in such crime are dealt with in the United Nations manual on the prevention and control of computer-related crime⁹, which was drafted at the initiative and with the support of the Government of Canada.

INTERNATIONAL COOPERATION AND ASSISTANCE

International cooperation has a significant potential to assist Member States in solving their problems in computerization and in developing, analyzing and using criminal justice

⁹ International Review of Criminal Policy, Nos 43 and 44, 1994, United Nations Publication, Sales No. E.94.IV.5.

information. First, Member States can learn from the successes and failures of other Member States in responding to these problems, despite the differences that may exist in the cultural, economic, political and social background. Second, international cooperation provides a learning experience for both parties, the provider and the recipient of the assistance. Third, work in this field may help, for example, neighbouring countries in preventing and controlling crime that could otherwise cross national borders, or facilitate exchange of information for coordinated activities in preventing and combating transnational organized crime. Finally, in many countries the problems in this field are so vast that they exceed the capacity of the government to provide an effective response.

International cooperation involves a number of different actors. These include the United Nations, intergovernmental and nongovernmental organizations, individual governments, governmental agencies, national and even local professional and scientific associations, academic institutions, private enterprises and even individuals.

The experience with international cooperation projects has shown the need for careful planning¹⁰. All the parties must have a clear idea of the objective of each stage in the project in question, and of the obligations of each party. Because of the importance of securing a sufficient degree of support and coordination on all levels, the project should always be designed and carried out at the invitation of the authorities of this country, and should be integrated into the country's over-all plans for development.

The ideal project would have a multiplier effect, in that the model used can be copied (with the necessary alterations to fit the local circumstances) elsewhere in the target country or in other countries. The project should also include arrangements for ensuring follow-up and evaluation.

COOPERATION ACTIVITIES CARRIED OUT WITHIN THE FRAMEWORK OF THE UNITED NATIONS CRIME PREVENTION AND CRIMINAL JUSTICE PROGRAMME

A. Communications and the Exchange of Information

One way of providing international assistance, especially for countries which are just beginning to computerize the administration of criminal justice, is the development of guidelines and manuals. Two manuals, one on the Development of Criminal Justice

¹⁰ M. Joutsen, *International Cooperation: The Development of Crime Prevention and Criminal Justice in Central and Eastern Europe*, HEUNI Papers, No. 2, 1994.

Statistics¹¹, and a second on Computerization in the Management of Criminal Justice¹² have been published.

An important step in exchanging information about criminal justice computer applications has been accomplished with the publication of the Directory of Criminal Justice Information Systems, published by the European Institute for Crime Prevention and Control, affiliated with the United Nations (HEUNI)¹³. The Directory is a valuable reference for Member States to quickly determine which countries in their region or elsewhere have developed a system that may address their own needs. It is intended that this Directory will be maintained on a continuing basis. A second edition is scheduled for publication in 1996. Publication of the second edition on the Internet as well is under consideration.

The United Nations Latin American Institute for the Prevention of Crime and the Treatment of Offenders (ILANUD) developed a bibliographic data base, called Data Base Information Project, to provide national institutions with information on specific issues relating to criminal justice policy. This bibliographic data base, which currently has over 20,000 entries, is considered a pioneer in this field in Latin America. This project was expanded under a related project, Strengthening of Law Libraries in Latin America, wherein ILANUD provided technical assistance, training and equipment for the development of a prototype for the management of databases for law libraries, which was applied in five countries in the region. Through these projects¹⁴, ILANUD has supported national institutions in aspects related to the planning and design of information systems, and the transfer of experiences promoting the establishment of judicial information networks at national and regional levels.

B. Training and Education

Since the Eighth, the United Nations Asia and Far East Institute for the Prevention of Crime and the Treatment of Offenders (UNAFEI) has organized three regional Workshops on Computerization of Criminal Justice Information Systems (Fuchu, 5 - 12 November 1991, 26 October - 6 November 1992, and 1 - 8 June 1994) embedded in the UNAFEI international

¹¹ United Nations publication, Sales No. E.86.XVII.16.

¹² United Nations publication, Sales No. E.92.XVII.6.

¹³ HEUNI Publication Series No. 25 (R. Scherpenzeel, ed), Helsinki, Academic Bookstore, 1994, and Monsey, N.Y., Criminal Justice Press, 1994.

¹⁴ These projects have been carried out with financing from grants from the United States Agency for International Development (USAID).

training programme¹⁵. The participants were practitioners in various fields of criminal justice administration. The workshops were conducted under the guidance of visiting experts in computerization of criminal justice information¹⁶.

The workshops placed emphasis on the goals and objectives of computerization as well as on the expertise essential to planning and implementation computerization in criminal justice administration, and addressed a wide range of potential benefits which can be achieved at all stages of criminal justice proceedings from law enforcement, the prosecution, and the judiciary to corrections by employing appropriate computer applications, as well as key factors and critical success factors and guiding principles in introducing information technology in the criminal justice administration. Participants were also given hands-on experience with personal computer applications and an introduction to the Internet.

The curriculum of the workshops as well as the size of the classes and the composition of the classes (equal participation from the different agencies: law enforcement - prosecution - courts - correctional administration) has proved to be successful. Especially the composition of the classes has led to an improved understanding amongst the participants of the need for inter-agency co-operation in the introduction of computerization in the administration of criminal justice. The workshops were highly rated by the participants in an evaluation conducted by the faculty of UNAFEI at the end of the Training Courses.

At the invitation of the Ministry of Justice of China, the United Nations Interregional Crime and Justice Research Institute (UNICRI) organized a Seminar on Development and Policy Use of Criminal Justice Information in China (Beijing, 12 - 16 September 1994). Participants represented the Ministry of Justice of China, the Ministry of Public Security, the Public Prosecutor's Office, the Courts, and academic/research institutions. In addition, participants were selected from the senior management involved in the collection and analysis of criminal justice information¹⁷.

¹⁵ The 89th International Training Course on "Effective and Innovative Countermeasures against Economic Crime"; the 92nd International Training Course on "Quest for Effective Methods of Organised Crime Control"; the 97th International Training Course on "Effective Treatment of Drug Offenders and Juvenile Delinquents".

¹⁶ A compilation of the papers presented at the First UNAFEI Workshop has been published by UNAFEI: *Computerization of Criminal Justice Information Systems*, R. Scherpenzeel, E. Ratledge and A. Caplan, eds.

¹⁷ The proceedings of the Seminar were published by UNICRI in cooperation with the Ministry of Justice of the People's Republic of China and the Ministry of Justice of the Netherlands: *Development and Policy Use of Criminal Justice Information*, U. Zvekic, R. Scherpenzeel, Wang Lixian, eds., in both English and Chinese.

C. Needs Assessments - Technical Cooperation Projects

HEUNI has undertaken several needs assessment missions at the request of the Governments of Bulgaria, Poland, the Russian Federation and Slovenia¹⁸. The United Nations Department for Development Support and Management Services, in turn, funded needs assessment missions at the request of the Governments of Cuba and Nepal. The specific purpose of these missions was to determine the type of assistance that could be provided to national projects on the computerization of criminal justice management.

The needs assessment missions to Bulgaria and the Russian Federation have resulted in the following proposals:

- The organization of study-visits by senior executives and experts to study the developments in the computerization of criminal justice information in more advanced Member States¹⁹;
- The organization of Management-Seminars on "Principles of Computerization in the Management of Criminal Justice";
- The organization of training courses in system development methodologies and techniques;
- The development of pilot-projects for prosecution and court case-tracking and management systems and criminal records systems.

The United States Agency for International Development (USAID), on a bilateral basis within the framework of the Concept of Judicial Reform of the Russian Federation, has substantially supported the introduction of computerization into the administration of criminal justice of the Russian Federation. The USAID, seconded by the American Bar Association (ABA), carried out an assistance project for the development of a computerized administration of the jury trial. Computer equipment, hardware and technical expertise have been provided for the experimental implementation of a computerized jury trial administration in a number of courts throughout the Russian Federation.

¹⁸ The missions to Albania, Belarus, Bulgaria, Latvia and Poland were co-sponsored by the United Nations Development Programme; the missions to Slovenia were undertaken in cooperation with the Ministry of Justice of the Netherlands.

¹⁹ The Ministry of Justice of the Netherlands organized and hosted study-visits by senior executives and experts from the Russian Federation and the Republic of Bulgaria. These study visits were co-sponsored by the Council of Europe.

Through technical assistance and training, ILANUD assisted in the execution of an assessment of the administrative organization of the criminal courts in Guatemala City. This assessment has led to the design and the development of a computerized Court Administration Pilot Project.

Further, ILANUD provided technical assistance, training and equipment for the implementation of a Criminal Justice Statistics Pilot Project at the Supreme Court of the Republic of Dominica. This system is designed to provide comprehensive information on the overall and individual caseload of the courts at the different jurisdictional levels, and to provide a tool for planning and management of the criminal justice system. Plans are underway for replicating the project in the Republic of Nicaragua.

UNICRI carried out a project mission in Papua New Guinea with the aim of assisting in the development and coordination of crime and criminal justice information strategies and mechanisms, including the establishment of an appropriate infrastructure, such as a Bureau of Crime and Justice Statistics, and planning of local victimization surveys. Parties to the implementation will include the Australian Agency for International Development (AusAID).

D. United Nations Surveys of Crime Trends and Operations of Criminal Justice Systems and other International Crime Surveys

The United Nations has made a considerable effort in the promotion of the United Nations Surveys of Crime Trends and Operations of Criminal Justice Systems. The main objectives of the surveys and its potentials are:

- Promoting informed decision-making in the administration of criminal justice, nationally and cross-nationally;
- Stimulating Member States to develop their own systems of criminal justice information;
- Providing institutions and experts with criminal justice statistics as well as hypotheses for special research with the aim of improving the effectiveness of programmes to reduce and control crime;
- Providing Member States with an overview of and an opportunity to study the interrelationship between various parts of the criminal justice system.

1. United Nations Surveys of Crime Trends and Operations of Criminal Justice Systems

In pursuance of General Assembly resolution 3021 (XXVII) of 18 December 1972 the United Nations Secretariat carried out in 1976-1977 the first worldwide survey of crime trends, operations of criminal justice systems and crime prevention strategies for the period 1970-75. Since then, three additional surveys have been carried out covering the periods 1975-1980, 1980-1986 and 1986-1990²⁰.

The increasing importance of these world surveys, the propensity and capacity of countries to participate, and improvements in its methodology are revealed by the number of responding countries. A total of 64 countries responded to the First Survey. This number increased to 80 and 78 for the Second and Third Surveys, while over 98 countries/territories replied to the Fourth Survey.

2. International Crime (Victim) Surveys (IC(V)S)

Victim surveys provide a major indicator of the extent to which criminal policy is achieving its objectives as well as data that can be used in developing explanations as to why it is not achieving the stated objectives. The main objectives of the International Crime (Victim) Survey are:

- Promoting a crime prevention community and victim-centred strategy in line with the United Nations crime prevention and criminal justice programme;
- Promoting the systematic collection of accurate and reliable information as the basis for development of rational policies, analysis and evaluation thereof;

²⁰ A comprehensive review of the first two surveys was published in 1992 in: Trends in Crime and Criminal Justice, 1970-1985, in the Context of Socio-economic Change: Results of the Second UN Survey of Crime Trends, Operations of Criminal Justice Systems and Crime Prevention Strategies. In 1993, the results of the Second and Third Surveys were presented in: Crime Trends and Criminal Justice Operations at the Regional and Interregional Levels. At the regional level, and in connection with the Second and Third Surveys, HEUNI published: Criminal Justice Systems in Europe and Criminal Justice Systems in Europe and North America; UNAFEI produced: Delineation of Crucial Issues of Criminal Justice in Asia, and together with the Australian Institute of Criminology: Crime and Justice in Asia and the Pacific. The Latin American Institute for the Prevention of Crime and the Treatment of Offenders, ILANUD prepared a report on the results of the Third Survey. The results of the Fourth Survey were presented at the Ninth United Nations Congress in an interim report by the Secretariat (A/CONF.169/15 and in the regional reports by the institutes.

Furthermore, UNICRI and the Secretariat are preparing the first global report, entitled "Crime and Justice in the World". It is envisaged as a regular biennial publication, following ECOSOC resolution 1992/22, section I which calls for surveys to be conducted on a biennial basis.

- Promoting information/research and policy use of the victimization surveys on local, national and international levels;
- Promoting international comparative research;
- Providing technical cooperation projects;
- Providing internationally comparable crime and criminal justice databases.

Before the International Crime (Victim) Survey was launched in 1989 crime (victim) surveys were carried out only in a small number of industrialized countries. The potential of victim surveys for comparative purposes led to the first and second international victim surveys carried out in 1989 and 1992, coordinated by an international working group, and encompassing all together some forty industrialized, developing, and Eastern and Central European countries²¹.

The International Crime (Victim) Survey results help put local crime problems in an international comparative perspective. In many countries the public view is probably that crime is a national plague for which local shortcomings are to be blamed. There may well be little awareness that other countries with different politically oriented governments and/or different social infrastructures face similar problems. Moreover, the survey results dismiss the notion of high crime rates as unique to just a few selected industrialized countries. Indeed, many countries suffer from an appreciable level of property and violent crimes particularly in more urbanized areas. It should be pointed out that the results of the victim surveys need to be put in the context of other studies and information related to crime-generating and crime-reducing processes.

3. International Survey of Crimes Against Businesses (ISCB)

Both the United Nations Surveys of Crime Trends and Operations of the Criminal Justice Systems and the International Crime (Victim) Surveys focus mainly on individual actors. The International Survey of Crimes against Businesses focus on organizations and groups, both as actors and victims in the criminal process.

²¹ The results of the second survey were presented in: A. Alvazzi del Frate, U. Zvekic, J.J.J. van Dijk (eds.) *Understanding Crime: Experiences of Crime and Crime Control*, UNICRI publication No. 49, 1993, United Nations publication, Sales No. E.93.III.N.2; for developed countries in: J.J.M. van Dijk and P. Mayhew *Criminal Victimization in the Industrialized World*, Ministry of Justice of the Netherlands publication, 1992; for the developing countries in: U. Zvekic and A. Alvazzi del Frate (eds.) *Criminal Victimization in the Developing World*, UNICRI publication No. 55, 1995; the analysis of women's victimization in the developing world was presented in: UNICRI Issues & Reports series No. 55, A. Alvazzi del Frate, A. Patrignani, 1995.

The International Survey of Crimes against Businesses has been launched²² with the objectives to show, inter alia:

- The total costs of crime incurred by business per country;
- What types of crime are most common;
- Investments in security made by business;
- Level of satisfaction with local police.

E. United Nations Crime and Justice Information Network

One of the powerful mechanisms for improving communication between Member States is the United Nations Crime and Justice Information Network (UNCJIN), a computer network established in pursuance of Economic and Social Council resolution 1986/11 to facilitate the exchange of information among criminal justice policy makers, professionals and researchers around the world. UNCJIN encompasses three basic dimensions: an electronic mail facility, databases and access to other computer networks and their databases and services.

UNCJIN operates on Internet, one of the world's largest computer networks, with nearly 30 million members. Through Internet, UNCJIN has developed its own electronic discussion group of about 500 participants, who exchange views on current crime and justice issues. By facilitating the crossnational exchange of information and ideas, UNCJIN provides the international community with an important service, which for three years was financially supported solely by the Bureau of Justice Statistics of the United States Department of Justice and in the current fiscal year has, in addition, been supported by the National Institute of Justice, of the same Department. At the initiative of the Crime Prevention and Criminal Justice Branch, and as UNCJIN will be transferred to the Branch, a larger information project involving technical assistance from the National Institute of Justice is being considered. The project, tentatively named "United Nations Online Crime and Justice Clearing-house", would utilize a search and communication programme known as World Wide Web to relay crime-related data to and from Governments via the Branch and the institutes comprising the United Nations crime prevention and criminal justice programme network.

²² The survey is coordinated by the Ministry of Justice of the Netherlands, the Home Office, United Kingdom, and the Australian Institute of Criminology. Pilot studies were carried out in 1993 in the United Kingdom and the Netherlands, and a full-fledged survey in Australia. At the time of writing of this report the survey is being implemented in the United Kingdom, the Netherlands, Switzerland, Germany, France, Italy, Spain, South Africa and Indonesia.

FUTURE DIRECTIONS OF INTERNATIONAL COOPERATION

General Assembly resolution 45/109 of 14 December 1990 embodied the conceptual framework for a technical cooperation programme on computerization of criminal justice information. The European Institute for Crime Prevention and Control (HEUNI), the United Nations Asia and Far East Institute for the Prevention of Crime and the Treatment of Offenders (UNAFEI), the United Nations Interregional Crime and Justice Research Institute (UNICRI), the Department of Development Support and Management Services, the United Nations Development Programme (UNDP), several Member States as well as the private sector contributed to the implementation of this programme. A careful consideration of the nature and extent of activities that have been undertaken suggests that the technical cooperation programme has had a successful and promising start.

Although priority was assigned to the programme, and in spite of several years of successful technical cooperation projects, the United Nations, however, has not yet established an appropriate infrastructure for planning, implementation, monitoring and evaluation of projects. In implementing the complex technical cooperation programme, the United Nations Crime Prevention and Technical Cooperation Programme has only one expert available through the good offices of the Ministry of Justice of the Netherlands, at the request of HEUNI. It is critical that a more structured framework be developed. An international technical cooperation infrastructure is an important tool in facilitating Member States access to competent resources and knowledge of existing programmes and projects. Strengthening of the technical cooperation capacity of the United Nations Crime Prevention and Criminal Justice Programme is needed if the programme is to meet the needs of Member States. Partnerships with the private sector should also be explored.

The following are some of the components of such an infrastructure and proposed activities in the near term.

A. Expert Group

General Assembly resolution 45/109 envisaged that a group of experts would be established on technical cooperation activities in the area of criminal justice information, and a second group of experts would advise on the future design, development and implementation of crime and related surveys. Since there were no funds to establish such groups, even though priority was assigned to their establishment, the General Assembly resolution has not been implemented.

Extrabudgetary support would be required for the establishment of such expert groups. For instance, it might be possible to recruit high-level experts through arrangements similar to those worked out between the Ministry of Justice of the Netherlands and the

European Institute for Crime Prevention and Control; or Member States might wish to participate in technical cooperation projects by seconding middle- and high-level computer and statistical staff. Such approaches would be in line with the programme priorities set out in General Assembly resolution 46/152, annex. The Economic and Social Council, in its resolution 1993/34, section IV, requested the Secretary-General to continue and to intensify efforts directed at the modernization of criminal justice techniques and administration, giving special attention to the needs of developing countries, including the introduction of compatible information technology to facilitate the administration of criminal justice and to strengthen practical cooperation on crime control between Member States. The Commission on Crime Prevention and Criminal Justice, in its resolution 3/3, called on Member States, interregional and non-governmental organizations and the private sector to assist the Secretary-General in establishing a group of experts on computerization of criminal justice information as envisaged in General Assembly resolution 45/109.

B. Roster of Experts, Organizations and Resource Materials

Additional components of an infrastructure for international technical cooperation would include the development and maintenance of an up-to-date roster of individuals and organizations, as well as the establishment of resource materials on cooperation activities undertaken by the United Nations and other international agencies. Several important activities are already underway in this direction.

C. Needs Assessment

An important component of the technical cooperation programme on computerization of criminal justice information embodied in General Assembly resolution 45/109 is expert advice to Member States in the initial phase of introducing computerization in the criminal justice administration in carrying out an assessment of needs for computerization. Assessment of needs is a basic prerequisite for the successful introduction of computer technology in criminal justice.

Lessons learned from the needs assessment missions undertaken in the areas of computerization of criminal justice operations and the development of criminal justice information systems suggest that the success of needs assessment missions require thorough planning and preparation both on the part of the executing agency as well as the recipient. These missions also indicate that it is necessary to establish consistent and lasting political commitment at the executive and senior levels of the Member State. Member States are responsible for establishing their own national priorities. If the government is not committed to the appropriate development and use of criminal justice information mechanisms little will be gained from need assessment missions and the recommended follow-up activities.

D. Training and Education

A major element in the introduction of computerization into the criminal justice system and the development and use of criminal justice information is education and training. Careful consideration needs to be given to who should be trained, when they should be trained in relation to the actual introduction of computerization, what aspects of information technology do the respective users need to learn, and what methods will be used to train. One can identify a number of possible areas for training each of which is targeted to a different audience:

- Training at the strategic level oriented toward the policy maker;
- Training for managers who run the systems;
- Training of the technicians in systems software, hardware, and data communication;
- Training of those involved in justice statistics in data collection and analysis;
- Training of the end-user of the computer application(s).

Information is vital for each group, but the type of information, the method by which effective training can be delivered, the type of person who must deliver the training, and the tools necessary for training will differ.

First, there must be a small cadre of well trained professionals within the Member State who conceptually understand the advantages and disadvantages of introducing criminal justice information mechanisms in order that the executive and senior levels of government can be properly briefed on the importance of making a consistent and lasting political commitments. It is critical that the appropriate professionals are properly trained in the planning and implementation of criminal justice information mechanisms. These professionals represent the cornerstone in the Member State's ability to establish the capacity to develop and maintain such mechanisms.

Until Member States can turn to their own trained professionals for guidance on this important issue, the technical cooperation programme will have difficulty achieving its ultimate goal, i.e. assisting Member States in building appropriate criminal justice information mechanisms to administer a fair and efficient system of justice. To obtain lasting results, special briefing sessions should be arranged for the decision makers, to enable them to translate the principles presented in the training seminars into actual technical cooperation projects.

The United Nations institutes clearly can play a leading role in providing such training. The European Institute for Crime Prevention and Control (HEUNI), in particular, has developed a design for training seminars tailored to senior criminal justice officials, to acquaint them with the process of computerization, and with their key role in this process. The United Nations Asia and Far East Institute for the Prevention of Crime and the Treatment of Offenders (UNAFEI) is to be commended for its ongoing commitment to organizing workshops on the introduction of computerization in the administration of criminal justice. The United Nations Interregional Crime and Justice Research Institute (UNICRI) has gained experience in training in research methodology and development, management and policy uses of criminal justice information, both the official statistics and those derived from victimization surveys. Special manuals on research methodology and administration of victim surveys were created and are available in several United Nations languages. The experience gained by UNAFEI, HEUNI and UNICRI in developing and conducting training seminars might serve as a solid basis for further work. Where possible, comprehensive training projects should be included in the United Nations Development Programme country programmes, as a way of augmenting national capacities and promoting sustainable development.

E. Participation in International Endeavours

Participation in the United Nations Crime Surveys and in other international surveys is in itself an important forum of international cooperation. It assists in the exchange of information, training of local personnel, and local as well as international dissemination of the results. Therefore, the Crime Survey as well as the International Crime (Victim) Survey have a potential to contribute to the development of data collection and analysis infrastructures at the national level. Consequently, major efforts should be put into providing technical assistance to countries in need of such support.

Another important modality of technical cooperation is the provision of opportunities to Member States to participate in international conferences and information networks. These allow for updating information on recent developments in the areas of criminal justice information, computerization, research and statistical analysis as well as in on-going exchange of information on international level. In addition to the membership in established networks, interested parties are encouraged to develop informal contacts with experts in other countries through the information networks.

F. Evaluation of Technical Cooperation Projects

As with any other projects it is important to provide for critical evaluation of the outcome of technical cooperation activities. Special attention needs to be given to the follow-up mechanisms to training courses and advisory missions. Training courses should

also incorporate methodologies for evaluation of data sources, surveys and their impact as well as the appropriateness of adopted or suggested computer application. Evaluation and advisory missions to local agencies can assist in developing adequate data collection, processing and presentation.

CONCLUSIONS

One of the most important challenges for the United Nations technical cooperation activities in the fields of computerization and development of criminal justice information is to build and maintain the institutional capacity of the crime prevention and criminal justice programme to respond to requests from Member States for assistance in this field.

Future activities require more funding, more planning and more coordination within the United Nations Crime Prevention and Criminal Justice Programme itself, and more focused efforts in expanding funding and assistance from and to Member States, as well as collaboration with other United Nations entities, intergovernmental, governmental and non-governmental organizations and the private sector.

The United Nations funding agencies should include the development of criminal justice information mechanisms in their funding efforts and cooperate with the Crime Prevention and Criminal Justice Programme in planning and implementing relevant activities. Involvement of and close cooperation with the United Nations Development Programme (UNDP), and the Department for Development Support and Management Services is of the utmost importance. This also requires the sensitization of national planning offices and of the UNDP Resident Representatives to the needs and possibilities of assistance in this field, and to the priority accorded to them by Member States and United Nations policy-making bodies.

In addition to the involvement of the United Nations Development Programme and the Department for Development Support and Management Service, innovative partnerships to finance projects could be explored with the World Bank, the Organization for Economic Cooperation and Development, the Council of Europe, regional development agencies and national developmental aid agencies, regional development agencies, and the private sector.

Technical cooperation may be financed by a loan that the receiving country will be committed to repay. It may also be financed by a non-reimbursable grant, but even this form of financing most likely results in important direct and indirect costs to the recipient. These include a matching contribution to the project (e.g. office space and equipment, hosting, salaries of local staff), which the donor agency may expect.

Suggestions as to the components of the infrastructure of the Crime Prevention and Criminal Justice Programme in the area of criminal justice information and computerization are directed towards increasing the programme capacity for effectively and efficiently planning, coordinating, funding, executing and evaluating. Only then can a systematic structure of international cooperation and assistance to Member States become a reality.

PART ONE

Workshop

International Cooperation and Assistance in the Management of the Criminal Justice System

2 - 3 May 1995

PROGRAMME

Tuesday, 2 May 1995

- 10:00 **Opening.**
Chairman
- 10:05 - 10:15 **Introduction: Objectives and Structure of the Workshop.**
Coordinator - Moderator
- 10:15 - 10:45 **Key-Note Presentation on Changes in Computerization and the Policy Use of Criminal Justice Information.**
Change at the Speed of Light: Doing Justice in the Information Age.
J. David Coldren, Office of International Criminal Justice, University of Illinois at Chicago, United States of America
- 10:45 - 11:15 **Prerequisites for Improved Management of the Criminal Justice System.**
Edward C. Rattledge, College of Urban Affairs and Public Policy, University of Delaware, United States of America
- 11:15 - 12:15 **Coordinating the Introduction of Computerization in the Criminal Justice System.**
- Coordination of Computerization within the Criminal Justice System of England and Wales.**
Christopher G. Lewis, Research and Statistics Department, United Kingdom
- Computerization of Criminal Justice in The Netherlands: Challenges and Solutions.**
Henk A. van Brummen, Ministry of Justice, The Netherlands
- 12:15 - 12:40 **The Need for International Cooperation in Combating Computer Crime.**
Donald K. Piragoff, Department of Justice, Canada
- 12:40 - 13:00 **Questions and Comments from the Delegations and Participants.**
- 13:00 - 15:00 **Lunch break.**

15:00 - 15:20

Controls and Legal Safeguards: Data Protection with regard to Automated Processing of Personal Data

Introduction.

Moderator

Council of Europe Convention 108 on the Protection of Individuals with regard to Automated Processing of Personal Data.

Peter Czonka, Directorate of Legal Affairs, Council of Europe

15:20 - 15:30

Questions and Comments from the Delegations and Participants.

15:30 - 18:00

The Use of Criminal Justice Information in Management and Policy Formulation.

Key-Note Presentation

Criminal Justice Research and Public Policy in the United States.

Jeremy Travis, National Institute of Justice, United States Department of Justice

Examples from Different Jurisdictions.

Developing Justice Statistics Mechanism: Canadian Experience.

Sange de Silva, Canadian Centre for Justice Statistics

The Use of Criminal Justice Statistics in Criminal Justice Policy in England and Wales.

Christopher G. Lewis, Research and Statistics Department, United Kingdom

Statistical Information on Crime and its Use in Crime Control.

Gennady L. Lezhikov, Main Information Centre, Ministry of the Interior, Russian Federation

Assessing the Costs and Benefits of Crime Control Strategies.

Jan J.M. van Dijk, Ministry of Justice, The Netherlands

The National Criminal Justice Reference Service: NCJRS On-line

G. Martin Lively, National Institute of Justice, United States Department of Justice

Panel Discussion.

Wednesday, 3 May 1995

- 10:00 - 10:20 **Summary of the First Day and
Introduction to International Cooperation.**
Rapporteur
- 10:20 - 13:00 **Communications and the Exchange of Information.**
- Progress Report on the Fourth United Nations Survey of Crime Trends
and Operations of Criminal Justice Systems (1990 - 1994)**
Slawomir Redo, Crime Prevention and Criminal Justice Branch, Vienna
- Regional Reports**
- HEUNI "Criminal Justice Systems in Europe and Northern America"**
Matti Joutsen, European Institute for Crime Prevention and Control, HEUNI
- UNAFEI/AI "Crime and Justice in Asia 1986-1990"**
*Kunihiko Horiuchi, United Nations Asia and Far East Institute for the Prevention of
Crime and the Treatment of Offenders*
- UNAFRI "Crime and Justice in Africa 1986-1990"**
Eric Kubuka
- Responses to Crime across the World:
Results of the International Crime (Victim) Survey.**
Jan J.M. van Dijk, Ministry of Justice, The Netherlands
- The International Crime (Victim) Survey in the Developing World**
*Ugljesa Zvekic/Anna Alvazzi del Frate, United Nations Interregional Crime and
Justice Research Institute*
- The United Nations Crime and Justice Information Network - Present
and Future Dimensions; towards the Establishment of the United
Nations Online Crime and Justice Clearinghouse.**
*Slawomir Redo, Crime Prevention and Criminal Justice Branch, Vienna
G. Martin Lively, National Institute of Justice, United States Department of Justice*
- Questions and Comments from the Delegations and Participants.**
- 13:00 - 15:00 **Lunch break.**

15:00 - 18:00

Technical Cooperation Activities in the Computerization of Criminal Justice Operations and in the Development, Analysis and Policy Use of Criminal Justice Information.

Technical Cooperation Activities Underway within the Framework of the United Nations Crime Prevention and Criminal Justice Programme

UNAFEI's Contribution to the Programme

Kunihiro Horiuchi, United Nations Asia and Far East Institute for the Prevention of Crime and the Treatment of Offenders

HEUNI's and UNDP's Contribution to the Programme

Richard Scherpenzeel, European Institute for Crime Prevention and Control

UNICRI's Contribution to the Programme

Ugljesa Zvekic, United Nations Interregional Crime and Justice Research Institute

Future Directions of International Cooperation

Introductory Statement

Matti Joutsen, European Institute for Crime Prevention and Control

General Discussion and Future Directions of International Cooperation

**Changes in Computerization and the Policy Use
of Criminal Justice Information**

CHANGE AT THE SPEED OF LIGHT: DOING JUSTICE IN THE INFORMATION AGE

*J. David Coldren*¹

INTRODUCTION

Change is never easy. And yet in the criminal justice system, change is the one thing we can count on to be always with us. Sometimes it seems that the more things change, the more they stay the same. In the words of a famous American football player and philosopher, Yogi Berra, "It is *deja vu* all over again".

The Office of International Criminal Justice, University of Illinois at Chicago, has been invited to review the changes in the way we are using computers in the criminal justice systems since the Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders Congress in Havana five years ago. During the Workshop on Computerization of Criminal Justice Information at the Ninth United Nations Congress, a number of experts who have been deeply involved in the application of computer technology to the operations of criminal justice agencies throughout the world presented reports. Their presentations demonstrate that the world has clearly entered into the Information Age. This is an era in which the creation and exchange of information is impacting all of us. This is an era in which technological innovations have opened up entirely new and exciting opportunities for all nations, from the least developed to the most highly advanced. The possibilities for international cooperation and technical assistance have never been more obtainable.

This paper focuses on five general trends that can help understand these opportunities:

- First, the convergence of information technologies and the increasingly widespread availability of those technologies to the world's citizens;
- Second, security and privacy measures required by increasing use of information collected and maintained by criminal justice agencies for purposes not directly related to the administration of justice and the need for us to make sure our systems are secure, contain accurate and complete information, and maintain a respect for individual privacy and human rights;

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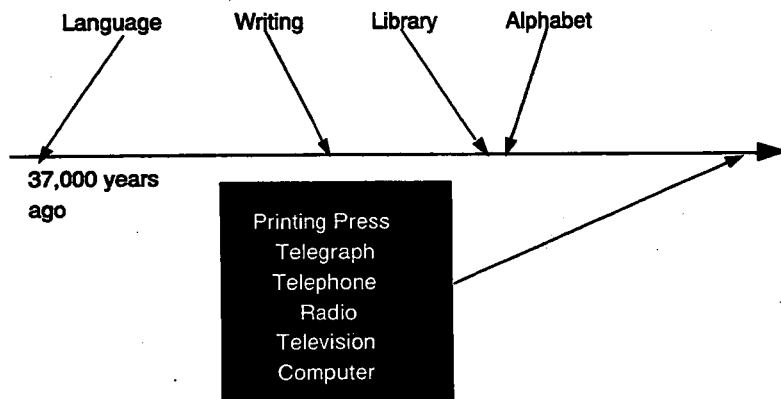
- **Third, new policing paradigms: the re-definition of what constitutes criminal justice information as many jurisdictions more from the more traditional paradigm of law enforcement to an emphasis on law observance and crime prevention;**
- **Fourth, crimes in cyberspace and the emergence of a new criminal class that observes no national boundaries and engages in the theft of intellectual property and the illegal manipulation of information vital to nations' commerce and security; and, finally,**
- **Fifth, the tremendous opportunities for international cooperation and technical assistance that arise from the growth of the Internet.**

CONVERGENCE

One of the changes in information technology that has become increasingly obvious in the last five years is the convergence of communications and computing technologies. It was once possible to talk about printing presses, telephones, telegraphs, radios, televisions, and calculating machines as distinct technologies, each with its own intended function, history, and future. Today, those distinctions are blurred and it is no longer useful to talk about one without the others.

It is useful, though, to reflect on the evolution of information technologies and the dramatic increase in the speed which they are arriving on the scene.

Communications Innovations



It began, anthropologists tell us, about 37 thousand years ago with a primitive language developed by the Cro-Magnon man inhabiting Europe in the late Paleolithic Era. Then, about 31 thousand years later (6 thousand years ago) came the clay tablets of the Sumerians and an early form of writing. During the next three thousand years, Ramses II established a great library here in Egypt containing more than 20 thousand papyrus scrolls and the Greek alphabet appeared.

The pace of change was already picking up and the speed of innovation was increasing exponentially:

- 500 years ago, the printing press;
- 160 years ago, the telegraph;
- 120 years ago, the telephone;
- 95 years ago, the radio;
- 50 years ago, television.

In the past half-century, the changes have come dizzyingly fast. Ten years ago, when this Congress was held in Milan, we could say that more new forms of communications had evolved in the last 150 years than in all of the preceding 360 centuries. Today, it is clear that in just the past 50 years, more usable forms of communications have been invented than in all of human history.

These advances in communications technology have permitted an astronomical increase in the amount of technical information available to people.

500 years ago, it is estimated that there were about one thousand books produced in Europe each year. By 1970, Alvin Toffler estimated that the world's output of technical information amounted to about 60 million pages a year. Now, some people believe that - even without counting the output of newspapers, magazines, and printing advertising - the world produces more than 500 million pages of new technical information in fields as diverse as medicine, nuclear physics, astronomy, law, and criminal justice each year. (Judging by the volume of the mail of the Office of International Criminal Justice from the Crime Prevention and Criminal Justice Branch, the United Nations must produce at least half of that volume by itself).

Fifty years from now, it is likely that everything we know today will be only 5% of what we will know then.

None of this, of course, could have been achieved without the growth of electronic data processing: computers. The good news is that the costs of applying this technology have been going down faster than in any other field.

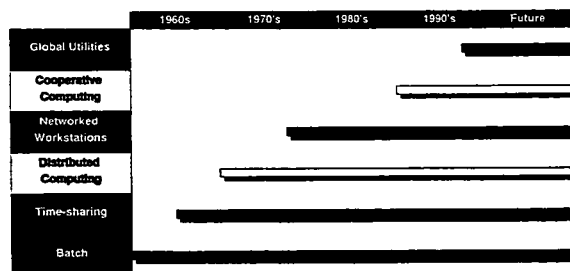
If airplane technology had kept up with the price/performance improvements of the computer industry, we would have skies full of supersonic aircraft carrying thousands of passengers each at 20 thousand miles per hour for less than \$ 1 per passenger. Since 1960, the price of a unit of computer power has declined about 6,000 fold. If the same improvements had been made in other areas of the world economy, a Rolls-Royce would cost about \$ 15.00 and fifteen minutes of work would buy a year's worth of groceries.

In 1991, for the first time, the world's producers of goods and services spent more on computing and communications equipment than they spent on agricultural, construction, mining, and other more traditional industrial capital equipment. It can truly be said that the Industrial Age has given way to the Information Age.

When you receive one of these little greeting cards that plays a tune like "Happy Birthday" as you open it, you are holding in your hands more computer processing power than existing in the entire world before 1950. A home video camera today has more raw computing power than the venerable, mainframe computer that ran so many industries and government organizations in the 1960s.

All of this progress has been possible because of the convergence of communications and information technologies operating at the speed of light. For those of us entrusted by our citizens with the responsibilities for managing law enforcement, prosecution, judicial, and correctional agencies, the opportunities for improving the way we do justice in the Information Age are almost limitless.

Computing Innovations



In the computer business, the last thirty years have seen an evolution from:

- Batch computing and timesharing in the 1960s; to
- Distributed computing in the 1970s; to
- Networked personal computing in the 1980s; to
- Cooperative computing in the 1990s: and toward
- Global information utilities as we approach the year 2000.

As we have learned to exploit the convergence of communications and information technologies, we have seen changes in the ways organizations have deployed computers; from

- Highly centralized reliance on mainframe computers operated by highly specialized personnel in the 1970s; to
- Mini-computers linked to mainframes serving work-groups in the first half of the last decade; to
- Micro-computers networked with mini-computers and mainframes serving individuals at work and at home in the late 1980s; to
- Complex networks of client computers accessing data on server computers on a global scale as the Internet in the 1990s; to the emergence of
- Information appliances that will bring the power of the world's information and communications resources to individuals wherever they are in ways that are as easy to operate as a television set.

In fact, it is likely that television sets in people's homes linked interactively with fast information networks will be the fastest growing mode of information distribution when this Congress reconvenes five years from now.

To keep all of these marvels in perspective, it is humbling to realize how primitive all of this computing power is compared with the human brain: an electro-chemical device weighing in at about 3 pounds, taking up about one-half cubic foot of space, and operating on glucose at about 30 watts. Scientists estimate that our brains contain the equivalent of 100 trillion transistors and process about 100 quadrillion functions per second.

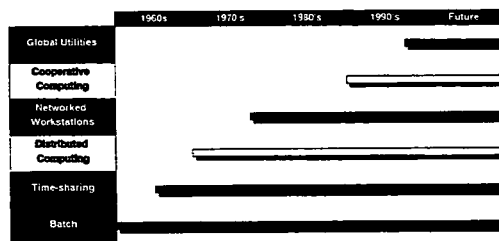
In the criminal justice field, two other related technologies that are of particular importance to us have become widely available and affordable in the past five years:

- biometric devices that can capture and transmit fingerprints and DNA information to centralized databases for automated identification of suspects and victims; and
- computer-assisted imaging that allows us to remotely monitor public spaces to detect illegal and dangerous activities.

Both of these technologies are in their infancy. There are major research and development efforts underway in several Member States that will bring significant efficiencies to law enforcement in both preventing and solving crimes within the next few years.

Convergence has also brought to the market relatively inexpensive personal communicators that police officers and correctional personnel can carry with them. These are really miniature personal computers that take advantage of wireless cellular or radio communications. They give the officers instant access to support personnel and centralized databases to protect themselves and to allow them to provide important - sometimes life-saving - information to citizens in distress.

Computing Innovations



In the background paper² for this workshop, there is a discussion of the four types of information commonly found in modern criminal justice information systems:

- archival information;

² A/CONF. 169/3, para. 33.

- strategic information;
- case management information; and, perhaps most importantly,
- tactical information.

This is a good overview of the kinds of information that are necessary for the efficient and humane administration of justice.

But if we are to take advantage of these systems, we have to be able to deliver information to the people who need it when they need it. The convergence of information and communications technologies has made these delivery systems relatively affordable and will be, within the next few years, well within the reach of most criminal justice agencies.

SECURITY AND PRIVACY

The Information Age is not without its perils. Just as the inventions of the automobile, airplane, and telephone changed forever both the nature of criminal enterprises as well as how we deliver criminal justice services to our citizens, the information revolution offers some difficult challenges. As we accumulate more and more information about individuals in order to protect them from crime and to track down and deal with those who commit criminal acts and as these databases become available to more and more people via computer networks, we have a responsibility to protect that information and to make sure it is accurate and complete.

It is more difficult every day to keep secrets and to protect personal information and important business transactions from unauthorized access. As more governments acknowledge that ideas and information know no bureaucratic or national boundaries and as they adopt the spirit - if not the details - of glasnost, we need to be aware of the lasting harm that inaccurate information - especially information about arrests, prosecutions, convictions, and confinements - can have on individual citizens.

One of the guiding principles adopted at the Seventh United Nations Crime Congress in Milan was that "safeguards should be established concerning the use of modern technology and computer systems so as to avoid possible violations of the right to privacy and other human rights"³.

³ Guiding Principles for Crime Prevention and Criminal Justice in the Context of Development and a New Economic Order, adopted by the Seventh United Nations Congress, Milan, 26 August - 6 September, 1985 and endorsed by the United Nations General Assembly in resolution 40/32.

In the United States, the Congress and several State legislatures have passed laws within the past five years making criminal history record information available to non-criminal justice agencies for employment and licensing purposes. Teachers, bus drivers, and other child care workers are required to submit fingerprints which are then used to determine if they have any prior arrests or convictions for crimes that might make them unfit for such employment. This trend is accelerating and the records that were formerly relied upon only by criminal justice officials are now available for much wider scrutiny. Potential violations of individual privacy and the denial of employment opportunities due to improper identification procedures and accurate or incomplete records have increased substantially.

It is almost impossible and usually undesirable to try to keep from public access records of official acts taken by criminal justice officials and maintained in databases at public expense. In an Information Age, it is possible to enforce a policy of mandatory amnesia. But that does not excuse sloppy record-keeping and the potentially harmful release of false information. We need to apply stringent controls on our collection and maintenance of information and to perform regular, independent audits of criminal justice information systems to improve the accuracy and completeness of those systems. Computerized information systems are much easier to audit and to keep current than rooms full of file cabinets containing paper records. We need to make sure, however, that those audits actually take place and that there are effective sanctions for wilful tampering with the truth.

NEW POLICING PARADIGMS

One of the other trends that has become the subject of much advocacy and discussing among criminologists is the gradual shift from a mode of law *enforcement* - in which policy and prosecutors primarily react to reports of law violations - to a paradigm wherein police and prosecutors promote law *observance* and crime prevention. This change in the United States and other Western democracies goes under various rubrics; usually problem-oriented policing or community policing. In Chicago, we call it Chicago's Alternative Policing Strategy.

Problem-oriented policing places a severe strain on our traditional information systems. The way we kept track of our operations under the old model was to count citizen complaints, calls for services, arrests, prosecutions, convictions, and incarcerations. Police officers were - and still are in many jurisdictions - evaluated on the number of arrests they made. How do we keep track of non-events? Arrests that are not necessary because police officers took effective preventive measures? How do we evaluate prosecutors when the object is not necessarily to obtain the most convictions or get the longest sentences? How do we judge the effectiveness of our correctional systems when we start using more diversion programmes and alternatives to incarceration?

It is becoming clear that the paradigm of crime prevention or problem-oriented policing requires a much more imaginative database in order to establish meaningful strategies and evaluation programmes than simple counts of arrests, convictions, and incarcerations. We need to know more about the conditions under which the people live, the levels of unemployment, the informal community leadership structure, and the shortcomings of our social service delivery systems.

As we re-think the ways we do justice in the Information Age, those of us who design information systems or have responsibilities for developing and maintaining them need to think creatively about making problem-solving information available to our policy officers, prosecutors, judges, and correctional administrators when they need it and where they need it. We need to rely on the best thinkers in the world and to share our ideas and experiences with our colleagues because we can all benefit from such efforts.

The United Nations Crime Prevention and Criminal Justice Branch as well as the regional and inter-regional institutes can perform an important service to all of us by providing forums for discussions and evaluations of these ideas as Member States cope with these challenges.

CRIMES IN CYBERSPACE

This is neither the time nor the place for a lengthy discussion of computer crimes. There have been international conferences on computer crimes and there will be many more in the future. But it is important to note for the record that the widespread availability of computer and communications technology is not an unmitigated blessing. New crimes against which we are almost totally unprotected are being carried out each day. Our laws are inadequate and they always will be inadequate as long as the pace of change continues at the present rate.

One thing seems quite certain: no jurisdiction is immune from the mischief that can be caused by unauthorized access to - or tampering with - electronic information stored in databases or while in transit over communications networks. Criminal justice agencies need to stay abreast of current technological developments and Member States should work cooperatively to protect our information resources.

There is an interesting paradox involved here. On the one hand, if the benefits of the Information Age are to become truly global, electronic resources should be as accessible and as inexpensive as possible. Overly severe restrictions on the dissemination of information will greatly retard the growth of the networks and reduce their benefit to mankind. On the other hand, creators of intellectual property deserve to have the fruits of their labours protected

from unauthorized access and criminal theft. In a world where the true universal currency is not the dollar or the yen or the pound sterling but the megabyte, the protection of copyrights and proper compensation for the originators of creative works is of increasing importance to criminal justice agencies.

The United Nations manual on the prevention and control of computer-related crime, which was drafted at the initiative and with the support of the Government of Canada, provides a solid introduction to the topic and you will find its citation in your background paper⁴.

THE INTERNET

The final observation is about the tremendous opportunities for international cooperation and technical assistance afforded by the growth of the Internet throughout the world.

The Internet is a wonderful example of Isaiah's exhortation to beat swords into ploughshares⁵. Its genesis was in 1957 when the former Soviet Union launched Sputnik, the earth's first artificial satellite. In response to that act of considerable technical achievement, the United States Department of Defense, established the Advanced Research Projects Agency (ARPA) to coordinate the development of science and technology for military use.

In order to link up computers at government and university laboratories in the United States that were doing this research and to assure that there was no single point of failure in the planned network, a RAND Corporation scientist wrote a paper⁶ in 1962 describing a highly reliable and redundant distributed communications network. With that paper, several more years of research, and a few million defense dollars, the progenitor of today's Internet was born.

The first node was established at the University of California at Los Angeles in 1969 and soon after it was linked up with three other computers in California and Utah. By 1971, there were 15 nodes and 23 host computers on what was then called the ARPANET. The United Kingdom and Norway connected to the ARPANET in 1972, making it a truly international enterprise. By 1984, the United States military had built their own network and

⁴ A/CONF. 169/13 para. 40.

⁵ "They shall beat their swords into ploughshares, and their spears into pruning hooks, nation shall not lift up sword against nation, neither shall they learn war any more": Isaiah, 2:4.

⁶ On Distributed Communications Networks, Paul Baran, RAND Corporation, 1962.

they left the ARPANET. Despite their departure, the number of host computers on the network reached over one thousand and Japan joined the network. In 1986, the funding for the network was transferred from the Defense Department to the National Science Foundation with financial support from the national Aeronautics and Space Administration and the Department of Energy. The number of host computers on the network passed 10 thousand and commercial vendors began to support the network on a voluntary basis. Two years later - in 1989 - the number of host computers on the network surpassed 100 thousand.

In 1990, at the time of the last United Nations Crime Prevention Congress, the ARPANET ceased to exist and it was officially reborn as the Internet. Two years later - in 1992 - the number of host computers on the Internet reached one million: the largest network of computing power in the history of mankind.

The Internet Society predicts that, by the year 2000, there will be in excess of 187 million Internet host computers throughout the world.

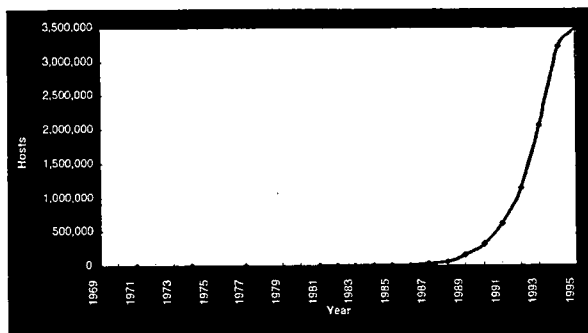
Moreover, the rate of growth for inter-connected networks is greater in nations outside the United States.

Up until about 1993 - just two years ago - most of the users of the Internet were college and university professors, researchers, and students, who sent electronic mail to each other across the world, scientists, who transferred computer files back and forth, and a few hardy individuals who learned to master the somewhat arcane syntax of the Internet's computers. Then a student at the University of Illinois at Urbana-Champaign wrote a software programme called Mosaic that made it easy - and almost fun - to use a specialized part of the Internet called the World Wide Web. The Web was an idea developed at the European Particle Physics Laboratory in Geneva about 1990 based on hypertext: the capability to retrieve documents from computers all over the world by simply clicking a computer pointing device on a highlighted word or phrase.

Today, the World Wide Web is the single most exciting communications medium anywhere in the world and its potential for linking up criminal justice professionals throughout the world is virtually unlimited. There are Internet connections in most countries and on all continents.

At last count, the Internet consisted of more than 3.5 million host computers assembled into collections of more than 20 thousand networks. Depending on whom you ask, the average daily population of the Internet - the number of people with computer terminals who can access it - ranges from 13 million to more than 30 million. Nobody really knows for sure. What we do know is that almost every minute around the clock, a new computer is being linked to the World Wide Web.

Internet Host Computers



Anybody with a relatively recent vintage personal computer or workstation, a communications modem, and a telephone line can connect to the Internet, retrieve free software, and begin browsing the World Wide Web or sending electronic mail to colleagues on every continent.

The United Nations Crime Prevention and Criminal Justice Branch has developed an assortment of information that can be accessed by anybody on the Internet. And the Office of International Criminal Justice is especially proud that the United Nations Department of Justice is making access to its entire collection of criminal justice research available on the Internet.

What all of this technology means is that none of us is alone. If we are willing to learn to use this new communications and information infrastructure, international cooperation and technical assistance are only an e-mail message away. A substantial part of the organization of the Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System was carried out on the Internet. Hardly a day goes by that the Office of International Criminal Justice does not answer a question or provide some research information about criminal justice programmes in the United States to a colleague in another Member State. The tyranny of time zones is no longer a problem because the Internet never closes and never takes a day off.

At the University of Illinois at Chicago, we are working on a project that we hope will produce a handbook for police departments and public prosecutors to use in establishing their own information servers so that they can provide authoritative information to the public about crime prevention and other important criminal justice issues. We have already established a World Wide Web server that contains on-line versions of our international

criminal justice newsletters that any of you can access without charge.

CONCLUSION

Although personal contact is important and there will always be a need for face-to-face meetings like the Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System, we can make great progress at less expense by embracing the new technologies of the Information Age.

There will be roadblocks and detours on the information super-highway. The software to automatically translate text between languages is still too primitive to rely on. The security is still too weak for extremely sensitive messages. When we meet again for the Tenth Congress these problems will have been solved. Many of us will have discovered the usefulness of these technologies and we will have learned much more than we know now about doing justice in the Information Age.

Management of the Criminal Justice System

PREREQUISITES FOR IMPROVED MANAGEMENT OF THE CRIMINAL JUSTICE SYSTEM

*Edward C. Rattledge*¹

INTRODUCTION

All too often efforts to improve the quality of the criminal justice system are placed far down the agenda of national and regional priorities. Top policy-makers reply that they cannot afford to provide resources to improve the criminal justice system when people need to be clothed and fed or that new roads and other infra-structure are required to meet the needs of a growing economy. Such leaders must be taught to see that the criminal justice system provides one of the most basic needs, the right to live one's life without the fear of being a victim of crime. Having a full belly may be scant consolation if one must fear for one's life because of rampant crime.

In addition, many of the world's human rights organizations have found innocent citizens being held in prison without due process and in many cases without the knowledge of criminal justice officials. There are clearly cases of abuse of power within the criminal justice community and this will continue as long as there is scant information and little or no accountability. The rapid and systematic flow of information throughout the criminal justice community can have an effect on these problems.

This paper is intended to focus briefly on a wide-range of topics dealing with the development and use of information technology in the criminal justice system. The presentation is oriented toward senior management in the criminal justice system as opposed to information technology specialists who should already be familiar with most of the content. If this discussion helps focus the thinking of criminal justice system management of the opportunities and potential problem areas associated with information technology in the criminal justice system, then its purpose will have been fulfilled.

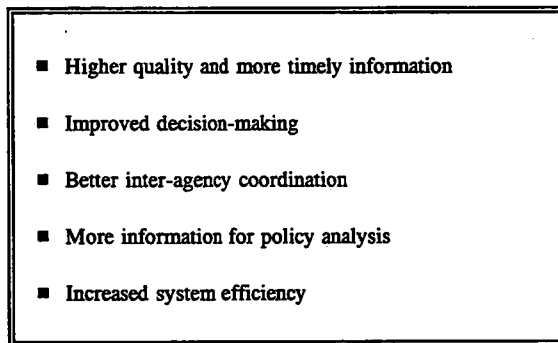
The paper is organized into four parts following this introduction. First, there is a discussion of the basic rationale, opportunities, and challenges associated with the introduction or expansion of information technology in criminal justice systems. Second, guidelines for determining the need for automation will be presented. Third, an overview of the methods by which information technology is incorporated as an integral part of the justice system will be explored. Finally, some closing ideas on privacy and security will be offered.

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WHY IS INFORMATION TECHNOLOGY IMPORTANT IN THE CRIMINAL JUSTICE SYSTEM?

The criminal justice system runs on information. There is information about criminal incidents and information about potential defendants. There is information about people who are incarcerated either serving their sentences or awaiting trial. There is information about the court process including scheduled events and outcomes of past events. All of this information affects the way people are treated in the system and perhaps impacts the final outcome of any individual case. The quantity, quality, and timeliness of information are crucial to participants in the system.

Figure 1: Potential Reasons for Computerization

- 
- Higher quality and more timely information
 - Improved decision-making
 - Better inter-agency coordination
 - More information for policy analysis
 - Increased system efficiency

Information flows can also affect the way the entire system works. The efficiency of the system and the quality of justice dispensed are highly inter-related. Criminal justice administrators must be able to understand the flow of cases through their system in the same way a manager at an oil refinery must understand, monitor, alter the flow of crude oil in their system.

There are operational decisions that have to be made on cases daily and there are tactical decisions that are made on the operation of the criminal justice system with a view toward the way the system will perform next week or next month. And there are strategic decisions that must be made that will shape the system in the future. Examples of these uses of information are found in Figure 2 below.

Most of these decisions are based on information flowing in the system now or in the past. In addition, these decisions may require information from different agencies associated with the criminal justice system. All of these decisions are dependent on the quality, timeliness, and availability of information for the criminal justice system.

Figure 2: Potential Reasons for Computerization

- Assisting police in the investigation of criminal organizations
- Helping the prosecutor properly charge offenders
- Managing the flow of offenders to ensure a timely and correct disposition of all charges
- Providing the proscribed punishment and the appropriate rehabilitation of all offenders
- Monitoring of the overall level and means of violence
- Changes in population characteristics that may require new responses or training
- Changes in the frequency of certain types of crime that may require innovative solutions

The necessity for introducing or expanding computer-based information systems tends to arise in one of three ways. These are summarized in Figure 3.

Figure 3: Potential Reasons for Computerization

- Existing systems are overloaded and error prone
- Existing systems do not meet today's complex data requirements
- New information sharing requirements cannot be met
- Offenders are geographically mobile

The sheer volume of information collected by the existing manual information system makes the availability of timely and accurate information increasingly unlikely. As the volume of criminal cases increases, it becomes increasingly less cost-effective to add human resources to cope with manual record-keeping. This tends to produce two types of errors.

First, backlogs will develop and the information recorded in the manual system will be inaccurate. Second, the pressure to cope with this increasing tide of information will inevitably increase the potential for error. Both sources will place incorrect information in the hands of both administrative and operational personnel with a high potential for undesirable outcomes. The reduction in these costs both to the system and society are a primary benefit flowing from computerization.

As society and the nature of crime grow more complex, the structure of the data required to properly administer the criminal justice system become more complex as well. These complexities soon overwhelm the ability of a manual system and even some more rudimentary computer-based systems. To properly investigate the more complex crimes found in today's society and to more efficiently allocate scarce criminal justice system resources, administrators require more information about criminal events and crimes. In addition, the way the information is used evolves. Instead of using simple statistics such as counts of events, administrators will more intensively process the data using statistical models. In addition, new and more powerful graphical and spatial forms of analysis can be employed. These methodologies require the speed, access, and dimensionality of data are not supported within manual systems.

The need of people and organizations to share data increases as the scope and complexity of crime increases. Much of the data captured in a typical criminal justice information system has utility to multiple organizations within the same government. This presents two problems. First, the data is captured multiple times with all the inherent data capture costs and the costs of redundancy. Second, it introduces the potential for inconsistency since the data may be generated at different times and is potentially measured in different ways even though the underlying concept is the same. Both problems can create problems for criminal justice administrators.

Unfortunately, many criminals do not confine their activities to a single governmental jurisdiction. Thus, there are increasing opportunities for sharing information across jurisdictional boundaries. Such opportunities are increasing and today even involve international requirements. As in all of the other cases the value of information varies with its timeliness. While conceptually it is possible to share information even between manual systems, the timeliness and accuracy of such information is suspect and correspondingly its value is much less. In the final analysis manual systems can provide little of the functionality required for effective and efficient information sharing.

Even a cursory review of the information used in the criminal justice system will reveal great diversity. The systems use information directly such as the next scheduled court date or the name of a defendant. They also collect that information and hold it for later potential use of which one example is fingerprints. Still other information is collected for one

purpose originally and then is processed in some way to yield different information for other purposes. Average time to case disposition or number of cases processed by prosecutor X this month compared to last month are examples of this higher degree of processing. Thus, time and extent of processing are two characteristics that separate the types of information listed in Figure 4.

Figure 4: Different Categories of Criminal Justice Information

■ Archival	- criminal history
■ Tactical	- pre-trial and sentencing decisions
■ Case management	- court/prosecutor/police
■ Strategic	- programme evaluation/policy development

Archival Information. Information generally has historical value and is accumulated for later retrieval and analysis. Examples are: fingerprint databases, criminal history records, and stolen motor vehicles registries, and criminal incident databases.

Tactical Information. Through these systems relevant information is gathered from various sources, including archival systems, and analyzed to support decision-making in specific situations. Typical uses for tactical information are pretrial detention decisions, sentencing decisions, investigations, and planning of police patrolling.

Case Management. This information is designed to support the day to day operations in the criminal justice system such as criminal cases of prosecution and the courts. All aspects of case monitoring including case and defendant tracking, case inquiry, court scheduling, generating court documents and notices are included.

Strategic Information. Diverse of information is gathered and analyzed to detect trends and conditions in the criminal justice system. Strategic information can be used to support planning of law enforcement strategies, resource allocation by the prosecutor and courts, and the evaluation of existing programmes.

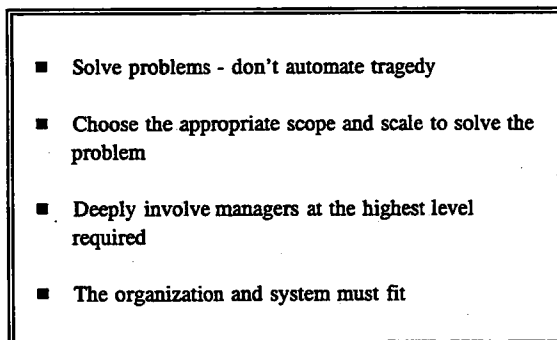
All of these different types of information should be considered when deciding how to use information technology in the criminal justice system. They are all interrelated to some degree. Case management systems feed information to criminal history systems. Aggregated case flow information is the life blood of statistical systems concerned with planning and

policy development. In most cases the base information will have many secondary uses and this needs to be understood in the calculus when deciding why and what to computerize.

HOW IS INFORMATION TECHNOLOGY INTRODUCED INTO THE CRIMINAL JUSTICE SYSTEM?

Listed in Figure 5 below are a few of the lessons organizations have learned during their own experiences with information technology in the criminal justice system. Rather than focusing on the problems that needed solving, some organizations have just automated their existing manual systems. In many if not most cases, this approach may magnify rather than solve the problem. In other situations, managers with great vision have correctly identified the problems, but did not limit or expand the scope and scale of the project to something that was both manageable and had sufficient size and scope to solve the problems being experienced. To do that it is important that the appropriate level of management be involved to solve the policy, budgetary, and political problems that will undoubtedly arise. Finally, it is important that policy-makers understand that the effective implementation of information technology will probably require changes in organizational structure and may lead to flattening of the organization as the volume, speed, and complexity of information changes.

Figure 5: Building a Strong Foundation

- 
- Solve problems - don't automate tragedy
 - Choose the appropriate scope and scale to solve the problem
 - Deeply involve managers at the highest level required
 - The organization and system must fit

To address some of these issues it will usually be necessary to carry out a scoping study or needs assessment. The goals of that study are summarized in Figure 6 below.

The most crucial question that must be answered by any needs assessment is whether information technology can be of any help in solving the problems the organization is experiencing. Computerization is a means not an end. Even if information technology can help solve all or part of the problem, those in leadership positions must be able to establish

Figure 6: Goals of Needs Assessment

- Is there a need for computerization at all?
- What is the scope and scale necessary to solve the problem?
- Does the organization have the resources and commitment?
- Are their potential projects with low risk and high pay-back?

a project with the appropriate scope and scale. That leadership must also have the resources and commitment necessary to successfully complete the project. As you can see to management is very important to this process and the needs assessment must establish its capacity to play this role. Finally, the projects chosen should, at least in the beginning, have the characteristic of low risk and high reward. Success brings confidence, resources, and credibility all of which are crucial to information technology projects.

The needs assessment also has two prerequisites shown in Figure 7 below. The first requirement is that the organization which is experiencing the problems will positively participate in the assessment. Those conducting the research will depend heavily on the staff of the organization to draw a complete picture of the problems and the relevance of information technology to the solution.

Figure 7: Two Requirements for a Needs Assessment

- A willing and enthusiastic organization
- Technical experts in systems development and organizational change

The second prerequisite concerns the talents of those conducting the assessment. They must certainly have expertise in problem solving using information technology but they must also understand the nature of organizations, their culture, and the relationship between information flows, the organization's business, and the organization's current structure. Demonstrated experience in working in all of these areas is extremely important. Some

guidelines are provided for consideration in Figure 8.

Figure 8: Guidelines for a Needs Assessment

- Based on an open and honest dialogue
- Experts must really understand the local situation
- Use experts with good results in places like yours
- Beware of the learning curve

These guidelines are an extension of the prerequisites described above. In order for the needs assessment to be successful, people in the organization have extensive discussions with the experts. If the people are not willing to do this or the researchers do not have the skill to interact effectively, the prospect for a successful study are greatly diminished. Even if the organization is willing, participants in the study will not necessarily understand the implications or capabilities of information technology in their situation. As the study continues, learning will occur and quite often information given early in the process may be inaccurate. The experts must understand that and participants must be willing to modify old views and express new ones as the discovery process continues.

There is also a learning curve for experts. For that reason, avoid being an experiment. You may encounter people with the required expertise who have no experience in criminal justice or in organizations like yours. Try to find people who have both if possible. Some of the places where talent like this can be found are listed in Figure 9.

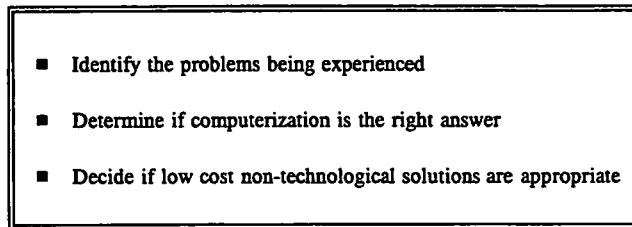
Figure 9: Where to Find Assistance

- Local government experts
- Universities and colleges
- Other jurisdictions
- Commercial firms
- External government experts

There is a wide variety of places you are likely to find experts capable of conducting a needs assessment. It is wise to explore them all so that you can choose the person that is likely to best understand your particular situation and has had direct experience with organizations like yours. The cost of these services may vary widely but it should not be a primary factor in your choice if the project you are considering is significant.

The first goal of the needs assessment expressed earlier in this discussion is to determine if there is a role for information technology. To answer that question three objectives must be met. Those are shown in Figure 10.

Figure 10: Is there a Need for Computerization?

- 
- Identify the problems being experienced
 - Determine if computerization is the right answer
 - Decide if low cost non-technological solutions are appropriate

In order to meet the first objective, the needs assessment must clearly identify the problems being experienced by the organization. Some potential problems were summarized in Figure 3 earlier. Timeliness and accuracy of the information coupled with the need to expand the type of information collected are problems which are typically experienced by manual systems. On the other hand, the source of the problem may be a lack of inter/intra agency cooperation or organizational structure which inhibits the flow of information whether manual or automated. Correctly identifying the problem and its source is absolutely key to deciding if an information technology solution is warranted. There will also be cases in which the addition of an index card system coupled with a manual statistical system supplementing a filing system is sufficient to solve the problems found. It is important to know if non-IT approaches will yield significant benefits.

Setting of the proper scope and scale of a project is extraordinarily important (see Figures 11 and 12 below).

Figure 11: Proper Scope and Scale

- The boundaries of the problem and the solution must coincide
- Limiting the scope may limit the benefits
- Expanding the scope may increase the costs beyond the benefits
- Centralized, distributed, hybrid, and integrated systems are considered

Here the expert needs to consider the role the organizations management will play. Senior management can make the difference between success and failure in any computerization project.

Figure 12: Organizational Capacity

- The organizational structure should complement the flow of information
- Managers must be in agreement as to the problems and the solution
- The resources must be available to construct and maintain the system
- Technology must fit the organization
- Users should be informed, interested, and involved

Their role will change and the extent of their involvement will depend on the size and the breadth of the project. It should be noted that all projects, both large and small, must be examined with reference to the general computerization plan for the organization. Even a small project, which may not be of interest to any other part of the organization, may benefit from or conflict with another small project beginning in another part of the agency.

Ultimately, only senior management can decide the scope of computerization. They have the broad view to determine what the objectives are of the organization and the extent to which automation will aid in the accomplishment of those objectives. Further, there is an implicit weighing of the costs and benefits of each potential project and a comparison

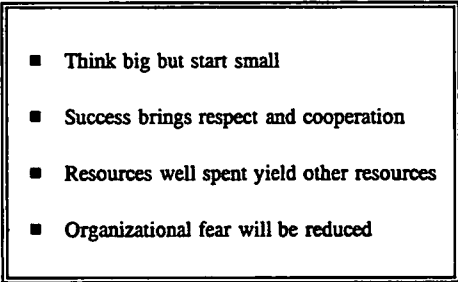
between alternative projects. There may or may not be any formal cost-benefit analysis. That requirement will depend on the degree to which the costs and benefits are measurable.

The importance of having the most senior management involved is illustrated when one considers proposals for computerization from several departments within the same organization. If each department has its own funding source and there is no higher authority active in the process to determine the relationship between the larger organization's objectives and the departments' proposals, automation is likely to proceed without higher level planning and evaluation. Someone must be available to decide if and how the two projects should be integrated.

It is no easy task for an outside person to assess the ability of management to play these roles in the project but it is absolutely essential that it be done. A needs assessment that does not attempt to measure the capacity and receptivity of the various communities of interest from management to users has not accomplished its goal.

The final goal of the needs assessment is to identify some low risk projects (high probability of success) with high rewards. This is particularly important for organizations that are new to information technology projects. The reasons for this strategy are summarized in Figure 13.

Figure 13: High Reward - Low Risk Projects

- 
- Think big but start small
 - Success brings respect and cooperation
 - Resources well spent yield other resources
 - Organizational fear will be reduced

WHAT STRATEGY SHOULD BE USED TO BEGIN THE PROJECT?

Each project selected for implementation requires that three distinct functions be executed. First, the project must be managed. Second, people need to be assigned to do the actual work. Third, someone must determine if the system works as designed. On small projects these functions may be accomplished by three different individuals. On larger projects there will be entire teams assigned to carry out these functions. It is an important role of senior management to ensure that all three functions are assigned and are carried out.

We would expect to find a project management team given the general management responsibility and authority, a project team charged with the work tasks, and a quality assurance team to ensure that the work meets the specifications.

Budgetary decisions for most large projects are very likely to be in the hands of senior management. These decisions involve not only the commitment of funds, but also the allocation of people to carry out the project. Often, some personnel and/or funds may have to be shifted across department lines to complete the project.

All too often, mid-level managers try to implement projects with only the resources that are within their direct control. This can lead to under-funded projects that have to be terminated short of completion because of inadequate resources. Senior management must take an active interest in such projects, not only to make sure that they fit within the general objectives of the organization but also to avoid costly mistakes.

Computerization in criminal justice systems will always cross departmental or agency boundaries. Even small projects frequently have unforeseen side-effects. For this reason, senior management must be available and have the appropriate power to solve the inevitable disputes that will arise. If the senior management involved in the project does not have the power to resolve disputes between the two agencies or departments in conflict, the problem must be referred higher in the organization to a manager who has not been involved in the project. This is not desirable, since that manager does not have the experience or knowledge in the project to make an informed decision. You must be sure that the senior manager has the appropriate authority before the project begins.

Project planning should usually come from the top down while design and development proceeds from the bottom up. Top down should not be confused with building national level statistical criminal information systems before building the operational systems that must report upward to that national system.

There are many reasons why top down planning is mandatory.

First, we need to have a global view of the objectives of the organization and the impact the project will have throughout the system.

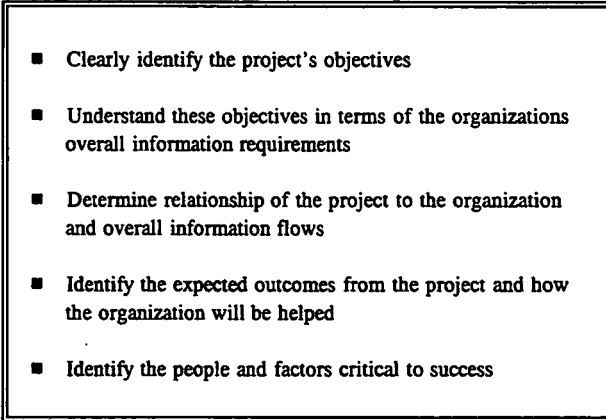
Second, any political problems or perhaps organizational structure problems can be identified and eliminated before the project begins.

Third, the complete organizational database can be defined to maximize the sharing of information within the organization and elimination of redundant or differently defined data elements.

Fourth, the duplication of functions and any incompatibility of equipment and software can be avoided.

Finally, priorities can be set among competing projects to ensure the most beneficial result for the organization's objectives. Finally, top down planning requires strong leadership, a clear idea of the outcome, and a viable methodology for the planning process.

Figure 14: Setting the Project's Objectives

- 
- Clearly identify the project's objectives
 - Understand these objectives in terms of the organizations overall information requirements
 - Determine relationship of the project to the organization and overall information flows
 - Identify the expected outcomes from the project and how the organization will be helped
 - Identify the people and factors critical to success

Senior management has the primary responsibility for setting organizational objectives. These objectives are constrained by law within the criminal justice system. That is, courts must process cases and dispense justice. Police are to prevent crime and apprehend criminals when crimes occur. These are broad functions that require more narrowly defined objectives within the scope of each function. Thus, the court may be charged with processing cases, but a measurable objective within that function is to dispose of 90% of all cases within 180 days of arrest.

The identification of critical success factors, for example, requires senior management to identify those functions and tasks that absolutely must be done properly for the organization to be successful. These factors may vary among senior management and they may change over time. There may even be factors that conflict across departments in an organization. In the top down planning process these conflicts need to be resolved with some level of agreement achieved.

Having identified the functions of the organization and the objectives within each of those functions, senior management must set priorities. This does not mean that objectives lower in the priority listing should be ignored to pursue the top level objective. Often, an

organization must pursue multiple objectives simultaneously, but the vigour with which they are pursued is dependent on the priority ranking of the objective.

It also important to identify the relationships between objectives. For example, the police may have an objective to file charges as quickly after an arrest as possible. The prosecutor may pursue the objective that only cases fully investigated can proceed. The specification of those two objectives from two different parties within the criminal justice system should highlight the conflict and then lead to some modification even if the conflict cannot be fully eliminated.

In a similar way, objectives can be mutually reinforcing. The courts may wish to dispose of 90% of all cases within 180 days of arrest. The prosecutor may wish to minimize the number of times a case must be continued for reasons under the prosecution's control. Clearly, these objectives are linked and should be identified as such. This observation might cause a shift in the level of priority of the prosecutor's objective since it reinforces that of the court. With the development of a sound set of prioritized objectives, the organization can proceed with the more detailed planning process.

Computerization should always be seen as a means to an end. It is a tool and not an end by itself. If the objectives have been identified and prioritized by senior management, the planning group should view automation as a method of obtaining an objective. It will not always be the method chosen. Another objective may only be achieved by reorganization or by adding personnel. If, for example, the attainment of one objective requires that data about a given court case be immediately available to multiple agencies, then computerization may be the answer. On the other hand, if the objective is the improvement of treatment programmes in the prisons, computerization may not be the appropriate solution. Further, the sharing of information may require the development of protocols or information exchange agreements.

Proposals for computerization projects can come from the top down or from the bottom up. In the first case, senior management identifies potential objectives that might be achieved through automation. These proposals must be carefully evaluated by lower level management and users to decide if the project would be feasible and how the project might be accomplished.

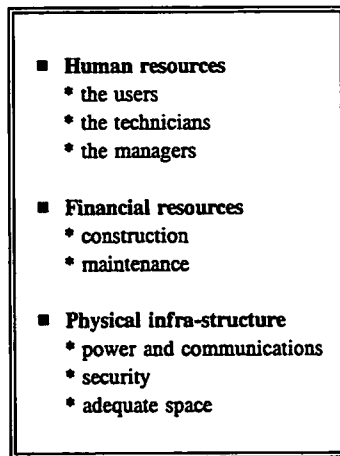
The more likely path is from the bottom up. Units within an organization will identify a problem and suggest automation as the appropriate method for solving the problem. The proposal is given to senior management who must assess the relationship between the objectives of the organization and the stated outcome of the project. This analysis is likely to be revealing and there are several potential outcomes. First, the project may be considered worthy but not of a high enough priority to warrant action presently. Second, there may be

a project in another department that is already underway and will tend to solve the problem identified by the proposal. Third, for the proposed project to have the needed result, another project must be initiated by another part of the organization. Fourth, alternative methodologies such as reorganization may be more appropriate.

The important point in this discussion is that a proper evaluation will not occur unless the organization's objectives have been identified and prioritized. If they have been, and the proposed project is viable, then and only then should the project management structure be put in place.

There must be sufficient resources available to not only construct but maintain the system once operational (see Figure 15 below). All too often the cost of constructing information systems is underestimated and the resources required to keep the system running are completely ignored. The result is that the original design that would accomplish the overall scope of the project is reduced with a corresponding reduction in benefits. Similarly, a system whose scope is such that the cost and complexity of operating and maintaining it exceed the benefits received will likely fall into disrepair.

Figure 15: Resource Analysis



The human resources necessary to operate and utilize the output of the system must be identified or developed. All information systems have implicit in them assumptions about the skill and training of the people who will use, operate and maintain them. These assumptions must be clearly specified so that there is consistency between the system's requirements and those who will interface with it. Any differential must be closed by developing training programmes or alteration of the system's design.

The physical infrastructure necessary to support the technologies chosen for implementing the system must be in functioning. When the scope of the system there are implicit assumptions about the environment within which it will operate. That will include issues such as the availability, reliability and quality of both power and telecommunications. Any special requirements of the technology employed such as temperature, humidity, and air quality should be known from the outset.

WHAT ARE THE OPTIONS FOR ACQUIRING SYSTEMS TODAY?

The 1990s are and will continue to be a period of enormous opportunity and challenge for criminal justice administrators. Technological change in computers, software, and data communications will continue at the same rate or, more likely, at a faster rate than we have observed in recent years. Also, we can expect to see falling prices or at least, similar prices for products with greater capabilities.

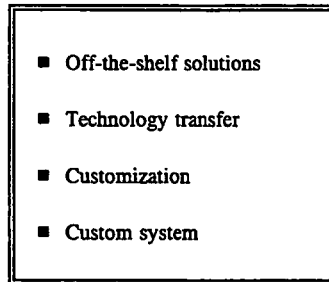
As technology changes, the alternatives available for building information systems increase. In the past, criminal justice information systems resided, almost exclusively, on centralized computers with many terminals attached through telephone lines. All of the work was processed on the central system rather than at the user's site.

Today, the set of choices is far greater. Although the centralized system is still an option, other choices are more attractive in some situations. These include systems written for large personal computers, users connected by a local area network to a file server, or perhaps users connected by terminals to a local mini-computer that is in turn linked with a remote centralized system. While these are only a few of the possible alternatives, clearly the trend is to move the control and processing closer to the user while allowing the databases to reside almost anywhere.

Understanding the array of possibilities for developing information systems is difficult even in the developed world. For the developing world the challenges are even greater. A summary of the broad categories of ways to acquire systems are found in Figure 16.

Locating and obtaining an existing system is the least expensive way to automate. The likely sources of software are off-the-shelf solutions provided by commercial vendors or technology transfer from public domain sources, or from an agency similar to your own in another location. If you have a priority ranking of the functions that are needed, it is straightforward to determine the degree that the existing candidate systems (and there will usually be more than one) will satisfy your needs.

Figure 16: Options for System Acquisition

- 
- Off-the-shelf solutions
 - Technology transfer
 - Customization
 - Custom system

It is unlikely that any existing system will meet all your needs. If you can meet 80% of your goals with an existing system, it will rarely be worth the time or cost to build a new one to gain the last 20%.

Finally, it is important to see any existing system in operation before any decision is taken. Promotional literature about systems and glowing recommendations by managers who have purchased these systems are frequently tempered by talking to those who use the system on a daily basis.

Modifying an existing system, has merit if an existing system is almost acceptable. If the system is offered commercially, the vendor may be interested in adding the functions that you need at an additional cost. It will usually be expensive since you will have to pay all costs for the changes but still far less costly than a ground up development. If the changes you require are widely applicable and will help the vendor sell additional copies of the software, a vendor may assume some of the costs.

If the functions are added by a vendor other than the one who developed the software or by your own staff, there are additional risks to consider. The resulting system may be incompatible with future upgrades to the commercial product and/or the vendor may also choose not to support your version of the software if another company or your organization modifies it. Still, it is an option worth considering.

The final option and the most expensive option is to develop a new system either in-house or through an outside contractor. There are circumstances where this is the only option. For example, there may be critical functions that are needed in your organization that are not found in existing software. There are other cases where the software does exist but will not run on your computer hardware or under your operating system. Frequently, a vendor will propose to make the changes necessary to move it to your computing environment. This can be a risky venture. There is no guarantee that the system will perform

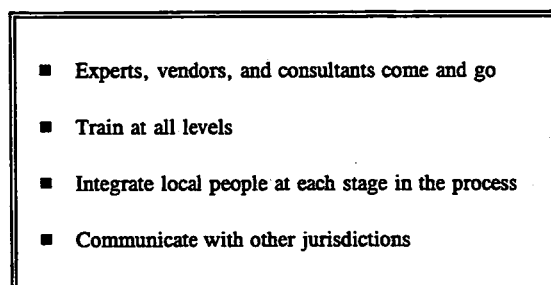
as it does in its native environment. In many cases, it may be cost effective and preferable to buy the recommended computer as well as the software. This is usually possible only if the application is isolated. That is, the application does not have to interact with other existing software or databases. It would not be a good solution if the application requires access to the database residing on the existing computer. Finally, original development may be the only option, if the existing system does fit current computing environment.

Computing and computers can be seductive. How many times have we seen a demonstration of some technology only to learn after purchase that it doesn't fit in our situation? We have made companies and consultants wealthy with our lack of foresight and planning. While planning can be tedious it is more likely to produce a system that is right for your organization. There will be many cases where the result of planning is to suggest the purchase of an existing commercial solution. In other situations, a total systems development process may be indicated. In still other cases, a mixed solution may be the right one.

HOW DO THE ORGANIZATION'S PEOPLE NEED TO BE DEVELOPED?

The human resources necessary to operate and utilize the output of the system must be identified or developed. All information systems have implicit in them assumptions about the skill and training of the people who will use, operate and maintain them. These assumptions must be clearly specified so that there is consistency between the system's requirements and those who will interface with it. Any differential must be closed by developing training programmes or alteration of the system's design. Some of the key issues are found in Figure 17.

Figure 17: Why Invest in Your People?

- 
- Experts, vendors, and consultants come and go
 - Train at all levels
 - Integrate local people at each stage in the process
 - Communicate with other jurisdictions

The fact that people outside your organization help in your information technology projects is usually not a bad thing. It is quite common in the developed world and in many cases whole functions are out-sourced to companies outside of the organization. Their

availability in the case of problems is the key issue and an organization can not always be dependent on consultants to solve mission critical problems unless they have specifically contracted for such a service.

Where possible your own people should be trained in these critical areas and during the project they should work closely with the any outside consultants. Finally, talk to other agencies that have problems like yours. They may be in your larger organization or they may be in another city, state, or country. It is to your advantage to communicate with them and to form organizations for mutual support.

Training is always a crucial part of any information technology project and is worth discussing in more detail. There are several identifiable areas for training each of which is targeted to a different audience. First, there is the strategic level which is oriented toward the policy-maker. The second is for managers who must run the systems. The third group are the technicians in both systems software, hardware, and data communications. Finally, there is training for the end-user. Information is vital for each group but the type of information, the method by which effective training can be delivered, the type of person who must deliver the training and the tools necessary for training will differ dramatically.

Policy makers tend to shift the responsibility for the development of information systems off to technicians. Unfortunately, there are many decisions that must be made at the policy or budget control level. Further, there will ultimately be decisions which must be made that impact parts of the system differentially e.g. police vs. courts, prosecutor vs. defense. Such information is exceedingly valuable to policy makers who are just beginning new projects in automation and in particular, to those that are beginning their first project.

Policy makers are continually pressed by information systems management for funds to implement and/or upgrade technology. While they do not have to know the technical details, it is important for them to understand the larger issues. Sessions that provide this type of information in an environment designed to promote interchange between executives are very valuable.

Since the policy maker is concerned with funding and implementation strategies, they must understand that there is more than one way to develop and pay for systems. They must have some understanding that development options include turnkey systems, software packages with local customization, custom development, shared development, and others.

There are many other important topics such as goal setting and the determination of critical success factors which are important issues to be addressed by executives. This type of training is likely to be lecture and/or discussion oriented with reading materials and perhaps video tape. It is usually wide in scope and does not dwell on highly technical details.

Since it does not require a lot of computer equipment for hands-on work, it can be delivered in a wide variety of settings. The key ingredient is the quality of the instructor.

In contrast to policy makers, system managers should receive a more detailed version of the areas delivered to policy makers. In addition they will need information on personnel (both hiring and training), security, software and hardware maintenance, and the procedures necessary to run a successful information system.

Like strategic training, managers do not require a lot of equipment for laboratory work. While the discussion is likely to be more technical, it is still amenable to the more academic setting of lecture and group discussion. Demonstrations of situations and appropriate responses can be done using video tape without loss of reality.

In contrast to the previous categories, successful training of technicians probably will require at least some contact with equipment and/or software in order to be effective. If those facilities are not available at the training session, they must be available for practice and application when the trainee returns home.

There are a wide variety of topics that can be addressed for this group. In the general category of software we find topics such as operating systems, security software, systems utilities, compilers, database management systems, and applications support. On the hardware side the list is equally long including topics such as alternative central processors and a vast array of associated devices from optical disks to laser printers. Finally, connectivity is one of today's chief requirements so data communications is a major focal point. Candidate topics range from local area networks and alternative transmission media through systems network architecture.

Obviously, it is impossible to have any single organization respond to the entire scope of these potential training needs. It does however suggest the need for standardization as technology is transferred to the third world, if the trained cadre of technicians is to be available to support these new systems.

The satisfaction of the needs of the end-user is the ultimate goal. All of the other levels are necessary in order to achieve that end. If we ignore the policy-maker the systems will not get built; if we ignore the managers the systems will not be responsive; if we ignore the technicians the systems will crumble; and if we ignore the user the system will fail.

Like the technical level, users need their laboratory. To really learn about a piece of software one must have access and time to practice. On the other hand, the software itself is one of the best sources of instruction. On-line help and tutorials along with improved manuals are one of the best sources of training materials for the novice. Further, expert users

invariably develop and support their colleagues. This is not to say that formal training is not needed for the end-user, rather it is an adjunct to other materials which are usually available.

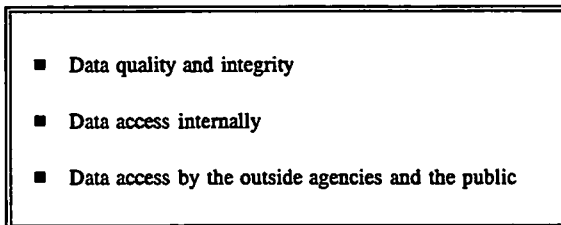
Finally, end-users can readily be supported by the information centre concept. This concept organizes a group of support people together in one place to provide help for supported applications. Equivalent services are supplied by software and hardware vendors and interest groups through bulletin boards and the national computer networks, the Internet.

WHAT ISSUES OF PRIVACY AND SECURITY SHOULD BE CONSIDERED?

The statutory and regulatory environment necessary for the authorized collection and distribution of the data as well as the protection of privacy and human rights of the citizens should be provided. Quite often additional legislative work will be needed to enforce reporting requirements for data required by the system. At the same time, there is a need to provide controls on the use of the data to reduce and if possible eliminate any potential damage from unauthorized disclosure.

Three primary concerns that form the cornerstone of an information policy are found in Figure 18.

Figure 18: Develop an Information Policy

- 
- Data quality and integrity
 - Data access internally
 - Data access by the outside agencies and the public

The introduction of information technology can have very positive affects on data quality and integrity and if not properly implemented can have devastating effects. For example, the typical manual systems of file folders are relatively difficult to access and may contain data of relatively low quality because of the difficulty of timely update. Automating that system, at least initially, makes access much easier and increases the chances of the distribution of inaccurate data. Measures need to be put in place to regularly audit the data using sampling methods to determine the quality of the information contained in the system.

Access to information needs to be controlled in a number of ways. First, it must be very clear who has authority to see each field of information, i.e. what is the need to

know. Second, there need to be very well-defined persons and agencies who are permitted to add, modify, and delete information from the system. Third, the distribution of reports and extracts of data from the system needs to defined. All of these issues deal with legitimate access inside the organization and should be worked well in advance at the time the scope of the information technology project is developed.

Access to outside agencies and the public can be a very difficult area and its one that needs to be explored thoroughly by the project team in conjunction with political and legal experts. This problem will vary according to local, state, and national law but will eventually surface. Certainly a person should know that any information in the system about him is correct, but should that information be available to a potential employer. Should the news media be allowed access to criminal history records so they can tell the public about the record of an offender who is being released. These are important issues and should be addressed in the project so that a policy is in place when the system becomes operational.

**Coordinating the Introduction of Computerization
in the Criminal Justice System**

COORDINATION OF COMPUTERIZATION WITHIN THE CRIMINAL JUSTICE SYSTEM OF ENGLAND AND WALES

*Christopher G. Lewis*¹

INTRODUCTION

This paper discusses the British model for the way information technology developments in the criminal justice system are coordinated. Progress over the last 5 years is described and plans for the future. Stress is laid on the need for a central unit to set common technical, data and communications standards for information that has to be exchanged between agencies. It is hoped that this model may be of use to other countries who are considering such information technology developments.

DEVELOPMENTS IN THE COORDINATION OF COMPUTERIZATION WITHIN THE CRIMINAL JUSTICE SYSTEM

Criminal Justice agencies: police, prosecution, courts, probation and prisons, in England and Wales have developed gradually over many centuries in an uncoordinated way, with each agency having a different structure, both locally and nationally. The introduction of information technology, up to the late 1980s was developing in the same uncoordinated way.

However, a series of initiatives since then has led to a more coordinated approach to information technology. The current planning for information technology applications in the criminal justice system exhibit the following characteristics:

- An awareness of the importance of information and the development of a criminal justice information policy;
- Common centrally-set standards of technology, communication and data;
- A common network for communicating between agencies;
- Systems specified nationally.

In addition there will be:

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- A small number of centrally maintained databases, with ready access to these from criminal justice system agencies;
- Appropriate security and data protection standards;
- Investment in training for staff.

The majority of information technology applications at present in use have been introduced locally. The migration from present systems to the more coordinated approach will take time so that it is likely to be the end of the century before significant progress is made on a wide front. However, present systems are quite sophisticated in their own right and have greatly improved the efficiency of the criminal justice system in England and Wales.

Traditionally, interfaces between agencies only grew up as local initiatives, which often failed when the person responsible moved on. However, in the late 1980s, it was recognized that a central body was needed to improve coordination of information.

LINKING AGENCIES TOGETHER: COORDINATION OF COMPUTERIZATION IN THE CRIMINAL JUSTICE SYSTEM

Each agency has its own priorities and these may not always include making interfaces with other agencies. Traditionally, interfaces between agencies only grew up as local initiatives, which often failed when the person responsible moved on. However, in the late 1980s, it was recognized that a central body was needed to improve coordination of information.

In 1989, the Committee for the Coordination of Computerization in the Criminal Justice System (CCCJS) was set up with the aim of increasing the quality of service, effectiveness and efficiency of the criminal justice system by improving the flow of information between its constituent parts through the appropriate use of information technology.

This could be put more succinctly as: to ensure the right information is in the right place at the right time.

All agencies previously mentioned are part of this initiative, as well as the private sector information technology providers and legal professions.

The CCCJS-strategy is primarily a business rather than an information technology

initiative and is built along the following lines:

- To share information not computers;
- To develop an infrastructure for the sharing of information;
- To assist with the development of computer interfaces.

In addition to these technical aims, it is important that we aim to:

- Manage common work centrally;
- Build awareness, understanding and support;
- Recommend and then facilitate changes in business processes.

The benefits expected from this initiative are:

- Reduction in court adjournments due to information not being available;
- Fewer cases discontinued due to time constraints;
- Improved prosecution and court decisions based on more accurate and up to date information.

It is also expected that there will be reduced delays due to more efficient exchange of case management information and that policy and management decisions will be improved because they will be based on improved statistics and management information.

Good progress on this initiative has been made over the last five years:

- Data and technical standards have been agreed;
- Information flows within the criminal justice system have been analyzed as a basis for determining priorities, costs and benefits;
- Data protection and security policies have been developed and refined.

In addition:

- The network service requirement has been defined and will soon be delivered;

- Standard technical architecture has been developed.

Moreover, progress has been made on two pilots:

- Sharing drivers information between the criminal justice agencies;
- Passing statistical data to central databases.

At the same time there has been considerable investment into an awareness programme. It was realized early on that CCCJS-practice was not simply an optional add-on to what was going on already. It is the way that all people working in the criminal justice system will have to think in order to be efficient in the 21st century.

This is independent of the agency worked in, the experience of those involved, the type of computer, or software. The need to adhere to common standards, set down centrally after long and often painful discussion, might well be something which is worth consideration in other states - at whatever stage in criminal justice system information technology development they are.

We have been conservative with our claims for cash savings. Already in the area of statistics, we have saved several hundred clerical jobs by moving from paper transfer to electronic transfer. In the more general area of passing information around the criminal justice system, we expect to save around £ 30 million a year, for an investment of just over £ 2 million a year.

Future plans are fairly firm for one year ahead, but the Committee for the Coordination of Computerization in the Criminal Justice System re-evaluates its strategy annually. The CCCJS does not deliver the national systems and has to respond speedily to delays from criminal justice system agencies. In the last year the CCCJS has reshaped plans to interface with the magistrates' courts, because of delays in their national system and is now developing interfaces with existing systems. This work will be a good investment when the national system is ready.

The Committee for the Coordination of Computerization also plans to deliver soon the interface between criminal justice system agencies and the statistics interface with the courts. They will also conduct E-mail pilots between local agencies, because feasibility studies have shown that e-mail access would greatly improve the efficiency of inter-agency work, even if full electronic data interchange were not available. Such pilots will link prosecution authorities, police, courts, prisons, probation services and local legal practitioners.

Further interfaces to be developed soon include the link between Crown Court lists and the Crown Prosecution Service and the link between the police and the Crown Prosecution Service.

CONCLUSION

The development of information technology for the administration of the criminal justice system has still a long way to go: but the parameters of the system have been set and agreed and the standards which will have to be followed have been set out.

These standards, of technology, data and communications, with proper data security will form the infrastructure for the next generation of systems. At the same time management and staff will need to be aware of the importance of information at all levels of the criminal justice system and appropriate investment will need to be made in training of those who are involved.

COMPUTERIZATION OF CRIMINAL JUSTICE IN THE NETHERLANDS: SOLUTIONS AND CHALLENGES

*Henk A. van Brummen*¹

INTRODUCTION

The judicial system in the Netherlands is under great pressure. During the past 20 years criminality has increased hand over fist and has made considerable inroads on the existing capacity. The judicial system in the Netherlands has had to make an enormous effort in order to be able to join battle with criminality. It was a drawback, that the infrastructure of the judicial system became outdated a decade ago. Since the latter half of the 1980s, however, much has been invested in modernization and computerization.

An important characteristic of the Dutch judicial policy is a strongly developed concept of the criminal justice chain, in which the connection between the various agencies (links) of the chain, the police, the public prosecutor, the courts and the prison system, is the central point.

The developments in the last few years indicate two trends. On the one hand, the pressure on the chain of criminal justice is eased by keeping a number of routine matters outside of the criminal law and dealing with them in some other way. On the other, the decentralization of operational responsibility for the primary process takes place, and policy-formulation and implementation are more separate. In this way the executing authorities can operate more decisively.

This concept of the chain is also of great importance for computerization. Until a number of years ago computerization mainly concentrated on supporting the work processes of the individual links of the chain. Since a few years these processes and systems have increasingly been geared for one another, and a number of links have been made between the systems.

In the future a further integration of the systems will take place and better use will be made of policy and control information from these systems. System development within the chain of criminal law requires broad thinking, involvement and responsibility at a high official level. In the Netherlands one information manager is responsible for the formulation of standards within the entire system development of the criminal justice chain. In this way it is possible to avoid fragmentation and lack of coherence.

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This paper discusses the computerization of the criminal justice system in the Netherlands. First, an outline will be given of the context of the judicial system in the Netherlands, and the developments in the chain of criminal justice. Without an insight in these developments, the exposition of the computerization in the Netherlands would not have the proper context. Next, the developments in the field of computerization will be dealt with in more detail. Particularly the strategy that has been adopted will be reviewed and how the Ministry of Justice of the Netherlands is directing the developments in computerization of criminal justice information.

CONTEXT

The first subject concerns the context in which the developments in the field of computerization take place. This context has been divided according to three aspects, first the social context, second the political-administrative context and third the infrastructural context.

The Social Context

Since the beginning of the 1980s criminality in the Netherlands has risen sharply. A changing pattern of standards and values, a more independent and calculating citizen, the abolition of borders, increased and more complex legislation are some of the factors which caused this. As a result of all this, society makes ever increasing demands on the judicial system.

The Political-Administrative Context

Within the Dutch political structure there is a separation in responsibility for the police and the other parts of the judicial system. The Home Minister has an administrative responsibility for the police, which is divided into 25 regions. The Minister of Justice is responsible for the national police services, the public prosecutor's office, and the prison system.

In the Netherlands we apply a strongly developed concept of the criminal justice chain, with individual links operating in it. These links are: the police, who - besides having to maintain public order - has the task to investigate punishable offenses. In accordance with policy, they are directed in their investigations by the public prosecutor. The public prosecutor himself bears responsibility for the prosecution of these offenses. The public prosecutor may receive his directions from the Minister of Justice, who is politically responsible for the public prosecutor, but this power is not often enforced. Trying suspects is the responsibility of the judiciary, who are independent of course, and can only be

influenced by parliament through legislation. The execution of the punishments imposed by the judge, is directed by the public prosecutor again and is further taken care of - provided it concerns prison sentences - by the prison system.

The public prosecutor plays a directing role in the chain of criminal justice. He is to a large extent responsible for policy making both up front (police, investigation) and at the rear (execution of punishments) of the criminal justice system. He also defines the frameworks which the remaining links of the chain operate in. Over the last few years these sectors have increasingly been given their own operational responsibility.

In this concept there is a strong awareness that decisions in one link of the chain may lead to blockages and loss of quality in other parts of the chain. Lack of capacity at the end of the chain, such as insufficient prison cells, must have consequences for preceding links. That is why was chosen for a comprehensive tackling of the problems, aimed at effective and efficient criminal law enforcement.

The Infrastructural Context

The increased pressure on the judicial system was felt even more severely, because of the out-datedness of the infrastructure of the organization. Many operational services are accommodated in old buildings, indeed often impressive and monumental, but also thwarting an efficient and effective way of working. These buildings are often scattered about a city, so both workers and files have to cover great distances. As a result of these dislocations, communication and cooperation are also hampered. In order to improve this situation, the Ministry of Justice is investing much in the accommodation of the judicial services. In the year 1995 and the next, new court buildings will be founded in 15 of the 19 districts.

With respect to computerization: here too a wide field lay fallow. Halfway through the 1980s only a few systems, with limited functional potential, were being used by the judicial services. The Ministry took up this challenge. The way in which this process took place, will be reviewed later in this report. For a good understanding of the developments in computerization of criminal justice, it is of importance to picture the choices the Ministry of Justice has made in accordance to policy.

TRENDS WITHIN THE JUDICIAL SYSTEM

Increasing Pressure on the System

As pointed out in the introduction: the pressure on the judicial system has increased in an explosive way during the past twenty years. One of the explanations for this is a

changing society with different standards and values. More minor check and serious offenses are being committed now in the Netherlands than twenty years ago, resulting in a strong increase of the number of cases that come up in court. In the year 1970 the police recorded some 150,000 criminal offenses. In 1985 this number had increased to 1,200,000 and it has more or less stabilized since then.

Apart from this, hardening of criminality has taken place, and sentences have become more severe. Some factors playing a part here are for instance new legislation and the globalization of crime.

Two decades ago environmental criminality did not yet exist in the Netherlands. By now a considerable part of our capacity is brought into action for the detection and prosecution of criminal actions that harm the environment. At the same time the borders within Europe have been largely abolished, both through further integration within the European Union, and by the fall of the Berlin Wall and the Iron Curtain. Only recently the Schengen Treaty has become effective. Although these treaties, and far-reaching cooperation, have the full support of the Netherlands, it does mean that the police and the judiciary increasingly have to take an international approach. Partly as a result of good means of transportation, distances now play a less important part, which increasingly enables criminal organizations to operate internationally in, for example, the fields of arms, drugs and the trade in people.

The fight against these organizations requires more consultation and attention than it used to, and through an increased complexity great inroads are made on the available capacity of the judicial system.

We are regularly confronted, however, with the consequences of this increased pressure. Services were not always able to cope with the workload and sometimes choices had to be made - although reluctantly - about which cases were not to be further prosecuted, because the necessary capacity was lacking, both in human and other resources (such as for instance sufficient prison cells). It was obvious that the judicial authorities had to come up with an answer to combat this development.

Relieving the Chain of Criminal Justice

A series of measures have been taken over the last few years to relieve the chain of criminal justice substantially. Relatively minor traffic offenses, for instance, have been removed from the criminal law. In the Netherlands, which has approximately 15 million inhabitants, more than 2.5 million of these offenses are detected by the police. As of 1992 these are dealt with under administrative law. This means that after a traffic violation has been detected, a sanction is directly imposed on the offender. The Central Judicial Collecting

Agency, established especially for this purpose, is charged with the collection of these sanctions. It also sees to the application of coercive measures in case people refuse to pay. Although the police now impose a sanction immediately, the possibilities for appeal to a judge remain equally available, of course. This does require direct action from the offender himself, however. Only in fewer than 5% of the cases this possibility is utilized. Up to now this system has proved very successful. The percentage of payments within a year has risen from about 60% under the criminal law to more than 95% today. In addition to a relief of the chain of criminal justice and a higher percentage of collected fines, it also has a positive effect on equality before the law and the credibility of the judicial system.

Another measure to relieve the chain of criminal justice further is the system of offering settlements, which enables people to avoid further prosecution.

Apart from this, legislation has made it possible for judges to impose an alternative punishment, such as a number of hours of community service instead of short prison sentences.

Another comparable measure for the relief of the administration of criminal justice is dealing with parking offenses within the fiscal system. A few years ago it was made possible that the detection and further processing of these cases is carried out by the municipalities themselves, without involving the police and the judicial authorities. In this case a fine is changed into a retrospective collection of a municipal tax, which works far more effectively and efficiently.

Last but surely not least, crime prevention should be mentioned as a means of relieving the chain of criminal justice. By preventing criminal actions, the influx of cases at the front is brought down. Crime prevention requires a comprehensive approach. The Ministry of Justice has issued an important report, containing a policy on the prevention of crime. Since then several measures have been taken, such as information campaigns towards the public, encouragement of all sorts of social control, schooling of deprived groups, and extra attention for juvenile delinquency.

Decentralization of Responsibilities

Besides the adoption of the above policy, a strategic choice was made to decentralize responsibilities and competencies within the judicial organization. This concerned a proceeding organizational decentralization within the existing geographical structure of the 19 districts, in which as many responsibilities and competencies as possible have been laid within these districts. The principle is: decentralize whatever can be, and centralize whatever has to be, in order to be able to operate as decisively as possible. Placing competencies at a lower level in the organizations has the advantage of operational decisions being made by

people who are closer to the daily practice and who have a better insight in the specific situation. It makes them more flexible to adjust to changing circumstances, and at the same time more effective and efficient.

Sometimes, however, from the viewpoint of efficiency or effectiveness it is better to continue to handle matters centrally. In those cases this line was taken.

So far the introduction about the developments within the judicial system. These developments make great demands on the quality of the information supply and computerization, the subject that will be dealt with now.

INFORMATION SUPPLY AND SYSTEM DEVELOPMENT

An Overview of Existing Systems

Within the police - like in most organizations - the first important developments have concentrated on the computerization of the primary processes. This started in the latter half of the 1980s and several systems were developed. Another example of such a system, is the system for the registration of traffic offenses. After the law on fiscalization of traffic offenses was implemented, the system was adapted to the new situation. Especially this kind of cases is very suitable for computerized processing, because the underlying process is simple and the numbers are large.

Apart from this, a beginning was made with the development of more supportive systems in investigation, such as, an electronic system for the storage and search of fingerprints (Havank) and the computerized processing of data in large-scale criminal investigations (Octopus).

Within the public prosecutor's office, system development has at first concentrated on the so called system Compass. This development started in 1987 and also marks the beginning of (large-scale) computerization within the judicial system. Compass has grown into a sophisticated system that supports the complete primary process of the public prosecutor's office.

Computerization has also been carried out for the benefit of the judiciary, especially in support of the district courts and the examining magistrates (for preliminary judicial inquiry) have systems been developed.

Other important examples of criminal justice systems are the automation of criminal records and a system for the execution of fines.

Also within the prison system the primary processes in the organization have been computerized, mainly those relating to the processing of information about the prisoners. Because of the increasing shortage of cells since the beginning of the 1990s, systems that give more insight in the use made of the cells were invested in. In view of the great pressure on the capacity, it is extremely important that it is used to the full.

The Netherlands have chosen for a decentralized implementation of computerization suitable for the organizational structure, except for the centralized functions such as fine collection. The strategy in system development has not been the building of comprehensive criminal justice information systems, but series of independent, function specific systems. This means that the information is spread in decentralized and functionally separated databases throughout the country.

As a result of this there is great need for link-ups between the systems in the administrative process along the criminal justice chain. Output for one system is the input for another.

Much effort has been put into standardization in the use of data and data-interchange in the criminal justice chain. The accent of the developments has in the last two years shifted to building these bridges. This has resulted in a broad network of linked systems. In order to prevent redundancy and inconsistency, we have not chosen for additional centralized databases for the information supply of these data. The answer has been found in sophisticated forms of data interchange with the use of an index.

Much attention has also been given to setting up a good structure for the maintenance of the systems. Just because of the dynamic world around law enforcement, it is of importance that these systems continue to be well-tuned to the demands which its users and society makes on them. In order to be flexible enough on the one hand, but not spreading the expertise too much on the other hand, the Ministry of Justice has decided to set up two centralized maintenance organizations. One for the systems in use at the public prosecutor's offices and the judiciary, and one for the prison service. Having our own maintenance organization also makes us independent of external organizations, which we find very important in the field of criminal justice.

Future Developments

The next few years will be characterized by further integration of the (information from) the systems over the parts of the chain. Because of the great diversity of systems - partly because of decentralization - there is a need for a central index which gives insight in the information about persons available in all these systems and which makes it possible to pass this information on internally. This index has been realized by the Ministry of Justice

and is called VIPS. This enables a further person-centred approach, whereas till now the approach has been more case-based. This also helps in achieving the aim to have the different judicial authorities show one face to any offender. In the ideal situation it becomes possible to have access to the same information in all parts of the chain, further supported per chain, however, by the various systems specifically tuned to such application.

Another development concerns the growing need for management information, which makes further control and direction of the processes possible. Two years ago Rhapsody was started based on the information in several primary process systems. At the root of this system lies the concept that from the operational data bases a management information data base is formed for the benefit of management. Presentation of information takes place by means of a (user-friendly) end tool on this separate data base, which does not disturb the performance of the primary system. Those who are familiar with the difficulties of building management information systems know that is much more to be said about this subject.

A third development in the next period is that computerization will increasingly be able to meet the demands made by the processes in the organization themselves. Attention will therefore be focused on improving its flexibility and user-friendliness. The use of advanced CASE-tools, Workflow Automation, Business Process Redesign and Rapid Application Development will be very important within the future system development.

As the last future development is mentioned expert systems, which will be able to support the professionals in the judicial organization in decision-making.

Computerization as a Process

The policy to decentralize the responsibilities in computerization within the chain of the criminal justice system, as sketched in broad outlines above, has given the necessary scope in realizing systems for the various parts. However, it is of importance not to lose sight of the connection between the various system developments and to make arrangements on the level of exchange. For, isolated system development is of little use, if exchange of information is not possible. As a result of the concept of the criminal justice chain it becomes clear that umbrella arrangements have to be made. Because of the decentralization of the responsibilities, attention for the connection had to come from the highest management level of the Ministry of Justice, to stimulate and - where necessary - sometimes exact cooperation. To structure the whole, two structure sketches have been developed for the information supply, one for the judiciary and one for the police.

The infrastructure had to be properly established. As already pointed out in the introduction, in the 1980s considerable arrears existed here. In the last period much has been invested in hardware in the judicial system and the police. The judicial

authorities and the police also use one exclusive well secured data communication network (PODACS-network), which is managed by the national police services themselves. Data communication between the Public Prosecutor's office and the Prison System also takes place through the PODACS-network.

In regard to data-interchange, arrangements had to be made between the various parties involved. Standards were developed, especially regarding the registration of personal information. An important choice was the application of electronic data interchange. This offers advantages, especially in the exchange between police and judicial authorities, because electronic data interchange guarantees a good exchange of data between systems, but leaves the internal structure of the systems intact and therefore their autonomy. This in turn is in line with the concern concept, that acknowledges that the various parts within the chain of criminal justice have their own responsibility. The Netherlands have as much as possible chosen for existing standards (for example those used in the transportation field) such as EDIFACT, ISO-standards and standards of the European Union. International agreements on standardization in data-interchange will grow more and more important, so further deliberation will be necessary.

System development and the use of information technology can only be successful if there is vision and direction from top management right from the start. There has to be sufficient interest within the highest echelons of the ministry, so that sufficient financial resources are also made available. It is especially this structure that has fulfilled an important pre-condition for the successful period we have behind us in the field of system development.

It is of equal importance to stimulate and formalize the involvement of the users' organizations. System development only makes sense if it comes up to the expectations of its future users. Within the judicial organization in the Netherlands a number of users' councils and coordinators have therefore been appointed, who communicate with the system developers on behalf of the users. These users' councils also play an important role in the maintenance of the systems and the defining of priorities for adaptation to systems and new developments.

Furthermore it has been important that the various projects which have taken place in this field, were controlled in their entirety. During the last few years, a uniform and standard approach to these projects has as much as possible been adopted. Much attention has also been paid to the instructive effects of projects and consequently the preservation of knowledge.

Part of the integral project control has been that the Ministry of Justice has decided to build up a good, lasting and intensive cooperation with a number of partners from the private information technology sector. In this way continuity and reliability are guaranteed.

CONCLUSION

Because of the increased pressure on the judicial system and the police in the Netherlands over the past twenty years, a number of measures has been taken to cope with this pressure. These measures do not include a bigger effort in terms of money, staff and material, because these means are not inexhaustibly available.

Creative solutions were necessary: such as crime prevention and relieving the chain of criminal justice. Furthermore a distinction has been made between the highly standardized bulk processing and cases that really require made-to-measure.

Far-reaching decentralization of responsibilities and competencies has also been introduced in recent years. This involved making the various organizational units within the chain of criminal justice independent. This makes it easier to separate policy making and implementation, which is necessary if the judicial system in the Netherlands is to operate properly in the next few years. It is of importance, however, to have good possibilities, such as management information, available for control and direction on a central management level.

Computerization has proven to be an important aid for this purpose. A sound basic infrastructure is available in the Netherlands at the moment, in which computer systems can deal with the most important parts of the proceedings. In future we will have to concentrate on developing the possibilities, partly by availing ourselves of the host of possibilities technical aids have to offer. A better exchange of information between systems must become possible, as well as a further integration wherever feasible. We must proceed to foster flexibility and user-friendliness.

It remains important in these developments that the connection is guarded, and that those at the highest administrative level stay committed to computerization. Investing in computerization will also have to be permanent. Only then can an important condition for an effective and efficient battle against criminality be fulfilled; a major demand made on us by society.

Computer Crime

THE NEED FOR INTERNATIONAL COOPERATION IN COMBATING COMPUTER CRIME

Donald K. Piragoff¹

In order to understand the problems concerning international cooperation in combating computer crime, one must of course understand the nature of computer crime and the manner in which domestic laws apply, or often do not apply, to the phenomenon of various types of anti-social behaviour. This, of course, requires some understanding of the nature of computer abuse, how it is committed and the nature of applicability of one's own legal system to this type of conduct.

The problem of law, particularly as applied in the area of international cooperation and computer technology, is to say simply that while law is local and bound by territorial jurisdiction, the technology is worldwide, universal and completely oblivious to national boundaries. Magnified to the international level, the law as between various countries is generally fragmented and diverse, while the technology is common and pervasive. Thus while nations are linked through the wonders of technology, they are divided by conceptual rifts of diversity amongst their legal systems. Nevertheless, the common link of technological communication, with the concomitant need of each nation to attempt to live and do business in light of the new information technologies, forces upon each of the nations of the world a degree of cooperation and a willingness to rationalize the differences of their legal systems. The same worldwide, inter-connected communication links that magnify the problem of computer crime, at the same time necessitate the need for and the incentive for international cooperation.

To a large degree, cooperation is, first, founded upon attempts to harmonize both substantive law (that, is, definitions of what constitutes a crime) and procedural law (that is, the state powers to investigate and prosecute conduct that is alleged to be criminal). Where harmonization cannot occur, attempts are made to accommodate each others legal system.

Why is international harmonization of substantive law and procedural law so important. What are the benefits of, and why the need for, harmonization and cooperation?

First, the transnational expansion of large scale computer networks increases the vulnerability of these systems and the opportunity for misuse or criminal activity on a transnational basis. In order to effectively address transnational crime, concerted international cooperation is required. Such can only occur, however, if there is a common framework or

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understanding as to what is the problem. This, therefore, requires a common understanding as to what should be, or is, a crime.

Second, the expansion of international trade and commerce raises the concomitant need for laws that will adequately safeguard these economic interests in order to facilitate, stabilize and secure these economic activities. Likewise, the increasing computerization of data concerning personal characteristics, attributes and socio-economic status of individuals, and the increasing concern about privacy interests raises the corresponding need for legal protection, not only nationally but internationally.

Third, harmonization increases the ability of transnational business and other computer users to predict the possible result of legal consequences if criminal misuse of computer systems should occur. Predictability of the future leads to confidence and stability in international investment.

Fourth, to the extent that criminal law establishes positive norms of conduct and serves deterrence and educational purposes, harmonization of criminal law facilitates the creation of international norms of conduct in respect of computer usage.

Fifth, a lack of harmonization can lead to market restrictions and national barriers to the free flow of information and technology transfer. Business and government may refrain from exporting computer programmes, data, or technology to, or establishing complex computer inter-connections with countries that do not have an effective system of legal protection.

Sixth, a lack of harmonization of laws, including criminal laws, could affect equal conditions of competition. The lack of laws in some countries that would adequately protect computer programmes, technology or trade secrets could result in some companies choosing to operate businesses in these countries in a manner which could be considered by other countries to be unfair competition.

Seventh, a lack of harmonization, as a result of the absence or inadequacies of legal protection in some countries could lead to these countries becoming computer-crime havens, from which international computer crime could be committed with impunity.

Eighth, harmonization facilitates law enforcement as between law enforcement agencies of different countries due to a common understanding and conceptualization as to what types of conduct constitute crime.

Ninth, harmonization of substantive law facilitates extradition of alleged or fugitive offenders. Extradition treaties generally require double criminality (that is, the conduct must

be considered to be a crime under the laws of both countries and, often, conceptually the same type of crime). Accordingly, harmonization of the concept and even the definition of crime can be crucial to the ability to provide extradition.

Tenth, harmonization facilitates mutual legal assistance (i.e., the use of legally controlled investigatory powers, such as search and seizure, examination of witnesses, electronic surveillance, etc., by one country for the benefit of another country). In some mutual assistance treaties, double criminality is also required before one state will use its judicial mechanisms in the aid of law enforcement of a foreign power. Even where double criminality is not a prerequisite, a common conceptualization of what constitutes a crime assists the law enforcement and judicial authorities of that country in undertaking investigations within its own territory on behalf of a foreign country.

Eleventh, lack of harmonization with respect to offenses can lead to problems of harmonization of procedural law with respect to investigatory powers.

Now that we have examined some of the benefits of harmonized international cooperation, what are some of the problems.

First, there is a lack of consensus as to what types of conduct should be considered as constituting crime.

Second, where a consensus has been achieved that a certain type of conduct should be considered as being a crime, there is often a lack of consensus as to what the definition of that crime should be; that is, what are the requisite elements that must be proved in order for the conduct to be adjudged as a crime.

Thirdly, the lack of a truly international fora in which to achieve international cooperation has resulted in only regional approaches to date (e.g. Council of Europe and Organization for Economic Cooperation and Development (OECD)).

The work of the Organization for Economic Cooperation and Development and the Council of Europe has brought us a long way in achieving consensus. The challenge for the future is to expand that consensus to other regions of the world. The potentiality of computer crime is as vast and extensive as is the interconnections of our complex world-wide telecommunications networks.

Despite these international efforts, much still remains to be accomplished in order to achieve international cooperation. While much of the international work, to date, has been centred among Western European and OECD-countries, the potential extent of computer crime is as broad as the extent of our international telecommunication systems. All regions

of the world must become involved in order to prevent this new form of criminality. It is an issue that affects both developed and developing countries. If developing countries look to the technological achievements of the developed countries in order to develop and increase their own economic and social prosperity, they will also want to be aware of the potential for abuse and crime that these new technologies pose. It is important to plan for security and crime prevention at the same time that computer technology is being implemented.

In order to involve all regions of the world in addressing this issue, Canada, with twenty co-sponsors, sponsored a resolution for adoption by the Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, Havana, Cuba, 27 August - 7 September 1990. The resolution was adopted unanimously by consensus of the congress. In particular, the resolution urges member states to intensify their efforts to combat computer crime by:

- Modernizing national criminal laws, including the institution of measures to:
 - ensure that existing laws adequately apply to the commission of such offenses when committed within the computer environment;
 - create new offenses where required;
 - ensure that laws apply adequately to the investigation and prosecution of such offenses; and,
 - increase the effectiveness of procedures for preventing, investigating and prosecuting computer related crimes;
- Improving computer security and prevention measures;
- Adopting adequate training measures for officials and agencies responsible for the prevention, investigation and prosecution of economic and computer related crime;
- Teaching of computer ethics as part of the curricula of courses in informatics;
- Adopting policies toward the victims of computer-related crimes; and
- Increasing international cooperation in order to combat these crimes.

The resolution also requests that the United Nations promote international efforts concerning the development and dissemination of a comprehensive framework of guidelines and standards to assist Member States to control computer-related crime. The resolution also

mandates the United Nations to initiate and develop further research and analysis in order to find new ways in which Member States may deal with the problem of computer related crime in the future. It requests the Secretary-General to consider the publication of a technical publication on the prevention and prosecution of computer-related crime.

It is with this background, that Canada prepared a manual to be employed by member states in addressing the problem of computer related crime. As indicated earlier, in order to effectively address transnational crime, concerted international cooperation is required. Such can only occur, however, if there is a common framework or understanding as to what constitutes the problem and the possible solutions.

The purpose of this manual is to assist in developing a common framework of understanding throughout the world. It is to advise member states of the nature of the problem, the current inadequacies of the law, and of various solutions or proposals for action that have been recommended throughout the world. The manual is not intended to be a comprehensive dissertation on computer-related crime or of the inherent legal problems in addressing it. It does not mandate that particular courses of action should be taken, as would be the format of an international standard or guideline. Rather, the manual seeks to be a working document, a blueprint for action, which member states, faced with the problem of this new criminality, may utilize to better understand the nature of the problem, become aware of some of the solutions that have been recommended, develop their own response to the problem and foster international cooperation. The manual also identifies other sources of information to which member states could resort in order to obtain more detailed information concerning a particular issue.

The manual is only one tool to achieving international cooperation. In order to achieve such cooperation, it will require a realization and commitment by nations of all regions of the world that something should be done. Computer crime, being an international problem, requires international action. Such can only happen if there is the political will and public demand that it happen.

**Controls and Legal Safeguards:
Data Protection with regard to
Automated Processing of Personal Data**

COUNCIL OF EUROPE AND DATA PROTECTION: FREE FLOW OF INFORMATION VERSUS PRIVACY

*Peter Csonka*¹

INTRODUCTION²

Founded in 1949, the Council of Europe is the oldest European institution promoting intergovernmental and parliamentary cooperation. Its aim, according to Article 1 of the Statute, is to achieve a greater unity between its members, for the purpose of safeguarding and realising the ideals and principles which are their common heritage. These principles, which represent the most fundamental requirements the observation of which is necessary to be admitted amongst members of the European club of democracies, currently 39, are the following: pluralistic democracy, the rule of law and the respect of human rights.

Means of cooperation include discussion of questions of common concern in economic, social, cultural, scientific, legal and administrative matters and common action, notably through the conclusion of conventions and agreements. So far almost 160 European instruments have been adopted under the auspices of the Council of Europe. These texts form a kind of corpus juris at the European level, published in the European Treaty Series, aiming at the harmonization of national law. They are binding for contracting parties; governments therefore have to sign and submit them to national Parliaments for ratification. Another type of legal document adopted by the Council of Europe is a recommendation which is formally addressed by the Committee of Ministers to Member States but has no binding legal effect. It represents, however, a common European consensus on a given matter and can be qualified as soft-law. In certain cases, through its uniform application by Member States, it acquires quasi-binding effect as customary international law.

The most important achievements of the Council are in the area of the protection of human rights. The European Convention on Human Rights, through the jurisprudence of its control organs, the European Commission and the Court of Human Rights, gave rise to a very comprehensive case-law in respect of fundamental civil and political freedoms. Across Europe many important legislative reforms have been carried out in pursuit of the decisions delivered by the Convention's organs. A victim of its own success, the current two-tier control mechanism will soon undergo reforms to render it more efficient, particularly by reducing delays in court proceedings and providing remedies to its overburdening. It should

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² The opinions here expressed are strictly personal and do not reflect the views of the Council of Europe.

be recalled that the case-law of the Court regarding Article 8 (right to respect for private life) and Article 10 (freedom of information) of the Convention has a direct bearing on government policies in the field of data protection.

THE EUROPEAN CONVENTION ON HUMAN RIGHTS

The Convention for the Protection of Human Rights and Fundamental Freedoms, concluded in 1950, guarantees under Article 8 that everyone has the "right to respect for his private and family life, his home and his correspondence". Interference by a public authority in the exercise of this right is only allowed if the interference is in accordance with the law and necessary in a democratic society for a number of precisely defined interests. It is interesting to note that the Convention's organs developed an independent and constantly evolving meaning of the right to respect in his private life which is much broader than the Anglo-American concept of privacy, which is more or less confined to the secrecy of personal information and seclusion. Although it is rather difficult to draw precisely the contours of private life in the Strasbourg jurisprudence, it can be held that the following categories of interests and activities have been considered to fall within its ambit: personal identity (name, sexual identity); moral or physical identity (any compulsory physical treatment, corporal punishment); private space (the right to be left alone, to enjoy one's private space free from unwelcome interference); collection and use of information by public authorities; sexual activities and relationships with others. The Convention organs consider different elements before establishing the violation of the private life: whether the alleged facts can be qualified as interference; if so, whether this interference has been foreseen by law; if so, whether this can be justified on the grounds provided for by Article 8 (2).

No doubt, the collection of information by public authorities about an individual without his consent constitutes an interference with his right to respect for his private life. This has been established by the Strasbourg organs in the case of official census³, fingerprinting and photography by the police⁴. The collection of medical data and the maintenance of medical records also falls within the sphere of private life⁵. The best-known cases relate, however, to information gained surreptitiously by telephone tapping or reading a person's mail. The Strasbourg jurisprudence in this respect recognizes that states might have strong reasons to carry out secret surveillance activities, e.g. to gather intelligence on organized criminality and terrorist activities. But, given that such powers in the hands of the

³ See *X v UK* N° 9702/82, 30 DR 239, 1982.

⁴ See *Murray v UK* A 300 paras 84, 85 (1994) and *McVeigh v UK* N° 8022/77, 25 DR 15 at 49 (1981).

⁵ See *Chare née Jullien v France* N° 14461/88, 71 DR 141 at 155 (1991).

authorities are easily open to abuse, there must be appropriate safeguards⁶. The obligation of the state to respect private life by controlling the use of intrusive techniques by its agents and officials to collect information might arguably be extended in the Strasbourg case-law to similar operations by private persons, such as private detectives.

Another important matter into which the Strasbourg organs look in relation to cases of secret collection of information is to what extent this activity, i.e. the interference, is foreseen by law. In *Malone v UK* (A 82, 1994) and *Kruslin v France* (A 176A, 1990), there was either no specific statutory authorization for telephone-tapping (regulated by administrative practice - *Malone*), or even if it existed, it was found to be too broad and general (*Kruslin*). The Court considered that in cases where particularly serious intrusion into private life and correspondence was at stake, formal legality was insufficient. The law has to provide guarantees against arbitrary use of this power: these powers must be clearly expressed, the application of such powers must be foreseeable and the text of the law must be accessible to the public at large. However, while the law had to be formulated with such a degree of particularity that the circumstances in which these powers would be applied were generally foreseeable, that did naturally not extend to providing advance warning to the person whose telephone might be tapped.

If interference with an individual's right under Article 8 of the Convention is foreseen by law, the State has to justify it. Even if the collection of the information is justified under the legitimate aims provided for in Article 8 (2) of the Convention, it does not automatically imply that its retention or use are equally defensible. Therefore, the information gathered during the investigation of criminal activities should in principle be destroyed, unless it can be legally retained. The question arises in this case whether the person about whom information was collected can gain access to it. Several pieces of the Strasbourg jurisprudence⁷ show that even if the person can legitimately claim to have access to the information, because it has a specific importance for him, in certain sensitive areas (national security, etc.) states might successfully argue that the personal interest does not create positive obligation to disclose the content of the files concerning the applicant.

Besides the guarantees of respect for private life, the Convention also lays down, in its Article 10, the fundamental right to freedom of expression. The right of freedom of expression includes explicitly freedom to receive and impart information and ideas without interference by public authority and regardless of frontiers, but the Article is silent on the freedom to seek information. This silence has given rise to a debate on whether Article 10 should be amended. However, in an Opinion of 23 October 1981 - not published - the

⁶ See *Klass v FRG* A 28 (1978).

⁷ *Gaskin v UK*, *Leander v Sweden*.

European Court of Human Rights made it known that it considered freedom to receive information in Article 10 as implying freedom to seek information. This interpretation was explicitly confirmed by the Committee of Ministers in its Declaration on the Freedom of Expression and Information, of 29 April 1982. Although, in principle, Articles 8 and 10 of the Human Rights Convention are complementary, it is obvious that the enjoyment of the one right touches upon the other. In the related case-law, both the Court and the Commission of Human Rights have defined the limits in the exercise of each right, and, more particularly, to what extent public authorities may interfere. This case-law is therefore of great importance for further work by the Council of Europe, in the field of data protection.

Since the entry into force of this Convention, the increasing collection of personal data, for all kinds of purposes, and the growing use of computers has led to a situation where privacy and in particular, interference with privacy, has become more and more associated with personal data, and their unfair or unlawful collection and processing, not only by public authorities, but especially by private persons and enterprises. This was recognized by Human Rights experts in 1970, who admitted that in general national legislation, inspired by the Human Rights Convention, focused on the protection of individuals against more traditional intrusions into their private life, like breach of the secrecy of correspondence and telecommunications, or violation of the respect for one's home.

DATA PROTECTION

Information technology forms an integral part of modern life, and its crucial importance in business, administration, health care etc makes its security a key issue. The development of the computer has made it much easier to process large amounts of personal data very rapidly, and make the results known to many. Decisions affecting individuals are based on information stored in computerized data files. It is now recognized that electronic processing and transmission of data have made a significant impact in accelerating the evolution of global information, social and economic activity. Free access to information worldwide is an essential ingredient of democracy, but at the same time, appropriate protection must be developed against unauthorized disclosure or misuse of information. The benefits to society of the information flow can be fully appreciated only if a careful balance is found with the protection of personal data.

From the early years when computers began spreading throughout modern society, the Council of Europe took up the challenge that the new information technology represented for the legal sphere. As a clearing house, from the beginning of 1970, it carried out various studies on the protection of individuals with regard to automatic processing of personal data. The Committee of Ministers, the decision-making organ of the Council of Europe, adopted the first resolutions on data protection in 1973-1974, urging Member States to set up data

protection legislation, both in the private and the public sector⁸. These resolutions listed a number of ground rules to be observed in national legislation when personal information is stored in electronic data banks. In most Member States, general data protection laws were enacted, concerning both the public and the private sector, within a few years of the passing of the second resolution. In three Member States (Portugal, Spain, Austria), data protection has been incorporated as a fundamental right into the Constitution. However, the growing transborder data flow required additional protection for individuals beyond the capability of the national laws. In particular, the risk of creating data havens, i.e. countries with less strict data protection laws, where data users seek to avoid data protection controls, made it necessary to harmonize this question at an international level, leading to the preparation of the Convention for the Protection of Individuals with regard to the Automatic Processing of Personal Data⁹.

CONVENTION 108

The Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data was adopted after 3 years of preparatory works and opened for signature on 28 January 1981. It came into force on the 1st October 1985, three months after the fifth party to the convention had ratified it. It has so far been ratified by 17 Member States.

The Convention sets out the principles of protection of certain rights of the individual with regard to the free flow of information across borders and the possibility of imposing restrictions on the exercise of freedom of information where, in accordance with the European Convention on Human Rights (Article 10), it is strictly justified for the protection of other individual rights, especially the respect for privacy. It aims particularly at protecting the privacy of the individual against abuses of the kind described above, while providing a framework within which data can, for legitimate purposes, be freely disclosed between different data users and across national borders. The Convention's primary purpose, therefore, is to reconcile these two principles: respect for privacy and the free flow of information. To this end, it defines a common core of basic requirements which ought to be implemented in the legislation of the contracting parties (Chapter II) with a view to providing, for a standard minimum, protection of personal data. It establishes, in particular, the obligation to take appropriate security measures for the protection of personal data stored in automated data files against accidental or unauthorized destruction or accidental loss, as well as against unauthorized access, alteration or dissemination (Article 7, Data Security).

⁸ Resolutions No (73) 22 and (74) 29.

⁹ ETS N° 108.

Article 1 of the Convention contains the definition of the term data protection. It states: "The purpose of this convention is to secure in the territory of each Party for every individual, whatever his nationality or residence, respect for his rights and fundamental freedoms, and in particular his right to privacy, with regard to automatic processing of personal data relating to him (Data Protection). Parties undertake to enact national legislation ensuring the implementation of the fundamental principles laid down in the Convention, in respect of the personal data of every individual on their territory."

The fundamental principles laid down by the Convention are the following:

- Personal data should be collected, stored, processed and communicated only for specified and legitimate purposes (fair and lawful collection of data and purpose specification);
- Personal data should be accurate, up to date, adequate, relevant and not excessive (proportionality, quality of the data);
- Confidentiality of sensitive data;
- Data subjects should be entitled to examine, upon request, data relating to them, which is held by data/file controller, and to obtain correction or deletion of such data, if justified (information of the data subject, rights of access and rectification);
- Free flows of personal data should not be unduly restricted or subjected to burdensome authorization procedures.

The latter principle of the Convention means that this free flow of personal data between Parties to the Convention may not be obstructed, for reasons of data protection, unless Parties derogate from this requirement - which they may do in two cases only:

- If the protection of the personal data in the other Party is not equivalent;
- If, in fact, the transfer is to a third State not Party to the Convention.

Article 3 of the Convention allows all parties, optionally, to apply the European data protection convention to personal data files which are not processed automatically. The Council of Europe has decided to exercise this right: hence manually processed files are, within the Council and so far as is possible, subject to the same protection as computer based files.

In Article 10, the Convention lays down the principle of responsibility for the misuse

of data protected by the Convention. It reads as follows: "Each Party undertakes to establish appropriate sanctions and remedies for violations of provisions of domestic law giving effect to the basic principles for data protection set out in this chapter". The Convention leaves to the discretion of contracting parties the nature of the sanctions and remedies, whether civil, administrative or criminal.

In addition, the Convention sets out the principle of the free flow of information between contracting parties in order to prevent any form of data protectionism (Chapter III), and provides for a mechanism of cooperation in the framework of a Consultative Committee (Chapter IV). The Consultative Committee consists of representatives of Parties to the Convention and is responsible for interpreting the provisions, as well as facilitating, improving and monitoring the implementation of the Convention principles in the domestic law of the contracting parties. It is this Consultative Committee which has taken the initiative to examine how far contractual law could facilitate the transborder data flows between a Party to the Convention and a non-contracting State, and has drawn up, with the European Commission and with the International Chamber of Commerce, a model contract.

Due to considerable legislative efforts and regular monitoring consultations, most Council of Europe Member States nowadays have similar provisions in data protection laws. The Convention is a good example of the possibility of standardization in a highly complicated legal field.

DEVELOPMENTS SINCE CONVENTION 108

Since the conclusion of the Convention, the issue of data protection has grown in importance. On the one hand, society has been computerized to an extent where the personal computer is becoming as common an instrument as a fountain pen. On the other hand, the individual becomes more and more dependent on a number of public services - bank, credits, social security and other social assistance, insurance, medical care - which operate with automated administrations. Is it surprising that a bank wants to know who the customer is when he asks for credit? Is it abnormal that one has to supply personal data before social security will take care of one? The answer seems to be no. But is the employer entitled to ask for genetic data before giving the post to an applicant? May the doctor use medical data gathered on his clients for his own research? A positive answer is not obvious at all. May data supplied for a census be passed on to the tax administration? Are the police entitled to sell data which they have obtained from interference in a communication? The replies are almost certainly negative.

Data protection thus becomes ever more topical, with an ever increasing number of practical questions. Such questions should be solved at national level by the national

Data Protection Authorities - in most countries the national Data Commissioner. These Commissioners have become, like the Ombudsmen, part of the control system in a democratic society. Even the Council of Europe has, since 1989, a Data Protection Commissioner who supervises the protection of personal data at the Secretariat-General.

However, this ever increasing flow of personal data, from the subject to various collectors, and from collectors to processors, and from processors to other processors, requires regulation, even if at first sight, such flows are in the interest of the data subject, and the data have been collected with his consent. Convention 108 contains general principles, applicable to every situation where personal data are collected, whether by public authorities or by private persons or institutions. For each of the different sectors - medical, social security, insurance, banking, employment, direct marketing, statistics, telecommunications, police, etc. - these principles have to be elaborated. This is done by means of recommendations.

DATA PROTECTION RECOMMENDATIONS

In each of these sectors data must be collected and processed in conformity with the basic principles in the Convention, but the ways and means may be different; in some sectors the conditions may be more flexible than in others, and self regulation may be more advanced in one profession than in another. The Convention needed therefore to be elaborated further to achieve harmonization of data protection rules also in each of these different sectors. Rather than to amend the Convention, or add protocols to it, the Committee of Ministers preferred to use another tool for this purpose: that of recommendations to governments.

Such recommendations present the advantage that they are easier to draw up; instead of signature and ratification by each of the Member States, they require to become effective unanimous adoption by the Committee of Ministers. The procedure to adapt them to changing circumstances is therefore simpler than the amendment of Conventions. And above all, although they are not legally binding, they are addressed to all Member States, whether or not Party to Convention 108, who have a moral obligation to consider in good faith whether they should be implemented.

To draw up these different recommendations - which requires alongside certain legal experience some specific expertise in the field to be covered by the recommendation - the Committee of Ministers has set up in 1976 a Committee of experts on data protection, which recently became the Project Group on data protection. This Committee is composed of senior officials from each Member State, who, in their respective countries, have responsibility for the protection of personal data. For the specific sectoral recommendations these officials

Europe's policy to admit to such intergovernmental expert meetings, observers from European professional organizations and voluntary associations active in the subject matter.

Although both committees - the Project Group and the Consultative Committee - work close together there is no overlap of activities: the Consultative Committee is the guardian and promoter of Convention 108, whilst the Project Group deals with the more technical and detailed guidelines in the various sectors. Over the years, the Project Group has not only elaborated a series of Recommendations¹⁰ but has also published some authoritative studies on topical data protection issues¹¹.

RECENT ACHIEVEMENTS AND NEW ACTIVITIES

A Recommendation on Protection of Personal Data in the Area of Telecommunication Services was adopted by the Committee of Ministers on 7 February 1995. This text is based on the consideration that while the provisions of Convention 108 apply to the automated data processing activities of network operators and other parties providing telecommunications services, "it is appropriate to apply more specifically the general provisions of the convention so as to adapt them to the collection and processing of personal data" by these two categories. The Recommendation urges that the privacy of users, the secrecy of correspondence and the freedom of communication be respected by the telecommunication, e.g. telephone services. Interference by network operators and service providers with the content of communications should be prohibited, while public authorities should be able to wire tap communications only when "this is provided for by law and [it] constitutes a necessary measure in a democratic society in the interest of protecting state security, public safety, the monetary interests of the state or the suppression of criminal offenses", as well as the "data subject or the rights and freedoms of others".

As regards new activities, two recommendations are currently being drafted. The first draft concerns the protection of statistical data. Over the years, the production of statistics

¹⁰ Recommendation No. R (81) 1 of 23 January 1981 on regulations for automated medical data banks; Recommendation No. R (83) 10 of 23 September 1983 on protection of personal data used for scientific research and statistics; Recommendation No. R (85) 20 of 25 October 1985 on protection of personal data used for the purposes of direct marketing; Recommendation No. R (86) 1 of 23 January 1986 on protection of personal data used for social security purposes; Recommendation No. R (87) 15 of 17 September 1987 regulating the use of personal data in the police sector; Recommendation No. R (89) 2 of 18 January 1989 on the protection of personal data used for employment purposes; Recommendation No. R (90) 19 of 13 September 1990 on the protection of personal data used for payment and other related operations; Recommendation No. R (91) 10 of 9 September 1991 on the communication to third parties of personal data held by public bodies.

¹¹ *New Technologies: a Challenge to Privacy Protection?* (1989); *Data Protection and the Media* (1990); *The Introduction and Use of Personal Identification Numbers: the Data Protection Issues* (1991).

(including censuses) has become an essential contribution to any planning particularly in the economic and social sectors. It has developed into an independent science and is no longer the prerogative of public authorities. The increasing statistical activities in the private sector, the refinement of methodologies, the possibilities offered by electronic technology and the growing number of statistical data subjects may lead to a threat of privacy and call for further elaboration of the general data protection principles, applied to the statistical sector. To illustrate some of the problems to be solved: what about the principle that the data subject should be informed prior to collecting his data, if to do so would jeopardize the objective of the survey? What about the right of access to data collected in a census?

The second draft aims at regulating the protection of medical data, including genetic data. Whilst in general normal medical data are collected either with the implicit or explicit consent of the data subject, or in his own interest, the collection of genetic data raises a number of questions of in particular an ethical nature. Can a data subject freely dispose of his genetic data, which concern also the members of his genetic line ? Must he be informed of, or given access to, data which incidentally result from a genetic analysis, but which were not the objective of the research ? Should other members of the genetic line be informed of genetic abnormalities found in one of them ? To find adequate solutions to such questions is of the utmost importance, before genetic screening develops into a common practice in sectors such as employment or insurance, and leads to different national legislations.

CONCLUSION

From the above survey it will be clear that the protection of personal data has become one of the essential elements in the respect of privacy. This is not only the case in the new democracies, where legislation is being introduced to protect the human rights and fundamental freedoms, and where the Council of Europe has been able to provide useful advice and assistance. Data protection is also essential in the old Member States, where developing public services and ever increasing automatization increase the threat of personal data being misused.

**The Use of Criminal Justice Information
in Management and Policy Formulation**

CRIMINAL JUSTICE RESEARCH AND PUBLIC POLICY IN THE UNITED STATES

*Jeremy Travis*¹

INTRODUCTION

This paper discusses the thoughts at the National Institute of Justice (NIJ) about the use of criminal justice information, particularly research findings, to shape public policy on crime in the United States. This paper also touches on what the National Institute of Justice has been doing recently in applying advanced information technologies to disseminate criminal justice information.

Finally, this paper will suggest what we might do to use these technologies to better reach decision-makers.

ABOUT THE NATIONAL INSTITUTE OF JUSTICE (NIJ)

The National Institute of Justice is part of the United States Department of Justice, and is the chief agency of the U.S. Federal Government for sponsoring research in crime. To give an idea of what NIJ does: we sponsor studies on police performance, prosecution, sentencing, and corrections; we study the nature of crime and criminal behaviour; we examine such topics as juvenile offending, the drug-crime link, environmental crime, family violence, and gangs. Our science and technology unit develops techniques for criminal investigations and for other areas of law enforcement, such as the use of DNA-evidence.

The NIJ-mission also extends to searching for innovative, promising programmes, which we support as experimental or demonstration programmes. Most important for the purposes of the Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System, we communicate the findings of these studies, with the emphasis on getting them into the hands of practitioners and policy-makers in the cities, counties, and states of the United States - to police chiefs and prosecutors, prison wardens and court administrators and, increasingly, to communicate organizations and people who provide social and health services. More than ever, we are using advanced information technology to do this.

¹ Director National Institute of Justice, United States Department of Justice.

A SHARED PROBLEM

The background papers for the Ninth United Nations Congress on the Prevention of Crime and the Treatment of Offenders shows the similarity between the areas of concern noted above and those that appear elsewhere in the world. The workshops of the Congress focus on common concerns - violent crime, urban crime, crime committed by young people, environmental crime, and organized crime, among others². It is difficult to make cross-national comparisons, but still these are immediately familiar to the National Institute of Justice because they are major issues in the United States.

Crime Patterns

Even the most casual perusal of crime patterns and trends makes evident the need for using information technology. We see new crimes emerging - ones that were not even on the agenda of the first United Nations Congress 40 years ago. Computer-related crime is one; environmental crime is another. Today, new forces are shaping the crime problem, probably the most significant being economic and political liberalization. Countries in transition to free-market economies and multi-party democracies appear to be most vulnerable. Yet the more traditional crimes are still with us, and crime rates have increased in almost every industrialized country except Japan in the past three decades³. Juvenile crime, particularly involving violence, is escalating steadily worldwide⁴.

Crime in the U.S.A.

In citing these patterns and trends, I cannot fail to note my own country, where rates for most violent crimes are higher than in almost all other developed countries. The United States leads the world in major violent crime⁵. The level of handgun crime is particularly disturbing. The rate of homicides committed with handguns is more than 14 times that of

² E. Vetere "United Nations Crime Congresses", SOC/CP/Department of Public Information 1643, no date; K. Neudek and D. van Zyl Smit "The Ninth United Nations Crime Congress (1995)", *European Journal of Crime, Criminal Law and Criminal Justice*, 2, 1, 1994.

³ J.J.M. van Dijk "The International Crime Survey: a Tool for the Planning and Evaluation of National Crime Policies", *Preparatory Seminar of the International Conference on Understanding Crime: Experiences of Crime and Crime Control*, Rome, 17-18 March 1992.

⁴ Crime, *United Nations Crime Prevention and Criminal Justice Newsletter*, No. 22/23, July 1993.

⁵ J. Lynch "Crime in International Perspective" in: J.Q. Wilson and J. Petersilia (eds.) *Crime*, ICS (Institute for Contemporary Studies) Press, San Francisco, 1995; A.J. Reiss and J.A. Roth (eds.) *Understanding and Preventing Violence*, National Academy Press, Washington, D.C., 1993.

Canada, for example⁶. We are particularly troubled about the association of our young people with violence⁷.

Globalization

Of particular interest for the Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System is the increase in international crime and the increased transnationalization of crime. These phenomena have themselves been facilitated by advanced communications, including communications technology. Criminals use computers, just as we do. Moreover, information technology creates new opportunities for crime. The electronic transfer of funds is just one example⁸. Political and economic liberalization and the opening of borders in Europe and elsewhere are at work as well. One worrisome development is international trafficking in nuclear materials⁹. Organized crime has become increasingly transnational, with the wealth of the TCO's (transnational crime organizations) exceeding that of some nations¹⁰. It is no surprise that Colombian cocaine is finding new markets in Europe¹¹.

The global reach of crime calls for a corresponding response. Fortunately, the advances in communication that help spread crime around the globe are also available to the criminal justice community around the globe. These tools permit us the global reach and the speed - the efficiency - essential to help respond effectively to crime.

⁶ J. Lynch "Crime in International Perspective" in: J.Q. Wilson and J. Petersilia (eds.) *Crime*, ICS (Institute for Contemporary Studies) Press, San Francisco, 1995.

⁷ Between 1983 and 1992 the number of people under 18 who were arrested for murder and nonnegligent manslaughter in the United States more than doubled (by 128%). Among people age 18 and older, the increase was 8.6%: "Crime in the United States, 1992", Uniform Crime Reports, U.S. Department of Justice, Federal Bureau of Investigation, Washington, D.C., October, 1993.

⁸ R. Clutterbuck "Terrorism, Drugs and Crime in Europe after 1992", Routledge, London, 1990.

⁹ "The United Nations vs. Transnational Crime", United Nations document SOC/CP/Department of Public Information, United Nations/1646, no date; Washington Post, 2 April 1994.

¹⁰ "Crime Goes Global", United Nations document DPI/1518/SOC/CON, United Nations Department of Public Information, New York, January 1995.

¹¹ J. Blaauw "European Law Enforcement after 1992", in: FBI Law Enforcement Bulletin, No. 60, July 1991.

USING RESEARCH TO INFORM POLICY-MAKING

No matter how sophisticated the tools for transmitting and receiving information, we will not make as much progress as we can in reducing crime unless the relevant knowledge and information about the crime problem is available to and used by policy-makers. That process - translating information, particularly the findings of criminal justice research, into action by policy-makers - is the topic I would like to explore.

Conceptually, the process is simple. Much criminal justice research in the United States, as in other countries, is social science research. But no matter whether a study is closer to sociology or to chemistry, it proceeds in much the same way. In our idealized vision of the research process, an independent researcher dispassionately sets to work examining a specific issue, selected by the researcher on the basis of his or her expertise in a given field. The area of interest will, in general, also reflect the interests of the organization sponsoring the project - the National Institute of Justice or another organization. The research will use the most scientifically rigorous - and therefore most objective - methods. The findings and conclusions will be impartial and devoid of bias, having been mediated by no political agenda. They will be subjected to peer review by criminologists and other experts in their fields. The wisdom of the conclusions and the policy implications drawn from them will be carefully scrutinized by policy-makers and translated into action, taking shape as legislation or other practice.

The Ideal vs. the Reality

Rarely, however, do events unfold as smoothly as just described. But National Institute of Justice experience has been that in many instances policy and practice do change in response to sound research. I will cite just one example. In policing, a traditional practice was to engage in preventive patrol, an approach in which police vehicles patrol an area more or less randomly. It was believed to be more effective than other approaches in preventing crime, making people feel safe, and answering citizens' calls. As a result of the National Institute of Justice study which showed the approach was no more effective than others, many police departments modified their patrol practices. Rather than patrolling the streets randomly, officers were given assignments that allowed them to be less reactive - to take a more strategic approach¹².

Many other instances could be cited in which the ideal and the reality have come close. But in other instances, there are greater challenges in translating research into practice. I would like to share these with you because I know that the National Institute of Justice is

¹² "Twenty Five Years of Criminal Justice Research: The National Institute of Justice", National Institute of Justice, U.S. Department of Justice, Washington, D.C., December 1994.

not alone in facing them, and I think that bringing them to light can illuminate a discussion of how the process might be improved.

The Value Placed on Criminal Justice Research

One issue that has a major effect on research and ultimately its relationship to policy-making in the United States is the amount of attention, or more accurately, the relative lack of attention, accorded to criminal justice research. What makes this puzzling is that among all issues, crime is a major concern - if not the major concern - of the people of the United States¹³.

One way to measure the amount of attention paid to criminal justice research is to compare what is spent on it to what is spent on research for other life-threatening conditions. Our National Academy of Sciences looked at the amount of research funds spent per year of potential life lost on various conditions. They found that the research agencies of the United States Government spend close to \$ 800 (\$ 794) per year of potential life lost to cancer; for heart, lung, and blood diseases, about \$ 440 (\$ 441); for AIDS research, close to \$ 700 (\$ 697); but for violence research, they spend only \$ 31¹⁴.

Research Can Not find a Cure

Criminal justice research has a difficult time proving its value. We rarely see immediate results. When we do, they are often tentative and hedged with qualifications and caveats. Also, research takes time, but we need answers now. Medical research seeks a cure, and sometimes finds one. If a massive investment of research funds produces a cure for cancer, the wisdom of the investment will be confirmed. In criminal justice research, no matter how extensive the research or how sound or how innovative, there will be no criminal justice equivalent of the Salk vaccine to wipe out polio, no magic bullet to eradicate smallpox.

So, scepticism about the utility of the research is a deterrent to its use. In fact, there is considerable scepticism that much can be done at all. Crime is perceived to be intractable, and certainly the crime problem in the United States credence to this believe. But I would argue that the difficulty of the problem cannot deter us from continuing to build the knowledge base.

¹³ New York Times, 23 January 1994. A New York Times/CBS poll found that more survey respondents cited crime or violence than any other issues as the single most important issue facing the United Nations.

¹⁴ A.J. Reiss and J.A. Roth (eds.) *Understanding and Preventing Violence*, National Academy Press, Washington, D.C., 1993.

Assumptions Drive Policy

It seems that for crime more than for any other area of domestic policy in the United States, policy-making is driven by assumptions. Perhaps this is because crime involves issues of morality and is often an emotional topic. So it is difficult to view with the detached, clinical eye of the scientist. Rather than basing our actions on objective research findings, deep-seated convictions about criminals and the justice system prevail in many cases. In the worst cases, crime policy disregards the fact of research. An example is what to do to put illegal drug markets out of action. Researchers have shown that the certainty of punishment is more effective as a deterrent than increased severity of punishment¹⁵. Although these findings are accepted by researchers, policy has moved in the opposite direction¹⁶.

The Research Tradition

Part of the explanation for the relative lack of commitment to research stems from the nature of research traditions in the field of criminal justice. That tradition includes association with the legal profession. It is the dominant professional group in legislative bodies in the United States and in the criminal justice system. In the legal profession there is no tradition of empirical research comparable to that of the medical profession, where physicians continually absorb the research literature to learn to do their jobs better. Some contribute to medical research themselves. This degree of commitment to research is unfortunately absent from the legal profession in the United States.

NEW OPPORTUNITIES FOR LINKING RESEARCH TO POLICY

Now I would like to turn to the more positive side. One gratifying development in the United States is practitioners' growing acceptance of research, due to our attempts to respond better to their questions and concerns. There is also great promise in the national anti-crime legislation enacted in my country last year. Even with the major overhaul of this law now under way in the United States Congress, it is probable that substantial resources will be authorized for evaluative research to ensure that the law will have its intended effect.

Community policing is an example. We will, downstream, need to find out whether

¹⁵ D. Nagin "General Deterrence: A Review of the Empirical Evidence", in: Alfred Blumstein et al. (eds.) *Deterrence and Incapacitation: Estimating the Effects on Crime Rates*, National Academy Press, Washington, D.C., 1978.

¹⁶ A. Blumstein and J. Petersilia "Investing in Criminal Justice Research", in: J.Q. Wilson and J. Petersilia (eds.) *Crime*, ICS (Institute for Contemporary Studies) Press, San Francisco, 1995.

the community policing programmes established under the aegis of the law in cities and counties across the United States are working or not working. Evaluative research, which will be sponsored by NIJ, will measure the success of these programs. When it comes to creating new programs, policy-makers are more likely to do so if evaluative study shows they work.

One focus of National Institute of Justice evaluation is on a new approach to crime prevention, which essentially combines research with action. Borrowing from the research model of public health, it seeks to understand risk factors for disease. Understanding these factors is the first step to devising interventions. Problem-solving, as the approach is called, has begun to gain adherents in criminal justice. The aim is to create low-cost, common-sense solutions to local problems that are risk factors for violence. Proponents believe it is more promising than simply imprisoning people on the one hand or finding root causes of violence on the other¹⁷. And by telescoping the time between research and action by combining them, problem-solving can meet the need for timely response.

At the National Institute of Justice we have begun to explore problem-solving. In Atlanta, Georgia, for example, we are working with the Centres for Disease Control and Prevention and with the community to find ways to prevent gun violence among young people.

We can also take some comfort in findings from the field of knowledge utilization. Experts in this field confirm what we in criminal justice know from experience. They tell us that, in contrast to the hard sciences, in social science research it is difficult to measure effects, and so it is difficult to find out the effects on policy. The effects are there, but they are indirect, more nuanced. If criminal justice research does not change policy in measurable ways, it challenges old ways of thinking; it leads policy-makers to rethink their problems, even to rethink how they identify problems; to consider new alternatives; essentially, to think in new categories¹⁸.

THE NATIONAL INSTITUTE OF JUSTICE AND OTHER CRIMINAL JUSTICE RESEARCH INSTITUTIONS

That is the way things are in the United States to date. I think it may be instructive to elaborate on the organizational relationship of criminal justice research to policy-making

¹⁷ J. Roth and M.H. Moore "Reducing Violent Crimes and Intentional Injuries", Research in Brief, National Institute of Justice, U.S. Department of Justice, Washington, D.C., forthcoming.

¹⁸ J. Petersilia "The influence of Criminal Justice Research", RAND Corporation, Santa Monica, California, June 1987.

in the United States. That relationship is not unique, of course: in Australia, for example, with the Australian Institute of Criminology, it is similar. In England and Wales, Germany, and the Netherlands, to cite other examples, the relationship is different. Comparisons and contrasts are perilous, but they can bring to light advantages and deepen our understanding.

At the National Institute of Justice, we have a commitment to a multi-year research agenda consisting of six goals or goal areas (reducing violent crime is an example). In working toward these goals, we bear in mind at all times our status as a government institution. That means, for one thing, that within these six broad goals, our research priorities will reflect the interests of the current presidential administration, including the Attorney-General as head of the Justice Department and a member of the President's cabinet.

At the same time we want our agenda to reflect the needs of criminal justice policy-makers and practitioners. They are, for the most part, elected and appointed officials at the level of the states and the cities and counties. In the United States, the vast majority of criminal justice activity is a matter state and local - not national government - concern. The National Institute of Justice's emphasis is not, therefore, on national criminal justice policy, but on assisting the diverse world of criminal justice policy in the 50 states and the thousands of communities throughout the country. We are cognizant of their needs for research and we tap their expertise when we refine our research agenda. Yet we know from experience that the National Institute of Justice's research findings may at times call into question the efficiency or effectiveness of established ways that police or prosecutors or other practitioners do things.

Regardless of the level of government we assist, the National Institute of Justice is committed to conducting research that is rigorous and objective. Our research findings must be viewed as independent of specific policy positions or political concerns, because the knowledge we develop must be credible and trusted if it to be useful. The National Institute of Justice is fortunate in that certain structural components promote this independent stance. The National Institute of Justice was established statutorily by the United States Congress; its Director is appointed by the President of the United States and must be confirmed by the U.S. Senate. Though the Director has wide latitude, and is authorized under statute to distribute research funds, he also relies on the research community - to recommend research projects, for peer review, and like matters. The research findings become public knowledge, available to all.

We are able to achieve a balance among these many competing needs, and this constitutes one of National Institute of Justice's strength as a research institution. Above all, we are able to maintain the commitment to our long-term research goals. At the same time, in selecting specific research projects, we draw on the expertise of the research community, while also meeting the needs of practitioners and policy-makers and reflecting the policy

interests of the current presidential administration. The National Institute of Justice has done well in balancing these interests.

Elsewhere, the relationship of research to policy-making is different, with the ties much closer. Closer ties should mean greater certainty that research findings will find their way into policy-making, but the research agenda may be narrower and the findings not as generalizable. At the National Institute of Justice, by contrast, we have more latitude in determining our agenda and we can conduct research that is relevant to policy but also contributes to a general knowledge base.

But in marketing our findings we are pretty much on our own, and must work hard to do so. So we constantly seek opportunities to exchange ideas, compare strategies, and refine approaches. This workshop is a forum for doing this, and in it we can look specifically at how information technology can be used as a tool.

WHAT NIJ IS DOING IN ADVANCED INFORMATION TECHNOLOGIES

Nations fortunate enough - affluent enough - to have advanced information technologies have a powerful tool to reach policy-makers, and to find an unlimited audience. I would like to describe very briefly some of the things the National Institute of Justice is doing in the way of using these tools and promoting their use.

NCJRS Online

The National Institute of Justice has put the vast clearinghouse of criminal justice information it administers - the National Criminal Justice Reference Service (NCJRS) - online. It is now reachable over the Internet and by modem, so is accessible worldwide. Just one of the many services enables users to download documents. We use this system to publish National Institute of Justice documents electronically.

Communication is not just one-way on the Internet. So with NCJRS Online we are encouraging online dialogue among criminal justice professional through listservs - electronic discussion forums.

International Rule of Law (ROL) Clearinghouse Online Project

Expanding its international programmes, the National Institute of Justice has teamed with the Eurasia Foundation to develop an electronic library for the exchange of information on the rule of law. Its aim is to help people in the emerging democracies of the former Soviet Union who are working to reform legislative processes, legal institutions, and justice

administration.

UNOJUST

The United Nations Crime and Justice Information Network (UNCJIN) has demonstrated the feasibility of global telecommunication via personal computer among criminal justice researchers and practitioners. At the request of the United Nations Crime Prevention and Criminal Justice Branch, the National Institute of Justice led the process of conceptualizing and developing an Internet-based system that will integrate UNCJIN with other automated criminological systems and networks. We believe that the model and the software we developed and tailored to the needs of the research institutes affiliated with the Branch will enhance information exchange.

IMPROVING THE RELATIONSHIP OF RESEARCH TO POLICY-MAKING

The advantages of these technologies in speed and global accessibility are so familiar now that they require no explanation. Internet is accessible worldwide. However, it is not available worldwide, and this poses the danger that the use of this tool will be limited to the affluent. So, more needs to be done to disseminate the technology itself.

Several things can be done in addition to making the technology more widely available. We need to make sure that the issues we address are relevant to policy-making and practice. We need to make clear the potential benefits of our research findings and recommendations¹⁹. Because the issues that policy-makers deal with are so urgent, we need to be timely in disseminating information. Finally, we can better target the policy-maker audience by such means as online discussion groups and subscription services. In all these undertakings, information technology can be - will be - of great service. The details of how we do this need to be worked out. But doing so will help ensure that the tools we have are working to best effect to reduce crime.

The major challenge for social science research conducted within a government institution - whether in the United States or elsewhere - is to do all it can not just to ensure that the knowledge base expands, but to transform knowledge so that practitioners can then operationalize it. But although we are more oriented to the practical than our associated in academia, the knowledge product also needs to be at a level of abstraction that permits generalizing to a range of situations. This requires a distinctive philosophy of research that maintains an orientation to the more practical while ensuring the methodological rigor

¹⁹ Ibid.

demanded of social science research. At the National Institute of Justice we are meeting the challenge. But we also recognize the difficulties and the limitations of translating research into policy and recognizing them is also one of our strengths.

DEVELOPING JUSTICE STATISTICS MECHANISM: CANADIAN EXPERIENCE

*Sange de Silva*¹

PURPOSES OF DEVELOPING NATIONAL CRIMINAL JUSTICE INFORMATION MECHANISMS

Purposes of criminal justice information are many. The most important purpose is that of public accountability: This is important for the following reasons:

First, it is expected of the governments:

- To let the citizens know how much crime there is in the country and how the governments, both national and regional, through their social policies and the justice system are reacting to the crime problem;
- To indicate how many people have their freedom of action and movement restricted by the state, for what reasons and in what way.

Second, the delivery of criminal justice is expensive ranging from 2% to 3% of national budget in the western democracies to 10% - 12% of budget in the developing world. The taxpayer has a right to know how this money has been spent, and the national justice statistics are the only way to obtain this information.

Third, national indicators (e.g. unemployment rate or the inflation rate) tell us a great deal about the state of a nation. The only way to obtain national crime indicators (crime rate, arrest rate, imprisonment rate, etc.) is through national statistics. These indicators are needed regularly so that the way in which the state of the nation varies over time or from region to region or city to city can be known.

Fourth, national statistics are needed if we are to begin to evaluate the efficiency, effectiveness, accountability and fairness of the criminal justice system.

Fifth, the citizens have a right to information on the justice system as it is applied throughout the country, not just a partial or local view. Only national statistics will enable them to obtain a view of the system which affects them wherever they happen to be.

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Sixth, in order to be able to make international comparisons, national statistics must be produced.

The six reasons for collecting national statistics outlined above are reasons for providing the general public with information about crime, criminals and the criminal process. However, besides these general reasons for collecting and publishing national justice statistics there are other potential users for such statistics who have a more professional or specialized need.

Criminologists in particular and social scientists in general use justice statistics to test their theories and expand on available knowledge. Justice statistics are part of the more general body of social statistics and indicators that can help in gaining a more complete understanding of the relationship between crime and other social policies, and between crime and social change and development.

Assuming that decisions taken about the criminal justice system will be better if based on reliable, timely, credible and relevant information rather than feelings and experience, national statistics are needed for all levels of governments to:

- Inform criminal justice policy planning (e.g. without information about sentencing policies across the country, it is difficult to know how to produce, or where are the impediments to producing such desired objectives as the reduction in the incarcerated population);
- Increase the accuracy of predictions about crime rates, costs manpower requirements, demands for services, changes in the use of dispositions available to the courts, etc.;
- Identify problem areas of common interest and concern to all levels of government (e.g. high crime rates in certain areas or disparity in sentencing practices), so that national or local policies and programmes might be indicated;
- Provide a basis for evaluating the delivery of services (efficiency, fairness, etc.) by those responsible for the justice system so that improvement may be made;
- Assess the impact and interpretation of the criminal law;
- Plan resource allocations and monitor and control performance.

If national justice statistics are available it will be impossible to know, on a national scale, how many crimes committed result in reports to police, how many reported crimes result in arrests, how many arrests result in prosecutions and how many prosecutions result

in convictions. It will be impossible to know, on a national scale, how many convictions result in probation, in fines and in prison sentences and of the prison sentences imposed, what portion of each sentence is served. It will be impossible to know on a national scale, who among those who serve sentences are likely to return to prison. In brief, it will be impossible to follow on a national scale criminal offenders through the criminal justice process and know what happens to them and what in turn happens to the system.

Unless one knows, with some degree of certainty, the path of offenders across all of the transitions that occur between different steps in the criminal justice process -from arrest to court, from court to prison, from prisons to street- one can never tell what effect in one part, for example increased police activity, has or will have on any other part, for example the amount of delay in the courts. Consequently, any overall effort to control crime must base its strategy on hunch, opinion, prejudice and occasional fragments of information totally inadequate to the magnitude of the problem and not on national information which is accurate and credible.

FUNDAMENTAL REQUIREMENTS OF A SYSTEM OF CRIMINAL JUSTICE INFORMATION

The development of a national system of criminal justice statistics is a complex one requiring the participation and cooperation of many and diverse sectors. For such a system to emerge and remain viable several broad requirements must be satisfied. The essential among them are the following:

A Management Process

All criminal justice programmes, particularly those which are not directly operational, inevitable confront competing demands and needs in an environment of limited resources and changing and expanding requirements. A solid and well understood process of management is, therefore, essential for a criminal justice information programme. This process will:

- Establish, confirm or change strategic direction;
- Verify and modify client requirements;
- Set priorities;
- Develop strategies for the allocation of human and financial resources; and

- Establish procedures for the monitoring and control of the operational plan and updating of the strategic plan.

A Process to Obtain and Maintain Commitment of Stakeholders

Experience shows that information programmes will not develop without the commitment of senior criminal justice managers. Core data for the production of statistical information in the criminal justice area are extracted from the administrative records which are kept by the various sectors - police, prosecutors, courts, correctional officers etc. This activity, by necessity - is resource intensive. This is further complicated by the need to have national standards, common data definitions and other desirable attributes expected of a credible and useable statistical series. In practice, those who keep records for operational purposes pay only rudimentary attention to the non-operational uses of those records. Without the commitment of senior managers, conversion of official records into useable statistical series becomes an untenable proposition.

Wide variety of initiatives could be employed to sustain commitment of major stakeholders. The most effective among them is a commitment based on the value of justice information for achieving the fundamental goals of the administration of justice. The least effective, on the other hand, would be a situation where the administrators of justice are forced by legislation to participate in a national justice statistics enterprise.

True commitment of justice managers will be directly proportional to the usefulness of quantitative criminal justice information for policy, programme and management decisions. Viewed in this way, an essential requirement of a system of criminal justice information is a direct link between the information produced and its capacity to address the policy and management agendas of the senior administrators of justice.

Political Neutrality and Respect for Privacy and Confidentiality

One major purpose of a national criminal justice information programme is public accountability. This purpose cannot be effectively served if the national criminal justice information programme is viewed as one subscribing to a political ideology or one subject to interference by the government in power. The programme must be and must be seen to be impartial and objective.

Technical and Subject Matter Resources

Knowledge and experience of subject matter specialists are invaluable in any statistical programme and criminal justice is no exception. Experts in crime and victimization, criminal justice policy, programmes and administration must play a key role in designing the statistical

series and projects, in determining the concepts and definitions to be employed, in planning and conducting the analysis and in preparing the output. Much of the raw data for the information programme is generated within the administration of justice (i.e. police agencies, court rooms, prisons and jails etc.) and therefore tend to reflect policies and processes of the administration rather than a depiction of the substantive phenomena. Knowledge and experience of the subject matter specialists are essential to ensure that the data are competently analyzed and placed in the appropriate context.

Data processing and analysis inevitable requires an infra-structure of computer technology. Recent technological advances, if properly mobilized, will immensely facilitate all aspects of information production. Working with computers, however, raises many issues that must be addressed in a pro-active way. These issues range from organizational to security and access, from procurement and maintenance to training and development and a whole lot more.

Clear Articulation of the Scope and Context

It is generally recognized that a comprehensive criminal justice statistics programme should describe:

- The problem of crime in the context of demographic, social and economic realities;
- The response to the problem of crime on the part of the criminal justice system including costs of administrative interventions.

These broad objectives may mean different things to different people. However, a national system of criminal justice statistics can not be all things to all users. It follows then that a decision has to be made as to what information package are to be sought first. This decision will depend on the amount of resources available, commitment and willingness of data suppliers to provide the data required and the hierarchy of information requirements of major stakeholders.

As a general rule, the primary focus of the national justice statistics system should be perennial rather than transitory needs. Transitory needs are important but they can best be satisfied by special surveys or issue focused special studies.

Experience suggests that the following broad categories should be given the highest priority in the determination of the national criminal justice information programme content:

- Crime data which indicate the incidence of victimization in society by type of victimization, crimes reported to the authorities and reasons for not reporting, and the level of fear of crime;
- Caseload data which indicate the number and types of cases handled by the justice services (i.e. police, courts, corrections, etc.) and some of the characteristics of persons processed through the justice system;
- Resource data regarding the numbers of persons employed in the justice services, expenditures, and the distribution of services;
- Qualitative descriptions of the justice services outlining organizational structures, responsibilities and jurisdictions as well as the programmes operated.

The need for crime data requires no elaboration. Caseload statistics enable justice administrators to compare the volume and composition of their workloads and the disposition of cases. Resource data, when combined with caseload data, can provide performance indicators and outline the level of services provided by the municipal, regional and central governments. Accurate descriptions of the services provide the framework within which the statistics can be meaningfully interpreted.

CANADA'S JUSTICE STATISTICS PROGRAMME

Established in 1981, the Canadian Centre for Justice Statistics has a mandate to produce information on the extent and nature of crime and the administration of criminal, civil and administrative justice in Canada. This information is intended to serve governments in the development, operation and evaluation of justice policies and programmes as well as to broaden public awareness of the trends in crime, how the justice system operates and of its costs.

The Canadian Centre for Justice Statistics also provides financial assistance and expert advice to federal, provincial and municipal agencies with justice responsibility in developing information systems that can serve local operations as well as national information requirements.

Reflecting these responsibilities, the centre has two main operational areas. The first, Statistics and Information Directorate, is responsible for the development on operation of statistical surveys, their analysis and special studies. The second, Technical Assistance Directorate, provides technical and financial assistance to individual, jurisdictions. It is also responsible for responding to information requests marketing and client relations.

At the present time information is collected on the justice sectors of policing services, corrections, courts, youth justice and legal aid. For each of these sectors, the following types of information are collected:

- Caseload and case characteristics data quantify the volume and describe the nature of the cases dealt with;
- Qualitative information describes the structure, legislative authority and programmes of each sector;
- Revenues, expenditures and personnel data quantifies the costs of administering the system. Data collection is on-going resulting in the availability of time series information as well as the latest data possible.

The following is a brief description of each Canadian survey and the type of information collected.

Policing Services

The Uniform Crime Reporting (UCR) Survey has collected information on three categories of caseload and caseload characteristics data since 1962 (i.e. offence, clearances and persons) including the number of known offenses or those reported to the police, unfounded and actual offenses cleared by charge or otherwise, the number of adults charged (by gender) and young offenders charged or dealt with informally (by gender).

Extensive development work was initiated in 1984 to collect incident-based data which will expand the information available from the survey. For example, the new survey captures age and sex of victims and offenders, victim-accused relationships, level of injury, weapons involved, location of incident, type of property and dollar values for property and drug crimes. With these data, issues such as family violence (i.e. elder abuse, child abuse and wife battering), the cost of crime, and the economic magnitude of the drug trade can be addressed. This new incident-based Uniform Crime Report Survey is now being implemented across Canada.

Information collected by the Homicide Survey can address specific questions such as methods used to commit homicide, characteristics of homicide incidents, victim-accused relationships and characteristics of victims and suspects. The survey was amended during 1990-91 to collect information on the incidence of drug-related and gang-related homicides as well as improved information in the area of suspect-victim relationship to help address areas such as family violence.

Detailed information is collected on police officers, special constables and civilians (by rank, gender and function) and on police salaries and expenditures via the Police Administration Survey.

Adult Courts

Case characteristics and caseload information collected by the Adult Criminal Court Survey (ACCS) provides details relating to the disposition of criminal cases in Provincial-Territorial Courts involving federal statute offenses, and caseload indicators for federal, provincial and municipal statute cases.

The Revenues, Expenditures and Personnel (REP) Survey provides information on the operation and costs of the court system in Canada. The survey collects data on all levels of court, including the federal level, with the exception of the Municipal Courts in Quebec.

Qualitative description of the organization and jurisdictions of the courts sector are provided as part of this survey.

The Legal Aid Survey collects aggregate provincial/territorial resource, caseload and caseload characteristics information associated with the delivery of legal aid services. Descriptive information (structure, administration, eligibility criteria, tariff rates and process) is also collected on the delivery of legal aid in all provinces/territories.

The Prosecutions Survey provides information on the delivery of prosecutorial services in each jurisdiction. In addition to providing quantitative information regarding personnel and expenditures it also describes the unique service delivery mechanisms in jurisdictions.

Corrections

The Adult Corrections Survey collects aggregate data concerning custodial and non-custodial services provided to adults in the provincial, territorial and federal jurisdictions across Canada. Caseload, case characteristics and revenues, expenditures and personnel data are collected in addition to basic qualitative information which describes the organization and delivery of correctional services for each province or territory, Correctional Services Canada and the National Parole Board. This survey is currently under review to identify information needs and corresponding data requirements.

In addition, the Adult and Youth Key Indicator Report Projects collect and report aggregate key indicator data which provide a monthly time series overview and analysis of adult and youth custodial caseloads. Information collected under both surveys is limited to

a single data element: monthly average daily actual-in count of persons in custodial facilities. Semi-annual reports are prepared, providing corrections managers with timely information on short-term trends.

Youth Justice

The Youth Court Survey collects statistical information on Criminal Code and other federal statute charges heard in youth courts. Caseload and case characteristics data are collected from participating jurisdictions through the largely form-based manual survey. Based on current system development plans, it is expected that most jurisdictions will achieve the capacity to provide national information from automated systems.

It is expected that system development work for the Youth Custody and Community Services Survey will be completed in most jurisdiction within five years. In the interim, data will be generated by an annual, aggregate survey.

The Mentally Disordered Offenders (MDO) Survey is a micro data survey. It gathers statistical information about persons under the jurisdiction of the provincial Boards of Review. Virtually all of these patients have been found unfit to stand trial or not criminally responsible. These patients, who now number well over a thousand, are of particular interest partly because they raise complex legal, psychiatric and administrative issues, and partly because the cost of containment and treatment over the years is very high.

The database contains information about the age, sex and marital of mentally disordered offenders. It collects court information including alleged offence and the type of court order imposed. The name and address of the treating institution, medical information including diagnosis, and the mental history of the patient are also captured. The database also collects information on the Review Board process including which persons were present at the meeting, and the recommendation of the Board. The survey also collects information on discharge including diagnosis at discharge, destination of the patient, legal status and other pertinent hospital and psychiatric data.

As mentioned earlier, these surveys are intended to describe the activities of the administration of justice. As such, statistics generated by these surveys may not necessarily reflect accurate trends of the justice phenomena. For example, less than 40% of the crimes are reported to the police nationally. This percentage may change over time and across jurisdictions making jurisdiction comparisons and trend analysis questionable. Changing practices and policy orientations are also reflected in the official statistics. Despite these obvious anomalies, official statistics remain a very useful source of information to monitor justice phenomena in Canada. Experience shows that public reporting of crime changes so slowly that its impact on official statistics becomes insignificant. The same could be said

about justice policies and procedures.

Other factors contributing to a high level of reliability of official statistics in Canada include a common criminal code for all provinces and territories, a response rate approaching 100% for the police surveys, application of common units of counts, definitions, data elements and counting procedures by all respondents, and policies to ensure that each respondent has an opportunity to verify the accuracy and completeness of its own information prior to public release.

Victimization Surveys

The major goal of the Canadian justice statistics programme has historically been the development of performance indicators in the administration of criminal justice. In the past few years however, criminal victimization surveys have been developed and these surveys produce data which are complimentary to the Uniform Crime Reporting data. Canada's victimization survey is conducted every five years using a national sample of 10,000 adults. In addition to estimating criminal incidents, these surveys provide data on the financial as well as physical costs of victimization, on the fear of being victimized, and on the reasons for not reporting some incidents to the police. They also provide data on the opinions respondents hold of the administration of justice and on the kinds of activities people engage in to avoid victimizations.

Special Studies

The Special Studies programme is given a high priority within the centre's activities. Special Studies are devoted to subjects which are of great importance to the policy and management agenda of the governments, and would require special planning, data collection and analysis. At present, several on-time surveys are being conducted to address the issue of family violence. Sentencing, Youth Recidivism and Aboriginal Justice are also being studied under this programme.

Technical Assistance

Technical Assistance is the second major organizational area within the centre. Its major role is to support the development of statistical programmes and the transfer of technology between jurisdictions, helping them to develop operational information systems through technical expertise and resource support. Technical Assistance also provides valuable systems and technical support internally.

Technical Assistance comprises four programme areas: Jurisdictional Assistance, Centre Assistance, Technology Coordination and Information and Client Services. A brief

description of each follows.

The Jurisdictional Assistance programme provides technical and financial assistance to justice jurisdictions to develop information systems capable of contributing to national statistics and information: provides technical leadership, support and assistance in the development of strategies and systems which are supportive of the national statistical effort; keeps the justice community informed about technological innovations; and assists in the delivery and effective utilization of technical services to the centre. The Jurisdictional Assistance programme system specialists work in close cooperation with analysis, programme chiefs and jurisdictional representatives to identify opportunities, develop proposals, secure funding and proceed with system development.

The Information and Client Services unit was established in 1990-91 to promote the use and accessibility of information to users by responding to requests for statistics and information by providing clearinghouse and brokerage services and by undertaking general communication activities.

The Centre Assistance programme provides data processing support to the centre's statistical programmes for publications and responses to special requests. Services fall into three main categories:

- Information support for centre products and services;
- Technology support for the centre's hardware and software;
- Systems support to build tools which facilitate the analytic process or other activities of a repetitive nature.

The Technology Coordination programme is responsible for:

- The development of in-house systems which facilitate the analytic process or other activities of a repetitive nature;
- The management, acquisition and maintenance of technological resources at the centre;
- The development of a long-term technology strategy.

CONCLUSION

In 1981, the Canadian authorities made a solid commitment to the establishment of a national justice statistics programme. Despite very considerable progress made during the last decade, several significant information gaps remain to be filled. Canada has virtually no information on civil or administrative justice. Official records which form the basis for most criminal justice statistics on prisons, on courts and on police need improvement. Improvement can occur in coverage, completeness and consistency and more importantly, in automation. In Canada, the demand is rapidly increasing for information which goes beyond the administration of justice. Reliable measures of wife assault, child abuse and elder abuse are being sought. Regularly conducted comprehensive surveys of victimization are being recommended. Canada faces the challenge of refocussing its statistical programme to support a growing policy emphasis on crime prevention through social development.

THE USE OF CRIMINAL JUSTICE STATISTICS IN CRIMINAL JUSTICE POLICY IN ENGLAND AND WALES

*Christopher G. Lewis*¹

INTRODUCTION

This paper describes the use of criminal justice statistics for policy in England and Wales. Different databases are taken, recent results given and the way these results have been used by policy analysts is described. Stress is placed on the central location of the statistical departments, which enable ready access to policy divisions and the administrative systems from which the statistics are obtained as well as central control of counting rules and codes.

Information is at the heart of an efficient criminal justice system in any country. At the operational level, police officers, prosecutors, court officials, probation, parole and prison authorities need to know detailed information about crimes committed, victims, suspects and offenders: policy administrators need to know how policies are working and how the social and technical environment is changing: ministers need to know how expensive, realistic and effective it would be to put into effect a range of possible policies.

HOME OFFICE RESEARCH AND STATISTICS DEPARTMENT

In England and Wales, criminal justice is controlled by three Departments of State: the Home Office, which takes a leading policy role, the Crown Prosecution Service and the Lord Chancellor's Department, which controls the courts.

Of vital importance to the use of data for policy purposes is the central position of the Research and Statistics Department within the Home Office. As this is a different model from many other countries, it will be useful to describe it briefly. The Research and Statistics Department comprises some 240 civil servants: statisticians, researchers economists, computer specialists, data collectors and administrative staff. They are a core function within the Home Office and work in the same building as policy colleagues.

Their central position gives them four advantages:

- They have ready access to policy formation. Thus, they make suggestions on changes to existing policy, as well as commenting on ideas coming from ministers, policy

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colleagues pressure groups, court decisions, etc.;

- They influence the technical structuring of administrative databases from which much of their data is collected, by ensuring management and policy information needs are taken account of when such systems are designed;
- They set standards for statistical definitions and counting rules, for data, technical and communication structures within the systems from which their data come;
- As they are an independent unit in the Home Office and governed by the Code of Statistical Practice of the Government Statistical Service, statistical integrity is preserved.

A further advantage of the Research and Statistics Department is the way that statistical techniques of data collection and research techniques of analysis are combined to give wider perspectives to policy analysis.

NEED FOR DATA

Policy analysts need quantitative information to support their work. This typically comes in three ways:

- From statistical databases;
- From specific research projects;
- From programme development.

This paper concentrates on the first of these topics. However, many policy problems can only be answered by a proper blend of research, programme development and statistics. Statistics typically may have a wider coverage and exist over a longer period of time, but the social dimension of statistical data bases is often very restricted. Many of the statistical analyses thus need to be supplemented by more detailed research studies of specific areas of the justice system.

Moreover, criminal justice policies usually involve many different agencies and it is difficult to predict, with any degree of certainty, the effect of a new initiative. Programme development enables certain types of programme to be carried out on a pilot basis, to see what works effectively and what does not. Provided there is good evaluation during and after the programme development, this can be a very effective way of producing new policies

without having to go through the whole process of setting up national schemes, with large funding programmes.

BACKGROUND AND HISTORY

The main areas of the criminal justice system where statistics have an influence in Policy analysis are the following:

- The measurement of crime and police workload;
- The work of the prosecutor;
- The work of the magistrates' (Lower) and the Crown (Higher) Court;
- Sentencing in the courts;
- The work of the probation service in supervising offenders in the community;
- The work of the prison service;

and these are considered below. In each area, the statistical database is described, some recent results are given and recent uses of the data for policy purposes are discussed.

Broadly speaking the criminal justice institutions of England and Wales exhibit a mixture of adherence to national standards and local autonomy. The law is common to all areas of England and Wales. There are also many non-legal standards, eg there is much central financial control: central training and manpower standards and computing standards.

There are also central statistical standards of counting rules and reporting. For many years it has been accepted that local police, prosecutors, courts and corrections staff have a duty to supply returns to central ministries. This has typically been a manual paper exercise for many years, but growing computer power has meant that paper returns are being rapidly replaced by electronic data transfer.

This leads to information being available more quickly and is a useful cost-saving exercise. The Research and Statistics Department has a long history of setting standards for counting rules and definitions and has recently broadened this role to set data, technical and communication standards for data which passes electronically between different agencies of the justice system.

In many cases statistical reporting is on a 100% basis. All court results: details of all people under the supervision of the probation service: details of all homicide cases: and of all people in prison service establishments are held centrally. The fact that local agencies are willing to do this reflects the duty they have to the centre. This duty is an administrative feature, rather than a legal one. Only in a few cases is an agency bound by statute to complete some statistical returns for central authorities.

There are some areas where 100% reporting would be expensive and wasteful. For example, to keep central registers of the 5.5 million crimes recorded a year or of the 7 million people who have to pay fixed penalties would be overexpensive. In such cases, summary statistical returns are made. However, once all information is held on compatible computers, it will be cost-effective to sample such local databases for central analysis.

Common standards mean that central authorities can combine electronic returns from each area of the country. In the longer term they will enable different agencies to exchange data, at local and national level. It is the growth in the use of these databases which dominates the improvement in statistical policy analysis over the last decade. Typically, these databases are held on central computers, linked by local area networks to researchers and statisticians: policy analysis adds value to the raw figures and is passed on, on a similar local area network to policy makers and ministers in central departments.

The advantages of drawing data from administrative sources are:

- Data collection is much cheaper than special statistical data capture;
- Data capture is likely to be more timely;
- Data capture is likely to follow common standards of definition as far as computer packagers are concerned;
- Data will be of good quality, where there is an operational or legal need, within the agency collecting the data.

However, there are some disadvantages associated with data quality, where there is no operational or legal requirement within the agency:

- Data are no longer entered by people whose business is statistics. This can affect data quality;
- The local databases are likely to be the same as those which yield the performance indicators which are more and more being used by local agencies. Such data are

not generally recognized to be of such good quality;

- Statistical analyses and developments generally get lower priority than the operational needs of the agency involved;
- Definitions may change, making it difficult to maintain a consistent statistical series over time.

The paper goes on to discuss uses of statistics in certain specific areas.

THE MEASUREMENT OF CRIME

There is a well-documented problem of defining what is crime and in deciding in which way to measure it:

- By the amount which people claim to suffer; or
- By the amount which police or other agencies record.

In England and Wales, there are two measurements, both of which have their advantages and drawbacks: the British Crime Survey and police recorded crime. Both result in the creation of medium sized databases.

BRITISH CRIME SURVEY

This is a survey of 14,500 households, carried out now every 2 years, but at different intervals in the past (1982, 1984, 1988, 1992, 1994.) The sample is drawn from the postcode address file, which is a computer listing of all postal delivery points. A response rate of some 77% is achieved.

This survey also goes into much wider aspects of people's experience as a victim of crime, including fear of crime, reporting to the police, crime prevention measures used, attitudes to the police, worries about their local environment, self-reported drug misuse, etc. The British Crime Survey database, once it has been verified and documented, is made public property at the University of Colchester, Essex.

The main results of the British Crime Survey enable the overall effects of policy towards crime to be evaluated. Key results from recent surveys include:

- Between 1991 and 1993, whereas police figures rose by 7%, British Crime Survey figures rose by 18%;
- The risk of being a victim of crime is generally higher for those in inner cities, public and rented accommodation, and apartments; risks are also higher in the north, for men and for younger people;
- A third of respondents felt unsafe about walking alone outside after dark;
- A quarter of those aged 16 - 29 claimed to have used cannabis at some time in their lives;
- The proportion of households where neighbourhood watch schemes exist had risen to 28% in 1992;
- Between 1981 and 1993, whereas police figures rose by 111%, British Crime Survey figures rose by 77%.

Uses of British Crime Survey Data

The findings of the British Crime Survey are disseminated widely throughout the criminal justice system. They form the basis of current awareness of the extent of crime and the impact of crime on victims. Findings are used in the monitoring of Criminal justice system services, public satisfaction with the Police, Police complaints procedures and victim support schemes.

British Crime Survey findings inform policy by quantifying particular problems: e.g. the extent of witness intimidation; the costs of vandalism; crime and the fear of crime on housing estates; crime risks in different geographical areas; the cost effectiveness of incapacitation; what victims want; teenagers lifetime risks of crime; racial attacks and harassment.

There is also a good deal of use by outside groups: eg. by insurance and security firms for advertising; by the Consumers Association; the media; universities for teaching purposes. British Crime Survey figures have also revealed the limitations of police statistics as a guide to the extent of crime and trends in crime over time.

There has been considerable use in work with victims, who run a heightened risk of re-victimization in the period after the first incident. This has greatly influenced victims support work with recent victims. There have been other changes in provision of services to victims due to the British Crime Survey: e.g. in changes in policing style to give victims

more information.

Police Recorded Crime Database

Despite the British Crime Survey providing one good measure of crime, we, in common with every country, also collect estimates of crimes recorded by the police. These two collections complement each other. Every incident reported is examined to see whether a crime has been committed. If the police decide it has, this is recorded. Each month a return is made to the Home Office of the number of crimes, by offence, for each force area, the number of crimes cleared up, and the method of clear-up. The Home Office maintains this database.

Although the recorded crime figures do not represent the total of crime, they are good measures of the workload of the police. As such they are used extensively to measure police performance, in such areas as crime prevention, clearing-up offences and changes in police priorities. Local figures are also used by commercial organizations for crime prevention, to press sales of security equipment, etc.

Recorded crime figures are used with British Crime Survey figures to show the trend in crime, to measure the general efficiency of the police and, with caveats, compare with other countries. Trends in different parts of the country and for different offenses are compared. Assessments are made of the effect of improved reporting due to telephone growth, changes in insurance coverage, or encouragement to report offenses. Future levels are predicted.

Key results from recent police crime figures are:

- There has been a long-term growth in recorded crime of some 5%, during most of the 20th century;
- In period when consumers' expenditure is rising, property crime tends to fall. This has happened in 1994, when property crime in England and Wales fell by 5% and vehicle crime fell by 10%;
- In periods when consumers' expenditure rises, violent offenses tend to rise also. This has happened in 1994 in England and Wales, when violent crime rose by 6%;
- 95% of recorded offenses are against property;
- Just over a third of recorded crimes are theft of or from motor vehicles;

- In a majority of cases of homicide and rape, the suspects were known by the victims.

Other uses include:

- Investigating whether changes in sentencing practice, such as more severe punishment, reduce recorded crime: in general very large changes are needed to produce a significant effect;
- To brief ministers and Members of Parliament about local crime trends;
- To monitor local performance indicators which have been set for the police service;
- To support bids for resources;
- To investigate the development in rural crime;
- To monitor the effect of specific policies such as those to improve the environment in inner city areas: car-crime prevention campaigns; police initiatives to reduce burglary and domestic violence.

Homicide Index

This database contains all homicides known to the police. Information on suspects, victims, their relationship, the circumstances of the homicide and the result of the court proceedings are maintained. Since there are no more than 600 - 700 homicides recorded a year in England and Wales, this is a relatively small database fed by manual returns and does not present some of the problems of the large databases.

Some of the more interesting recent results from this index are:

- The most commonly recorded method of killing for male victim was with a knife or other sharp instrument: for female victims it was strangulation;
- For more than a half male victims the suspect was acquainted with the victim: for female victims this proportion was over 80%;
- In the last decade, only 41 suspects were convicted of homicide who had been previously so convicted.

These results are used extensively by opponents of capital punishment, especially in the frequent parliamentary debates. The figures have taken much of the steam from the

capital punishment lobby, as homicide in England and Wales is, to a very large extent, a product of domestic-type conflicts where the suspect and victim are known to each other. The tough control on firearm possession has kept the number of homicides to low levels.

There is a particular use of the figures in monitoring homicides in specific circumstances: for example, homicides by the mentally ill to inform policies for secure hospital treatment; repeat homicides to inform the policy for release of those sentenced to life imprisonment; homicides of public service victims, especially police and prison officers, to inform discussions about whether the present penalty is sufficient.

Crown Prosecution Service Database

The Crown Prosecution Service statistical systems are still developing. Figures exist for measuring the performance of the Crown Prosecution Service, and they are pulled together into a national database on which policy-makers can draw. However, this is mainly a paper exercise. A case-tracking system, SCOPE, is being introduced in the next two years which will enable information on the working of the Crown Prosecution Service to be downloaded by electronic data interchange to a central prosecutions database. Special studies are conducted to supplement this data.

Recent key results are:

- 1.5 million cases finalized at the lower court in 1994, the same as in 1993;
- Cases received at the upper court rose from 123,000 in 1993 to 126,000 in 1994;
- Advanced disclosure of the prosecution case was given in over 80% of cases in 1994 at the lower court;
- Over 90% of cases at the higher court lead to conviction;
- Only 19,000 cases at the higher court were contested. In 43% of these the defendant was acquitted;
- Termination of cases by the CPS ranged from 10% to 20% in a sample of branches.

The main policy uses of these figures are:

- For the operation of the prosecution service, e.g. to inform the Crown Prosecution Service review of its Code for Crown Prosecutors;

- To measure the interaction of the prosecution service with other agencies such as the police and the courts to inform the need for change;
- To monitor performance indicators;
- To inform the need to be any changes to the power of the prosecutor, e.g. whether a prosecutor fine or a caution should be introduced.

Magistrates' Courts Results Database

Individual results from the lower courts are sent in to the Home Office: traditionally a paper exercise, about a quarter of data is now received on tape, which will grow to 100% electronic data interchange by the end of the century. A national database of all court results is held on an ICL mainframe computer, using an IDMS database. A migration plan is in operation to transfer this to an ORACLE-based database in a UNIX environment.

The database enables the working of the lower courts to be monitored in detail, regarding types of sentence, ages and sexes of defendants, areas of the country, breaches, traffic violations fine payments, etc. Potential policy measures are evaluated and the effects of new initiatives shown. However, there is little on the social background of defendants, or the processing of cases by the courts. Research studies of defendants are necessary to supplement the information on the large databases.

Crown Courts Results Database

In a similar way Crown Courts make available all results on tape to central authorities, from their administrative system - CREST. This enables early monitoring of the higher courts, which deal with the more serious cases and with appeals from the lower courts. A migration plan exists from the present IDMS data base on an ICL mainframe to an ORACLE database in a UNIX environment. Information is available on age and sex of defendant, offence, type and length of sentence, area of the country, breaches, etc. Custody rates can be calculated and prison levels predicted.

Offenders Index Database

The results from all courts are merged for all but the less serious offenses into a 10-gigabyte database called the Offenders Index, which holds all known conviction history for offenders since 1963. This is an ORACLE database sitting in a UNIX environment and enables studies of criminal careers, reconviction rates, comparative effects of different disposals, etc.

Key results from recent court statistics and sentencing studies are:

- 35 % of males have a conviction for an offence on the standard list (criminal damage, theft and more serious, but excluding most traffic offenses) by the time they are 35;
- Just under a half of known offenders are under 21;
- The peak age of known offending for males is 18 and, for females is 15;
- Over 80% of known offenders are male;
- Around 40% of known offenders are cautioned by the police (an informal disposal) 85% of those cautioned are not reconvicted within 2 years;
- Over 50% of those sentenced at the Crown Court are given immediate custody. The reconviction rate for those given custody is around 50%.

Recent uses of the results from the courts' sentencing databases and the offenders index have been:

- To strengthen the guidance given to the police on when they should give a caution, restricting the use of the caution to less serious crimes and discouraging it for repeat offenders;
- To estimate the likely effect of recent sentencing changes so that these can be discussed when the proposals are first put forward;
- To monitor new laws: eg. the criminal justice acts 1991, 1993 and 1994 which changed the offenses which could be prosecuted, the sentences which could be given, especially to young and repeat offenders, and the new units to be set up: eg the secure training centres for the young;
- To provide information to parliament and the public;
- To examine the impact of the introduction of unit fines in 1993;
- To provide detailed information to sentencers, to enable them to be aware of their sentencing practice;
- To investigate any sentencing bias, e.g. by gender or ethnic origin;

- To investigate the extend of charge reduction by the courts;
- To provide data for performance measures in the Probation Service.

Probation Data Base

Local probation areas send in statistical returns by electronic data interchange and a central database is maintained on an ICL mainframe of those under care of the probation service on community penalties. Local areas are moving to a consistent local ORACLE-based database in a PC/UNIX environment, and, in due course, the central Probation Index will move to an ORACLE-based system in a UNIX environment.

Key recent results from the probation index are:

- There was a rise to 112,000 in 1993 in the total number of people receiving supervision in the community;
- 48,000 community service orders were started in 1993, the highest number ever;
- Probation order starts fell to 42,000 in 1993;
- The percentage reconvicted within 2 years of commencing probation orders was 54%: for CSOs it was 56%;

Uses of the probation index data include:

- Monitoring the operation of the probation service, including its performance indicators, staff costs and numbers in relation to reports written etc.;
- Monitoring the use made of pre-sentence reports;
- Monitoring the use made of court orders, additional requirements, etc. in terms of offender history and characteristics;
- Monitoring the extent of family court welfare work done by the service and the nature of the work done in dispute resolution;
- By monitoring recommendations in pre-sentence reports the data provide an indication of the interaction between the probation service and the sentencers in deciding sentences;

- Supporting the work of the inspectorate of probation;
- Monitoring the proportion receiving court orders who are from the ethnic minorities.

Prisons Statistical Database

In 1991, a new prison service system was introduced fed directly by computers in each prison establishment. This is on an IDMS database running on an ICL mainframe. It provides the source for statistics of the prison population, receptions into and discharges from prison, the use of parole and of offenses against prison discipline.

The main key results from this database are:

- The prison population at the beginning of March 1995 was about 51,000, of which the remand population was about 12,500;
- The increase in sentencing by the Crown Court in 1994 has led to an increase in the number of male sentenced prisoners held for violence and drugs offenses;
- Persons of black ethnic origin accounted for a substantially higher proportion of the prison population in 1993 than of the population as a whole, particularly females. However, this difference is reduced when only persons with United Kingdom nationality are considered, and the discrepancy between males and females is eliminated.

The main uses of the prison statistics are:

- To make estimates of future demand on prison facilities to inform the prison building/repair programme;
- For management purposes e.g.g number of health checks required, uniforms and meals needed;
- To show whether key performance indicator targets are being met;
- To assess current criminal justice trends, by relating prison figures to sentencing and crime figures;
- To analyze the reasons for the high numbers of black people in the prison population;
- To evaluate the effects on the prison population of recent criminal justice acts;

- To evaluate the effect of new bail information schemes and bail hostels schemes on the remand population;
- To review the policy on sentencing for default on payment of fines.

Criminal Justice Information Policy

There are still many questions which cannot be answered. In particular, there is little about why figures have moved in a particular way. This is where more detailed research helps. There is also little data on the way an individual offender moves through the system. For this a longitudinal approach is needed, linking databases together. There are also specific areas where data are lacking, for example in the pre-court stage, in areas such as plea-bargaining and reduction of charges.

There is also a need for more structure in the data provided. What is available is generally defined by the database itself, rather than by the needs of the policy analyst. Thus a criminal justice information policy is being set up to define more closely the information is needed by criminal justice system agencies.

CONCLUSION

The use of statistics is of great benefit to policy-makers. However, new problems arise, for example, the training in the computing techniques now necessary, the cost of maintaining such databases, and the quality of the data which is kept on them. It is important in England and Wales, as no doubt in other countries that the value for money of these developments is carefully measured to ensure best use of the money available.

The ongoing migration to UNIX-based environments, where the cost of the hardware is very much lower, is reducing the expenditure on statistical databases. The use of ORACLE-based software has also reduced costs, as will the use of CD-ROM material in making data available to other users.

STATISTICAL INFORMATION ON CRIME AND ITS USE IN CRIME CONTROL

*Gennady L. Lezhikov*¹

INTRODUCTION

Four years have passed since the Russian Federation became a state with a transitional economy. Everyone knows that such countries are characterized by activation of criminogenic processes practically in the entire spectrum of illegal manifestations. An exception to a general rule was not made for Russia where crime became one of the major destabilizing factors of the social development and its scale reached a threshold posing a real threat to the safety of the State and to realization of socio-economic reforms.

The public opinion surveys show that, among the problems traditionally causing the greatest concern of the population in Russia, crime has occupied the second place after the price increase. The trend of the growing professionalization of criminals becomes apparent. Recently, criminals seek to commit sophisticated profit-oriented crimes and, in attaining its criminal goals, demonstrate particular impudence, aggressiveness and negligence of not only the rights, but also of the life of citizens and officials.

In general, the escalation of criminal violence becomes a major feature of the current crime situation in the country. More and more often crimes are committed with the use of firearms. The armed actions are often connected with terrorism, thus becoming a tool of pressure upon officials, a method of intimidating business competitors, a means of settling conflicts in the criminal underground.

The control of criminal activities by organized criminal groups is becoming more and more evident. The latter attempt to interfere into politics and to lobby their interests in governmental structures at all levels. Consolidation of criminal groups takes place both in separate territories and at the interregional level. Juveniles and young adults are more and more actively involved into criminal groups.

Organized criminal groups practically fully monopolized a highly profitable narco-business, having set up an industry of manufacturing and distributing the drugs. In this connection, the growing amount of narcotic substances produced in illicit laboratories and setting up a wide network for distributing the drugs are significant.

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The use of firearms by organized criminal groups has increased markedly. The major sources of replenishment of criminal arsenals are the areas of ethnic conflicts, smuggling, illicit manufacture and thefts from military installations.

CRIMINAL JUSTICE STATISTICS

Under these conditions, the efficient system of collection, processing and distribution of information on the crime situation and the progress in crime control is of major importance for analyzing the operative situation and working out the adequate measures of response to its changes.

It shall be pointed out that the statistical data registration and accounting system, which is effective in Russia since 1961, is primarily aimed at meeting the information requirements of various law enforcement agencies and is, therefore, of an agency-oriented character.

According to the existing legislation, the right to initiate criminal prosecution and to hold an inquiry within its (their) competence is vested in the Prosecutor-General's and Interior bodies, military commanders, captains of sea vessels, courts, Federal Counter-intelligence Service, Federal Frontier Guard Service, State Customs Committee, tax police. Naturally, the statistical registration of crime and criminals also bears a departmental character.

Thus, crimes against the State are accounted for by the Federal Counter-Intelligence Service, military crimes are registered by the Ministry of Defence, whereas the record of private prosecution cases is within the competence of courts. Other crimes are registered by Interior bodies and cover 95% of all criminal events. This gives quite a complete picture of the operational situation in the country in its regions.

Statistical registration of crimes and criminals, carried out by Interior bodies, is based on five documents relating to initial record:

- Statistical card for a identified crime contains qualification and description of a crime (place, means and techniques of crime; object of crime; victim);
- Statistical card on the results of investigation of a crime contains the characteristics of criminals, their motives, information on material and compensated damage, on seized items of criminal activities;
- Statistical card on identification of a criminal allows to quickly trace the activities of

the Interior agencies on detecting possible criminals;

- Statistical card for a criminal contains a detailed description of a criminal (age, nationality, place of residence, social and occupational status, education), characteristic features of criminal actions (committed in a group, together with juveniles, under alcohol or narcotic intoxication), as well as information on previous criminal record (convictions, imprisonment, the fact of being recognized as a very dangerous recidivist);
- Statistical coupon for a judgement on a criminal case contains information on the progress of the criminal case and on the extension of the investigation period.

These cards are filled in by the investigator of the case or by a person who approved the material, and are forwarded for registration and processing to information centres of the Interior bodies of the Federation subjects and of the Interior bodies on transport (107 information centres totally). In 1994, these centres received about 12 million documents of such type.

The analysis of the statistical data registration system of law enforcement bodies also testifies to its departmental nature.

The Prosecutor-General's Office collects the statistical data on the results of activity of the investigative and prosecuting agencies, as well as information on the work relating to the claims and reports of citizens on the crimes committed.

The Ministry of Justice uses this data, practically for all types of crimes, for analyzing the results of court criminal proceedings and the composition of the persons convicted for having committing the crimes.

On the basis of the above-listed initial registration documents, the Interior bodies register and issue four governmental and sixteen departmental forms of official reports giving quite a detailed picture of the crime situation and of the results of work of various Interior services in the field of law enforcement, crime clearance and search for criminals in the country.

All these reports come to the Main Information Centre of the Interior Ministry of Russia which accumulates and maintains at the updated level the statistical data base containing 50 million parameters.

Apart from recording forms, based on initial registration documents, the Main Information Centre processes another 47 forms depicting various aspects of the field and

service activities including fires and road accidents.

In our opinion, under the conditions of on-going criminal justice informatization of our society, there is no urgent need in setting up a uniform information service for the law enforcement system.

The availability of several channels for collecting justice statistics in various ministries and agencies, as well as within the Interior Ministry of Russia, increases the cost of their collection and processing. At the same time, the objectiveness of the obtained statistical data is considerably higher due to a more interested and professional monitoring of its completeness and reliability.

Moreover, the implementation of a large-scale programme of computerization of central and local Interior bodies made it possible to carry out a stage-by-stage transition to paperless methodology of statistical data processing.

Thus, within the framework of regional information and computing networks being set up at present, documents of initial registration from the field offices are submitted to information centres not in paper forms, but are put directly into computers.

The statistical reports from the subjects of the Federation are forwarded to the Main Information Centre by electronic mail. Furthermore, the statistical reports are presented to the users not only in hard copies, but also in the form of data base clips. As soon as the users become adequately equipped with necessary hardware and software, they will be granted direct access to statistical data bases.

All these measures make it possible to substantially reduce the time of flow of the statistical data from the moment an initial-registration document is filled in at the local police body until it is introduced into the data base of the information centre at the level of the republic, territory, region, as well as from the moment the statistical report is made by the Interior bodies of the Federation subjects until the federal Ministry employees receive the statistical data.

USES OF CRIMINAL JUSTICE STATISTICS IN CRIMINAL JUSTICE INFORMATION POLICY

How do we practically use the received statistical data? The major function of the criminal justice statistics consists in supplying the required data for the analysis of the current operational situation in the country as a whole and in the subjects of the Federation. The statistical data accounting system makes it possible to regularly monitor the dynamics of the

illicit activities, the structure of criminality and its changes in time, the trends and features of crime in regions, to study in dynamics the socio-demographic characteristics of individuals who have committed crimes, and to analyze recidivism, juvenile delinquency, illicit drug trafficking, etc. The following analytical parameters have proved to be effective:

- Crime rates per 100 thousand population;
- Dynamics of the proportion of a certain type of crime per specific group of the population (individuals with a criminal record, juveniles, persons without permanent source of living, those who have committed crimes under alcohol, narcotic or strong substance intoxication);
- List of regions with a considerable proportion (half, one third) or increasing growth rate of this type of crime (serious crimes, crimes against an individual, drug-related crimes, crimes committed with the use of arms, etc.).

This data makes it possible to single out most unfavourable regions and to decide whether these negative trends in the operational situation followed the objective development or resulted from the inefficiency of local Interior bodies.

The study of dynamic sequences of various parameters, which characterize the criminal manifestations, the correlation of this data with the existing demographic, migration and economic processes in the society permit to foresee the rate and structure of crime, as well as elaborate adequate preventive measures to reduce the negative impact of the factors aggravating the operational situation.

The influence of a properly selected statistical parameter on the final results of work can be demonstrated by including the notion of the crimes not necessarily implying preliminary investigation, i.e. less serious crimes, taken from the existing legislation, into the statistical data recording system. In accordance with the Militia Act these crimes are referred to the jurisdiction of the militia of public security.

Such a purely administrative measure gave an additional impetus to the activities of the central and local Interior bodies. The awareness of these crimes and the rate of their registration grew up. Obviously, the activation of the fight of law enforcement agencies against less serious crimes reduces, to a certain extent, the general criminal background and also contributes to the decrease in the number of more serious criminal manifestations. As a result, the increase in the number of serious crimes in Russia in 1994 stopped.

Additional advantages in the management of militia forces and techniques can be gained from the correlation of the crimes committed within a fixed period of time

(year, quarter, season, month, week, certain days of a week, holidays and week-ends, time of the day, hours) with the map of a region falling under the jurisdiction of a given Interior body (district, town, region). The solution of this problem makes it possible to work out the optimal (in terms of available resources) scheme of patrol itineraries and stationed posts, which gives a reliable militia response-readiness at the most risky places in the most criminogenic periods of time.

To ensure the operational response to criminal activities, the Interior bodies, along with the overall statistical monitoring (which is actually the statistical registration of all offenses and offenders), carry out a selective data collection which includes reports on most dangerous crimes, emergencies, natural calamities and disasters. The more severe are the social consequences of the incident, the higher is the level of the Interior body to which the report is submitted (town, regional, republican agency, the Russian Ministry of the Interior).

Such a scheme of informing the superior Interior bodies provides a possibility not only to take timely and adequate measures in each particular case, but also, while analyzing the most daring and serious serial crimes and abstracting from the framework of a certain statistical time period (month, quarter, year) and from the boundaries of a subject of the Russian Federation, to identify negative trends characterizing the regional groups (the Northern Caucasus, Far East, regions adjacent to the borders, cities with a complicated crime situation).

The objective statistical reflection of the processes developing in the criminal underground makes it possible to elaborate adequate crime prevention measures.

Another important function of the criminal statistics is raising the awareness of the results of the law enforcement activities. Here we analyze the work-load of certain categories of officers (number of criminal cases per investigator, criminal police officer, police beat inspector, forensic scientist, etc.).

Also taken into account are the factors which facilitated the disclosure and clearance of crimes and identification of criminals (whether special methods and techniques, forensic techniques, specific registration files have been used).

While correlating the features of the operational situation in the regions with the results of the Interior bodies' activities, comparing this data with the generalized figures in the territory of the Russian Federation, analyzing them in dynamics, the personnel of analytical units at the Headquarters and in local bodies can make well-grounded recommendations on improving the law enforcement activities, thus minimizing the number of business trips to local bodies for the purpose of inspection and concentrating the maximum of the available resources on rendering practical assistance.

Besides, it allows to better substantiate and channel the assistance to local Interior bodies by using the allocations from the federal budget. For instance, this is done in solving the problems of the personnel distribution, electronic, computer and special equipment, motor transport and communication facilities.

One more important aspect of the information support of the management is to be pointed out. Since criminality is a very complicated multi-facet social phenomenon and the problems of its control cannot be solved by law enforcement agencies only, the justice statistics performs one more important function - that of mobilizing all strata of the society to improve the rule of law.

The background statistical data, as well as analytical and predicted data, along with the proposals on eliminating the causes and conditions of the criminal behaviour of citizens, is submitted to other law enforcement bodies, the superior authorities (Government, Federal Assembly, Security Council, President). As a result, the statistical data becomes the basis for developing interagency purpose-oriented programmes providing for the legal, financial and technical support of the crime control activities. For example, in 1994 the President of Russia approved the Federal Programme of the Russian Federation on strengthening the crime control for 1994 - 1995, which not only provides for the combination of the efforts of the Russian law enforcement agencies, but also outlines the ways and forms of co-operation among the countries of the Commonwealth of Independent States in combating organized crime and other serious encroachments upon the common interests of the CIS-countries.

This programme, along with large-scale measures aimed at stabilizing the operative situation in the country, envisages the elaboration of an up-dated system of the governmental statistical data recording on the crime situation, crime-related (background) phenomena and on the results of their control, while having provided the uniform crime and criminals recording system for all law enforcement agencies.

USES OF CRIMINAL JUSTICE STATISTICS IN CRIMINAL JUSTICE LEGISLATION

A properly organized criminal justice statistical system makes it possible to inform the legislator in due time of the formation of vacuum gaps between the current legislation and the law enforcement practice. In a number of cases, the timely solution of such issues allows to reduce the time required for adopting relevant regulatory acts. Thus, a new impetus to organized crime control has been given by the Presidential Decree on "Urgent Steps to Protect Population against Gangsterism and other Manifestations of Organized Crime", issued in July 1994.

The Decree considerably enlarged the legal scope of fight against serious crimes, gangsterism in the first instance. Information coming from local units testifies to a more active and effective use by the Interior agencies of additional potential to suppress criminal groups, provided for by this Decree.

The use of new powers in conducting the operative-search and investigative measures to obtain information on the commercial activities of organized criminal groups (including the checks of financial transactions made by juridical and physical persons, the examination of premises and facilities used by enterprises and entities, the study of relevant documents) made it possible to quickly prove the guilt of criminal groups' members having committed many serious crimes. The activities on implementing the Decree involves the overall resources of the Interior bodies. The contribution of criminal militia, investigative and other services into the fight against gangsterism and other manifestations of organized crime grew up. In spite of fears that the implementation of the Decree would cause the increase in the number of law violations, infringements of citizens' rights and freedoms, it did not happen. According to information from local units, both the Decree itself, as well as measures on its realization, gained full support and understanding of the majority of population.

However, there are also negative consequences of certain legislative steps, i.e. despite well-grounded objections, criminal responsibility for vagrancy was eliminated. This resulted in a sharp increases in the number of vagrants, which ultimately became another criminogenic factor of the operative situation.

NON-TRADITIONAL ASPECTS IN THE USE OF CRIMINAL JUSTICE STATISTICS

The statistical data recording system can serve as a basis for the formation of integrated data bases of the operative-and-search nature. It will permit to shorten the data-input time and substantially increase the accuracy of the accumulated data.

- Firstly, the statistical data recording is a strictly regulated process - its adequacy and timeliness are controlled both by the prosecution and by the Ministry of the Interior.
- Secondly, the statistical cards are filled in by investigators, e.g., by highly professional lawyers, whereas registration cards of the information data base are filled in by detectives who are more accustomed to the practice than to paper work.

Recently the Interior bodies have started to afford various statistical data to commercial entities. First of all, it refers to insurance companies which calculate insurance risks on the basis of evaluation of the data on criminal encroachments upon citizens and their property, on persons and material losses caused as a result of crimes and fires.

CONCLUSION

Further development of the justice statistics recording should be effected by introducing into the automatized network of the applications (reports) on the crimes and of information on the judgements of the trial proceedings with respect to the criminal case, which will result in the interagency character of the criminal justice statistics and make it possible to monitor the overall process of recording and investigation of crimes, the subsequent trial proceedings with respect to particular criminal cases, as well as re-specialization of the persons who have served their sentences.

We are also planning to single out, as independent initial-registration documents, cards on a victim, on a suspected person and on material damage caused; it will enable us not only to reduce the total labour consumption for keeping records, but will provide additional analytical potential for elaborating crime prevention measures.

In the nearest future, the governmental system of criminal justice statistics recording will suffer cardinal changes. It will become of interagency nature and will cover all offenses.

ASSESSING THE COSTS AND BENEFITS OF CRIME CONTROL STRATEGIES

Jan J.M. van Dijk¹

INTRODUCTION AND SUMMARY

This paper draws upon an unpublished policy report by A.C. Berghuis, R.F. Meijer and G.L.A.M. Huijbregts, Ministry of Justice of the Netherlands, March 1994. The aim of this study was to determine what effects certain hypothetical crime control strategies might have on the work of the police and criminal justice authorities. Four scenarios were devised. In each case, the question was how expenditures of the various subsystems of the criminal justice system would be affected,

- If recent trends (including the quality of the measures taken) could simply be extrapolated (the *zero scenario* or *ongoing trends scenario*);
- If the strength of the police were to be increased by 2 - 3% (equivalent to an extra 1,000 police officers) and this extra capacity were to be deployed in a general way, i.e. if the police were to do more of the same (the *police scenario*);
- If society were to devote 30% more energy to preventing crime by tackling criminogenic situations (technical and social prevention) and this were to have a definite effect on crime, especially the more minor types of crime (the *situational prevention scenario*);
- If the police and other community-based organizations were to unite in concentrating on young people at risk, in an attempt to intervene effectively at an early stage when the problems are first identified, and if this were to succeed in one in ten cases (the *network criminality prevention scenario*).

The results of the calculations are summarized in Table 1 below. This shows what trends are likely to occur in the short term (within about four years) and the medium term (between four and ten years) on the basis of the assumptions made.

¹ Director of Strategic Planning, Ministry of Justice of the Netherlands/Professor of Criminology, University of Leiden, the Netherlands.

Table 1: Summary of Expected Effects of Four Strategies of Crime Control

	Policies unchanged		Extra Police		More situational prevention		More offender-oriented/network prevention	
	short term	medium term	short term	medium term	short term	medium term	short term	medium term
Social benefits (crime levels)	---	---	---	---	0	++	--	+(>++)*
Effort needed:								
* by organizations other than police/criminal justice authorities	p.m.	p.m.	p.m.	p.m.	+	+	++	++
* by police and criminal justice authorities, of which	++	++	++	++	++	+	++	++
* police	+	+	++	++	+	0	++	+
* courts	0	0	0	0	0	0	0	0
* execution	+++	+++	+++	+++	+++	+++	+++	+++

* Significantly greater effect in the long term.

First of all, a reversal of the crime trend can be expected only if certain very specific conditions are fulfilled, and even then it would not happen in the short term. A reduction in crime would be possible in a number of years' time only if substantial amounts are invested in prevention (*situational prevention* and *network criminality prevention* scenarios). None of the scenarios holds out the prospect of a major effect in the short term.

All the scenarios are based on the assumption of a substantially greater effort by the police and criminal justice authorities. Even if no extra measures were planned to reverse the trends, the police and criminal justice authorities would still have to expend more energy each year simply to keep pace with their growing workload. This applies above all to the penal authorities in the enforcement of custodial sentences and alternative sentences. The police too will come under extra pressure, albeit to a slightly lesser extent. The energy that has to be put into the administration of justice and the provision of legal aid is less subject to fluctuation. The expected increase in the workload of the police and criminal justice authorities is approximately 1 - 2% a year. To enable them to cope with this extra workload, an extra *f* 45 million a year will be required (excluding cost-of-living adjustments and investment costs and excluding the costs of bringing quality up to the required level).

The main reasons why the effects have been estimated in this way are as follows:

- Decisions to act now can be expected to be fully implemented only after a number of years have passed: it follows that the effects will not become fully visible until after this period has elapsed. There may also be some delay in effects becoming apparent - this applies in particular to the network criminality prevention scenario: although the effect of the measures envisaged in this scenario is potentially the greatest, it is also subject to the most delay.
- The increase identified in the workload of the police and criminal justice authorities is the net result of various trends. For example, the incidence of some types of offence will decline, whereas that of some other types is predicted to increase. What is crucial is the trend in crimes of violence (including assault and battery, robbery and extortion, and sex crimes). These will largely determine the increased workload of the police and criminal justice authorities. The enforcement of custodial sentences is an area where extra measures will be particularly necessary, because more cases involving crimes of violence are predicted and the sentences passed on precisely this category of offender are clearly rising. In other words, whether the increase in the workload of the police and criminal justice authorities actually materializes will depend above all on developments in the incidence of crimes of violence. The effects of the measures envisaged in the different scenarios would be insufficient to bring about a major reversal in this trend, certainly in the short term.

It is conceivable that clear investment in prevention aimed at criminogenic situations and/or integration of problem groups will have effects both on the incidence of crime and on the workload of the police and criminal justice authorities. Any such effects would probably become significant only in the medium term, although the efforts to achieve them will be required long before this. But even if there is investment in prevention, it is necessary to bear in mind that there is a very real chance that the workload of the police and above all the courts and the penal institutions (enforcement) will continue to increase annually.

TERMS OF REFERENCE AND ORGANIZATION

The Ministry of Justice of the Netherlands is using computer models to simulate the criminal justice system². Recently, the Research and Documentation Centre of the Ministry of Justice was requested to calculate the effect of possible trends in the administration of

² J.J.M. van Dijk "Modelling the criminal justice network; work in progress at the Ministry of Justice in The Netherlands" in: Crime Prevention and Criminal Justice Newsletter, United Nations, numbers 14 - 15, December 1987.

criminal justice. For this purpose a mathematical model was constructed to show both the crime trends in a number of fields and the response to these trends, including the resources needed for this purpose. Such a model can be used to compute the effects of different scenarios.

First, the trends in recent years were extrapolated to the year 2000 in what is known as a *zero* scenario. As there are of course a number of uncertain factors, two variants were computed. The first variant was pessimistic: i.e. a relatively large increase in the number of offenses and a clear and continuing fall in the clear-up rate. The second variant was more optimistic: a less pronounced increase in crime and a slower decline in the clear-up rate. By comparing the results of these two variants, it was possible to determine the degree of uncertainty in the findings. Eventually a scenario was chosen, whose results fell midway between the optimistic and the pessimistic variants.

Next, three other scenarios were devised. The first envisaged an increase in the strength of the police, the second assumed that the efforts to achieve *situational prevention* of offenses would be greatly intensified, and the third was based on a more integrated and offender-oriented approach to prevention. It is important to note that the use of scenarios is intended above all to provide an idea of the direction of changes and a rough idea of their order of magnitude. In addition, models can provide information about the factors that seem above all to be of importance to future developments. The results of the analyses are therefore general forecasts and not highly accurate predictions.

Some basic assumptions

Previous work showed that it is not worthwhile looking only at overall crime trends - how certain trends affect the criminal justice system depends to a large extent on the types of crime which increase or decrease. It was decided not to include summary offenses: the study is therefore limited to indictable offenses and economic offenses. A distinction was made between six categories of offence which differ greatly from one another. In itself each category consists of reasonably homogenous offenses.

The following categories were chosen³:

- Crimes of violence (death-related offenses, battery, assault, intimidation, rape, indecent assault, unlawful sexual intercourse, robbery and extortion);

³ This classification ties in with the new classification used by the Central Bureau of Statistics of the Netherlands. The categories include almost all indictable offenses. The only ones missing are a few Criminal Code offenses that are of little significance in quantitative terms (e.g. indecency in a public place) and the category of offenses under "other Acts" (e.g. the Telegraphs and Telephones Act and the Arms and Munitions Act).

- Property crime (theft under articles 310 and 311 of the Criminal Code, embezzlement, handling, and offenses involving forgery or falsification);
- Criminal damage and public order offenses;
- Traffic offenses (indictable offenses under the Road Traffic Act);
- Drug offenses (indictable offenses under the Opium Act);
- Economic offenses (offenses under the Economic Offenses Act, including many environmental offenses).

The trend in recorded crime and the extent to which suspects were apprehended (after investigation) were examined in respect of each of these categories of offence. Another subject examined was how each of these categories of offence passes through the criminal justice system. Account was taken of those aspects that have a significant bearing on the costs of processing cases, for example the policy on decisions not to prosecute and to settle cases out of court, sentencing policy, and the nature and extent of the custodial sentences and alternative sentences.

The costs incurred in connection with the various parts were determined on the basis of cost price calculations. These costs comprised all variable costs incurred in processing a given case, i.e. all staff and equipment costs, including an item for overheads. Capital expenditure was disregarded (e.g. the costs of building a new prison to cope with a substantial increase in prison sentences). The calculations were based on the value of the guilder in 1992. It was also necessary to allow for cost-of-living adjustments in the case of future costs.

DESCRIPTION OF FOUR SCENARIOS⁴

The Zero Scenario: Ongoing Trends

This scenario involved extrapolating recent trends. It was assumed for this purpose that the factors responsible for these trends would continue to move in their existing direction. This was true not only of the crime trend but also of enforcement. It followed that policy changes and additional measures under existing policy that were proposed or had already been introduced were reflected in the recent trends. In other words, there was an

⁴ A more detailed account is given in the policy report by A.C. Berghuis, R.F. Meijer and G.L.A.M. Huybregts, *Verkenning Criminaliteitsontwikkeling, vier scenario's*, Ministry of Justice, March 1994.

assumption that the trend would not be broken. Naturally, the question is whether this assumption is correct. The following observations are of importance in this connection:

- In general, processes take place gradually and when additional measures are taken under existing policy these too take effect gradually in practice. The speed with which the effect of such additional measures is felt depends partly on the extent to which things are already moving in practice in the direction of the trend. There are therefore no grounds for postulating sudden breaks in the trend, although it is possible that a trend may be gradually reversed.
- Additional policy measures, for example the formation of special criminal investigation teams, are being taken to combat organized crime. This is in keeping with the trend since roughly the mid-1980s when the police started to pay more systematic attention to the problem of organized crime. Since then, definite results have been achieved, resulting among other things in severe sentences. The question that has to be asked here is whether this rising line will be continued by recent developments (i.e. whether the attention will continue to increase) or whether the line has levelled out. For the time being it seems reasonable to assume a linear development: this presupposes after all that increasing attention will be paid to organized crime. Another relevant factor is that the results of the newly established teams are expected only after some delay.
- Policy on combating environmental offenses and fraud is evolving. In the case of environmental offenses this is reflected only partly in an increase in criminal proceedings; this is because a major part of the effort concerns prevention. It would therefore be risky to allow for specific measures that go further than provided for in the existing trends. In the case of fraud, however, the situation is different. Measures to combat fraud have recently been given a higher priority. One development of particular importance in quantitative terms is the action to combat unintentional social security fraud. The number of cases is now running into thousands per year. It should, however, be realised that the extra pressure that is now being generated (e.g. by linking different databases) is probably only temporary. At present the courts are merely clearing away the backlog of previous years. Some of the potential offenders will refrain from committing offenses in the future, but the others will probably move on to more deliberate forms of fraud. As the survey looks ahead to the year 2000 and because the volume of cases remains modest, no breaks in the trend are expected in the longer term.
- In recent years, increased priority has been given to tackling serious local crime. A project-based approach to burglary, car theft, muggings etc. has been adopted in a number of places. It seems likely that this trend will continue. To what extent this

increased priority will cause breaks in the trend or in the nature of the cases to be disposed of is uncertain. In the next few years these measures will continue to be hampered by the shortage of capacity in remand centres. It is conceivable that once extra capacity becomes available (in the course of 1996), an acceleration will take place and have an effect a little while later. It was therefore assumed for the sake of caution that there would be no break in the trend (if anything, therefore, the forecasts tend to err on the side of caution).

When considering the results of this scenario, one should remember that, in principle, the continuation of recent trends also projects past standards of quality into the future. No account was therefore taken of any need that may exist for qualitative improvements. To give just one example, the idea of improving the execution of prison sentences by abolishing the early release scheme is under consideration. One potential effect of this plan would be an extra burden on the prisons. No account was taken of this in the scenario.

Crime trend/number of suspects

Recorded crime has risen in almost all of the six categories of offence. In some cases the rate of increase is accelerating (violent crime) and in others there is a linear increase (traffic offences), but more often there is a tendency to stability (the other categories of offence). Only in the case of economic offences has there been a slight fall. If these trends are extrapolated, the optimistic scenario gives an increase of almost 5% until the year 2000 and the pessimistic scenario an increase of almost 15%.

At the same time, there has been a decline in the extent to which suspects are apprehended (incidentally, this does not apply to offences where the police adopt a proactive role, for example drug offences under the Opium Act). Often there is a linear decline, sometimes a diminishing rate of decline. As a result, both the optimistic and the pessimistic scenario show a deterioration in the clear-up rate (from 21.4% in 1992 to 17.5% and 17.3% respectively)⁵.

The consequence of these trends would be first of all a further decline in the number of suspects passed on to the Public Prosecutions Department for prosecution and, second, a further change in the categories of suspect with whom the Public Prosecutions Department has to deal. In particular, there would be an increase in the proportion of persons suspected of violent crime and property crime and a decline in the number of persons suspected of criminal damage/public order offences and traffic offences.

⁵ These values are higher than those revealed by the police statistics. This is because this survey includes economic offences, which are mainly investigated by the special investigating services.

Proportion of cases disposed of by the public prosecutor

The way in which cases are disposed of is definitely changing, as was envisaged in the government's policy paper "Strafrecht met Beleid". The proportion of decisions not to prosecute taken either on technical grounds or purely for policy reasons continues to decline and the proportion of out-of-court settlements is rising. The number of consolidated actions and offenses taken into consideration remains fairly constant. This means on balance, however, that the proportion of cases brought before the courts by the public prosecutor (as cases triable separately) remains stable.

Custodial and alternative sentences

At present, some 12,000 community-service orders are made each year. If the spectacular growth of community service in recent years were simply to be extrapolated, 20,000 - 25,000 of these orders would be imposed in the year 2000. In fact, a definite increase in the use of alternative sentences is expected. We examined whether this expectation is realistic. For this purpose we analyzed the trend in the proportion of alternative sentences in relation to the trend in the use made by the courts of custodial (non-suspended) sentences. This showed that the effect of alternative sentences on custodial sentences is diminishing. Whereas in previous years a definite increase in the proportion of alternative sentences was accompanied by a definite decrease in the proportion of custodial sentences, this correlation is weakening with time.

There are two possible explanations:

- The extent to which alternative sentences are replacing custodial sentences is becoming ever smaller (i.e. a diminishing substitution effect);
- An upward trend in the extent to which cases are eligible for custodial sentences is being transformed into a downward trend because the other option - alternative sentences - is being applied with increasing frequency (i.e. a greater substitution effect).

From the available data it is impossible to determine which of the two hypotheses is correct. It seems likely that the truth lies somewhere in-between. In the case of minors (unlike adults), for example, alternative sentences are not exclusively intended for cases in which custodial sentences would otherwise have to be imposed. On the other hand, the increasing use of out-of-court settlements means that the cases brought before the courts tend to be of a more serious calibre; if policy remains unchanged, an increase in the proportion of custodial sentences could be expected. Although it is therefore impossible to make predictions about the extent to which alternative sentences will actually replace custodial

sentences, this does not in the end have any effect on the model. It is the actual correlation between the trends in alternative sentences and custodial sentences that was extrapolated. However, the plausibility of the trends was examined. For example, the reduction in custodial sentences, partly due to the increase in alternative sentences, must be confined to the category of custodial sentences of under six months. This proved to be the case.

As a result of this exercise, the survey clearly shows that the use made of alternative sentences will indeed continue to rise sharply (linear increase). The proportion of custodial sentences will decline, but the rate of decline will continue to slow.

Cases in which alternative sentences fail

Allowance must be made for failures in the case of alternative sentences. The rate of failure for community-service orders is presently about 15%. Substantially higher rates of failure are encountered in the case of other alternative sentences. The assumption in the survey was a stable rate of 22.5%. In these cases, a custodial sentence must therefore be served after all. As failure may mean that the offender either does not start the community service or stops halfway through, the estimate of the number of days that must still be served was kept fairly low.

The length of custodial sentences

In particular, the increase in the length of non-suspended custodial sentences for crimes of violence has been spectacular. Extrapolation of this trend produces an increase from an average of 417 days in 1992 to 567 in 2000. Only minor increases in the length of custodial sentences were observed in the case of property crime and criminal damage/public order offenses. Nor is there a very marked increase in the length of sentences imposed for drug offenses (an increase of 28 days in the average length is forecast in the period up to 2000). No change is observable in respect of traffic and economic offenses.

In estimating the workload involved in enforcing sentences, we naturally took account of early releases. The effect of the increasing use of community-service orders (of particular relevance to short custodial sentences) was also discounted. In the event of a clear growth in the number of community-service orders, the average length of custodial sentences also rises.

The Police Scenario

The police scenario envisages an increase in the resources of the police. This involves a general increase in police strength, some of which can be used to step up the police presence on the streets and in public places (city wardens and patrols). The postulated

increase in financial resources corresponds to an amount that would pay for an additional 1,000 police officers. Roughly speaking, this is equivalent to an increase of 2% - 3%, which would be phased in over a period of four years from 1993 onwards. In order to gauge the possible effect of such an increase, we conducted an historical analysis. We examined whether there was a correlation between changes in police strength and subsequent changes in the clear-up rate in the period 1980 - 1990. This was done separately for the various categories of offender. In addition, we made separate analyses for the four major cities, for cities with 100,000 - 200,000 inhabitants and for cities with 60,000 - 100,000 inhabitants.

The analyses showed that there are no clear correlations⁶ between changes in police strength and numbers/proportions of suspects, at most a few weak links. In so far as correlations do exist, they occur after a delay of 1, 2 or 3 years. Although the correlations are uncertain, they have been used in the police scenario. It is estimated that on the basis of the postulated increase in police strength, the number of suspects of the various categories of offence would increase as follows: crimes of violence 6% after 3 years, property crime 0.2% after 3 years, criminal damage/public order offenses 1.5% after 2 years. After one year, the figures would be as follows: traffic offenses 3%, drug offenses 11% and economic offenses 3%.

This improvement in the extent to which suspects are apprehended would not be very large - there would be no significant increase in the chance of being caught. This is why it is unlikely that such a development would have a general preventive effect, thereby causing a noticeable and measurable decline in the incidence of crime.

The Situational Prevention Scenario

The situational prevention scenario is based on the assumption that stepping up social and administrative prevention will reduce the crime rate⁷. This prevention is connected with specific criminogenic situations and can take many forms: technical measures, occupational surveillance (e.g. caretakers) and the use of private security firms. The assumption underlying this scenario is a 30% increase in situational crime prevention (rising to this level over a 4-year period from 1994 onwards). To give an idea of what is involved: the turnover of security firms in 1991 was f 615 million. A 30% increase would therefore involve at least a few hundred million guilders more. This is in the same order of magnitude as the investment needed for repressive action, i.e. detection and punishment (for the estimate

⁶ In other words, both negative and positive correlations are found and the correlations that do exist hardly ever reach the level of statistical significance (i.e. 5 - 10%).

⁷ H.W.M. Willemse Developments in Dutch Crime Prevention in: R.V.G. Clarke (ed.) *Crime Prevention Studies*, Vol. II, Monrey, Criminal Justice Press, 1994; J.J.M. van Dijk In Search of Synergy: Coalition-Building against Crime in the Netherlands in: *Security Journal*, 6, 7-11, 1995.

of the investment required under the zero scenario, see below).

It is no simple matter to indicate what effect such an investment in situational prevention would have. It seems likely that the effects would be of two kinds:

- The opportunity to commit certain types of offence would be reduced by the preventive measures. The effect would therefore be particularly marked in the case of offenses that can generally be described as opportunistic, particularly offenses such as criminal damage and some forms of theft. Better supervision could also have a significant impact on the incidence of economic offenses. However, the impact on crimes of violence and on drug and traffic offenses would be less marked or possibly even non-existent. Projects have shown that the planned use of preventive measures to deal with criminogenic situations can have a definite effect on the incidence of crime. For an impression of the consequences of a major investment in situational prevention, we estimated on the basis of past experiences in the Netherlands that a 10% increase in prevention activities would produce a 2% reduction in crimes of violence (including robbery), a 4% reduction in property crime (shoplifting and burglary), an 8% reduction in public order offenses (e.g. football hooliganism) and criminal damage (e.g. damage to public transport), a 0% reduction in traffic and drug offenses and a 2.5% reduction in economic offenses (e.g. social security fraud and environmental crime)⁸.
- One aspect of situational prevention is functional supervision in criminogenic situations, in other words supervision exercised by persons appointed for that specific purpose. This relates above all to the prevention of crime, but another effect is that crimes are also discovered more quickly. It would seem likely that intensification of supervision would result in an increase in the number of suspects handed over to the police. However, this effect should not be overestimated: security firms do not discover large number of offenses. We assumed that such an effect would not exist in the case of violent crime or traffic and drug offenses. In the case of other crimes, it is assumed that 10% more situational prevention would produce a 1% increase in the number of suspects.

The Network Criminality Prevention Scenario

The network criminality prevention scenario is based on the assumption that there is planned and intensive cooperation in combating crime and the nuisance caused by crime. The chief characteristic of this scenario is that the police and other organizations integrate their

⁸ Compare Tulder's estimates of the general preventive effect of a higher chance of being caught in "Criminaliteit, Pakkans en Politie, SCP 1985/45.

activities and work together to identify at an early stage where the problems arise and who is affected by them. In this way they can seek custom-made solutions. This approach is determined mainly at a local level, and attention is concentrated on young people who exhibit signs of problem behaviour. The solutions are not to be found primarily in repression, i.e. activities after the commission of the crime. However, the criminal law is deployed in order to show at an early stage that norms are being infringed and to ensure that any offer that is made to an offender (e.g. training, work, mediation in situations of conflict) is backed up by some form of pressure or sanction. In other words, the aim of the approach is to integrate offenders in society yet at the same time to define the norms and emphasise the seriousness of the situation.

This approach requires the police to work in a way that is aimed not at detection but at collaborating with other organizations to diagnose problems and find solutions (each of the parties using its own specific knowledge and expertise). This implies the deployment of extra officers by the police to establish contacts with other organizations and people that can assist, for example neighbourhood committees, supervisors, social workers, industry or trade organizations, church bodies, schools and so forth. These organizations too will therefore have to make a substantial effort to help adopt a problem-solving approach of this kind. Moreover, in order to find solutions it will also be necessary to establish projects that themselves cost money.

A network approach of this kind is not new. At local level there have already been moves in this direction⁹. A good parallel can also be drawn here with the approach to the enforcement of environmental laws that has been adopted in some places. Agreements about supervision and about the procedure to be followed when infringements are discovered are made with the local administration (the body granting the licence). The central element is prevention: the offender is warned to work in accordance with the rules (i.e. to comply within a given period) and is notified that the public prosecutor has been informed. The public prosecutor notifies the offender that he has been informed and that prosecution will follow if the rules continue to be broken. If this is not sufficient, administrative and/or criminal proceedings will follow.

When assessing the effects of this network approach, it is reasonable to make the following assumptions:

- Extra police officers must be assigned to this work (as in the case of the police scenario), although this will not produce more suspects (this is because the extra

⁹ J.E. Bruinink and E.P. Lagendijk "Aanpak Stelselmatige Daders in Dordrecht: Een Stok achter de Deur!", DCP, Ministry of Justice, 1994; M. Kruissink: "The Halt Program; Diversion of Juvenile Vandals", RDC, Ministry of Justice, 1989.

capacity will be assigned to these purposes);

- Extra manpower will also have to be made available by other organizations; which organizations will be involved will vary from place to place; extra resources will also be necessary for projects in keeping with this approach;
- As the effects of this approach will become visible only in the longer term, it will be necessary to allow for an adequate incubation period:
 - time is necessary in order to implement this approach in practice (taking on staff and setting up and developing the network);
 - the approach will in practice be aimed above all at people at risk, i.e. persons who are in danger of becoming involved in criminal networks or subcultures but who are not yet actually involved (or in any event not closely involved) in them; the number of people becoming involved in crime could in due course possibly start to decline.

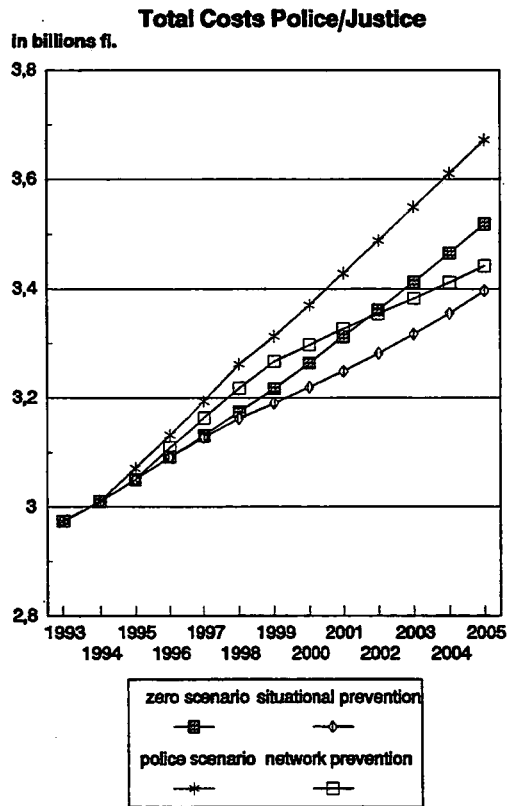
To estimate the effect of such measures, we assumed that criminal careers could be divided into three stages of four years each. An initial period of slight involvement in criminal activities is followed by a second period of more serious involvement and finally by a period in which a great many offenses are committed. At each stage, a large number of people drop out: the chances of graduating from one stage to the next are set at 25%. This means that there is a large group of people who are only slightly involved in crime (approx. 75%), a smaller group with moderate involvement (approx. 20%) and a small group of people who are heavily involved (just under 5%). This distinction in the extent of criminal behaviour is of particular relevance in relation to offenses of a strongly repetitive nature (property crime and drug offenses) and of less relevance in relation to other types of offence.

Suppose that the integrated approach has the effect of reducing the graduation chance from 25% to 22.5%, i.e. an improvement of 10%. If there are 1,000 slightly involved (or moderately involved) offenders to start with, the integrated approach would mean that the number of heavily or very heavily involved criminals would be 225, not 250. The question is therefore (a) to what extent does this have a knock-on effect and (b) how long does it take before the effects become apparent for the criminal justice system.

FINDINGS: CONSEQUENCES FOR THE POLICE AND THE CRIMINAL JUSTICE AUTHORITIES

Overall Trend

The estimated trend in the total costs of the police and criminal justice authorities from 1993 onwards in the case of each of the four scenarios are shown in the figure below.



The costs in the case of *ongoing trends* (zero scenario) rise from almost £ 3 billion to £ 3.25 billion (+/- 0.15)¹⁰ in the year 2000. This corresponds to an annual increase in the requisite resources of 1.3% (+/- 0.4)¹¹. If the crime and clear-up trends of the last few years were to continue in the next few years, £ 250 million extra would therefore be needed to deal with the consequences. This concerns just the processing costs and makes no allowance either for wage and price rises or for the necessary capital expenditure, which could be considerable, especially if new penal establishments are required.

The main cause of the increase in costs would appear to be the trend in crimes of violence. These will exert great pressure, whereas the pressure from other indictable offenses (property crime, drug offenses, economic offenses and traffic offenses) will not change markedly and may even decline slightly (criminal damage/public order offenses). In the case of crimes of violence, the combination of the following elements plays a crucial role:

- A sharp increase in the number of offenses and a slight decrease in the extent to which suspects are apprehended, the net effect of which is a substantial increase in the number of cases dealt by the public prosecutor and the courts;
- An increase in the application of custodial sentences, which can be reduced only very partially by the more frequent application of community service orders; the end result is a sharp increase in the number of custodial sentences for crimes of violence;
- A continuing increase in the length of the custodial sentences imposed; this factor, combined with the increase in the number of custodial sentences, creates a greatly increased workload for the prisons.

The *police* scenario produces an improvement in performance, in the sense that more suspects are dealt with by the criminal justice authorities. The costs rise sharply in this scenario. The expenditure in 2,000 is £ 100 million more than in the zero scenario. A major part of this (around 80 million) is due to the extra resources allocated to the police. The remainder (20 million) is necessary to defray the costs of the extra cases handled by the criminal justice authorities.

The *situational prevention* scenario produces lower costs than the zero scenario. It should be noted, however, that this saving starts to become significant only after some delay. This is because allowance was made for a gradual increase in the level of investment

¹⁰ In order to give an idea of the statistical margin of uncertainty, the figure in brackets shows the extent to which the optimistic and pessimistic variants differ from the estimate.

¹¹ This is the growth figure that is midway between the optimistic and pessimistic scenarios. The figure in brackets shows to what extent the results of these scenarios are above or below the average.

(over the four years after 1993) and the effects occur only later. It is noteworthy that although the assumptions made about the effects of prevention are relatively optimistic, the increase in the preventive efforts does not result in a decrease or even a stabilization of the total workload of the police and criminal justice authorities. However, it does halt the increase in pressure.

The conclusion to be drawn from the *network prevention* scenario is that costs must first be incurred in order to reap the benefits: the benefits of a substantial increase in prevention measures become apparent only after a delay of some years. The trend is gradual: the gains tend to be made after the year 2000 rather than before. It is striking that the effects of this scenario are more permanent, whereas those of other scenarios bring about once-only change.

Sectoral Trends

An annual increase of 0.7% (+/- 0.45) is forecasted in the workload of the police in responding to information laid in respect of offenses and drawing up official reports of offenses in criminal proceedings against suspects. Naturally, this figure is much higher in the police scenario, both now and in the year 2,000, but is much lower in the prevention scenario. In the *network prevention* scenario, investment is clearly necessary but will be earned back only in the longer term because fewer cases have to be dealt with.

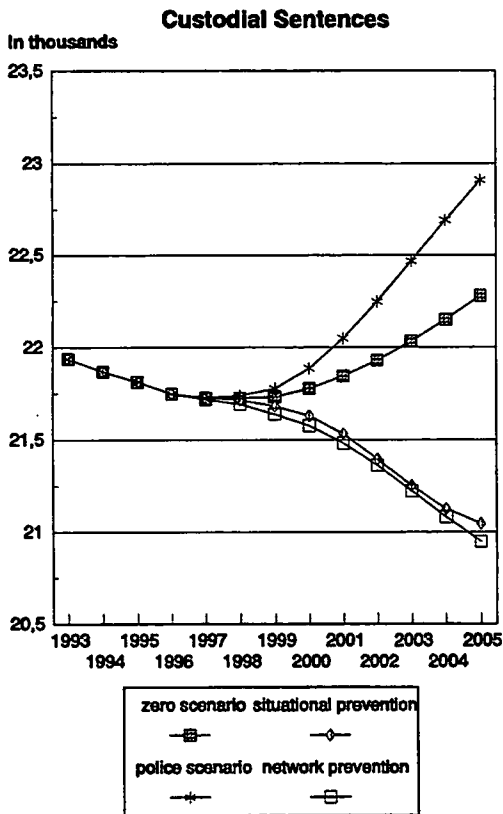
The workload involved in the administration of criminal justice, including the disposal of cases by the public prosecutor and the courts and the provision of legal advice and assistance, remains roughly the same in the zero scenario. On the one hand there is decline in the number of traffic and economic offenses, but on the other there is an increase (albeit rather smaller) in the number of crimes of violence and property crimes. On balance this results in a reduction in the number of cases to be handled by the judiciary, but also in a further change in the nature of these cases: i.e. fewer petty crimes and easily-disposable bulk offenses and more cases requiring special attention and hence posing greater difficulty. This will also lead to an increase in the number of appeals.

The results of the other scenarios are much the same in this respect, at least until the year 2,000. Only after this date can more definite effects be expected; this is because the courts and the judiciary tend to lag behind in this respect.

The workload of the correctional establishments will continue to increase (see Figure below). If the prisons are to cope with the rising demand, their capacity will have to be increased by 2 - 3% (+/- 0.5) annually. The number of years' imprisonment to be served will rise from just over 9,000 now to 11,000 in the year 2,000. And it should be borne in mind that, initially, the number of custodial sentences will even fall slightly. It is possible

that the number of custodial sentences may start to increase again if the use made of alternative sentences does indeed continue to rise at a phenomenal rate and the failures place an extra burden on the capacity of the prisons. It seems likely that in the period up to 2,000 the other three scenarios would scarcely affect this trend. Afterwards, however, they could do so.

It is expected that alternative sentences will initially increase by 6 - 7% (+/- 1) annually. If this trend continues, the number of alternative sentences imposed in the year 2,000 would exceed 20,000.



5. DISCUSSION

The results of this study indicate that the budgets for crime control must be expanded in response to increases in the level of serious crime. Straightforward expansions of existing criminal justice activities do not seem efficient. Higher value for money in the medium and long term is to be gained from strengthening situational and (offender-oriented) network-criminality prevention.

The results of this study were used during negotiations preceding the establishment of the new government which went into office in 1994. The budget of the Ministry of the Interior was modestly expanded to increase the number of police officers. Although some political parties had pledged an increase in police manpower of 10,000 the new budget allowed much lower increases (approximately. 2,000).

The budget for justice was expanded with a view to building new prisons. Interestingly in the light of this study, an annual budget of f 160 million was earmarked for network-criminality prevention. In a new policy document the Minister of Justice¹² has reconfirmed her commitment to a well balanced, comprehensive crime policy.

¹² W. Sorgdrager "In Juiste Verhouding, Beleidsvoornemens met betrekking tot Rechtshandhaving en Veiligheid", Ministry of Justice, The Hague, Juli 1996 ("The Right Balance: a Policy Plan on Law Enforcement and Security").

THE NATIONAL CRIMINAL JUSTICE REFERENCE SERVICE: NCJRS ON-LINE

*G. Martin Lively*¹

INTRODUCTION

The National Criminal Justice Reference Service was established by the United States Department of Justice in 1972 as a national as well as international service for exchanging information related to criminal and juvenile justice. Within the United States Department of Justice is the Office of Justice Programs, whose mission is to help cities, counties, and states of the United States reduce crime and improve the administration of justice.

Each bureau within the Office of Justice Programs, as well as the Office of National Drug Control Policy, has a separate centre or clearinghouse under the umbrella of the overall Reference Service. These information centres and clearinghouses make available information about a broad range of topics in the field of criminal justice: victimization, juvenile offending, innovative programmes to reduce crime, and substance abuse. Currently, there are more than 130,000 items in the NCJRS document data base, and in one recent 8-month period, we received and filled more than 52,000 requests for information.

THE SHIFT FROM OLD MODES OF INFORMATION EXCHANGE

The traditional means of requesting and receiving information and documents from the Reference Service has been by mail and phone and, more recently, by facsimile. These conventional methods will continue as long as needed by those we serve, but the National Institute of Justice (NIJ), which is part of the United States Department of Justice and which administers the Reference Service, has taken steps to use the technologies of the personal computer to automate these reference and dissemination functions, as well as to provide additional services.

In order to integrate all its electronic services and to join them to the international information infrastructure, the Internet, NIJ has created NCJRS Online. Because of the ability of the Internet to link to other computer networks anywhere in the world, NIJ which primarily serves a domestic market, now has a new and broader capacity. The Internet enables NIJ to make all the services and products it develops for the cities, counties and states of the United States available to the states of the world, and to do so at minimal cost

¹ Office of Justice Programs, National Institute of Justice, United States Department of Justice.

to those countries, and minimal cost to the Reference Service.

NCJRS ONLINE FEATURES

Some of the specific features of NCJRS Online are:

E-Mail

- Electronic massaging permits almost instantaneous communication between NCJRS and its customers;
- Users can write to individuals or to groups of individuals, through special addresses, such as:
- Ask NCJRS. This service enables users to ask reference questions about criminal justice matters, order free publications, and receive instructions on using NCJRS Online.

The electronic mail function serves as a basis for other services, such as:

- Listservs. These are electronic mailing lists for exchanging information among groups of people who have shared, specific interests. Information posted to the list's address is automatically sent to all list subscribers. Listservs can be one-way (e.g. users receive but do not send information) or can serve as discussion groups (users can send as well as receive information). UNCJIN-L is such a group.
- Justinfo. This electronic newsletter, a one-way listserv, presents information about news, events and publications of the bureaus of the Office of Justice Programs. The first issue of this twice-monthly newsletter, available to users with Internet E-mail, was posted February 1, 1995.

Electronic Publication

One of the major features of NCJRS Online is electronic publication. All documents published by the Office of Justice Programs, the National Institute of Justice and all other bureaus in 1995 and in subsequent years are available electronically. Documents published in earlier years are being processed so that they too will be available online.

Sharing Resources

By automating the NCJRS processes, and by providing telecommunications access to its products and services NCJRS is taking the first small step in opening the information centres and libraries of the world to each other. File transfer from desktop computer to desktop computer is at hand.

The ability to identify other Internet repositories of criminological information: at the United Nations affiliated research institutes, within the ministries of interior and justice of various countries, in the courts and legislatures and universities to provide instant connection to them and their knowledge bases. This is the power the Internet and electronic boutiques like NCJRS Online bring us.

Cyberspace and Technospeak

The specialized software of the Internet often uses unfamiliar phrases, such as "World Wide Web", "Gopher Directories", "Graphic User Interface", "File Transfer Protocol", and "Hypertext Links", but these are all merely terms for technical pathways with guideposts to lead you from one place on the international information infrastructure to another. And to use them, you need not have any in-depth knowledge of the technology they are based on.

At NCJRS Online, you can rapidly and easily find and obtain the services and products that are just described. You can also find and electronically travel to other Internet sites to which NCJRS has provided a link, a path, a pointer to help you connect. Of course, NCJRS is not unique in having access to these technologies. Internet access sites are gateways to the entire net. Each site features its own special purposes, special subject matter, and then refers or links to other sites where both related and different materials can be found.

NCJRS Online is intended to be that special Internet boutique where people working in United States justice agencies, and affiliated professionals, begin their criminal and juvenile justice information search. Starting from NCJRS Online, they can search the United States based Internet sites and find such things as United States Supreme Court decisions, or electronically leave our country to visit the document collections of the United Nations Crime Prevention and Criminal Justice Branch, to access files from Finland or Canada, or to ask questions of anybody who have chosen to join an electronic discussion forum (or listserv).

This is the beginning of a worldwide justice library without walls; the joining of information repositories to reduce crime in order to improve the operations of the criminal justice system around the world. In building NCJRS Online, the National Institute of Justice is cooperating with the World Criminal Justice Library Network, with all institutes affiliated with the United Nations Crime Prevention and Criminal Justice Network Programme, and

with all the NCJRS international document exchange partners.

These are new and exciting developments. Yet we, collectively, have only started. Through the Internet based NCJRS Online services, the National Institute of Justice is at the beginning of a better way to help each other share advances in the improvement of the administration of justice worldwide.

**Communications and the
Exchange of Information**

**REPORT ON THE FOURTH UNITED NATIONS SURVEY OF CRIME TRENDS
AND OPERATIONS OF CRIMINAL JUSTICE SYSTEMS (1990 - 1994):
PROGRESS REPORT**

*Slawomir Redo*¹

The Ninth United Nations Congress' Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System: Computerization of Criminal Justice Operations and the Development, Analysis and Policy Use of Criminal Justice Information provided a very opportune basis, to introduce to its participants one of the substantive components of its agenda item: the Fourth United Nations Survey of Crime Trends and Operations of Criminal Justice Systems (1990 - 1994). The interim results of that survey are contained in doc. A/CONF. 169/15 before the Ninth Congress.

This report has been a continuation of crime trends reports which have been issued by the United Nations Secretariat since 1977, after suspension of work on such reports for more than two decades². Since the time of their re-introduction, for twenty years there has been work going on in monitoring the world crime situation through recurrent surveys at the global level, and for past ten years also gradually at the regional level. Altogether about thirty outputs with the results of the survey or on the survey have been prepared by the interregional and regional institutes cooperating within the United Nations Crime Prevention and Criminal Justice Programme, and by the Secretariat. In this number, there have been also several books, reports, computer diskettes with data or with data put in other electronic format at the computerized United Nations Crime and Justice Information Network³. Among those publications, there should be specifically mentioned reports of the European Institute on Criminal Prevention and Control (HEUNI) and the African Institute on the Prevention of Crime and the Treatment of Offenders (UNAFRI), a joint report by the United Nations Asia and Far East Institute for the Prevention of Crime and the Treatment of Offenders (UNAFED) and the Australian Institute of Criminology (AIC), and, last but not least, the United Nations Latin American Institute for the Prevention of Crime and the Treatment of Offenders

¹ Crime Prevention and Criminal Justice Branch, United Nations Office Vienna.

² For a historical review of such United Nations studies, which originated in late 1940s, see S. Redo "The United Nations Crime Trends Surveys: Comparative Criminology in the Global Context" in: *International Annals of Criminology*, Année 1986, vol. 24, Nos. 1-2.

³ All these outputs were listed in doc. A/CONF.169/CRP.2, United Nations Surveys of Crime Trends and Operations of Criminal Justice Systems (1970 - 1995); Documentation List.

Data from periodical United Nations crime trends surveys are available on the following Internet address: <http://www.ifs.univie.ac.at/~uncjin/uncjin.html> on the gopher of the United Nations Crime and Justice Information Network.

ILANUD) which all prepared four regional crime trends reports for the years 1986 - 1990⁴.

The crime trends project which has resulted in the above global and regional reports and other outputs may be presented here as an example of a growing interest and commitment of the project's participants to a cross-national study of patterns and dynamics of crime and operations of criminal justice systems. But more than this, however, it is rather a demonstration of a growing conviction that data and other information on crime and justice are important part of accountable administration of justice, and a tool for informed decision making⁵.

The interim report DOC. A/CONF. 169/15 seeks to show what can be achieved from the analysis of official crime data in terms of policy recommendations. Findings suggest that criminal justice expenditures were rather low, for - on the average - they involved no more than 1.5% of gross domestic product. Moreover, between 1986 - 1990 they still declined in real terms to 1.2%. One may ask the question, how such figures can be seen in the light of concerns of Member States about crime, and, of course, about fear of crime, as measured by victimization statistics. But there may also be other questions asked, especially if the analysis of the results of the interim report was conducted on the basis of sufficiently reliable and broad data base.

The interim report explores not only the question of criminal justice expenditures, but also looks into other contemporarily important crime and justice developments for example city crime rates. In preparing this part of the report, a careful attempt was made to obtain valid and reliable homicide statistics prorated by 100.000 population within the jurisdictional area of the city. As demonstrated in table 5 of the interim report, these statistics show that, on the average, there was a dramatic increase in homicide rates, but also that in individual cities the rates varied greatly. Finally, and also in a way of example, the interim report looked into the question of cost of imprisonment which in 1990 ranged between \$ 450 per prisoner in Bulgaria and Rwanda (before the criminal justice system collapsed there) to about \$ 60.000 per prisoner in some Scandinavian countries. Of course, such figures have to be

⁴ Profiles of Criminal Justice Systems in Europe and North America 1986 - 1990, HEUNI, Volume No. 26, Helsinki, April 1995; Results of the Fourth United Nations Survey of Crime Trends and Operations of Criminal Justice Systems 1986 - 1990, ILANUD, 1995; Crime Trends in Asia and the Pacific: The Fourth United Nations Survey 1986 - 1990, UNAFEI and AIC; Criminal Justice Profiles of Asia Investigation, Prosecution and Trial, UNAFEI, 1995; Crime and Justice in Africa 1986 - 1990, UNAFRI, March 1995.

⁵ See in this context "Public Sector Management, Governance, and Sustainable Human Development. A discussion paper", Management Development and Governance Division, Bureau for Policy and Programme Support, United Nations Development Programme, New York, January 1995; K. Ginther, E. Denters and P.J.J.M. de Waart Sustainable Development and Good Governance, Martinus Nijhoff Publishers, Dordrecht/Boston/London, 1995.

taken in a relative context of levels of national incomes, because the report deals with the economies of different scale, and also in the context of inflation. Consequently, the report employs more relative measurements in its other tables.

In this context, as the interim report tries to show, the impact of inflation on the assessment of criminal justice spendings should not be neglected. Otherwise, confusion between real and apparent allocations on criminal justice may disinform decision makers about the expected and actual results of the criminal justice operations.

The interim report informs about these problems in collecting international criminal justice statistics, and emphasizes that, if the needs and concerns of criminal justice administration should be adequately demonstrated nationally and internationally, it is the very same criminal justice administration which should provide more reliable and fuller data and information on its operations. Accountability, however, is not the end in itself, but is an element of good governance. This is why the interim report on the results of the Fourth Survey, and related regional projects seek to interpret the criminal justice data and information in the light of the need to provide the decision makers with more useful and more tangible facts and figures about crime and justice. The Secretariat is very grateful to the Member States which provided the data, and to the experts who assisted the United Nations Crime Prevention and Criminal Justice Programme in their analysis, for their respective contributions to these global and regional projects.

This was not an easy task, as it can be judged on the basis of data published in the interim report, and the number of countries which were included in the regional crime trends reports from Africa, Latin America and Asia.

Although the fact that such regional reports could be prepared for the Ninth United Nations Congress' Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System: Computerization of Criminal Justice Operations and the Development, Analysis and Policy Use of Criminal Justice Information speaks for itself, there is no doubt that, generally, limited availability of information on crime, and poor quality of data may demonstrate basic problems with accountability of criminal justice administration vis à vis public and international criminal justice community. This is why the process of collecting the world crime data is not merely that of preparing and sending out a questionnaire, but rather trying to support provision of replies by facilitating guidance and assistance (financial, technical) in establishing or improving national statistical systems.

It must be admitted, however, that the Crime Prevention and Criminal Justice Branch was not able to provide such funds because of its own very limited budget. Instead, the Fourth Survey questionnaire was sent with a model project description which included a cost estimate on possible organization of a training seminar for the criminal justice statisticians

which the responding country might wish to adapt to its own circumstances and seek funding by making an application to the Resident Representative of the United Nations Development Programme.

Speaking further on the question of funding of crime trends projects, it has to be stressed that the regional institutes which produced their own crime trends reports invested quite a lot of resources in their preparation and publication. Although the Branch published also two interregional reports on global crime trends, on the basis of the Second and Third Survey, there are considerable difficulties in publishing such results from the Fourth Survey. It is quite likely that such final report will not appear, as originally planned in 1995, but may be published at the end of 1997, and will include results of the Fifth Survey (1990 - 1994). The reason for the delay is the lack of funds, funds needed for commissioning expertises and coordinating the inputs.

Some participants in the Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System: Computerization of Criminal Justice Operations and the Development, Analysis and Policy Use of Criminal Justice Information were deeply aware of problems the project team encountered in proceeding with the global report on crime and justice which was to be published in 1995⁶. Consequently, with referring to these problems, we may only give their scale. The Human Development Report 1994, a very prestigious and influential publication of the United Nations Development Programme, was prepared on the basis of 61 expertises and coordinated by a specially established Human Development Report Office. The work on the recurrent crime trends surveys, including publication of its results is carried out with a time of 1 staff member of the Crime Prevention and Criminal Justice Branch.

In a press article in the Inter Press Service Daily Journal IPS Terra Viva of 20 April 1995 entitled "Western media ponders why U.N. is a non story" important questions are asked: "Why is the United Nations such a non-story in most newsrooms in the western world? Is it because western media consumers are basically uninterested? Or because its deliberations are carried out too secretly?"

This progress report quotes these questions, and seeks to find the answer, which is proposed in the interim report from the Fourth Survey, in para. 75: "[t] there is a need to

⁶ Following informal consultations at the Ninth Congress, in the second quarter of 1996, the Crime Prevention and Criminal Justice Division, in collaboration with the United Nations Interregional Crime and Justice Research Institute, and the European Institute on Crime Prevention and Control, have jointly relaunched the preparations for the global crime and justice report. The work progress on that draft report will be reviewed by the panel hosted by the International Division of the American Society of Criminology (Chicago, U.S.A., 21 - 23 November 1996). It is planned, that the global report will be submitted for publication at the end of 1997.

improve the availability of crime-related data at the international level. Otherwise, criminal justice statistics may remain at the tail end of human developments statistics. Accordingly, so may be the perception of the needs and actual role of the criminal justice system vis à vis other parts of public administrations, as an element of an accountable democratic society or good governance in general. It is, thus, in the best interest of criminal justice decision makers to let their constituencies know, how their criminal justice systems operate and how crime-related data best reflect the operations of those systems. Facts and figures about crime and its control have a considerable power: the power to change".

It would not be opportune, however, to end this progress report with the view that the role of criminal justice statistics is understated. The United Nations Crime Prevention and Criminal Justice Programme made also a considerable progress in collecting and disseminating of crime trends data. Speaking of collecting, the first evidence of this progress is that the response rate to the United Nations Surveys on Crime Trends is consistently high, and higher than for other projects involving collection of data and information. Secondly, and speaking of disseminating, the crime trends data are also available in an electronic format via the United Nations Crime and Justice Information Network on the Internet. Soon there will be results of the Fourth Survey put on the Network, including the country criminal justice profiles based on the Fourth Survey and related statistics. Every day there are some 16.000 retrievals of the United Nations documents on the Internet. With a bit of more work, this number of retrievals will grow and include the crime and justice statistics from the periodical United Nations Crime Trends Survey. Such statistics from the Third Survey are available through the UNCJIN Gopher now, and through an experimental World Wide Web UNCJIN Home Page developed for the Crime Prevention and Criminal Justice Division by the University of Vienna in Austria⁷, we may all become a part of this rapidly expanding information source.

⁷ See supra nota 3.

**RESPONSES TO CRIME ACROSS THE WORLD:
RESULTS OF THE INTERNATIONAL CRIME (VICTIM) SURVEY**

*Jan J.M. van Dijk*¹

INTRODUCTION

This paper discusses international findings on the public's experiences of crime, fear of crime, and opinions on sentencing and crime prevention. The findings are based upon surveys among the public in more than forty different nations representing all hemispheres². The International Crime (Victim) Surveys, IC(V)S, are supervised by an international working group, in collaboration with the United Nations Interregional Crime and Justice Research Institute, UNICRI, in Rome. The dataset of the IC(V)S, which is kept at the Criminological Institute of the University of Leiden, offers unique possibilities to analyze levels of crime and attitudes towards crime prevention and law enforcement in an international context.

In crime or victimization surveys representative samples of the population are asked about selected offenses they have experienced over a given time and whether or not they reported them to the police. As such they provide an estimate of the level of crime, independent of reporting behaviour of victims and recording practices of the police. In the IC(V)S questions are also asked about fear of crime, sentencing and the use of crime prevention measures, *inter alia*.

International comparisons of levels of crime and public attitudes towards crime and crime policies can help to put national crime problems in an broader, international perspective. National crime problems might be somewhat less worrying, if the international situation is used as benchmark. Public opinion about crime and crime control might be less universal and also less inflexible than is often uncritically assumed in national debates about crime and criminal justice.

We will specifically put to a test the conventional wisdom that the public in high crime areas always calls for harsher punishment in response to increased crime rates and fear

¹ Director of Strategic Planning, Ministry of Justice of the Netherlands/Professor of Criminology, University of Leiden, the Netherlands.

² The results of these surveys were published in: J.J.M. van Dijk, P. Mayhew and M. Killias *Experiences of Crime across the World*, Kluwer, Deventer, the Netherlands, 1991; and A. Alvazzi del Frate, U. Zvekic and J.J.M. van Dijk (eds.) *Understanding Crime: Experiences of Crime and Crime Control*, UNICRI Publication No. 49, United Nations publication, Sales No. E.93.III.N.2, 1993.

of crime. In an international perspective such punitive responses might appear to be less natural and inevitable than in a national context.

METHODOLOGY OF THE IC(V)S

The survey was carried out in 1988 and/or 1992 in 41 countries among in total more than 80,000 respondents. In 1996 the survey was again repeated in thirty countries.

Samples sizes varied between 1,000 in developing countries and 2,000 in most other countries. In developed countries the interviews were carried out through computer-assisted telephone interviewing. For a discussion on the methodological issues we refer to the cited publications³. Surely survey estimates of criminal victimizations for various reasons do not provide a perfect count of crime⁴. Internationally comparable surveys will a fortiori be flawed in some respects. The International Crime Victims Surveys are no exception to this rule. They do provide, however, comparable information on crime and related issues which cannot be collected otherwise and has never been available before. The so called IC(V)S league tables of national victimization rates have so far attracted most attention in the media. The attitudinal data presented here are potentially just as interesting and arguably less affected by the error structures of the survey⁵.

To be made presentable, the data were aggregated into rates for six global regions: the New World (United States, Canada, Australia, New Zealand), Western Europe (13 countries), ex-communist Europe (8 countries), Asia (Japan, India, Indonesia, Philippines), South America (Argentina, Brazil, Costa Rica) and Africa (Tanzania, Uganda, Egypt, South Africa and Tunisia). Each country was given an equal statistical weight. Data from countries where the survey was carried out twice were averaged. To ensure greater comparability all rates were calculated for respondents living in cities with more than 100,000 inhabitants⁶.

³ See also R. Block "Measuring Victimization Risk: The Effect of Methodology, Sampling and Fielding" in: A. Alvazzi del Frate, U. Zvekic and J.J.M. van Dijk (eds.) *Understanding Crime: Experiences of Crime and Crime Control*, UNICRI, Rome; J.P. Lynch "Secondary Analysis of International Crime Survey Data" in *ibid.*, and P. Stangeland "The Crime Puzzle: Crime Patterns and Crime Displacement in Southern Spain", IAIC, Malaga.

⁴ W.G. Skogan "Issues in the Measurement of Victimization", U.S. Government Printing Office, Washington, D.C.

⁵ J.P. Lynch "Secondary Analysis of International Crime Survey Data" in: A. Alvazzi del Frate, U. Zvekic and J.J.M. van Dijk (eds.) *Understanding Crime: Experiences of Crime and Crime Control*, UNICRI, Rome.

⁶ Due to minor differences in the questionnaires or codings one or two countries showed too many missing values for certain variables and were excluded from the calculations at issue.

For some, more sophisticated statistical analyses we used national regions as unit of measurement. In total the present dataset includes data from 161 different national regions.

URBAN VICTIMIZATION RATES ACROSS THE WORLD

First, urban victimization rates for four different types of crime and the overall rates of the six global regions will be presented. For national city rates see annex 1.

Table 1 shows that the overall 5-year victimization rate is highest in Africa where three of every four citizens were victimized. In Uganda, for instance, 96% of the citizens were victimized at least once. In Asia less than half the population was victimized. Rates for contact crimes (violent crimes, robbery, etc.) are highest in Africa and South America. In Rio de Janeiro, Buenos Aires, Kampala, Tunis, Dar es Salam and Cairo one in every three citizens had fallen victim to such crimes. The distribution of car related crimes (car theft, theft from cars and car vandalism) is strikingly different: the highest rates are in the New World countries and Western Europe⁷.

Table 1: Percentage of the public victimized by car crimes, burglary, other theft, contact crimes and any crime over five years in the urban areas of six global regions; results of the IC(V)S 1988 and 1991

	Total	Western Europe	New World	Latin America	Eastern Europe	Asia	Africa
n (sample size)	74,000	28,000	8,000	6,000	14,000	8,000	10,000
Car crime	29.0	33.6	43.3	24.8	26.5	11.8	24.2
Burglary	20.2	16.3	24.0	20.2	17.5	13.0	37.5
Other theft	29.3	27.1	26.0	32.7	27.7	24.6	42.1
Contact crime	19.3	15.3	19.8	31.4	16.9	10.8	33.4
Any crime	60.7	59.8	64.6	68.4	55.8	43.9	75.7

In the IC(V)S respondents were asked whether they were satisfied with their financial situation. Respondents in the New World countries and Western Europe were substantially more satisfied than those in Africa, South America and Eastern Europe. Multivariate analyses

⁷ The rates of car owners victimized by car crimes are less divergent. The rates are 48.7 for Western Europe, 48.5 for the New World, 49.6 for South America, 47.9 for East Europe, 28.9 for Asia and 55.9 for Africa.

confirmed that the levels of contact crimes and personal thefts are higher in nations where high proportions of people feel economically deprived⁸. By contrast car related crimes are more common in more affluent nations where more households own one or more cars.

Burglary rates are also the highest in Africa. They are also fairly high in the so-called New World countries. The likelihood to have one's house burgled is higher in the United States, Canada or Australia than in Europe or even South America. Previous analyses suggest that the higher burglary rates in the former New World countries are related to higher proportions of people living in detached or semi-detached houses (where apartment flats are more common). This explanation is consistent with the finding that burglars opt for semi-detached or detached houses as their preferred targets because of easier access⁹.

The international findings lend support to the theoretical notion that crime rates are jointly determined by the presence of motivated offenders on the one hand and the provision of criminal opportunities by potential victims at the other¹⁰.

From these findings the conclusion can also be drawn that victimizations by crime can no longer be seen as rare events in most urban parts of the world¹¹. This is even true for victimization by crimes of violence. A majority of all families in urban areas are struck at least once by crime in the course of five years. The experience to be criminally victimized has become a statistically normal feature of the life of families in an urban setting. In all countries victimization rates are highest among young adolescents¹². Most adolescents living in the largest cities of the world must be regarded as streetwise survivors of crime and its repercussions. In many developing nations the impact of crime upon the everyday life of inhabitants of mega-cities is very considerable indeed.

⁸ J.J.M. van Dijk "Opportunities of Crime: A Test of the Rational-Interactionist Model", Report for the Symposium on Economics and Crime of the Permanent Committee on Crime Problems of the Council of Europe, Strasbourg, 28 - 31 November 1994.

⁹ N. Shover "Burglary" in: M. Tonry and N. Morris (eds.) *Crime and Justice: An Annual Review of Research*, vol. 13, 1991, University of Chicago Press, Chicago.

¹⁰ J.J.M. van Dijk "Understanding Crime Rates; On the Interactions between the Rational Choices of Victims and Offenders", *British Journal of Criminology*, Vol. 34, 1994, 2, Spring.

¹¹ In reality, the number of victims is even larger than measured in surveys because some crimes tend to be forgotten: K. Sessar "The Forgotten Nonvictim", *International Review of Victimology*, vol. 1, nr. 2, 1990.

¹² J.J.M. van Dijk and P. Mayhew "Criminal Victimization in the Industrialized World: Key Findings of the 1989 and 1992 International Crime Surveys", The Hague, Ministry of Justice, Directorate for Crime Prevention, 1992.

If the large majority of the population has been a victim in recent years, the impact of victimizations cannot be adequately assessed by comparing victims with non-victims¹³. Nearly all citizens, whether formally defined as victims or non-victims, are affected in one way or the other by criminal victimizations. In addition to cross-sectional analyses of individual attitudes, the impact of crime upon the victim's attitudes must therefore be measured by comparing the attitudes of the public in low crime regions with those of the public in high crime regions. The IC(V)S dataset offers unique opportunities to carry out precisely such comparisons at the macro level. Using the IC(V)S dataset, relationships between victimizations and attitudes can be analyzed at both the level of individual persons - comparing victims with non-victims - and the aggregate level of nations or regions (comparing the attitudes of the public in high crime and low crime areas).

FEAR OF CRIME

In the IC(V)S respondents were asked both how they rated their chance of being burgled over the next year, and - to tap fear of street crime - how safe or unsafe they felt when walking alone in their local area after dark. Roughly 40% of all city dwellers in the world feel vulnerable to burglary and street crime. Table 2 gives the rates of the six global regions. National rates are given in annex 1.

Table 2: Percentage of public in urban areas thinking burglary is likely or very likely to happen the coming year and feeling unsafe when walking alone in their own neighbourhood after dark for six global areas; results of the IC(V)S 1988 and 1991

	Total	Western Europe	New World	Latin America	Eastern Europe	Asia	Africa
Burglary likely	45.4	40.5	45	47.7	55.3	28.4	57.9
Unsafe after dark	42.2	35.6	36	40.9	62.6	17.0	35.6

Fear of burglary is highest in Africa and Eastern Europe and lowest in Asia. Clearly these rates are higher in regions where vulnerability to burglary is also objectively higher. The correlation between regional burglary rates and regional concern about burglary is strong

¹³ K. Sessar "The Forgotten Nonvictim", *International Review of Victimology*, vol. 1, nr. 2, 1990.

($r=.31$; $n=156$)¹⁴. In a regression analysis, level of urbanization and burglary rates were both independently of each other, strongly related to fear of burglary¹⁵. Risk perceptions of burglary closely reflect actual risks and experiences at the aggregate level.

Fear of street crime is by far the lowest in Asia. Less than 20% of the citizens in Asian cities feel unsafe after dark in their domestic areas. Feelings of unsafety are the highest in Eastern Europe. As shown in Table 1 rates of contact crimes are not higher here than elsewhere. The surprisingly high levels of fear in some of the ex-communist countries indicates that collective feelings of personal vulnerability are partly determined by other factors than exposure to crime as measured in the survey. In Eastern Europe political instability - e.g. the civil war in Georgia and various political upheavals in Russia - may, for instance, have increased feelings of personal vulnerability.

At the level of national regions fear of street crime is nevertheless strongly related to regional victimization rates for street crimes, such as robbery ($r=.40$; $n=101$). Fear of crime, too, closely reflects actual exposure to violent crime.

As previous analyses of the IC(V)S data have born out, personal victimizations are also significantly related to concern about burglary and street crime at the individual level¹⁶. By and large the IC(V)S findings indicate that criminal victimizations substantially increase the awareness of crime risks among both victims and the public at large. The criminological notion of irrational fears which have no basis in actual experiences of crime, is clearly not supported by our international findings.

USE OF CRIME PREVENTION MEASURES

In the 1992 survey respondents were also asked whether or not they had taken precautions to prevent burglary. The results are given in Table 3 below. National rates of the use of these measures in urban areas are also given.

¹⁴ In most countries the samples were stratified according to regions. For statistical reasons the data are aggregated at the level of nations as well as that of national regions. The current dataset contains information of 161 different regions. At some places in the paper, regional rates are presented instead of national rates for reasons of clarity. In all instances analyses of national rates show similar results.

¹⁵ The variables urbanisation and burglary rates explained together 32% of the variance in fear of burglary (β -values .37 and .34 resp.).

¹⁶ W.G. Skogan "The Impact of Victimization on Fear" in: *Crime and Delinquency*, vol. 33, nr. 1, 1987; H. Kury and Michael Würger "The Influence of the Type of Data Collection Method on the Results of the Victim Surveys" in: A. Alvazzi del Frate, U. Zvekic and J.J.M. van Dijk (eds.) *Understanding Crime: Experiences of Crime and Crime Control*, UNICRI, Rome, 1993; M. Killias, M. "Les Suisses Face au Crime", Grösch, 1989.

Table 3: Percentages of households in urban areas who have taken measures to prevent burglaries, for six global regions; results of the IC(V)S 1988 and 1991

Countries	Mean number of measures	a	b	c	d	e	f	g	h
Europe	1.03	10.7%	52.6%	11.1%	11.0%	9.3%	8.7%	2.2%	31.3%
Rest industry	1.63	16.9%	58.4%	27.4%	28.9%	25.5%	6.0%	3.1%	17.1%
Eastern Europe	0.61	4.0%	30.4%	5.0%	15.9%	4.0%	1.9%	12.4%	53.0%
Asia	1.09	2.6%	40.6%	34.8%	17.0%	9.7%	3.8%	0.1%	43.7%
Africa	1.55	8.2%	49.0%	43.9%	19.9%	21.0%	12.6%	2.1%	24.0%
South America	1.37	8.2%	50.4%	30.2%	18.4%	17.1%	13.1%	0.1%	28.4%
Europe									
England & Wales	1.91	25.1%	71.4%	25.4%	28.2%	38.9%	2.5%	3.2%	7.5%
The Netherlands	1.03	6.0%	61.0%	15.8%	8.2%	6.4%	5.7%	0.6%	26.5%
Belgium	0.76	13.5%	33.5%	3.6%	14.9%	4.1%	6.6%	6.2%	43.9%
Finland	0.69	1.2%	36.3%	0.8%	6.4%	4.2%	20.4%	0.7%	45.7%
Sweden	0.83	4.6%	61.3%	8.0%	2.2%	0.6%	6.0%	1.4%	31.2%
Italy	0.98	14.2%	52.0%	12.8%	5.8%	1.9%	10.9%	0.9%	33.0%
Rest industry									
Canada	1.55	18.1%	52.4%	30.0%	21.2%	19.8%	13.1%	6.7%	19.0%
Australia	1.89	17.5%	66.8%	36.5%	37.3%	27.1%	3.3%	1.6%	11.0%
New Zealand	1.46	15.0%	56.1%	15.5%	28.1%	29.7%	1.6%	0.9%	21.3%
Eastern Europe									
Poland	0.81	3.6%	27.6%	6.6%	29.5%	10.2%	3.1%	0.5%	43.4%
Czechia	1.04	4.2%	63.6%	7.9%	19.3%	6.8%	2.1%	4.5%	26.1%
Russia	0.49	5.7%	21.0%	4.1%	14.3%	0.2%	3.6%	3.3%	57.9%
Slovenia	0.63	5.2%	35.7%	5.3%	13.1%	2.9%	0.4%	31.5%	48.5%
Estonia	0.10	1.1%	3.9%	0.9%	3.5%		0.2%	2.4%	89.3%
Asia									
Indonesia	1.22	5.4%	31.2%	51.6%	11.0%	19.0%	3.7%		42.4%
Philippines	2.08	2.3%	84.8%	53.6%	49.8%	16.5%	1.5%		3.8%
India	0.75	2.4%	29.0%	27.2%	2.6%	3.1%	10.2%	0.3%	56.3%
China	0.30	0.2%	17.5%	7.1%	4.9%	0.2%	0.1%		72.3%
Africa									
Uganda	1.49	5.1%	53.2%	42.9%	21.8%	16.9%	9.6%	8.3%	30.2%
Egypt	0.99	3.7%	58.6%	15.5%	3.3%	3.3%	14.1%	0.2%	28.7%
South Africa	1.79	10.0%	48.9%	54.6%	24.3%	36.4%	5.1%	0.2%	19.5%
Tanzania	2.00	10.5%	38.1%	64.1%	29.6%	32.9%	24.3%	1.8%	22.5%
Tunisia	1.46	11.6%	46.2%	42.6%	20.4%	15.3%	9.8%		19.2%
South America									
Brazil	1.47	2.6%	53.0%	36.0%	25.2%	16.3%	14.3%		27.5%
Argentina	1.27	13.9%	47.8%	24.4%	11.6%	17.9%	11.9%	0.2%	29.3%

a) burglar alarm
 b) special door locks
 c) special window door grilles

d) dog that would deter burglar
 e) high fence
 f) caretaker or security guard

g) respondent refuses to answer
 h) not protected by any of these

The mean number of measures taken were highest in the New World and African cities. Situational crime prevention is also fairly common in South America. It is much less common in Western Europe and Asia and remarkably uncommon in the ex-communist countries.

The mean number of crime prevention measures is related to the level of burglaries and the level of concern about burglaries, as given in Tables 1 and 2. In regions where rates of burglary and concern for burglary are higher, the public is more likely to take precautionary measures. Crime prevention in East European countries, however, has clearly not kept track with the recently increased burglary rates. The public is concerned about burglaries but has not yet taken many measures of self-protection.

The nature of the measures taken differs greatly among countries. One of the measures asked about was the use of a burglar alarm. On average 13% of the respondents indicated to have installed a burglar alarm. In Africa and Eastern Europe this expensive form of burglary prevention was less common. In Africa special window and door grilles, watch dogs and the use of security guards were more usual. In South American cities too the use of security guards is more common.

At the level of national regions relations between fear of burglary and rates of alarms are weak. In developing countries potential victims cannot afford to install alarms. If only industrialized nations are included in the analysis, the relation is very strong ($r=.51$; $n=114$). Strong statistical relations were also found between regional feelings of unsafety and regional rates of people who had actually avoided certain places or persons the last time they went out in the evening ($r=.66$; $n=156$). Such strong associations also exist at the level of individuals. Those who say to be concerned, have more often avoided places or persons.

In sum, both populations and individuals who indicate concern about their risks to be victimized are more likely to take precautions. This finding again refutes the notion of free floating, inconsequential fears. Those who feel to be at risk, make a serious effort to protect themselves.

The conclusion seems warranted that high levels of crime increase the crime awareness of the public at large as well as the readiness to make investments in various forms of self protection. Fear of crime, in this sense, can be interpreted as a fairly rational or utilitarian response to the actual burden of crime. Although some groups of the population are more sensitive to threatening (media) information than others, the average rates of fear of national or regional populations closely reflect actual crime rates. The nature of the measures taken is also determined by other factors, such as the average income level. In poorer regions many potential victims cannot afford to purchase expensive devices.

ATTITUDES TOWARDS SENTENCING

Respondents were asked which types of sentences they considered the most appropriate for a recidivist burglar - a man aged 21 who is found guilty for the second time, having stolen a colour television. Table 4 shows the percentage of respondents in the six global regions opting for a fine, a prison or a community service.

Table 4: Percentages in favour of a fine, a prison sentence or community service order for a young recidivist burglar; results of the IC(V)S 1988 and 1991

	Total	Western Europe	New World	Latin America	Eastern Europe	Asia	Africa
n (sample size)	74,000 100.0	28,000 100.0	8,000 100.0	6,000 100.0	14,000 100.0	8,000 100.0	10,000 100.0
Fine	10.1	11.0	7.5	8.4	7.1	16.1	9.5
Prison	43.2	24.9	35.7	54.1	54.2	55.0	68.6
Community service	30.1	45.6	42.3	26.2	24.0	3.2	10.9
Suspended sentence	5.0	7.6	5.5	2.5	4.6	2.1	1.4
Other	9.8	6.6	7.9	8.8	10.0	23.7	9.5
Don't know	1.8	4.4	1.2	--	--	--	--

In total 43% of all respondents favour imprisonment. More than half of the public favour imprisonment in Africa, Eastern Europe, South America and Asia. In Asia, Japan was an exception (only 23% favouring imprisonment and 58% another sentence than those listed)¹⁷. In the West European countries less than a quarter favour imprisonment and in the New World countries roughly a third. In contrast to the stereotypical image in Western countries of the public demanding imprisonment of repeat offenders, community service orders are the most chosen sanction in this part of the world. In many countries, including e.g. Germany, France, the Netherlands, Sweden, New Zealand and Australia at least half of the public favour community service orders. In Canada the percentage was 35.

Previous analyses of data at the individual level have shown that those most fearful of crime and victims in general are not more in favour of a prison sentence than

¹⁷ In Japan 15% of the sample opted for an out of court solution and 23 for a unspecified non-custodial sanction.

non-victims¹⁸. In Table 5 below the sentencing preferences are given of those respondents who personally had their houses burgled in the past five years.

Table 5: Percentages of burglary victims in favour of a fine, prison sentence or community service

	Total	Western Europe	New World	Latin America	Eastern Europe	Asia	Africa
Total	9,511 100.0	2,866 100.0	1,298 100.0	676 100.0	1,579 100.0	783 100.0	2,310 100.0
Fine	9.2	10.1	5.2	6.5	9.8	15.9	8.1
Prison	50.9	31.4	35.9	57.1	60.2	56.8	72.5
Community service	26.7	45.3	45.8	24.2	14.0	4.2	10.8
Suspended sentence	4.1	4.6	5.6	2.4	8.2	1.4	1.2
Other	8.0	5.3	6.0	9.8	7.7	21.7	7.4
Don't know	1.2	3.3	1.5	--	--	--	--

Respondents who reported a burglary victimization are somewhat more in favour of imprisonment for burglars. In total the percentage of burglary victims opting for prison is somewhat higher (51%) than of the public at large (43%). This is not, however, the case with burglary victims in West European and New World countries. Here burglary victims are as likely or even more likely to favour a c.s.o. than the public at large.

There is no indication that recently victimized citizens typically reject non-custodial sentences. On the contrary, in Western countries community service is the favourite sentencing option, even of burglary victims, with 4 out of 10 favouring it. The idea that crime victims typically demand the imprisonment of offenders is apparently a myth.

SOCIAL CORRELATES OF THE DEMAND OF IMPRISONMENT

The demand of imprisonment by a majority of the public in developing countries must of course be understood in its social and socio-legal context. In most developing countries

¹⁸ R.F. Rich and R.J. Sampson (1990) "Public Perceptions of Criminal Justice Policy: Does Victimization Make a Difference?", *Violence and Victims*, vol. 5, nr. 2, 1990; A. Kuhn, "Attitudes towards Punishment" in: A. Alvazzi del Frate, U. Zvekic and J.J.M. van Dijk (eds.) *Understanding Crime: Experiences of Crime and Crime Control*, UNICRI, Rome, 1993.

community service orders do not exist as a sentencing option and fines are difficult to collect among offenders who live below subsistence level.

The popular support for imprisonment is generally higher in countries with relatively high burglary rates. Globally this relationship is fairly strong. It is much weaker though in the industrialized nations^{19,20}. Multi-variate analyses showed demand for imprisonment to be positively related to regional burglary rates and inversely to rates of affluence (car ownership) and education²¹. The demand of severe punishment is stronger among the public in crime-ridden developing nations. As was shown in Table 1, the public in these countries suffers from relatively high levels of violent crime (robbery and assaults) besides burglaries. The national crime profiles of many developing nations are to a large extent made up of crimes of violence, committed by dispossessed and despairing young males²². In these urban settings Western ideas about preventive-oriented approaches may appear less feasible. It could be argued that in these circumstances deterrent sentencing, regardless of its objective effectivity, logically appeals to a large part of the public as useful or even necessary.

Independently of these crime-related factors, the demand for imprisonment was significantly higher among anglophone nations (United Kingdom, United States, Canada, Australia, South Africa and New Zealand). The latter finding suggests a special British or

¹⁹ See also A. Kuhn, "Attitudes towards Punishment" in: A. Alvazzi del Frate, U. Zvekic and J.J.M. van Dijk (eds.) *Understanding Crime: Experiences of Crime and Crime Control*, UNICRI, Rome, 1993.

²⁰ In fact, among industrialised countries, regional burglary rates are not significantly related to a preference for imprisonment in multivariate analyses ($r = .10$; n.s.).

²¹ In a stepwise regression analysis with the prison option as dependent variable, carried out on the rates of 156 regions, the variable regional burglary rates was selected first. The variable "regional car ownership" was chosen secondly. It was inversely related to the dependent variable. As a third variable was chosen the variable "Anglophone countries" (positively related to the dependent) and as a fourth the variable "average age of leaving school". Half of the variance in the dependent variable was explained. The full results are given below.

Results of a stepwise regression analysis: dependent variable "prison most appropriate sanction for burglar"; n=156; Multiple R .706; R square .499

	bêta	T	Sig. T
Burglary victimization rate	.26	4.0	.0001
Car ownership	-.41	-4.8	.0000
Anglophone countries	.43	6.1	.0000
Education	-.23	-2.6	.016

²² J.J.M. van Dijk "Opportunities of Crime: A Test of the Rational-Interactionist Model", Report for the Symposium on Economics and Crime of the Permanent Committee on Crime Problems of the Council of Europe, Strasbourg, 28 - 31 November 1994.

Commonwealth tradition of punishing burglars and perhaps other repeat offenders by means of imprisonment²³. New Zealand was the exception to this rule²⁴.

Sentencing practices and their results are far removed from the everyday experience of ordinary citizens. Opinions of the public at large are inevitably based upon vicarious information and traditional beliefs. The experience to be personally victimized does not by itself seem to affect these preconceived ideas²⁵. Those who are victimized and/or fearful do not see severe punishment as the obvious cure for their problems, as is often uncritically assumed. The support for severe sentencing is nevertheless higher among the public in crime ridden metropolises of the Third World. This preference can be understood as a rational response to urgent crime problems for which no other practicable solution seems available in the current situations of poverty and high national debts. The demand of imprisonment among a fairly large minority of the public in the United Kingdom, the United States, Canada, Australia and South Africa seems based upon a cultural heritage, which bears no obvious relationship to current crime problems in these countries.

DISCUSSION

Over a five year period, victimization by crime is a fairly universal experience for those living in a big city anywhere on earth.

The risks to be victimized by violent crime tend to be very high in cities in Africa and South America. In more affluent nations contact crimes are less prevalent but car related crimes and burglaries are quite common.

On the basis of these findings victimization by crime can no longer be regarded as a rare event in the rapidly growing urban areas of the world. In today's global village, the victim status is almost universal. The distinction between victims and non-victims must not be seen as a dichotomy but rather as a continuum. Having been victimized by crime once or more is statistically normal. Never to have been victimized is the exception. The impact of

²³ A. Kuhn, "Attitudes towards Punishment" in: A. Alvazzi del Frate, U. Zvekic and J.J.M. van Dijk (eds.) *Understanding Crime: Experiences of Crime and Crime Control*, UNICRI, Rome, 1993.

²⁴ In New Zealand 25.6% of the public favours imprisonment and 50.6% a community service order. These percentages are similar to those of West European countries such as Germany, France, Sweden, Switzerland and the Netherlands.

²⁵ J.J.M. van Dijk and C.H.D. Steinmetz "Pragmatism, Ideology and Crime Control; Three Dutch Surveys", in: N. Walker and M. Hough "Public Attitudes to Sentencing", Aldershot, Gower, 1988; A. Kuhn, "Attitudes towards Punishment" in: A. Alvazzi del Frate, U. Zvekic and J.J.M. van Dijk (eds.) *Understanding Crime: Experiences of Crime and Crime Control*, UNICRI, Rome, 1993.

crime must be assessed at both individual and collective levels.

In general the public seems to be well informed about their collective risks²⁶. The national perceptions of risks to be burgled or attacked in the streets show a remarkably close fit with actual victimization rates. Those populations who perceive themselves to be at risk also tend to make larger investments in technical or behavioral self-protection than others. Persons who have personally been victimized show increased risk awareness and readiness to implement self protection measures^{27,28}. More affluent people can afford to spend more on the use of sophisticated devices. For this reason, less affluent nations are at a disadvantage in terms of public safety.

The public's collective decisions on preventive measures constitute an adaptive social mechanism which in the long term contributes to a better control of crime²⁹. Crime awareness among the public should be understood as a socially constructive feedback mechanism.

The public's spontaneous tendency to be very concerned about its safety must not be seen as problematic. It should rather be seen as healthy anxiety and a contribution to a better control of crime³⁰. It seems, in fact, questionable whether governments are justified to

²⁶ See also W.G. Skogan "The Impact of Victimization on Fear", *Crime and Delinquency*, vol. 33, nr. 1, 1987; J. Young "Risk of Crime and Fear of Crime: A Realist Critique of Survey-Based Assumptions, in: Maguire and J. Pointing (eds.) *Victims of Crime: a New Deal*, Milton Keynes, Open University Press, 1988; F. Balvig "Fear of Crime in Scandinavia: New Reality, New Theory" in: A. Snare (ed.) "Criminal Violence in Scandinavia", *Scandinavian Studies in Criminology*, 11, 1990, Oxford University Press, Oxford.

²⁷ See also W.G. Skogan (1986) "The Fear of Crime and its Behavioral Implications, in: Ezzat A. Fattah (ed.) "From Crime Policy to Victim Policy", Macmillan, London, 1986; W.G. Skogan "The Impact of Victimization on Fear", *Crime and Delinquency*, vol. 33, nr. 1, 1987; N.D. Weinstein "Effects of Personal Experience on Self-Protective Behaviour", *Psychological Bulletin*, vol. 105, nr. 1, 1989.

²⁸ Several explanations have been brought forward for the lack of clear associations between victimisations and fear of crime found in the first generation of national victim surveys. In my opinion, the main reason was the insufficient differentiation between cognitive, behavioural and affective aspects of fear of crime in the earlier studies. Of these three aspects, the first is the most strongly affected by personal experiences of crime. Emotional aspects seem largely dependent of other characteristics like gender and personality traits.

²⁹ See also J.J.M. van Dijk "Understanding Crime Rates; On the Interactions between the Rational Choices of Victims and Offenders", *British Journal of Criminology*, Vol. 34, 1994, 2, Spring; M. Cusson "Croissance et Décroissance du Crime, Presses Universitaires de France, Paris, 1990; A.E. Liska and B.D. Warner "Functions of Crime: A Paradoxical Process", *American Journal of Sociology*, vol. 96, 1991.

³⁰ W.G. Skogan "The Impact of Victimization on Fear", *Crime and Delinquency*, vol. 33, nr. 1, 1987.

try and reduce fear of crime independently of crime. As Bennett³¹ concludes, such policies might upset natural equilibriums and reduce the motivation of residents to participate in community crime prevention programmes and/or to take adequate precautions to secure their property. As experiments in the Netherlands showed, attempts by governments to reduce fear through information campaigns stand little chance of success anyway³². Rather than to reduce fear against heavy odds, governments should aim to steer and encourage the public's spontaneous defensive responses in the framework of a coherent crime policy. The use of situational and community-based crime prevention should, for instance, be promoted through subsidies, taxation and the adoption of minimum standards for security measurements.

Victims of crime are sharply aware of their interest in better self-protection. They are therefore the governments' natural allies in campaigns for improved situational or community-based crime prevention. Crime victims are also favourably disposed towards receiving information and advice on crime prevention from the police, eg during an exit interview at home³³. The provision of information to victims and to high risk groups about how to prevent repeat victimizations holds great potential as a police-based crime prevention policy³⁴. In all these respects crime victims as clients of the police are probably much easier to please than police forces have assumed.

In developing nations imprisonment is seen as the most appropriate punishment for burglars. This preference must be understood against the background of high rates of burglary and violent crime, lower levels of sophisticated self-protection and relatively powerless, resource-starved criminal justice and social welfare systems. In these circumstances a large part of the public apparently believes that prison sentences are needed to deter or incapacitate offenders. Among the public in the industrialized world this belief is less common. Here community service orders are most popular. In Western countries high burglary rates are not related to a preference of imprisonment. Among Western countries a preference for imprisonment is determined by national traditions - e.g. in the United Kingdom, the United States and Australia - rather than by actual exposure to crime.

³¹ T. Bennett "Tackling Fear of Crime", Home Office Research and Statistics Department Research Bulletin, vol. 31, nr. 28, 1990.

³² M. Kuttischreuter "De Waarheid over Criminaliteit: Evaluatie van een Tell-the-Truth-Voorlichtingscampagne, Eburon, Delft, 1994.

³³ F.W. Winkel "Politie en Voorkoming Misdrijven: Effecten en Neveneffecten van Voorlichting", Mens en Recht, Amsterdam, 1987; F.W. Winkel "Police, Victims and Crime Prevention: Some Research-Based Recommendations on Victim-Oriented Interventions", British Journal of Criminology, vol. 31, 1991.

³⁴ N. Polvi et al. "Repeat Break-and-Enter Victimization: Time Course and Crime Prevention Opportunity", Journal of Police Science and Administration, vol. 17, nr. 1, 1990; A. Hakkert et al. "Herhaald Slachtofferschap", Ministry of Justice of the Netherlands, DPJR, 1966 (with an English summary).

At the individual level community service orders are the most popular sentencing option even among those who have recently been burgled. Many crime victims apparently seem to prefer potentially more effective options over the traditional tough ones.

The public at large in all Western nations, whether personally victimized by crime or not, leaves sufficient scope for experimentation with non-custodial sanctions and would, in fact, welcome it. With regard to sentencing reform the public in several countries seems more pragmatic and open-minded than many criminal justice professionals and politicians assume³⁵.

In the IC(V)S no questions are asked about offender oriented crime prevention measures, like job training or counselling for at risk youth³⁶. In many countries offender-oriented crime prevention is currently an important political priority. It would be important to know the measure of popular support for preventive measures which go beyond self protection against crime.

In previous surveys in the Netherlands respondents were asked to rate a set of preventive and punitive responses to crime. Respondents were asked to evaluate three punitive methods of crime control (incarceration, heavier punishment in general, forced labour) and three preventive methods (counselling for offenders, reform of offenders, job programmes for ex-convicts). Support for punitive and preventive methods proved to be negatively related. Favourable opinions about punitive and preventive policies, however, are far from mutually exclusive; for instance half of the respondents in favour of punitive measures are equally supportive of preventive measures. Less than a quarter of the public were exclusively supportive of punitive responses. Half the population was equally in favour of punitive and preventive measures. More recent studies have shown that public opinion on these issues in the Netherlands has remained largely the same³⁷. Interestingly, persons who had recently been victimized exhibited a significant preference for preventive approaches over punitive ones³⁸.

Respondents were also asked their opinions about governments expenditures for crime

³⁵ See also J.V. Roberts "Public Opinion, Crime and Criminal Justice", in: Michael Tonry (ed.) *Crime and Justice: A Review of Research*, University of Chicago Press, Chicago, 1992.

³⁶ J.J.M. van Dijk and J. de Waard "A Two-Dimensional Typology of Crime Prevention Projects" - with a bibliography, *Criminal Justice Abstracts*, 23, 1991.

³⁷ J. Junger-Tas and G.J. Terlouw "The Dutch Public and the Crime Problem", *Dutch Penal Law and Policy*, vol. 5, nr. 12, 1991.

³⁸ J.J.M. van Dijk and C.H.D. Steinmetz "Pragmatism, Ideology and Crime Control; Three Dutch Surveys", in: N. Walker and M. Hough "Public Attitudes to Sentencing", Aldershot, Gower, 1988.

policies. Respondents who live in high crime areas, had personally been victimized, or perceived to be at risk expressed substantially more support for higher expenditures³⁹. In response to increased crime rates the public certainly demands more action from the government. The nature of this action is judged on its efficacy and not necessarily on its degree of punitiveness alone.

The predominantly punitive response to the current crime problems in Western countries is often justified by referring to the supposedly very punitive attitudes of recently victimized citizens and the public at large. Our international data put into question the validity of this view. A preference for incarceration is not universal. It is prevalent among the public in developing nations which sees no other solutions for their pressing crime problems. Crime prevention should be made a priority of international cooperation programmes. In the Western world the supposedly punitive public opinion often seems an alibi of politicians for the continuation of harsh and unimaginative crime policies. If governments would come forward with practical and cost-effective preventive methods to tackle crime problems, such policies would fall favourably with large parts of the public in most developed nations.

³⁹ See also J. Junger-Tas and G.J. Terlouw "The Dutch Public and the Crime Problem", Dutch Penal Law and Policy, vol. 5, nr. 12, 1991; Figgie Report on Fear of Crime - America Afraid, Part One - The General Public, 1980, Rockville (MD), National Institute of Justice, NCJRS.

Table 1: Victimization rates over 1 year period in urban areas; results of the IC(V)S 1988 and 1991

Countries	n	all crimes	vehicle crimes	burglary and attempts	other thefts	contact crimes
Total	30,000	30.4%	15.9%	6.9%	9.7%	5.4%
Europe	10,000	28.1%	18.4%	4.9%	6.8%	4.4%
Rest industry	4,000	34.1%	22.7%	8.3%	7.3%	7.5%
Eastern Europe	5,000	31.0%	14.5%	7.2%	11.0%	5.9%
Asia	4,000	17.2%	6.9%	3.6%	7.1%	2.4%
Africa	5,000	39.9%	14.2%	13.0%	16.9%	7.2%
South America	2,000	35.3%	16.1%	4.9%	13.5%	6.3%
Europe						
England & Wales (2x)	1,000	28.3%	19.2%	6.1%	5.7%	4.1%
Scotland	1,000	26.2%	17.6%	4.9%	5.2%	2.7%
The Netherlands (2x)	1,000	38.0%	27.4%	7.7%	8.3%	6.9%
(West)-Germany	1,000	29.3%	19.6%	3.3%	6.6%	5.7%
Belgium (2x)	1,000	22.5%	12.2%	5.2%	5.1%	2.1%
France	1,000	23.7%	15.4%	6.7%	5.9%	3.9%
Finland (2x)	1,000	24.3%	15.8%	0.8%	4.5%	5.9%
Spain	1,000	29.1%	17.6%	4.3%	9.9%	5.4%
Sweden	1,000	28.3%	17.3%	4.4%	8.5%	5.3%
Italy	1,000	31.4%	21.8%	5.5%	8.1%	2.2%
Rest industry						
USA (2x)	1,000	35.6%	24.2%	8.7%	6.7%	7.9%
Canada (2x)	1,000	34.2%	22.3%	7.7%	8.0%	6.8%
Australia (2x)	1,000	30.7%	18.5%	7.8%	7.2%	7.6%
New Zealand	1,000	36.0%	25.7%	9.0%	7.4%	7.8%
Eastern Europe						
Poland	1,000	35.5%	17.8%	6.1%	14.4%	6.8%
Czechia	1,000	30.5%	11.5%	8.7%	10.4%	5.2%
Russia	1,000	29.8%	10.8%	5.1%	13.0%	6.3%
Slovenia	1,000	23.3%	15.1%	4.1%	4.0%	3.4%
Estonia	1,000	35.7%	17.1%	11.8%	13.3%	7.9%
Asia						
Indonesia (2x)	1,000	18.9%	8.6%	5.7%	7.4%	3.4%
Philippines	1,000	21.4%	5.3%	4.7%	11.3%	2.2%
India	1,000	9.5%	2.8%	2.3%	4.1%	1.3%
China	1,000	19.0%	11.1%	1.8%	5.4%	2.8%
Africa						
Uganda	1,000	60.0%	14.0%	24.5%	28.0%	10.1%
Egypt	1,000	28.7%	8.9%	6.7%	11.4%	7.0%
South Africa	1,000	34.2%	13.0%	10.4%	10.2%	9.3%
Tanzania	1,000	39.2%	18.8%	12.5%	16.8%	6.5%
Tunisia	1,000	37.5%	16.6%	11.0%	18.0%	3.2%
South America						
Brazil	1,000	31.8%	11.2%	3.6%	15.2%	5.6%
Argentina	1,000	38.9%	20.9%	6.1%	11.7%	6.9%

Table 2: Opinions on likelihood of victimizations by burglary of the public in urban areas; results of the IC(V)S 1988 and 1991

Countries	mean	not likely	likely	very likely
Total	1.62	48.5%	41.0%	10.5%
Europe	1.51	55.7%	37.4%	6.9%
Rest industry	1.58	53.3%	35.7%	11.0%
Eastern Europe	1.85	30.1%	54.5%	15.4%
Asia	1.35	69.5%	25.6%	4.9%
Africa	1.89	29.3%	52.2%	18.5%
South America	1.58	50.0%	41.7%	8.2%
Europe				
England & Wales (2x)	1.62	49.5%	38.5%	12.0%
Scotland	1.48	60.3%	31.3%	8.3%
The Netherlands (2x)	1.50	59.5%	30.8%	9.7%
(West)-Germany	1.64	41.3%	53.4%	5.3%
Belgium (2x)	1.49	55.7%	39.9%	4.4%
France	1.53	56.2%	34.6%	9.2%
Finland (2x)	1.18	82.6%	16.5%	0.9%
Spain	1.72	38.3%	51.5%	10.2%
Sweden	1.42	62.1%	34.0%	3.8%
Italy	1.55	50.8%	43.9%	5.3%
Rest industry				
USA (2x)	1.50	60.7%	28.3%	11.0%
Canada (2x)	1.45	61.2%	32.7%	6.2%
Australia (2x)	1.66	48.4%	37.1%	14.4%
New Zealand	1.67	45.8%	41.6%	12.6%
Eastern Europe				
Poland	1.63	47.3%	42.5%	10.2%
Czechia	1.89	24.2%	62.1%	13.6%
Russia	2.06	21.2%	51.1%	27.7%
Slovenia	1.86	25.1%	63.4%	11.6%
Estonia	1.83	32.0%	53.5%	14.6%
Asia				
Indonesia (2x)	1.45	58.4%	38.0%	3.6%
Philippines	1.22	81.8%	14.8%	3.4%
India	1.54	56.5%	32.5%	11.0%
China	1.20	81.8%	16.3%	1.9%
Africa				
Uganda	1.87	26.3%	60.7%	13.0%
Egypt	1.76	36.7%	50.6%	12.7%
South Africa	1.99	33.3%	34.5%	32.2%
Tanzania	2.05	17.0%	60.4%	22.5%
Tunisia	1.77	35.3%	51.9%	12.8%
South America				
Brazil	1.48	57.4%	37.0%	5.6%
Argentina	1.67	43.5%	46.0%	10.5%

Table 3: Percentages of respondents in favour of a fine, prison sentence or community service; results of the IC(V)S 1988 and 1991

Countries	fine	prison	community service	suspended sentence	any other sentence	don't know
Total	9.8%	45.1%	31.7%	4.7%	5.8%	2.9%
Europe	11.5%	24.4%	49.7%	7.5%	1.7%	5.3%
Rest industry	7.4%	36.4%	42.9%	5.5%	4.0%	3.7%
Eastern Europe	9.1%	42.9%	31.9%	4.7%	7.9%	3.3%
Asia	9.5%	73.5%	4.1%	2.6%	9.2%	1.1%
Africa	9.5%	68.6%	10.9%	1.4%	9.5%	
South America	8.6%	49.6%	32.1%	2.2%	7.5%	
Europe						
England & Wales (2x)	9.9%	39.8%	39.0%	6.8%	0.9%	3.5%
Scotland	12.8%	38.9%	42.0%	3.2%		3.1%
The Netherlands (2x)	8.3%	28.0%	47.9%	7.6%	2.1%	6.0%
(West)-Germany	7.3%	13.6%	64.5%	12.5%		2.1%
Belgium (2x)	10.6%	19.0%	56.6%	3.2%	2.5%	8.1%
France	8.5%	11.3%	62.3%	15.9%		2.0%
Finland (2x)	11.9%	13.2%	53.6%	14.4%	2.2%	4.7%
Spain	24.0%	31.0%	32.0%	0.9%		12.1%
Sweden	15.2%	26.0%	45.7%	5.6%	3.6%	4.0%
Italy	8.5%	25.1%	50.0%	3.2%	5.1%	8.2%
Rest industry						
USA (2x)	5.2%	60.2%	27.8%	2.7%		4.2%
Canada (2x)	8.2%	37.1%	35.2%	10.9%	3.3%	5.3%
Australia (2x)	7.9%	36.5%	46.4%	3.8%	2.5%	2.8%
New Zealand	7.5%	23.3%	54.8%	3.2%	8.4%	2.8%
Eastern Europe						
Poland	10.6%	27.2%	50.9%	5.2%	2.4%	3.7%
Czechia	7.4%	71.0%	10.6%	3.9%		7.1%
Russia	8.9%	45.1%	25.5%	1.2%	19.3%	
Slovenia	12.8%	31.2%	35.2%	6.3%	14.5%	
Estonia	5.9%	40.0%	37.4%	7.2%	3.5%	5.9%
Asia						
Indonesia (2x)	3.3%	77.4%	5.4%	7.3%	4.9%	1.8%
Philippines	7.1%	82.0%	3.5%	0.5%	6.9%	
India	24.8%	51.4%	2.3%	0.6%	20.9%	
China	2.9%	83.2%	5.1%	2.1%	4.2%	2.7%
Africa						
Uganda	7.5%	79.9%	7.3%	1.1%	4.2%	
Egypt	6.5%	65.0%	7.4%	1.2%	19.9%	
South Africa	11.0%	68.0%	14.8%	2.0%	4.1%	
Tanzania	5.0%	74.9%	14.4%	1.4%	4.4%	
Tunisia	17.3%	55.4%	10.7%	1.5%	15.1%	
South America						
Brazil	3.7%	38.6%	44.6%	1.7%	11.3%	
Argentina	13.5%	60.6%	19.5%	2.7%	3.7%	

THE INTERNATIONAL CRIME (VICTIM) SURVEY IN THE DEVELOPING WORLD

Ugljesa Zvekic¹ and Anna Alvazzi del Frate²

INTRODUCTION

For a long time the only available information on crime and criminal justice was that made available through official records of reported/registered cases and/or suspects and charged, tried and sentenced offenders. It is rightly claimed that these are data about the administration of criminal justice or, at the most, the citizens' action in terms of reporting incidents to the police. No doubt, such information is important in determining the volume and filtering in criminal justice administration activities. However, this information provides only for an internal measure of the functioning of the criminal justice administration. There is no measure of its effectiveness in terms of criminal activities that take place but are not in some way made known to the administration. Nor does it provide any indication of the propensity of citizens to report incidents, or some useful information on the repercussions of victimization and attitudes towards crime and criminal justice.

Official criminal justice records reflect the logic of a self-sustained and self-referential system of justice and administration thereof with offenders as prime clients. The neglect of victims is not to be blamed on official recording systems; rather it is a reflection of the administration and offender-centred criminal justice system.

The growth of interest in victims of crime, in community centred crime prevention, and in accountability of police service has led, among other things, to the launching of surveys of victims of crime in a number of industrialized countries.

Differences in rates of crime over time and space are the results of differences in patterns of reporting, detecting and further processing of cases/offenders. To this should be added differences in legal definitions, concepts and measures of crime amply illustrated by problems that both the United Nations Surveys of Crime Trends and Operations of Criminal Justice System and Interpol data face. These problems are particularly important for international comparisons.

Experience gained in measuring crime levels and related issues on a national level

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through the victim surveys prompted the organization of the international survey with a standardized methodology. This, it was hoped, would provide for independent, credible and comparative information on victimization experiences, the context of crime, the attitudes towards crime and criminal justice policy, and an opportunity for developing and testing criminological theories in a wider context.

COVERAGE AND METHODOLOGY

From their initiation, victim surveys were mainly confined to the developed countries, where their diffusion was relatively rapid, becoming more focused and regular, while their presence in the developing world was very meagre. The First International Survey (1989) covered 15 developed/industrialized countries, one Eastern European and only one developing country. The broader involvement of developing countries in the International Crime (Victim) Survey initiated by the Ministry of Justice of the Netherlands in 1989 was perceived as essential.

Table 1 lists all the sites in which the IC(V)S was carried out in the period 1989-1994.

Table 1: Participating Countries

1989	1992 - 1994		
	Industrialized	Eastern-Central European	Developing
Australia	Australia	Czechoslovakia	Argentina
Belgium	Belgium	Georgia	Brazil
Canada	Canada	Hungary	Costa Rica
England & Wales	England & Wales	Poland	Egypt
Fed. Rep. of Germany	Finland	Russia	India
Finland	Italy	Slovenia	Indonesia
France	Japan	Estonia	P.N. Guinea
Indonesia	Netherlands		Philippines
Japan	New Zealand		South Africa
Netherlands	Sweden		Tanzania
Northern Ireland	U.S.A.		Tunisia
Norway			Uganda
Poland			China
Scotland			
Spain			
Switzerland			
U.S.A.			

The main objectives of the International Crime (Victim) Survey in the developing world were:

- Promotion of crime and criminal justice information for informed decision-making;
- Providing information on crime and criminal justice in the developing world and the development and testing of criminological theories.

In most of the participating developing countries the national coordinator created an ad hoc research team usually drawn from the local university or research institutes, to develop the sample and to train the interviewers; only in Costa Rica were the services of a specialized opinion poll company used.

The International Crime (Victim) Survey in developing countries utilized the standard questionnaire administered by the interviewers in a face-to-face interviewing of a sample of respondents. The questionnaire was prepared in English and translated and administered in the local languages.

Certain difficulties with data collection were reported due to a particular sensitivity to some issues in certain cultural settings (sexual incidents, gun ownership, crime prevention devices, etc.). Problems were also encountered with respect to income, either because the respondents did not want to disclose this information or because they were unable to provide it. In some countries it was difficult to contact the respondents in the high income/residence areas because of rigid security measures surrounding their dwellings; in others, in order to facilitate access to slums (in which residents developed a system of tight control against potential penetration by the police or hostile gangs) prior contacts were established with local leaders, the neighbourhood associations, church, etc. National coordinators reported that in two countries refusal to respond was related to the fact that the survey was carried out on behalf of the United Nations which, in the opinion of some respondents, was biased towards their own or a neighbouring country³.

One of the most serious problems faced in carrying out the survey in the developing countries was related to sampling. The probability of sampling error is high due to the small sample size. First of all, it should be pointed out that it was decided to carry out surveys on a city level. A host of factors influenced this decision. In particular it was felt that a lack of systematic information needed for drawing a national sample was somewhat easier to overcome on a city level. It was also assumed that cities in the developing world share certain structural characteristics to a larger extent than countries to which they belong.

³ It is reported that in one country up to 40% of the contacted respondents refused to cooperate because of their negative attitude towards the United Nations' sanctions applied to a neighbouring country.

Restricted financial means also played an important role in making this decision, particularly with respect to the transportation costs involved in a field survey.

The main parameters for sampling consisted in: residential area status, gender and age. While in some countries the sample was drawn on the basis of available census data, in others they were corrected on the basis of information drawn from sociological studies and the experience of the research team. It should be noted that in some developing countries a random stratified sample was drawn through a random walk procedure.

Finally the criterion for selection of the respondent within the household was that of identifying the person above 16 whose birthday was next.

While pursuing comparability through a standard methodology a certain price is paid to the cultural relevance and specificity. To match the two is an issue at the heart of international comparison, and there is no easy solution. Although standardized methodology provides an enormous advantage for comparisons, it also provides an enormous disadvantage for culturally-meaningful appreciation. A desire to achieve internationally comparable and standardized information on crime and justice raises some crucial conceptual and methodological issues. This, in particular, regards the assumption of universality which applies to the public's non-legal concepts of crime as well as to the official legal definitions. The International Crime (Victim) Survey has put this assumption to an empirical test by designing, piloting and administering a questionnaire covering the common element in the public's experience of crime in a wide range of geographical, cultural and legal contexts. The experience gained with the two sweeps of the IC(V)S was encouraging. The concepts of certain conventional crimes may indeed be shared by the public; certainly more than the legal definitions.

As mentioned earlier, the standardized methodology included shared analytical concepts and measures. From a comparative analysis perspective this presents a notable advantage. Following consultations with local survey coordinators and pilots carried out in the participating developing countries, it was agreed that the analytical framework, concepts and measures possess a high degree of cross-cultural relevance and acceptability. This, however, does not mean that there is an absolute universality in social meanings but only that variations are not of such a degree so as to impair comparison. Indeed, the adjustments adopted in the questionnaire were meant to ensure a high level of data comparability. The process of adjustments was geared first to provide as much as possible for the appropriate understanding of the concepts in view of the specific cultural/legal context of each locus under study, and second, by doing so, to increase the level of data comparability.

Developing countries participating in the survey, in terms of their population size, range from Costa Rica and Papua New Guinea (3,190,000 and 4,056,000 respectively) to

China and India which, with populations of more than 1,000,000,000 and 880,000,000 respectively, rank as the first and second largest countries in the world. Cities participating

Table 2: Data on Developing Countries/Cities Covered by the IC(V)S

City/country	Population (various sources)	Country Human Development Index (1992) UNDP ranking
Buenos Aires (Argentina)	11,382,000	0.853 (high)
Costa Rica	3,029,746	0.848 (high)
Rio de Janeiro (Brazil)	5,336,179	0.756 (medium)
Greater Tunis (Tunisia)	828,000	0.690 (medium)
Johannesburg (South Africa)	1,609,408	0.650 (medium)
Beijing (China)	10,819,417	0.644 (medium)
Manila (The Philippines)	7,929,000	0.621 (medium)
Jakarta (Indonesia)	9,104,786	0.586 (medium)
Cairo (Egypt)	6,052,836	0.551 (medium)
Papua New Guinea	3,600,000	0.408 (low)
Bombay (India)	9,909,547	0.382 (low)
Dar Es Salaam (Tanzania)	1,360,850	0.306 (low)
Kampala (Uganda)	650,800	0.272 (low)

in the survey also differ along a number of indicators such as size, rate of growth, etc. They also differ substantially on a number of developmental indicators of economic performance, urbanization, human development index, etc.

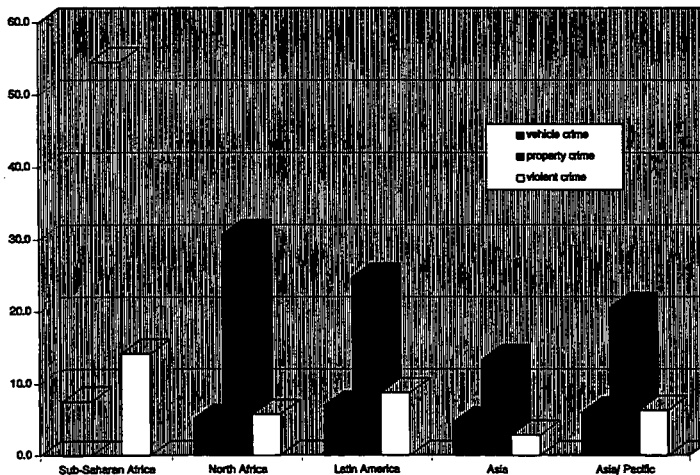
The victimization rates presented are prevalence rates: the percentage of respondents aged 16 or more who reported being victims of crime once or more, either individually or as members of a household. The time span covers the calendar year preceding the survey (in most cases 1991; in South Africa and Tunisia 1992 and in China 1993).

In order to facilitate the analysis, countries/cities have been grouped according to the geographic region they belong to. As a result, five regions have been identified as follows: Sub-Saharan Africa (Kampala, Dar Es Salaam and Johannesburg); North Africa (Cairo and Tunis); Latin America (Buenos Aires, Rio de Janeiro and Costa Rica); Asia (Beijing, Bombay, Jakarta and Manila) and Asia/Pacific (comprising the Asian cities plus Papua New Guinea which includes cities of Port Moresby, Goroka and Lae).

KEY FINDINGS

Groupings of individual crimes and their regional distribution are presented in Figure 1 below. Vehicle crime includes theft of car, motorcycle and bicycle; property crime refers to theft from car, burglary and attempted burglary, theft of personal property and car vandalism; violent crime: robbery and assault/threat.

Figure 1: Percentage of Respondents Victimized by Three Types of Crime in One Year, by Regions



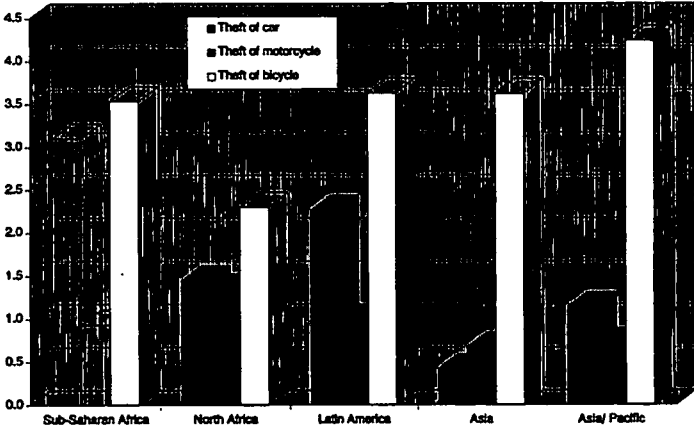
Property crime is the most frequent form of victimization among those considered in Figure 1 above. It largely affects Sub-Saharan Africa (more than 50%) and, to a lesser extent, the other regions. The second most frequent form of victimization in all regions is violent crime, with the exception of Asia. It should be noted that Asia shows the lowest rates for all types of crime. In comparative terms, the highest victimization rates for all those types of crime were observed in Sub-Saharan Africa.

Among the types of crime covered by the survey, consumer fraud and corruption stand out as the most frequent in all the regions of the developing world and in most of the cities within the specific region.

Differences in levels of exposure to consumer fraud vary somewhat more across the regions with respect to corruption. Both Sub-Saharan and North Africa lead in consumer fraud, as they do together with Latin America in regard to how things are achieved when dealing with public officials. Asia, with and without Papua New Guinea, appears to be a less corruptive public environment.

Victimization rates for vehicle theft can be expressed in two forms: as rates of the total sample and as rates for vehicle owners. The former are most useful for comparing the spread of different victimization experiences in the population; the latter provide more

Figure 2: Prevalence Victimization Rates for Vehicle Theft (total sample), One Year - by Regions



information about the real risk of the target group, that is, the vehicle owners.

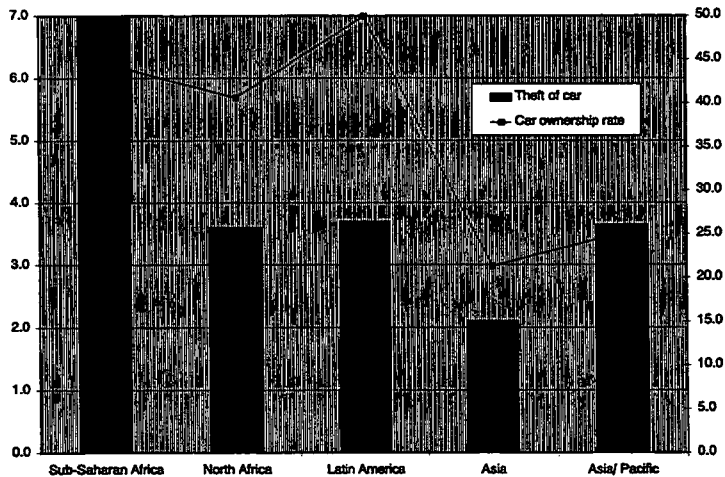
Theft of car is most widespread in Buenos Aires which also has the highest car

ownership rate, while, at the regional level, the highest rate is in Sub-Saharan Africa with the second highest ownership rate. This finding supports the opportunity theory according to which the higher the ownership rate the higher the victimization rate.

Theft of bicycle is most frequent in Beijing and the urban areas of Papua New Guinea which makes Asia (with and without Papua New Guinea) the region with the highest propensity for bicycle theft, although similar levels are recorded in Latin America and Sub-Saharan Africa.

The vehicle owner's risks are of course higher. This in itself is a trivial finding. Figure 3 reveals that car owners' risks are highest in Sub-Saharan Africa and are then quite similar in Latin America, North Africa and Asia/Pacific.

Figure 3: Prevalence Victimization Rates for Car Theft (Owners), One Year, and Car Ownership Rates in the Sample - by Regions



On average, the owner's risk is at least twice as high as the population spread of car theft with the exception of Latin America. These differences indicate certain limits of the target-availability explanation and introduce the unequal ownership structure and scarcity as a necessary part and parcel of the explanatory paradigm. Indeed, within the demand-supply paradigm as developed by J.J.M. van Dijk⁴, victims are seen as reluctant suppliers. This supply role is particularly important in the situations of unequal ownership structure and

⁴ J.J.M. van Dijk "Understanding Crime Rates", British Journal of Criminology, 34:2, 1994.

scarcity and goes hand in hand with demand.

An important indicator of the nature of theft of car and the efficiency of law enforcement is provided by data on car recovery rates. These rates are presented in Table 3.

Table 3: Car Recovery Rates, by Regions

%	Sub-Saharan Africa	North Africa	Latin America	Asia	Asia/Pacific
Cars recovered	55.2	65.9	47.1	44.8	50.0

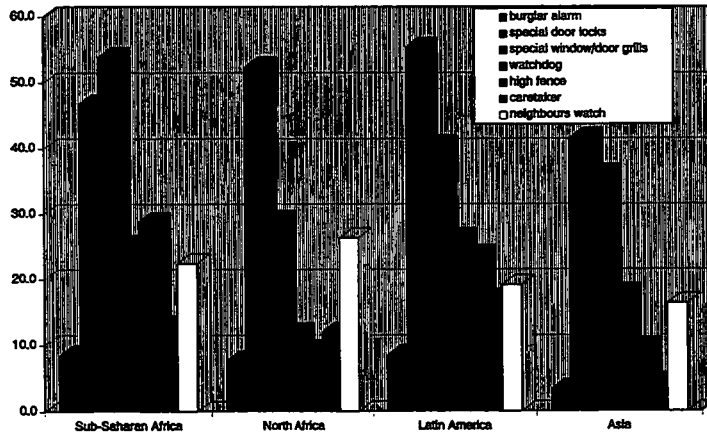
On a country level, the highest recovery rates are in the cities of Papua New Guinea, Costa Rica and Africa. Strong doubts exist as to whether these data indicate the effectiveness of the law enforcement although, at least in the case of Papua New Guinea and Costa Rica, the size of the territory and, in particular for Papua New Guinea, restricted opportunity for traffic (due to a restricted road network) can ease the recovery of the stolen vehicles. There are valid arguments that a high recovery rate indicates that vehicles are stolen for joy-riding purposes, an explanation offered for industrialized countries. The attractiveness of cars for young people, particularly in a situation of relative car scarcity, supports the joy-riding hypothesis. The recovery rate in the developing world is much lower than that in the industrialized world which, comparatively speaking, indicates both lower levels of efficiency in recovery and less joy-riding. In addition, an examination of data from Europe suggests that low recovery rates may indicate the existence of an organized crime network smuggling cars from Western Europe to Central and Eastern Europe, thus not only reducing the recovery rate but also increasing car theft rates both in Western and Central and Eastern European countries. The plausibility of extending this hypothesis to the developing world comes from Interpol data, according to which more than 1.6 million cars were stolen across Europe in 1991, of which 633,000 were never recovered and, furthermore, "...more than half of these cars were stolen in Britain, so it is logical that they ended up in countries that drive on the left-hand side of the road". Since the majority of left-hand side driving countries are developing countries (in addition to Australia, Japan and New Zealand), these data indicate the involvement of organized crime and its influence on increasing car theft rates in both the developed and developing world, as well as a reduction in recovery rates⁵.

A series of crime prevention measures are adopted by the respondents to protect their households. The most popular are door locks and grills on doors and windows which are available to almost half the respondents in all regions. Although some regional differences

⁵ "Interpol Picks Up a Shadow", *The European*, 30 July - 2 August, 1992.

can be observed (Figure 4), smaller percentages of respondents keep watchdogs and have high fences (especially in Sub-Saharan Africa and Latin America). A few respondents

Figure 4: Household Crime Prevention Measures - by Regions



affirmed that their house has a caretaker or a burglar alarm. Finally, neighbours watch in case of absence in approximately one-fifth of cases in all regions (a bit less in Asia, however, where all crime prevention measures are slightly less widespread than in the other regions).

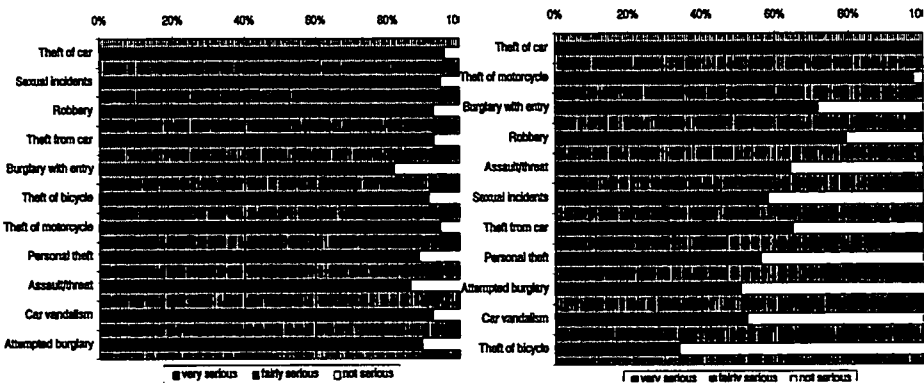
Figure 5: Burglary Rates, Fear of Burglary, Household Crime Prevention Measures and Gun Ownership - by Regions



A comparison between rates of completed and attempted burglary, a constructed index representing an average of crime prevention measures adopted and the likelihood of burglary in the next twelve months as expressed by the respondents is presented in Figure 5 above.

In general, the spread of crime prevention measures is higher than the actual crime, with the exception of Sub-Saharan Africa where more respondents were victims of burglaries than those equipped with household protection devices. On the other hand, fear of crime (likelihood of burglary) is positively correlated with victimization. The region with the highest spread of crime prevention devices was Latin America, which also shows the highest percentage of guns owned for crime prevention purposes (15% of the respondents).

Figure 6: Victims' Assessment of Crime Seriousness, by Type of Crime - Sub Saharan Africa and Asia



The two opposite patterns of seriousness assessment are observed in Asia and Sub-Saharan Africa respectively. The highest levels of concern with crime seriousness is observed in Sub-Saharan Africa. There is very little differentiation between the various types of crime. This region deviates from the average ranking of seriousness, in particular for assault/threat which is there in the bottom part of the seriousness ladder.

A much lower proportion of victims in Asia expressed such an assessment of seriousness for all types of crime. A different philosophy towards victimization is revealed by citizens of Asian cities, who make a wider use of the fairly serious, rather than the very serious, category. Car theft is the only type of crime which is considered very serious by 60% of the respondents and fairly serious by the remaining 40%. All the other types of crime are considered less serious, with theft of bicycle (not serious for 65% of the respondents) at the bottom of the seriousness scale.

Sub-Saharan Africa is a crime-driven region. It appears that the respondents are under pressure (see also the high indicators of fear of crime) and that frequent, repeated experiences with crime make it inevitable that this problem be considered very serious, irrespective of the type of crime. On the other hand, the lowest victimization rates were observed in Asia, with a more differentiated attitude to the seriousness issue. It appears that the differential assessment of crime effects is facilitated in communities in which less crime occurs.

Problems of sensitivity to the issue of sexual incidents might have created distortions in reporting to the survey, either in the direction of over-reporting or under-reporting. In some of the most industrialized countries covered by the IC(V)S it was noted that high sensitivity to the issue corresponded to high rates of victimization reported to the survey.

It appears that this is not the case for developing countries, where survey results have shown that lower rates of sexual harassment were found in countries where women enjoy a better status.

Table 4 to the right shows several indicators related to the advancement of women. A negative correlation was found between victimization for sexual incidents and adult literacy rate, years of schooling, average age at the first marriage and contraceptive prevalence rates. Vice versa, a positive correlation was found with crude birth rate.

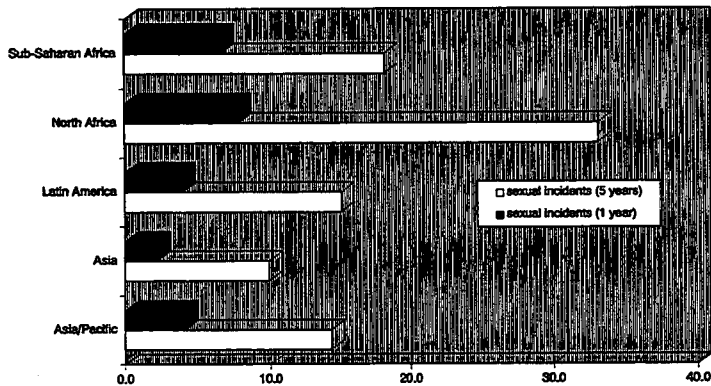
Both types of reporting of sexual incidents (in the victim surveys and to the police) seem to reflect certain particularities of a cultural nature related to the women's position, awareness, freedom, the concept of privacy, and the gender-biased police culture. From a comparison of the two reporting practices, two discernible patterns are found. On the one hand, there are sites in which both victimization and reporting are high (Dar Es Salaam and Papua New Guinea) and, on the other, those in which the relationship between the two reporting rates is inverse; for example, the one year rate in Cairo is 10% while only 2.5% of cases were reported to the police, or, in Manila the victimization rate is low (1.2%) while 16.7% of the cases were reported to the police.

Egypt	45.5	38.6	35.0	21.9	1.7	29.0	32.0	46.0
Uganda	26.5	34.0	37.0	17.7	0.6	41.0	51.0	5.0
Tanzania	22.0	-	-	19.1	1.3	48.0	48.0	10.0
South Africa	6.0	-	-	26.1	3.7	39.0	32.0	50.0
Tunisia	20.7	24.5	59.0	24.3	1.2	21.0	28.0	50.0
Costa Rica	15.0	6.6	93.0	22.2	5.6	30.0	27.0	75.0
Brazil	11.8	12.2	81.0	22.6	3.9	36.0	24.0	66.0
Argentina	18.6	-	96.0	22.9	9.5	28.0	21.0	-
The Philippines	3.5	5.8	90.0	22.4	7.2	37.0	31.0	40.0
India	3.0	40.5	35.0	18.7	1.2	29.0	30.0	43.0
Indonesia	25.5	15.0	77.0	21.1	3.1	40.0	27.0	50.0
PNG	32.4	31.4	48.0	20.6	0.7	39.0	34.0	-
China	7.6	23.4	68.0	22.0	3.8	43.0	21.0	83.0

Data source: UNDP, Human Development Report, 1994 and IC(V)S - UNICRI elaboration.

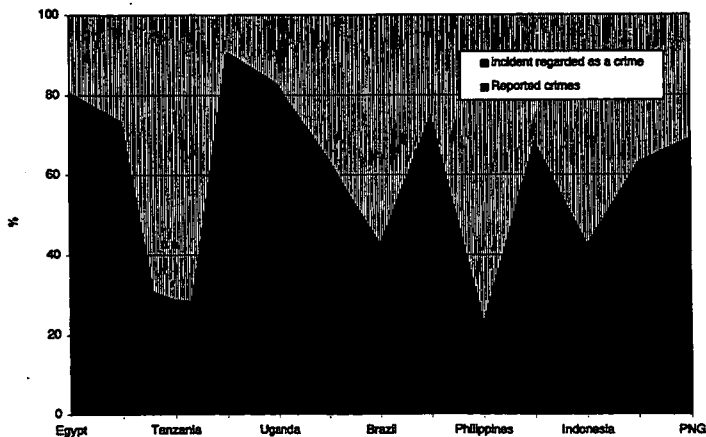
Survey results reveal that this type of victimization is very frequent in many developing countries. Data grouped by regions are shown in Figure 7 below, in which both five-year and one-year victimization rates for sexual incidents are presented.

Figure 7: Prevalence Victimization Rates for Sexual Incidents, Five Years and One Year, by Regions



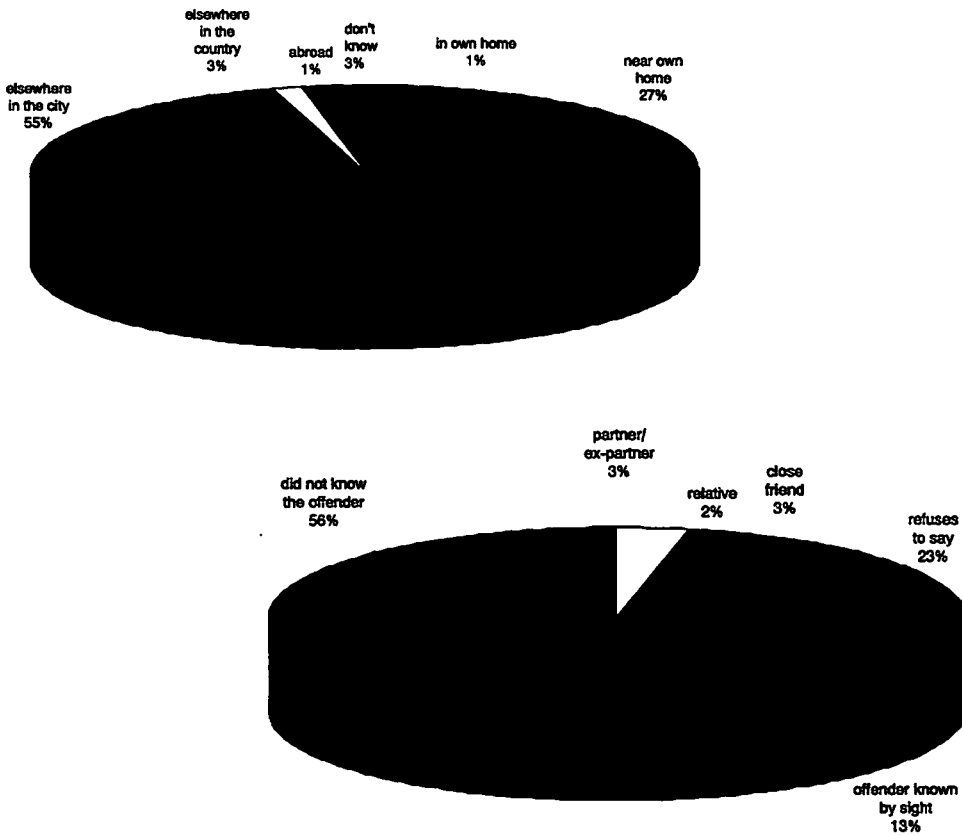
The highest rates were found in North Africa, where 33% of the interviewed women experienced sexual incidents in the last five years, followed by Latin America, Sub-Saharan Africa and Asia/Pacific with rates close to 15%. The least victimized were women in Asia (10%).

Figure 8: Sexual Incidents Regarded as Crimes and Reporting Rates



Although, according to survey data and other studies⁶, women generally tend to report crimes more frequently, a victim-offender relationship tends to reduce reporting to the police. In fact, survey results also confirm that in many cases the victim of sexual incidents knew the offender, at least by sight (Figure 9). In smaller but significant percentages the offender was the partner/ex-partner, a close friend or a relative. In addition, 23% of the victims refused to provide details about the offender(s), thus suggesting they actually knew him or them.

Figure 9: Place where Sexual Incidents Occurred and Victims' Relationship with the Offender



⁶ W. Skogan "Reporting Crimes to the Police: The Status of World Research", *Journal of Research in Crime and Delinquency*, 21:2, 1984.

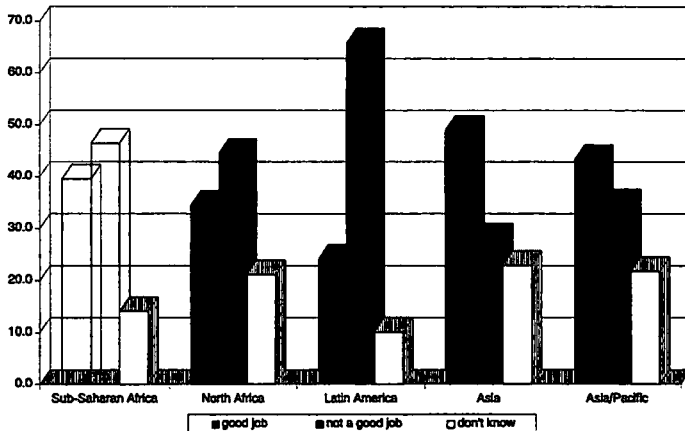
Finally, fear of violent crime is mostly expressed by women, despite the fact that they appear to be at a lower risk of assault. This result is consistent with similar findings in the industrialized countries. Furthermore, women victims of crime, in particular of sexual incidents, feel less safe, are more negative about police and more punitive towards offenders.

Within the ambit of multiple factors influencing the reporting of victimization to law enforcement bodies, particular attention is given to reasons for not reporting. In general, the most common reason for not reporting regards the event itself, and most often its relatively low level of seriousness. This category is followed by an experienced or assumed attitude expressing the lack of effectiveness on the part of law enforcement. Self-help and/or that of the family, friends or other institutions ranks third in this general picture of factors influencing non-reporting. It is however extremely difficult to find any pattern in terms of the importance of the reasons for not reporting.

Dissatisfaction with the way the police handled the matter once reported is another important indicator of the police-victims relationship. However, the available information is based only on the last incident reported to the police and pertains to those who were dissatisfied with the way the police handled their reports. It should be underlined once again that reasons for dissatisfaction vary by crime types. Nevertheless, some general patterns are discernible. At the regional level, somewhere around one-third of the dissatisfied victims stated that the "police didn't do enough", indicating lack of full commitment on the part of the police. Two other important reasons stand out: "the police didn't recover my property" and "didn't find the offender". While these are interrelated, the former indicates that reporting is often motivated by the expectation of reclaiming stolen property. In the developing world, substantial economic interests might be at stake for the victims of property crime. This reason was indicated by more than 40% of dissatisfied victims in Johannesburg, Dar Es Salaam, Rio de Janeiro and Beijing. Inability to find the offender was indicated by more than one-third of dissatisfied victims in Dar Es Salaam, Cairo and Rio de Janeiro. As already noted, in most of these cities victims also revealed that reasons for not reporting have, to a large extent, to do with "police won't do anything".

Nor are the citizens in the developing world satisfied with the way the police control crime in their area of residence. There are more dissatisfied than satisfied respondents in all the regions with the exception of Asia. There is particular dissatisfaction among the citizens of Latin America (Buenos Aires: 65% to 28% and Rio de Janeiro: 77% to 12%). In Asia, on the other hand, 83% of the citizens of Beijing state that the police do a good job in controlling crime in the area in which they reside, which is the case only with 21% of the citizens from Papua New Guinea (Port Moresby, Lae and Goroka).

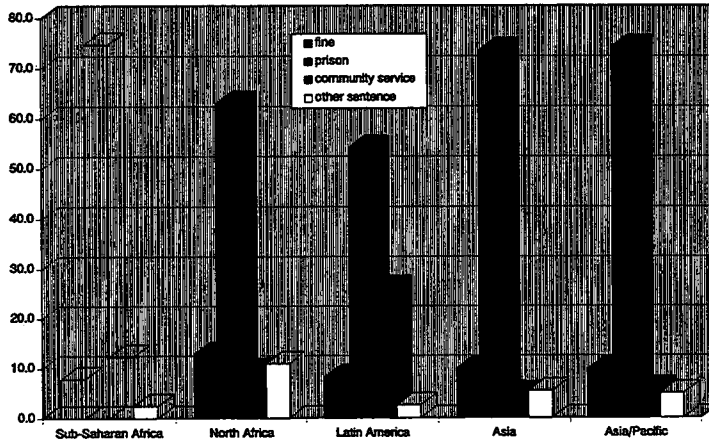
Figure 10: Satisfaction with the Police in Controlling Crime in the Area of Residence, by Regions



Opinions on sentencing also present an important measure of citizens' reactions to crime which might be related to victimization experiences, although only further analysis can show whether it holds true and for which types of crimes and sentences in developing countries. The question referred to five types of sentences considered most appropriate for a recidivist burglar (a man of 21 years of age who has stolen a colour TV) followed by a specification of the length of imprisonment should this sentence be chosen by the respondent.

There is a high degree of agreement among the population in the developing world that the most appropriate sanction is imprisonment: more than 50% in all the regions, and even more than 70% in Sub-Saharan Africa and Asia. Citizens of Beijing and Manila in particular exhibit a punitive orientation. A fine is deemed the most appropriate sentence by 29% of the respondents from Bombay and 19% from Tunis, while community service is held an appropriate sentence by a bit less than half of the respondents in Rio de Janeiro. It is interesting to note that in Argentina and Brazil quite a few respondents favoured community service, although at the time of the survey administration such a measure was not envisaged in the respective criminal justice systems. Nevertheless, punitiveness prevails in the developing world.

Figure 11: Attitudes to Punishment, by Regions



CONCLUDING REMARKS

It is apparent that the developing urban sites exhibit higher victimization rates for all selected types of crime. This is more marked with property, sexual offenses, consumer fraud and corruption and somewhat less with violence. As regards vehicle-related crimes, the industrial countries have both a higher car ownership and car crime rate. But, the target availability has to be corrected by unequal ownership structure and scarcity which in turn increase the car owner's risk. Satisfaction with the police either in controlling crime or handling reports is much lower in the developing world, as is reporting to the police on average. Motivation for reporting is directed towards recovery of stolen property and bringing the offender to justice. Punitiveness prevails in the developing world. The developing urban world is in particular exposed to a number of social change processes which may further contribute to an increase in crime and victimization.

A rational approach to crime and crime prevention concerns both those officially in charge of criminal justice administration as well as citizens - actual and/or potential crime victims. At the same time, adequate efforts are needed to encourage citizens' responses to crime risks through participation in community crime prevention programmes, self-adoption of precautionary measures within the limits of accepted criminal policy and regulations, and increased cooperation with, and confidence in the law enforcement and other criminal justice agencies. On the other hand, criminal justice policy-makers are invited to promote programmes which are efficient, acceptable and credible to the community. An important part of these efforts regards the development of democratic, accountable and community-service oriented law enforcement which will pay special attention to prevention

and respect for citizens and victims of crime. The promotion of special, and reliance on existing victim support structures and schemes, as well as recognition of victims' claims and rights in the criminal process is also of fundamental importance. In other words, serious commitment towards people's and community needs and rights is on the agenda. This requires more, but at the same time, less than investments in criminal justice equipment for crime and public order control. However, it should not be neglected that crime prevention, self-protection and tight control initiatives have their own limits, particularly in the developing world in which a demand-driven crime problem prevails⁷. Development brings about new opportunities for crime changing the crime structure and the crime/victimization profile. But development potentially also brings new opportunities for effective crime prevention and equitable administration of criminal justice. This, however, depends on certain deliberate choices and strategies, including protection and respect for community and victims' needs and rights. Victim surveys can assist in this process.

⁷ J.J.M. van Dijk "Opportunities of Crime: A Test of the Rational-Interactionist Model", Report for the Symposium on Economics and Crime of the Permanent Committee on Crime Problems of the Council of Europe, Strasbourg, 28 - 31 November 1994.

Statements by National Delegations¹

¹ The proceedings contain only those statements presented by National Delegations that have been submitted in writing as well.

The "Report of the Chairman of Committee I of the Ninth United Nations Congress on the Workshop" records the discussions; see pags. 241 - 246.

**INTERNATIONAL COOPERATION AND ASSISTANCE IN
COMPUTERIZATION OF THE ADMINISTRATION OF
THE CRIMINAL JUSTICE SYSTEM**

Evguenii Nikolaivitch Sidorenko¹

The fate of the political and economical reform in the Russian Federation, the development of democracy, and the establishment of the rule of law depend greatly on the success of the judicial reform. The reform has been gradually implemented for the last couple of years with the aim to establish a strong, authoritative and independent judicial power, which would be able to provide the superiority of law, sound protection of the rights and interests of the citizens, the society and the state.

An important element in the successful implementation of the judicial reform is the introduction of changes in the management of the courts, the organs of the Ministry of Justice, and also technological improvement of the work of these organs. This can be achieved by introducing new information technologies in the field of the judicial administration. That is why the justice authorities of the Russian Federation wish to upgrade the technical equipment of the courts and the law enforcement organs in the framework of the programme on computerization of the criminal justice system.

In the framework of this programme the Ministry of Justice of the Russian Federation has been actively working towards establishment of computerized information systems which are divided on territorial units.

This system is being created in accordance with the Programme on Informatization of the Justice System for 1994 - 1995. This programme is an integral part of the Federal Programme on Crime Prevention.

The general tendency of development of the systems - divided on territorial units - which use computer technology, is to process the information flow locally as much as possible in order to simplify and lower the cost of this technology. The programme includes the establishment of regional centres of legal information. This system will transfer the methodological and reference information from methodological centres to the courts and notarial offices. The system also transfers statistical reports from the courts to notarial offices, regional judicial organs and the federal Ministry of Justice.

Introduction of information technology in the justice system of the Russian Federation

¹ Deputy Minister of Justice of the Russian Federation.

has provided for a sufficient increase in work efficiency of the courts and other organs and organizations of judiciary. It must be said that the establishment of the database of legal information is the task which is important not only for the Ministry of Justice but for other organizations as well, because they are very interested in gaining the access to legal information. Accordingly, the Ministry of Justice works in close cooperation with the Office of the Prosecutor-General, the Ministry of the Interior of the Russian Federation within the framework of the above Programme on Computerization of the Criminal Justice System for 1994 - 1995. This coincides with one of the main tasks set out by the judicial reform and the federal programme on strengthening the combat of crime: the establishment of the unified informational space for the justice and law enforcement systems of the Russian Federation.

In the course of the judicial reform we have been confronted by many problems caused by the lack of experience and economic and financial difficulties. That is why we consider carefully and with the great interest the proposals, coming from foreign governments and non-governmental organizations including the United Nations, to assist us in the implementation of the judicial reform. The success of the reform would guarantee not only stability within Russia but also sound legal protection of those foreign entrepreneurs who are interested in economic cooperation with the Russian Federation.

There are several forms of international cooperation in this field:

- Exchange of the information, which is necessary for the implementation of the judicial reform;
- Training of instructors, researchers and practitioners;
- Assistance in the preparation and the publication of training materials, dictionaries and other literature pertaining to the judicial reform;
- Technical assistance.

The positive results are manifold and include:

- Adopted legislative acts, drafts of new laws which in some instances were prepared with participation of foreign experts. As a result of international cooperation, we were able to use the experience of the judiciary of democratic societies in drafting these laws;
- The training and re-training of personnel is improving;

- The training courses for judges have been improved, in these courses attention is given not only to international norms and standards in the field of human rights but also to their implementation in every-day courts' practice;
- With technical assistance provided by our partners, different kinds of study materials and training films were prepared. These should help us in proliferation of the experience of other countries.

Especially, I would like to touch upon the subject of cooperation in the field of computerization.

The joined activities of the judicial organs and law enforcement agencies of the Russian Federation in implementing the criminal justice reform attracted the attention of the European Institute for Crime Prevention and Control, HEUNI, which is represented by the scientific coordinator of the project on computerization of the criminal justice system Mr. Richard Scherpenzeel. As a result of our contacts, we were able to produce a project proposal for a pilot-project on automatization of the informational systems of the judicial organs and the law enforcement agencies (Ministry of the Interior, Procuracy, Courts). On the basis of several regions we are planning to conduct in Moscow in 1995 an international seminar with the participation of the staff of the courts and law enforcement agencies. At this seminar leading experts from different countries will share their experiences. The seminar is of great interest to us because at this moment, in spite of the growing demand for more equipment, in our view, the training of our experts who work in the field of computerization should be our priority.

This aspect of international cooperation is our priority, because it defines the concrete goals and defines the ways by which these goals can be achieved in a short time. Here we are counting on the assistance from the United Nations.

I would also like to underline another aspect of informatization: the legal aspect. The matters pertaining to the establishment of legal bases will determine the extent to which information will be used by consumers, including the courts. Eventually, the legislation will determine whether computer systems will be introduced into the work of the judicial organs and law enforcement agencies. We should establish the legal framework (sort of a constitution) for regulation of cooperation between the subjects of unified informational space. This space is a set of the social and productional relations created as a result of the continual use of information and creation of new information technologies.

The basic federal law on "Information, Informatization and Protection of Information" has been adopted recently. This law establishes the general legal framework for the implementation of the informatization programme in all areas and levels of the administrative

system including the judiciary and law enforcement.

Furthermore, the implementation of this law can only be sustained by the introduction of other specialized laws on data protection with regard to automated processing of personal data. These laws will regulate the activities of holders of informational systems. These laws were drafted in accordance with legal standards of developed European countries.

For the successful continuation of the international cooperation in this field more effective coordination on the international level and within the Russian Federation is needed.

Intergovernmental cooperation should be coordinated by the United Nations and its regional branches (the United Office in Vienna, the European Institute for Crime Prevention and Control, and others).

In the Russian Federation the effectiveness of this assistance can only be ensured by those government agencies which are, in accordance with the law, responsible for the implementation of the judicial reform and bear responsibility for the adequate functioning of the judicial system and law enforcement agencies. These government agencies are the Ministry of Justice, the Ministry of the Interior and the Office of the Prosecutor-General of the Russian Federation.

PROBLEMS OF INTERNATIONAL COOPERATION IN THE FIELD OF COMPUTERIZATION OF CRIMINAL JUSTICE

Dobrinka Tchankova¹

The delegation of Bulgaria wishes to underline that it fully supports the ideas debated within the Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System. These ideas express our common aspiration for a more untroubled and secure world.

At the same time, from the point of view of Bulgaria - a country in a period of transition and facing numerous problems - some of these ideas appear to be too farfetched and imaginary.

In the last several years intensive efforts have been exerted in our country for the establishment of a modern computerized system of criminal Justice. Due to lack of funds this process is very slow and difficult.

We are disturbed by the fact that we are not in touch even with the outlying branches of the United Nations Criminal Justice Information Network. We do not have E-mail and access to the data bases of the United Nations centres. The National Central Bureau of INTERPOL in Bulgaria also does not have a computer link with the Headquarters and the other branches of INTERPOL all over the world. At the end of the 20th century we still contact our respondents through outdated and of poor quality communications. As a result our system is ineffective, and wastes a lot of time and efforts.

It is hardly necessary to argue further that if we have common objectives our efforts should be joined together in order to achieve better results.

We would like to believe that Bulgaria and the processes going on in it will be subject of special attention in the future.

In effect, we suggest that Bulgaria should be involved in the projects for technical assistance and financial support for the computerization of criminal justice system which would be accomplished in the near future. Geographically, Bulgaria is situated on the cross-road of crime coming from South and North, East and West and this is our strongest argument.

We would like to declare that in Bulgaria there are enough good computer specialists

¹ Ministry of Justice of the Republic of Bulgaria.

who can be useful in the process of establishment of computer networks in other countries by developing of software. In brief, we can take part in joint programmes by means of human resources and software and we need financial support and hardware.

It would be of mutual benefit if the extension of the United Nations Criminal Justice Information Network could reach Bulgaria as soon as possible and we could quickly and efficiently enjoy the positive experience, scientific research surveys, legislative achievements etc. in crime control.

I would like to assure you of the readiness of my country to host a United Nations programme on crime prevention, especially designed for the solution of some current problems of criminality in the region of Central and Eastern Europe. We would also welcome new branch offices of the United Nations affiliated institutes as well as the opening of a United Nations information and documentation centre.

**Report of the Chairman of Committee I of
the Ninth United Nations Congress on
the Workshop on
Computerization of Criminal Justice Information**

**REPORT OF THE CHAIRMAN OF COMMITTEE I OF
THE NINTH UNITED NATIONS CONGRESS ON
THE WORKSHOP**

The two-day Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System: Computerization of Criminal Justice Operations and the Development, Analysis and Police Use of Criminal Justice Information reviewed progress in computerization and in the use of information for policy and management purposes. The discussion focused on the development and use of national and international crime and criminal justice information and on the introduction of information technology in the administration of criminal justice. The discussion also sought to identify ways in which international cooperation, particularly within the framework of the United Nations Crime Prevention and Criminal Justice Programme, could support development in that field.

The workshop opened with a discussion of the principal trends that had led to the international interest in the issues being discussed. The underlying theme was one of change: change in society, change in crime, and a rapid change in technology.

Participants agreed that the myriad changes in society - demographic, economic and political - had led to changes in the level and structure of crime. In many countries crime had been increasing. New forms of crime were emerging, and both crime and offenders were taking on an international dimension. The criminal justice system was having difficulty responding in a just and effective manner. As for the administrative and infrastructural context, individual criminal justice agencies faced shortages in personnel and resources, shortcomings in training and operational structure, and difficulties in coordination and cooperation with other agencies, locally, nationally and internationally.

The rapid changes in technology, including new techniques for research and for monitoring the factors underlying the evolution of crime and the operation of the criminal justice agencies, provided new opportunities for responding to those changes. Currently, individual agencies in many countries were in the process of computerization their operations, either on their own or in tandem with other agencies. Their goals included increased system efficiency, improved decision-making, better inter-agency coordination, and better and more timely information for policy analysis.

The rapid changes in technology, however, also had a negative side. New concerns and problems were arising over privacy and security. For example, it was noted that, without proper monitoring and guidelines and without clear law and policy, the new technology might strengthen the degree of control in society, and could, in so doing, erode fundamental rights. The technology itself also created new possibilities for fraud, theft, embezzlement, vandalism

and other crimes, which under the rule of law must often be the subject of new criminalizations.

Many speakers described the experiences in their countries in responding to the changes and in utilizing the new information technology. Their objectives included analyzing the operational environment of the criminal justice system, obtaining information on the dynamics and structure of crime and characteristics of offenders, forecasting trends, and improving the allocation of resources.

There was a clear need for controlled organizational change, training, new approaches and coordination, locally, nationally and internationally. If individual agencies adopted divergent strategies, the abilities of agencies to work together and exchange information might be weakened, and that could lead to investments in solutions that proved inappropriate in the long term. For that reason, national and international standards were needed on data, communications and technology. Such standards could help agencies and Member States achieve the same high levels of efficiency and coordination, while ensuring the protection of privacy and security. That, in turn, required a coherent information policy which would guide the work of policy makers, criminal justice administrators and practitioners, experts and others involved in the field and would ensure the necessary financial and political commitment. In the international context, there was a clear need for coordination and harmonization and the strengthening of multilateral and bilateral technical aid programmes.

Attention was drawn to the need for a research policy that would foster both basic research and action-oriented research so as to ensure that policy makers could take informed decisions. Governments should also be encouraged to support evaluative research as a basic component of projects and programmes in crime prevention and criminal justice. The advantages and disadvantages of various models of bringing research and policy closer together deserved close examination.

During the workshop, the relevant work being carried out within the framework of the United Nations Crime Prevention and Criminal Justice Programme was reviewed. Interregional and regional summaries of the Fourth United Nations Survey of Crime Trends and Operations of Criminal Justice Systems were given, as were the results of a cross-cultural victimization study carried out by the United Nations Interregional Crime and Justice Research Institute (UNICRI), in cooperation with the Ministry of Justice of the Netherlands. Reference was also made to publications on the development of criminal justice statistics, the computerization of information systems in criminal justice, computer crime, and, most recently, a directory of criminal justice information systems.

The potential of the United Nations Criminal Justice Information Network (UNCJIN), which would soon be transferred to Vienna, was demonstrated at the workshop. Through

Internet, UNCJIN links up a rapidly growing number of governmental agencies, academic institutions and individual practitioners with elements of the United Nations programme and with one another. Plans for expanding the scope and global coverage of UNCJIN were outlined.

The United Nations network of institutes - in particular UNICRI, the European Institute for Crime Prevention and Control, affiliated with the United Nations (HEUNI), and the Asia and Far East Institute for the Prevention of Crime and the Treatment of Offenders (UNAFEI) - had carried out needs assessments missions, organized training courses, published source materials and provided other technical assistance. Further activities along those lines, including pilot projects, were in preparation.

It was noted that the resources available to the United Nations technical assistance programme were severely limited. The programme could avail itself of the services of only one expert in information technology, services generously provided by the Government of the Netherlands. Several Member States called for considerable strengthening of the programme in that respect. The growing role of the United Nations Development Programme (UNDP) in crime prevention and criminal justice was considered a very positive element, and it was suggested by one speaker that Member States should seek to allocate a specific portion of the aid within their country programme to that area, and to computerization and information technology.

Several speakers urged Member States, particularly those with considerable experience in that field and in more advanced technology, to share their expertise and experience and to increase financial and technical assistance on a bilateral and multilateral basis, in particular through the United Nations programme. Suggestions included the organization of regular local, regional and interregional seminars, including seminars for senior policy makers, demonstration projects on UNCJIN in countries with the greatest need, the regular updating of a roster of experts and expertise in the field, the development of computer-assisted instruction packages, the establishment of ad-hoc groups to consider the appropriate infrastructure for planning, implementing and evaluating the computerization of criminal justice, and, especially, the establishment by the Commission on Crime Prevention and Criminal Justice of such an ad-hoc group to provide advice on international technical assistance projects.

It was noted that the implementation of such projects required increased investments and sacrifices. However, the projects would contribute to savings in the operation of the criminal justice system. Equally, they would contribute to the development of more informed policy, enable criminal justice agencies to inform citizens of developments in crime and the response to crime, and monitor the impact of crime and of the criminal justice system, thus contributing to the rule of law.

All Member States were urged by several speakers to provide assistance to the United Nations programme by providing fuller information on crime trends and the operations of the criminal justice system in their countries.

In general, it was noted that a considerable amount of expertise was available on what to do and what not to do in developing information technology for the management of criminal justice. There was also an increasing willingness to exchange information and expertise. What was required was an expansion of the international institutional capacity in order to ensure that the assistance reached those who could utilize it in their work.

PART TWO

Symposium

Computerization of Criminal Justice Information

4 - 6 May 1995

PROGRAMME

Thursday, 4 May 1995

- 10:00 **Opening.**
Chairman
- 10:10 - 10:40 **Integrated Criminal Justice: A World-Wide Issue.**
Mary Lu Holter, I.B.M., U.S.A.
- 10:40 - 11:05 **Software AG's Technology for the Future.**
Dieter Klanke, Software A.G., Germany
- 11:05 - 11:35 **The Emerging Patterns of Fraud.**
Allan Redfern, Software A.G. U.K. Ltd.
- 11:35 - 12:00 **Information Technology in Policing.**
Giorgio Bongiorno, Olivetti, Italy
- 12:00 - 12:30 **New Image Processing Technologies for Crime Prevention.**
Rudiger Franzel, Siemens-Nixdorf Informationssysteme A.G., Germany
- 12:30 - 13:00 **Computerization of Law Enforcement in Emerging Countries.**
Adelbert L. Roark, A.L. Roark and Associates, U.S.A.
- 13:00 - 15:00 **Lunch break.**
- 15:00 - 15:30 **Criminal Database Management: The Effective Reporting System.**
Jean-Paul Mayron, Olivetti Switzerland
- 15:30 - 16:00 **Police Systems in The Netherlands.**
Jan van Galen, Ministry of Justice, The Netherlands
- 16:00 - 16:30 **Guidelines to the Establishment of Police Information Systems.**
Boris Bormanov, National Police, Israel
- 16:30 - 17:00 **New Police IT-Systems.**
Lars Meling, Ministry of Justice and Police, Norway

- 17:00 - 17:30** **Building and Deploying Enterprise Client/Server Applications during Times of Change.**
Mario de Jager, Progress Software, Europe, Middle East and Africa
- 17:30 - 18:00** **Intelligent Conceptual Scanning and Categorizing-of Documents.**
Richard V. de Mulder, Erasmus University, The Netherlands

Friday, 5 May 1995

- 10:00 - 10:10 **Opening.**
Chairman
- 10:10 - 11:00 **The 1996 International Crime (Victim) Survey.**
Ugljesa Zvekic, United Nations Interregional Institute Crime and Justice Research Institute; Jan J.M. van Dijk, Ministry of Justice, The Netherlands; Celia Leones, Crime Prevention Directorate, The Philippines
- 11:00 - 11:30 **A Model for Integrated Justice for the Future (continued).**
Mary Lu Holter, I.B.M., U.S.A.
- 11:30 - 12:00 **Automation of the Criminal Justice Process.**
Rick Deutsch, SUN Microsystems, U.S.A.
- 12:00 - 12:30 **Using Client/Server Technology to Improve the Criminal Justice System.**
Marc R. Benioff, Oracle Corporation, U.S.A.
- 12:30 - 13:00 **Mobile Data Terminals: Past, Present and Future.**
Daniel M. Monopoli, H.T.E., Inc., U.S.A.
- 13:00 - 15:00 **Lunch Break**
- 15:00 - 15:45 **Applications of Information Technology in the Justice Agencies of England and Wales.**
Christopher G. Lewis, Home Office, United Kingdom
- 15:45 - 16:10 **Computerization of the Public Prosecutor's Office in the Netherlands.**
Fred G. Westerbeke, Ministry of Justice, The Netherlands
- 16:10 - 16:40 **New Information Systems for the Office of the Public Prosecutor.**
Gerhard Neuhierl, Siemens-Nixdorf Informationssysteme A.G., Germany
- 16:40 - 17:10 **Computerization of Justice Information in France.**
François Franchi, Court of Paris, France

16:10 - 17:35

The Distributed Information Processing Computer System of Courts and Justice Institutions in Russia.

Andrey V. Morozov, Ministry of Justice, Russian Federation

17:35 - 18:00

Strategic Plan for the Computerization of the Supreme Court of Ecuador and the Implementation of its First Pilot Project.

Carlos A. Miranda, Supreme Court of the Republic of Ecuador

Saturday, 6 May 1995

- 10:00 Opening.
Chairman
- 10:00 - 10:30 Virtual Dossier: An Emerging Critical Issue in New Information
Technology Applications within Criminal Justice.
Chris F. Kindermans, S.A. Bull, Belgium
- 10:30 - 11:00 Quick Scan Evaluation Method Justifying the Business Value of
Existing Information Systems.
*Walther A.P. Denissen, Philips Communications & Processing Services, The
Netherlands*
- 11:00 - 11:30 Re-engineering Justice.
Mary Lu Holter, I.B.M., U.S.A.
- 11:30 - 12:00 New Bibliographic Databases in Criminology: KrimDok and
KrimMon.
Anton Georg Nold, Police College, Germany
- 12:00 - 12:30 The National Criminal Justice Reference Service: NCJRS On-line.
G. Martin Lively, National Institute of Justice, United States Institute of Justice
- 12:30 - 13:00 Making Internet Work for Worldwide Criminal Justice Institutes.
William Zeiner, MITRE Corporation, U.S.A.
- 13:00 - 15:00 Lunch Break
- 15:00 - 15:30 The Rule of Law Online: A Case Study on the Development of an
Internet Model for Cross-National Information Sharing and
Dissemination.
Sergey Chapkey, National Institute of Justice, United States Department of Justice .
- 15:30 - 16:00 Computerization of the Prison Administration in the Netherlands.
Frank van der Zanden, National Prison Service, The Netherlands
- 16:00 - 16:30 Information Technology in Swedish Prison and Probation
Administration.
Per-Erik Lundh, Prison and Probation Service, Sweden

- 16:30 - 17:00** **A National Model for the Development of a Generic Family Violence Statistical Information System.**
Denis Sauve, Canadian Centre for Justice Statistics
- 17:00 - 17:30** **A Computerized Decision Support System in the Juvenile Probation Service in Israel.**
Meir Hovav, Ministry of Labour and Social Welfare, Israel
- 17:30 - 18:00** **New Concepts in Combating Computer Crime in Polish Criminal Legislation.**
Barbara Kunicka, Supreme Court of Ecuador and Latinamerican Development Agency
- 18:00** **Closing**

Issues in System Development within Criminal Justice

**VIRTUAL FILE:
AN EMERGING CRITICAL ISSUE IN
NEW INFORMATION TECHNOLOGY APPLICATIONS
WITHIN CRIMINAL JUSTICE**

Chris F. Kindermans¹

INTRODUCTION

When we look into the responsibilities of Justice Departments, independently from any form of organization, we seem to encounter, in most countries, the same half a dozen basic stages for administering justice, each of them supported by a set of related information technology applications:

- Prosecution, led by a magistrate with the help of the police;
- Trial in court, with one or more higher level courts in case of appeal;
- Penalty to be served in jail, or under some form of probation;
- Legal or jurisprudential framework governing all these stages;
- Individual criminal records that they generate or consult;
- General administration, the logistics without which no human organization can function.

INFORMATION TECHNOLOGY ISSUES IN CRIMINAL JUSTICE

Of these six stages, the last three present no major challenge today, in terms of applying information technology.

Three stable stages

General administration encompasses a group of applications that were among the very first to be developed and that need only normal maintenance.

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The exception is in countries where budgets and costs controls constraints set up by governments require new developments. The same applies to the applications concerning the personnel - payroll, careers, skills - either because the personnel expenses are a high percentage of the total expense of the department, or because there are personnel concerns and issues that require at least better management tools.

Criminal records, such as the Casellario Giudiziale or the Scottish Criminal Records are very large databases, most of them developed in the 1970s or in the 1980s. Normally, their situation is stable. These applications are well run, they give a high level of satisfaction and all users want them to be maintained. However, they may be subject to change, for instance because of information technology or administrative decentralization. On the contrary, in some countries because the information has been kept scattered for historical reasons, people feel now the need to centralise, at least part of it. This is more or less the case with, for example, the National Criminal Intelligence Service in the United Kingdom, or with the Schengen Information System.

Another reason for changes can be legislation on the protection of the privacy of the individual. In several countries, when these laws were enacted, the criminal records databases were already operational. For a while, it was accepted that they went on as they were. But today, there is a greater tendency to conform to these laws - as it is specifically expressed in the Treaty of Maastricht. Hence there is a need for adaptations and security.

The databases on law and jurisprudence, also developed in the seventies and the eighties, require few changes, apart from updating.

Trends in the 1990s

New trends are to be found in the first three stages, as well as in international relations.

Pressured by the geographical expansion of organized crime, many states sign multi or bilateral agreements that may lead to the constitution of brand new bodies, such as the Schengen working groups or Europol, and of their respective information systems.

However, the development of systems in the framework of international relations is slow, because in spite of the signed or even ratified agreements, they are still limited by a number of considerations about national sovereignty and specific details of existing laws.

These systems normally require databases on various subjects, means for exchanging usually sensitive information, tools to analyze the information and also portable offices for inspectors travelling around. In their attaché-case, inspectors carry whatever they need to

continue their work far from their physical office, including their PC, analysis tools, telephone, modems for accessing the necessary database or for transmitting electronic mail, security devices for protecting the access, and even built-in destroyability in case the portable office is stolen.

Penitentiary administration is subject to three pressures. One is on resources, as we have seen earlier, when speaking about general administration, with both aspects: budgets and people. Another has to do with probation and the alternative ways to serve a sentence: at home, during week-ends, doing work for community service, etc. In the United Kingdom, for example, our customer is using advanced programmes, for the management of production within the industries and farms administration which manages the occupational activities of prison inmates. The third pressure has to do with prison overcrowding in particular and with the social adaptation of punishment in general.

A key factor of progress in this respect is the individual file or record, which becomes every day more and more complex in its essence, and which needs to be handled with speed and accuracy.

The individual file is, of course, inherited from the courts. The situation of the courts is frequently described as a bottleneck. There are reasons for this. One can be that the old laws on procedure are not adapted to the criminal pattern of our times. Many efforts are being made to simplify these procedures, moving towards self-service justice for some simple offenses, like fines for traffic penalties. Another reason can be that the Department of Justice did not benefit in the past from budgets and skills to ensure proper computerization of the tribunals, where clerical work and the file of the individual are essential. When the magistrates get the proper tools, results can be spectacular, as was shown in Italy with the programme Milano Efficenza 2000, extended to all the peninsula.

In the prosecution phase, there is today much emphasis on the analysis tools: automatic fingerprints recognition systems have been around for some time. Now, computerization is beginning to be associated with ballistics as well as with mugshots, identikit pictures, or with stolen art works. All these are image-based applications. They reduce the research time, while maintaining, and even improving the level of accuracy. For example, the Nucleo Tutela Patrimonio Artistico of the Carabinieri in Italy, is using an imaging system in order to track down the traffic of stolen artworks. They can retrieve images, compare them, zoom on details, compare with other works from the same artist, etc. without moving from their office.

In the near future, this kind of applications can be extended even further, thanks to the implementation of the information highways which make it possible to access and retrieve images stored all over the world. During the G7-meeting, Brussels, early 1995, this

capability has been demonstrated with the Joconde project².

A different example of analysis tools is the ALERT³ project of the National Criminal Intelligence Service in the United Kingdom. The National Criminal Intelligence Service provides a service in the gathering, collation, evaluation and analysis of information relating to major criminals of regional, national and international interest. To achieve this, the National Criminal Intelligence Service primarily concentrates on the United Kingdom's top 350 criminals and their 3,500 key associates. Principal National Criminal Intelligence Service customers include regional crime squads, police forces and H.M. Customs and Excise.

ALERT will be the backbone of National Criminal Intelligence Service's computing system, with features which include: specialized free text, structured data, and analytical facilities. In addition, ALERT will also provide access to other databases, and provide up to date office systems.

The Nucleo Tutela Patrimonio Artistico of the Carabinieri in Italy and the ALERT project are two examples of projects where the key problem was technical complexity in a forensic science environment. When the difficulty has been overcome, the basic elements of the solution can be used to help another project with the same kind of problem. The chances are that the elements will be assembled differently, in order to suit specific new needs. The same principles are applicable in those projects where the difficulty arises more from the intricacy of administrative procedures.

A typical example of this complexity is the individual file or record.

THE VIRTUAL FILE

The individual file is the natural link between all the stages of the justice process. It includes documents and information coming from various horizons, both internal to justice and external, like medical certificates, financial status, analysis from a laboratory etc. and in different forms: data, text, voice, image, etc.

Documents and information build up in the file over a lengthy period of time. Sometimes it seems to be a never ending task. When one administration, e.g. the police has

² Bull Information Systems is partnering in this project with the Louvre Museum and the INRIA Research Institute in France.

³ ALERT is the project name for a new computerized intelligence system for the National Criminal Intelligence Service, which is being developed by Bull Information Systems, prime contractor to the National Criminal Intelligence Service, in partnership with Memex Information Systems and I2 Ltd.

finished with its work, it hands the file on to the next stage. And, there, the file will receive some additional comments, documents, certificates and ... yet more weight.

That is the point where image-based information technology applications can provide a high performance solution. Let us think, for instance of the Schengen Sirene Office in France: there, the information is flowing in from various sources, as we have seen above, and they have, as might be expected, various aspects and shapes. It can be digitized information, but also photographs, certificates, observations and notes, drawings-like tattoos or dental records, holographic documents, etc. The image of all these visual documents can be captured by means of a scanner, then referenced and entered in the system resulting in an entirely electronic device: the virtual - as opposed to physical - file.

All the original papers can be safely stored away, especially if only they have legal proof value. No need to physically transfer them from one office to another and to the next department. They can be accessed directly where they are, in the virtual file, and by several officers simultaneously. Each can either work on it and add new evidence, or only consult some parts of the file.

Clearly we need, and there are, all kind of securities to avoid access and/or manipulations by unauthorized persons. There should be no problem in maintaining the integrity of the documents and of the information, including the successive drafts that a note, a letter, a regulation might require.

The virtual file can be accessed by all authorized people, even several simultaneously, at any time and at any stage of its completion. In principle, there is no need to hand the file over to the administration next in the process, as this administration can be put on the list of authorized users from the very beginning or from a given point in time. And vice versa: if from a given stage of the procedure a formerly authorized person is no longer entitled to access the information, there is no difficulty in barring his access to the database. Also, if in a country, the only acceptable form for a file to be passed on is paper, then a print out can be made or, if the originals are required, they can be retrieved from the place where they have been stored in proper order.

This combination of multimedia techniques and work flow management is of interest to practically all administrations. But, as it is rather new, what we encounter today in an administration is still limited in its scope and undergoing tests. Such is the case with the Swedish police, who is currently testing a routine for preliminary investigation. It manages the flow of information, hand-written notes, etc. between custody, officer on duty, squad chief, investigation and expedition. From this and other examples, a number of things become very clear:

- The file, virtual or physical, is absolutely critical, because it is the continuum between the various components of the chain of justice.
- The routines are different from one administration to another, even in the same country and, in addition, they are subject to changes. Hence, there is no room for ready-made solutions.
- The best way to handle this kind of application, where procedures and human nature are the key components and change a constant, is via tests on pilot sites, experimenting the various components of the process. In any case, the resulting application should be very flexible.
- The process should be treated as a project corresponding to a well defined objective and with a clear added value.

PROJECT BASED SOLUTIONS

Before starting to assemble standard or specifically developed elements in order to build the application, it is imperative to define the requirements, the specifications and the interdependencies of the project. It is interesting to observe that about 50% of the projects that fail do so because they are badly defined at the start.

Any sensible definition begins with: Why do we want this project? What is the added value that we expect from it? What should be its return on investment? As soon as the general goal has been clarified, it becomes relatively easy to set the limits to the projects, its objectives in terms of output, start and end time, size of the expenditure, special skills required, quantity of resources needed.

The issue of the availability of resources is crucial. Statistically, most of the time of the information technology staff is devoted to the maintenance of existing applications, that is continual adaptation to the changes in the laws and regulations. A major innovation will require additional resources. Also, some particular skills may have to be hired from the outside, but only for the duration of the project. What will become of them when the goal has been reached?

Outsourcing is one answer. Not the outsourcing of all operations, all the time. But the outsourcing of a very specific goal, with a set of tangible objectives, a beginning and an end. The unique combination of complexity, constraints and deployment of scarce resources - eventually scalable from tests, to pilot site to full roll out - pleads in favour of a project and its outsourcing. There is also some degree of uncertainty, such as the response and the

attitude of the personnel involved by the pursuit and the completion of the goal?

So, before going any further, with the project, it is important to explore the risks that may be involved. Risks about the timing, in not getting started and certainly not finishing by the target dates. Risks about resources - some of them are so scarce that they are forbidden either to go on holidays or to be sick, not to speak of being run over by a bus. Risks about costs and risks about the quality of the output.

Working with projects is not new. For instance, the military have long experience of using operations research, such as the PERT methods, et al. Still no project can ever be risk free. The whole idea is to either avoid or reduce the risk. One way of doing this is to identify and evaluate the degree of risk at every stage, for every aspect.

But, how to identify risks? One can use intuition, personal expertise or experts, questionnaires, logs or check lists, intelligent risk inventory tools, et al. All these methods have been assembled within a risk analysis tool called Programme Risk Analysis and Management⁴. This risk analysis methodology provides effective ways to identify problems before they happen. The use of these methods also sets appropriate expectations levels, thus enabling better decision making.

PROJECT MANAGEMENT TOOLS

As information technology projects have been around for some time, statistics begin to show why they can fail:

Major causes of project failure:

■ Project objectives not fully specified	51 %
■ Bad planning and estimating	49 %
■ Technology new to organization	45 %
■ Insufficient senior staff on the team	42 %
■ Poor performance by supplier	42 %
■ Inadequate project management methodology	42 %

⁴ A risk analysis management methodology developed by S.A. Bull.

For a project to be successful, and deliver its expected benefits, the customer and his supplier need to work together on the four major project stages:

■ *Define the goal, and for this, the customer should receive:*

- objective consulting,
- analysis of problem / justification of project,
- assistance in preparing request for proposal.

■ *Design the solution:*

- feasibility study,
- design,
- choice of hardware platform,
- choice of software platform,
- detailed proposal.

■ *Develop and implement the solution:*

- development of custom,
- development of application software,
- integration of systems,
- instalment and start-up,
- test and validation.

■ *Follow up:*

- operation,
- maintenance,
- optimization.

And accordingly, the project team has to:

- identify solutions, then estimate and cost them,
- identify risks and develop a financial model,
- determine management activities,
- select the best solution and the partners possibly needed for some particular skill,
- examine the proposals and negotiate contracts.

Tools have been developed to manage each of these stages and are regularly used by experienced system integration companies. These project management tools were, of course,

an important success factor in the projects that we discussed earlier.

MANAGING THE FUTURE

In conclusion :

- There are new information technology trends within criminal justice: in international relations, in the penitentiary administration, the courts and in the prosecution phase.
- The individual file is the continuum between all the stages in the criminal justice process, thus playing a critical role. Today, it can take the form of a virtual file, combining documents, information and workflow management.
- Any major development, particularly when critical, has better chances with a project based approach. It may be outsourced to a professional company with experience, specific skills and proven management tools.

Let us also add that it is essential, for any ambitious project, to involve the customer's managers, at the highest necessary level: they alone can formulate the goal of the project, and its added value.

And finally, success requires teamwork, a blend combining the professionals of project management, the data processing department of the customer, the users that will benefit from the objectives of the project, and senior management, who ensure the vision and commitment.

The key success factors for information technology projects to serve the needs of criminal justice are:

- The necessary competence to understand the specific needs of the customer;
- The technical expertise to define and achieve the appropriate solution;
- The ability to evaluate risks and give the risks full consideration in the proposal;
- The most rigorous project control to ensure quality, on-time scheduling and profitability;
- The precise audit of the business in terms of conformity to strategy, availability of the requisite skills, funding, and risk exposure.

AUTOMATION OF THE CRIMINAL JUSTICE PROCESS

Rick Deutsch¹

INTRODUCTION

The processes involved from the detection of a crime being committed through the ultimate incarceration of the guilty party, have been essentially the same for decades. It is useful to define these processes in order to set a basis of discussion on current techniques to automate them.

- **The Crime:** To analyze the entire process, an event must have taken place. This could be a robbery, a murder, an assault or any variety of heinous act. It is an event to which police resources are applied in apprehending the perpetrator.
- **The Call for Help:** After a citizen is subjected to the crime, they quickly to notify the appropriate authority to obtain help. In many cases, the summons may be simply a scream to neighbours or passers-by in the hope that someone can summon police. The victim is often in an emotional state that would prevent any further ability to secure help for themselves. If the victim is incapacitated, then other persons on the scene may summon authorities.
- **Collection and Analysis of Evidence:** As soon as possible, authorities secure the crime scene and begin to collect anything that might be related to the crime. Hair, blood, clothing, bullets, weapons, etc. can all be important clues in tracking down and convicting the perpetrator. This data must then be analyzed to look for linkages and clues.
- **Forensic Analysis of the Evidence:** Typically an investigative team is assigned to pour over the mountains of physical evidence, photos, recordings, witness statements, telephone taps, etc. to make sense of it all.
- **Suspect Identification:** Once sufficient evidence is analyzed, possible suspects can be detained and booked into custody. Much time is spent to ensure the appropriate legal rights of the suspect are protected. The demographic data pertaining to the individual is collected and entered into a variety of possible storage mechanisms.

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- **Adjudication:** As soon as is practical, the individual is scheduled to appear before an approved body to judge his guilt or innocence. At this time, the collected evidence and witnesses are examined, leading to a decision.
- **Incarceration:** Assuming a guilty verdict, the person is sent to a jail, prison or penitentiary. He is placed into a facility to serve out his sentence.
- **Parole:** Often it is appropriate to release prisoners before they have served all their time. This is due to a variety of factors: overcrowding, good behaviour or political pressures.

THE EXISTING PROCEDURE

The above steps are not new news. The intent was to clearly agree on exactly what we mean when referring to the criminal justice process.

When we examine the administrative tools used in many locales for handling each of the above processes, the results can be very interesting. Speaking generally, we see that many jurisdictions are heavily dependent upon paper-based systems. Clip boards, folders, file cabinets, thumb tacks and highlighting pens abound. The legacy of many processes is such that it is difficult for the staff to evolve away from their dependence on paper.

Because of the strong tie to paper based systems, the criminal justice/law enforcement/public safety functions in many places are very manual processes. Staff who have done it this way for years, are reluctant to move away from the old ways to more sophisticated methods. Concerns about job security is certainly a part of the problem; tight budgets are another. There are distinct costs associated with any movement towards the utilization of technology. The safe (but unwise) move is to keep things as they have been.

Many existing processes are very slow and cumbersome to deal with. This is a result of the dependence upon doing things the way they always have been done. Because of this use of manual/paper based systems, the system suffers from a lack of information exchange. Typically, phone calls and manual file searches are the mode of data exchange. In addition, usually one person is assigned to do one task. Local experts in a given field emerge. When that person leaves or is sick, the completion of those tasks suffers. While this is good for individual job security, the greater good of the unit suffers.

Finally, the existing picture is one of an increasing workload - rising crime rates with the attendant increase in paperwork is hindering the performance of the group.

A BETTER PROCEDURE

With the above discussion in mind, the desire for a better, more efficient method of dealing with the criminal justice process is a desirable goal. In the 1990s, it is surprising to see the large number of criminal justice agencies that do not employ sophisticated computer tools to assist in the process. Many departments still use a paper based system. Clip boards, file folders and brain centred systems are the norm. Quite often the reasons given include: cost, training, conversion problems, security, etc. While certainly these can be valid reasons, a birds eye view of the problem usually shows that the use of computer technology actually reduces overall costs, provides growth, reduces redundancy via relational databases (input data need only be done once, but used for a variety of purposes) and can free police-officers from the burden of paperwork, allowing them to get back on the streets, where they can do the most good.

In many cases, it is a matter of the agency finding the specific tools to best suite their needs. Low cost personal computers are often very adequate to many tasks. If the agency is large or anticipates a need to communicate via networks (for data exchange to outside agencies, or to utilize higher bandwidth applications), the use of a UNIX-based system may be best. UNIX-based servers and workstations can provide access to databases in the terabyte range, can support data exchange at 100 million bits per second and beyond, and allow seamless multi-tasking of operations. For most applications, mainframe systems are usually not needed, but if they are accessible, the mainframe can be employed for data warehousing or other tasks. The key is to use the correct computer for the correct tasks.

Sophisticated computer systems will allow the utilization of relational database management systems (RDBMS). The accessibility of all pertinent records - across the network - to all users is critical. Low-powered PCs often cannot provide the speed and data storage capability needed. Finally, to ease the transition from the old to the new, user-friendly graphical user interfaces (GUI's) will not only remove the mystique of the new technology, but it will make the application more intuitive and actually fun to use. The staff may not enjoy every minute at work, but a GUI removes a lot of the frustration often encountered with computer systems.

With these preambles made, this paper will discuss now the specifics of automating the criminal justice process.

SPECIFIC SOLUTIONS

To refresh, the candidates in the crime process for application of computer elements are:

- The Crime;
- The Call for Help;
- Collection and Analysis of Evidence;
- Forensic Analysis of the Evidence;
- Suspect Identification;
- Adjudication;
- Incarceration;
- Parole.

This paper is discussing technologies that might be unknown to the reader. Some faith is required, but everything presented is available and running today - no vaporware here. More details can be provided by contacting the author. Complete description of the systems shown is limited only by the space allocated for this paper.

The Crime

While it may seem strange to think of automating the crime, what is meant here are some steps that can be taken to reduce the incidence of crimes before they are committed - via computer automation. A couple of examples:

Gunshot location: In many communities, gangs and criminals indiscriminately fire weapons during the commission of a crime. Neighbours or passers-by often report the location of the shots erroneously due to echos and the difficulty in pinpointing the location with the human ear. This causes emergency crews much difficulty in providing help. A better solution is an automated gunshot location system. This employs sensors stationed on telephone poles or high buildings. When a shot is fired, the sensors triangulate to the source and pinpoint where it came from. This information is then relayed to the police control room, where a dot is displayed on a video display of a map of the city. A dispatcher can then rapidly send the closest vehicle to the crime scene and apprehend the suspect. The ability to have authorities on the scene will help deter future gunshots. The criminals will realize that if they fire guns, the police will apprehend them.

Identity badging: A simple idea, but often poorly executed. Typically, badges consisted of a photograph glued under a clear lamination. Demographic data is typed on the

badge card and stored in a card file. This system is very easy to counterfeit and re-use of the data very cumbersome. A better idea is to utilize computer based badging systems. With an electronic photo capture of the individual, the image is printed right onto the surface of the badge plastic stock. This deters a person from cutting and swapping photos with another. A major advantage is the ability to archive demographics into a relational database. Changes are easily made. Addition of a magnet strip for room access or simple cash debit transactions also contribute to the utility of the badge. Smart card chips can allow for more detailed transactions. Hologram imprints further deter tampering and 2-dimensional and 3-dimensional bar coding allows for even more sophisticated use (fingerprint coding). Lastly, interface to external systems such as photo facial recognition or fingerprint matching systems provide limitless capability. An open system computer based device allows for sharing of data across networks, i.e. should a theft occur, the images from a surveillance camera can be matched with the badging database to seek out the offender.

The Call for Help

Once the crime does occur, it is critical to dispatch police personnel as soon as possible. By using an advanced computer aided dispatch (CAD) system, the police central control is able to know where all its fleet of vehicles are. Via global positioning system (satellite) receivers, the position (even while in motion) of every mobile asset can be visually tracked on the dispatcher's screen. When a call comes in via telephone, the dispatcher is able to do an initial screening of the problem. Specific help can be given with only minor training. For example, by using a medical software module, the dispatcher can go through an abbreviated expert system checklist to identify the specific problem with specific advice. The expert system allows a true tailoring of the solution based on the crisis at hand and is more than just a flipchart of generic if-then responses.

The computer aided dispatch system is linked with the global positioning system to identify the most appropriate vehicle to send. This may not always be the closest. Using additional inputs from geographic information system cues, such things as road conditions, construction, and traffic can be modeled and the vehicle with the fastest response time sent. This computer based system allows for instant statusing of resources as well as report generation of system usage. Statistical summaries can be used by management to identify frequent response (high crime) areas and perhaps pre-position vehicles where they will do the most good.

Collection and Analysis of Evidence

At crime scenes, the discipline of the investigative team varies. Often, due to many factors, physical evidence is misplaced or just lost during transfers. Using a bar code tagging system, each piece of evidence can be identified and entered into a computer database. By

affixing adhesive labels to the evidence, the bar code identifier for each piece of evidence can be entered into a computer database. In this way, anytime a piece is moved (between jurisdictions, to court, to lawyers, etc) a simple bar wand is swiped over the code to update the database. The wand can also swipe the ID-badge of the individual to further provide trace-ability.

A major problem in criminal cases is correlating the piles of evidence (tangible, photos, interviews, phone recordings, etc.). Investigators are diligent people - they will collect and collect and collect. It is quite a different task to try and make sense out of the boxes of evidence. Using a computer based system, a low-skill level person can enter or key-in the evidence. With advanced software, the computer can sort it all out and identify similarities or linkages between pieces of evidence. For example, a witness may casually mention that a suspect was wearing a red hat. Days later, another investigator may interview another person who also mentions a red hat. These facts may be trivial, but the computer can show them as common and allow a linkage to be drawn. Perhaps the suspects have red hats for a reason - maybe a gang identifier. In this manner, people, places, organizations, etc. can all be identified as relevant. The computer can also simplify the diagramming of the key elements of evidence. Doing this by hand on a giant wall board is very cumbersome. Also, if a witness changes her story, the whole diagram might have to be severely altered. Again, the computer can easily edit out the erroneous information. Another feature is the automatic generation of a timeline for the case. When something was heard, and when key events occurred, may be critical in identifying suspects. All this allows for a more educated hypothesis generation. The results of the analysis can then better be disseminated and provided to prosecutors for use in case preparation. The bottom line here is better resource management. To perform these tasks manually is very time consuming and people-intensive without the use of computers.

Forensic Analysis of the Evidence

In parallel with the analysis of hard evidence, is the more laboratory intensive forensic analysis. An example of this is the matching of bullets and cartridge casing to the gun which fired them. It is a known fact that under a microscope, any machine made device is unique. The very act of machining the device yields unique scratches, dents, ridges, etc. Relative to our topic, it is also known that a bullet fired from a gun suffers deformation caused by the rifling (spirals) in the barrel. The deformations of that bullet can be used to identify the barrel that made the deformations. In addition, cartridge casings are struck on the end by the hammer of the gun. This action causes an imprint on the end of the cartridge that uniquely identifies it as coming from that (and only that) gun. While this appears hard to believe, remember, we are talking about a match at the microscopic level. In the past, examiners would mount a known cartridge and a suspect cartridge under a stereo microscope and attempt to visually match them as coming from the same gun. (A test firing of an

apprehended gun will produce the known cartridge or bullet). Today, using computers, it is possible to scan the image of the bullet or cartridge into the computer's data base. This data base can be from test firings of thousands of confiscated guns. When a crime is committed, the investigators collect spent casing or bullet slugs.

The lab then can input the scanned images and bring the images on-line. The computer categorizes over 250 characteristics to allow it to do an automated search. The computer then displays 24 candidate images from the database (with a priority indicated). The examiner then can select large images of the known and suspect items and place them side-by-side on the screen to do a manual comparison. Zoom, rotation, shading, clarity and other features are manipulated. Once the two are deemed a match, the examiner can further look at the them under the actual microscope for testimony as an expert witness. Another feature is the network capability. This allows examiners located some distance apart in different jurisdictions to each call up the candidate bullet/cartridge images from unsolved cases in their locale. Thus, they can share their evidence with their associates. Each can then perform the above process to identify if there is a match. This technique can be done between two labs anywhere around the world. A major advantage is that evidence does not have to leave local control and criminal activity apart can be solved.

Suspect Identification

Possible suspects can be more quickly identified by using computer technology. Software for comparing photos of suspects at crime scenes can help reduce the universe of possibilities. Imaging techniques to provide facial recognition of suspects are readily available. Techniques prepare police artist renderings of suspects or to age child victims by incorporating sibling genetic characteristics will aid in identifying suspects as well. Automated fingerprint searches are now routine. Advance algorithms go beyond the mere comparison of minutiae and focus now on ridge flows; this technique requires less memory than older systems and is able to run independent of hardware platform.

Once the suspect is identified, a booking process takes place. In most locales, this is (again) a manual process of taking a chemical picture and logging the person into a local (and unsophisticated) database. (Perhaps a form to be filled out and placed in a file). There is no correlation to other events or crimes, nor a way to share the data with others. A better way is to use a mobile system (a van) and be at the crime scene. The suspects can be brought into the van and booked right there. By electronically capturing his/her image, it can be securely transmitted to headquarters where it is compared with others on file. Demographic data is also merged to prevent redundancy. The speed of the booking process is increased many times over.

Adjudication

After the suspect is booked he is scheduled to appear before a judge or jury for resolution of the case. In many highly visible cases, it becomes clear that the process is very complicated and cumbersome. Automation can help here, too. The process of selecting juries is aided by managing the vast number of candidate jurors and their backgrounds.

Using the computer to sort the jury pool to identify biases or other concerns helps lawyers select individuals best suited to assess the facts. The multitude of calendars (judges, rooms, lawyers, experts, witnesses, clerks) would be best facilitated by the use of an interactive computer scheduling routine. This allows easy conflict resolution and E-mail notification of dates/places.

Pertinent information for all involved can be made available on the court computer system. Data from the forensic analysis or link analysis systems can also be called up on the court system.

All this data is now available to judges, clerks and court administrators to help them manage resources. Case maintenance, daily summaries and various reports can all be generated using the computer system.

Incarceration

Following the trial process, if the suspect is found guilty, he will be sentenced to a prison. Prisons can be thought of as hotels in a manner of speaking. There are beds, food service, clothing, entertainment, medical, and a wide variety of services that are needed. In a manual system, these things are dealt with in a vacuum of each other. Computer based systems can manage the prisoner and the prison resources to their maximum.

Upon arrival at the prison, the prisoner surrenders all the property on his person. The computer system can bar-code and database all these items to ensure that only the correct items are returned (this prevents the person from claiming to have had a Rolex, when a cheap digital watch was logged in). A mug-shot electronic photo will make sure that when he is ultimately released - he is the one released and not an imposter. The prisoner may have a medical problem or allergic concern. Perhaps he has some special dietary problem. All this can be tailored and linked to the clinic, cafeteria, etc. for their attention.

The ability is provided to keep exact track of sentences, movement around the prison (can prevent two former gang members from rooming together), parole hearings, visitors, etc. The facilities management function is a great asset to prison management. Bed load planning, automated cell assignment and computerized visitation management are all tangible

benefits. All this can assist in future jail facilities design and engineering. At the rate jails are constructed around the world, this type of information is invaluable.

Parole

In many places, jails are overcrowded and many prisoners are released before the end of their sentence. Some crimes are viewed as not severe enough as to require incarceration. For these and other reasons, computers are being used to provide a home arrest function. In this manner, the person is fitted with an ankle bracelet. This bracelet is permanently attached by the authorities and cannot be tampered with. The person is allowed to hold a job, but must be in his home at a designated (and customizable) time. He must be home in order for a signal to be transmitted to a base station near his telephone. If he is not within 150 feet of his phone, a call is made to a control centre. The operator there can call back to the house to check for problems or notify authorities as to the situation. A police car or parole officer can be dispatched to resolve the matter. This system allows the individual to be productive (and pay taxes!) and frees up prison space for more violent offenders.

SUMMARY

As can be seen, the criminal justice process can greatly benefit from the use of computer technology. This technology exists and is being used today. These systems are not future dreams - they are installed in many locations around the world. The applications are very easy to learn, since they are graphical oriented. Usually, a simple point and click with a mouse operates most applications. The applications described do not require a separate computer for each task. They can be integrated so that small jurisdictions can perform several functions in a multi-tasking manner. For example, the computer aided dispatch system can also run the link analysis application and the fingerprint application, etc. For larger departments, several computers can be networked together to share common data through an integrated relational database.

CONCLUSION

It is easy to break down the criminal justice process into its major components. This allows us to see the entire process as a single entity. By looking from this perspective, the value of automation becomes clear. Fortunately, we are not forced to accept islands of technology when considering the move to apply computers to the task. Scalable, low cost and proven systems exist today that can be applied immediately. With the growth in crime, it is incumbent upon the good guys to use every tool we can to stem the tide.

Integrated Criminal Justice Systems

INTEGRATED CRIMINAL JUSTICE: A WORLD-WIDE ISSUE

*Mary Lu Holter*¹

INTRODUCTION

In the typical criminal justice process, a defendant is arrested by law enforcement, charged by prosecution, defended by legal aid or a private lawyer, housed in jail and appears before a limited jurisdiction court. Felonies may be adjudicated by the general jurisdiction court and reviewed by the appeals court. A sentence can result in probation or incarceration, which may ultimately result in parole.

During the defendant's move through this process he is assigned many different but unrelated identification numbers:

- Law enforcement assigns an arrest report number and a person ID-number;
- Prosecutor assigns a prosecutor case number;
- Legal aid or private lawyer assigns a different case number and a unique ID-number;
- Local jail assigns an inmate number;
- Limited jurisdiction court issues their case number;
- General jurisdiction court issues their case number;
- Appeals court issues their case number;
- Probation department issues a unique probation number;
- Long term correctional institution issues an inmate number;
- Parole department issues a unique parole number.

Justice agencies, world-wide, are acutely aware of the inadequacies of criminal histories.

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In most countries, for every hundred charges placed, only about two thirds are disposed with a verdict. The issuance of numbers cited above hardly provides a sound audit trail for accurate disposition posting. The deletion, modification and addition of charges during the life of the active case, by the prosecution, further complicates the problem.

The lack of a single person identifier and a single incident number exacerbates the problem.

EVOLUTION OF INTEGRATED JUSTICE

Twenty years ago, integrated criminal justice was installed on mainframe computers. The idea was that multiple justice agencies could use the same mainframe, and share data thereby becoming more efficient and effective. Although there were some successes with this approach, most attempts were severely limited by the high cost of the technology and the interdependency of agencies upon each other. If one agency spelled a defendant's name incorrectly and a second agency recognized the error, only the first agency could make the change. If the court did not update disposition of cases in a timely manner, the penal institutions and probation had no information when a defendant was ready for intake. As with a shared resource each agency paid his part. Some agencies felt they paid a great deal of money, but had very little programmer assistance and lost autonomy in the process. Most of these systems did not survive.

In the 1980s, the advent of powerful minicomputers lowered the cost of the technology and allowed many agencies to acquire their own hardware systems. This move allowed them to control cost, have dedicated computer programmers and to return to total agency autonomy. Security was sound with only one system. Some of these systems were home grown and some were packages or transfers. No thought was given to long term planning or the possibility of data transfer.

By the late 1980s, the advent of robust PCs dramatically increased the affordability of computing power and played an important role in broadening both internal and external demand for information technology in the justice system; however, the acquisition of PCs did not advance the ability of organizations to share information or address the inherent inter agency political issues. The advent of PCs polarized the agencies into many islands of unique information. It gave no consideration to managing the agency from the top or as a whole.

In the mid 1990s, technology issues radically changed. The cost of powerful network based (client-server) information systems become affordable even when compared with traditional paper based systems. They provide many levels of security for information. Top flight business schools and governments realize the importance of viewing the business as a

whole and integrating all systems to enable the employee to access all of the information he needs to do his job.

Integrated criminal justice is now in the forefront. Re-engineering should allow the task of managing the defendant to be simpler, more timely and more predictable. Management information may be extracted from many agency files. Information can be modeled. Ad hoc inquiries can be answered in seconds due to the use of relational database utilization. Now is the time to strategically plan a new concept of integrated criminal justice.

WHAT IS INTEGRATED JUSTICE

Integrated criminal justice refers to multiple justice agencies passing or sharing data by means of an electronic network organized so that each autonomous agency acquires information for better decision making and management while maintaining its security. Integrated justice information systems depend to a large degree on adoption of common technical standards for hardware and networking and software standards for electronic mail, text and the like. It is more accurate and simpler if there is a single person identifier and a single incident identifier.

The vision for integrated justice for each customer is unique. In each case it is based upon the scope of the customer's needs, the customer's existing systems, and the customer's ability to make financial and political commitments to an integrated justice information system. The concept is flexible and may be implemented in conjunction with legacy systems where it is not yet cost effective to replace those systems. Similarly, where appropriate off-the-shelf applications are available, they can be incorporated when their implemented costs and performance warrant.

Integrated criminal justice is not a difficult problem to solve technically. The problem is difficult when perceived by autonomous agencies as a threat by other agencies that are adversarial in nature. When first exposed to the idea, agencies are on their guard. As they become better informed they realize that other agencies can only inquire into their system, if they are security cleared to see certain data, and that another agency can never enter data into their system. It also becomes apparent as they investigate the concept farther that they can profit greatly by being a part of the jurisdictional integrated criminal justice system.

CHARACTERISTICS OF GOOD INTEGRATED CRIMINAL Justice SYSTEMS

Primary Considerations

- Entry of information should be done only once, as close to the information source as practical. Once information has been entered it should be made available to all authorized users.
- The system should be simultaneously person based and case based. Relational database technology enables each agency to enter and build those views that are primary to their task.

Case View	Person View
For the Court, Prosecutor, Legal Aid, and Law Enforcement Incident Information	For Law Enforcement, Probation, Correctional Institutions, Parole
Case data	Person data
* Basic Case Information	* Demographics
* Charge/Disposition	* Bail/Bond
* Future Calendar Events	* Process Service
* People Related to the Case	* Programmes Assigned and Tracking
* Docket and Minute Entries	* Conferences Scheduled/Tracked
* Finance	* Medical/Psychological
* Rule Defining Notification	* Education
	* Employment
Person Data	* Family
	* Payment Tracking
	Case data

- The system should use a unique numeric identifier that is fingerprint or biometrics based for each individual participant in the system.
- The system should use a single incident tracking number. Some jurisdictions have initiated a system of a single number that is issued either by law enforcement

or by the court. In this instance, that number becomes the arrest report number, the number for all court cases, the prosecutor case number and the legal aid case number.

- Standardize on one package for each of the following areas:
 - Word processing;
 - Electronic mail;
 - Spreadsheet;
 - Graphics;
 - Image.

- Adopt a plan that requires that all work done today is entered into the system today. This is a critical issue and some examples of what this would require are:
 - All arrest reports for the prior 24 hours must be into the law enforcement system by 3 A.M.;
 - Cases received today must be entered into the system by close of business;
 - Cases set for a court event today must be scheduled by the system and are set conflict free;
 - Inmate intake and release must be immediately entered into the penal system and is reflected into all case management systems so that court, probation, parole, prosecution and legal aid know the current whereabouts of a defendant;
 - Cases that had a court event, today, must have dispositions entered into the system in the courtroom. If the court event creates a final verdict or sentence, that information should be automatically passed to the appropriate agency system. If a sentence is defined for a penal institution all of the necessary case information should be automatically passed to that institution.

Additional Considerations

- Unnecessary manual functions should be eliminated. The creation of documents and files should be automated when practical thereby eliminating many clerical functions.

- The system should support management by exception rather than management by inspection. Using system rules based on expected practices and specific events should automatically trigger specific actions. When expected activities do not occur, the system should automatically produce exception notices to appropriate officials.

- The use of on-line indices and ad hoc queries should replace printed reports wherever possible. Information should be easily available when and where needed.

- Scheduling should be done on-line utilizing automated calendars and conflict checking.
- Criminal, traffic, and juvenile systems should produce uniform history information.
- The system should produce management information for the overall public safety and justice systems as well as for the individual agencies. Production of system-wide information allows an enterprise view of the system and allows decision making based on overall effectiveness and efficiency. Statistical reports required by state agencies should automatically be produced.

HOW TO BEGIN

Approval

Because integrated criminal justice changes the way that agencies interact, it is important to gain agreement of policy level executives that they are committing their agency to the plan.

This task can be accomplished by a high level presentation to the top executives of each of the agencies involved and to their deputies. The presentation is best if presented by a knowledgeable consultant or by another person who is not employed by the jurisdiction. An invitation should be issued to the Chief Justice, the Chief Court Administrator, the top executives in parole, probation, the agency administering criminal histories, corrections and pretrial (if the jurisdiction has this agency). Invitations should also be given to one or two police chiefs, prosecutors and legal aid lawyers. The legislation appropriations committee (or representatives of the funding agency), the Chief Executive of the jurisdiction and the President of the Bar Association should be included. The invitations are usually issued by the Chief Justice or the Chief Executive as these are not considered to be competitive justice power players. This meeting usually takes 60 - 90 days to schedule. The object of the meeting is to gain agreement to move forward on integrated justice. The person who called the meeting usually asks for and gets this approval at the end of the meeting.

Strategic Planning

It is wise to follow this meeting with the deputies and other attendees to accomplish a two day strategic planning session to define a re-engineered integrated criminal justice system. Topics should include:

- Define the mission of integrated criminal justice;
- Define long term goals;
- Define short term objectives;
- Define the good things about the current integrated system;
- Define the problems and the needs of the current system.
- Education on:
 - Technology in justice;
 - Integrated criminal justice;
 - Re-engineering in justice;
 - Workflow management.
- Define the vision of integrated criminal justice for the future of the jurisdiction;
- Prioritize the vision into workable phases;
- Define the tasks that are needed to be done;
- Assign a person responsible for each of the tasks that you have defined;
- Put time parameters onto the near term commitments.

BENEFITS OF INTEGRATED CRIMINAL JUSTICE INFORMATION SYSTEMS

- Reduce or eliminate clerical tasks thereby either avoiding costs or, to the extent professionals are currently required to perform such tasks, increasing productivity of existing employees.
- Reduce errors in information caused by repeated entry of the same information by the various agencies in the system. Correction of errors is expensive and unproductive. In an integrated justice environment, when errors do occur they can be detected earlier since all users are using the same information.

- Improve the quality and completeness of information. By eliminating duplicate information entry and reducing error correction, resources are freed to do other work, including the capture and verification of additional useful information.
- Reduce unnecessary time between the successive steps required in the justice system, thereby reducing time to trial or disposition. For example in the criminal courts, the time to produce presentence reports and review probation violations should be reduced by sharing of information about an offender's current case and criminal history with the probation officer.
- Reduce the need for large, automatically generated paper reports, certain forms, typewritten documents, and handwritten lists, all of which are expensive to producer, share, and use.
- Improve the accuracy, completeness, and usability of criminal history records maintained at the local level.
- Improve the quality of operational and management decision making throughout the system. Good decisions in the justice system at all levels require accurate information.
- Enable the public safety and justice systems to effectively address rising caseloads without corresponding increases in staffing.
- Utilize principles that enable an action to occur in one agency that causes an automatic reaction in another agency.
- Utilize tracking of time limits and required actions/reactions as a part of the system.

Law Enforcement

MOBILE DATA TERMINALS: PAST, PRESENT AND FUTURE

Daniel M. Monopoli¹

INTRODUCTION

Mobile data technology is increasingly being employed in local, regional and national police departments today. This paper discusses the past, present and future of mobile data solutions for law enforcement agencies.

THE PAST

The first experiences with mobile data technology in law enforcement date back to the early 1980s. The demand for mobile data technology was, however, not very great at that time. This section discusses one of these first experiences in a project for a village in the State of Illinois in 1985². This village had a large commercial-industrial base, resulting in a daytime population in excess of 60,000, and a nighttime population of less than 20,000.

Over the course of 12 - 18 months the project provided the client with the following functionality:

- Downloading of dispatch messages directly to the vehicle. These messages contained all relevant information to permit the field officer to service the call, including appropriate cautions, without the necessity for voice transmission. Scanners were no longer useful to criminals anticipating the dispatch of field units, or to curious citizens who often got in the way of the police in the performance of their duty.
- Direct inquiry into state and federal databases providing information on vehicle license registration, driver's license registration, wants and warrants, criminal histories, and a host of other data available directly from these databases.
- Simultaneous inquiry into a local intelligence data file maintained by the local agency. The system would initiate both internal and external inquiries from a single action by the field officer.

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² H.T.E., Inc., was the prime contractor for this project, in partnership with Motorola.

- Message capability between field units, and field units and the communications centre. Message groups could be specified by the agency to permit a message to be distributed to predesignated groups, such as all patrol officers, from a single entry.
- Local inquiry into the location, incident, and hazardous materials databases.
- Inquiry into the current status of all active units
- Inquiry into the list of active incidents
- Single key status messages for a variety of recurring activities such as en route to an incident, at scene at an incident and available for a call.
- Single key access to pre-formatted inquires and statuses that are frequently used such as vehicle license checks, driver's license checks, and officer initiated activities such as lock checks, meals, administrative duties, court activities, etc.
- A text file access structure called NoteMenu^{tm3}, that permits the agency to format important information such as emergency telephone numbers, cooperative agency contact information, shift notes, etc. Using its menuing capability for access, one of the client agencies has developed more than 150 of these text files. The data is easily available to the field unit by the officer accessing the menus using formatted screens.
- A form that permits an officer to file a limited report and close an incident from the field. This form is used in more than 85% of the field activity.

The ability to so-called silent dispatch has resulted in the arrest of burglars during the response. The inability to listen to dispatch information using a scanner gave the burglar a false sense of security. He did not leave the scene soon enough and was arrested during the act.

Inter-unit messaging permits units to communicate during surveillance activities without any concern over being heard by outsiders.

Direct access to state and federal databases is resulting in significant increases in the number of arrests for illegal driving activity, auto theft, and warrants. The officer is no longer constrained by busy voice channels and can perform inquiries at will.

The client agencies report that the implementation of their mobile data networks

³ A text file access structure developed by H.T.E., Inc.

reduces voice traffic by more than 70%. The benefit of reducing voice traffic on busy channels is immediately recognized by every communications professional.

As a result of the success with this agency two adjacent agencies contracted the supply of computer-aided dispatch (CAD) and record system and the design of a controller that would permit them to share a mobile data network infrastructure while maintaining autonomy for each agency. Their system was installed in 1987.

In 1988 an agency introduced the use of notebook computers as mobile data terminals to permit the use of mapping and automatic vehicle location. Each unit could call a map of their jurisdiction in the vehicle and see the position of all active units. The notebook also functioned as a mobile data terminal with all of the functions listed earlier. Loran was used for positioning data. Designed primarily for over water use, Loran can produce erratic data in certain terrain. This agency was fortunate not to experience any significant difficulty, except from disgruntled officers who sometime resented the ability of the system to monitor their location in real-time.

By 1991 there were sufficient satellites launched to permit the use of the global positioning satellite network (GPS) in automatic vehicle location (AVL). The global positioning satellite network has a maximum accuracy deviation of approximately 75 meters, a standard accuracy deviation of approximately 25 meters, and can be deviation normalized to an accuracy of less than 5 meters. This assumes, of course, that the map being used is accurate in latitude and longitude. The first global positioning satellite network-based automatic vehicle location system in public safety, anywhere, was installed at the village of Schaumburg, Illinois⁴. The global positioning satellite network is the only technology being used at present.

In 1992 has been started the design of a state-wide mobile data network to have a capacity of five thousand devices. When completed, the network will use less than a dozen frequencies, and provide roaming anywhere within the coverage area. Design specifications call for coverage of more than 97% of the geographical area 97% of the time. System reliability is to be 99.9%. Redundancy is used to achieve the reliability.

THE PRESENT

The immediate trend in mobile computing was to enable an officer to complete incident and accident reports in the field using full function computers. Since these reports are being completed using pens and preprinted forms at present, what could be more natural

⁴ H.T.E., Inc., was partnering in this project with Motorola.

than to develop applications that would allow the officer to continue to use a pen to input the data.

Originally introduced in 1987, pen technology has made significant progress in the past few years. This progress enables to provide pen enabled applications that are not difficult to learn to use, and have a high percentage of recognition on the initial try. Neural recognition engines for written words are currently available that produce first try recognition in the 95% range.

There are, perhaps, ten or fewer manufacturers of pen-based hardware at the present time. Poor quality recognition capabilities until one or two years ago caused pen technology to fail to gain acceptance in the general notebook computer markets. Several manufacturers, failing to achieve satisfactory sales levels, discontinued the manufacture of pen enabled devices.

The inclusion of pen extensions in OS/2 and Windows 95, along with the availability of recognition engines that have high percentages of accuracy, is expected to make pen computing and pen enabled applications very popular in the coming years.

In addition to the various private network protocols, there are new emerging technologies and services being made available on a subscription basis in the United States. Motorola owns a network called ARDIS, Bell South and RAM Communications jointly own the RAM Mobile Network, and the cellular telephone providers are introducing a service called CDPD, Cellular Digital Packet Data. Each of these services is offered for a per packet fee, with RAM and the CDPD providers offering fixed monthly fees for law enforcement and other municipal functions. The availability of these services make mobile computing much more affordable for smaller agencies, where the cost of purchasing a radio frequency infrastructure to support mobile computing would be prohibitive. There are agencies purchasing as few as two mobile units and using a subscription service to carry their data.

Today's mobile data terminal is most likely to be an intelligent device, a notebook or pen-based computer, that uses a radio frequency modem and a mobile radio to communicate over a network. The network is as likely to be a subscription service as it is a private network, with the actual method of transporting data transparent and unimportant to the user.

There is strong demand for the ability to create complete reports in the field. This eliminates the necessity of using data entry clerks to enter the incident and accident reports from hand written forms, streamlining the process of data entry and minimizing transposition errors. Although pen enabled applications seem to be increasing in their popularity, the reporting applications are also supplied in a Microsoft Windows format as well.

Pen technology also involves the use of icons and tool sets to simplify data input. Since most pen devices are designed to be used as a tablet without a keyboard, several tools and techniques, such as an on-screen keyboard and scaling arrows, are used to assist the user in facilitating data entry. Tests of pen technology are currently in progress or planning in most state police agencies, as well as many county and municipal agencies in the United States.

Automatic vehicle location seems to be increasing in popularity. Agencies are finding that knowing the location of their field units and emergency vehicles allows them to be dispatched on the basis of who is nearest to the location of the incident. Enhanced 911 provides the dispatch system with the location of the incoming call, which can be displayed on the mapping system. If automatic vehicle location data is also available, the dispatcher can see the nearest available vehicle to the incoming incident and make that assignment. Current procedure requires a unit assigned to a predetermined zone be assigned if the call is anywhere in that zone and that unit is available. If cost is a factor, however, automatic vehicle location may very well be the first feature to be removed from the purchase.

THE FUTURE

As in most areas of technology, new functions are becoming available very rapidly. The use of voice input at a command level is expected fairly soon, allowing the officer to make voice requests of his system for such functions as vehicle registration inquiries and status messages. This will give the officer hands free operation for a significant percentage of his daily routines.

Voice dictation technology is at a level where a system can be trained to provide more than 95% accuracy at a dictation rate in excess of 70 words per minute. This level of accuracy makes further research into the application of this technology to our products very appealing.

Digital cameras are currently available that will integrate with notebook and pen-based computers. The integration of these devices at the hardware level creates very interesting possibilities for applications, such as the attachment of photo images to incident or accident reports in the field.

It is expected that, using the right combination of technologies, an officer will be able to carry a pen-based computer, be in communication with his base via an radio frequency network, be available by voice via a cellular telephone built into his computer, and be capable of sending a fax via his cellular fax modem, all at the same time, before long. We are living in an age where virtually anything is possible technically. The challenge for

all of us is the application of these technologies to the solution of our diverse problems.

INFORMATION TECHNOLOGY IN POLICING

*Giorgio Bongiorno*¹

INTRODUCTION

Law enforcement agencies are faced with an ever increasing rate and distribution of crimes by a concurrent limitation of resources. At the same time, the high administrative overhead to be paid in terms of efficiency and effectiveness of the interventions leads to the relatively low image of the public service around the world.

The implementation of the first generation computer systems showed various degrees of problems and did not solve the basic issue of radically improving efficiency and effectiveness of the emergency people action.

Emergency service organizations are compelled to cope with high requirements in terms of quality, timescale and performance. The first experiences were basically showing the basic need of open, standardized, easily interfaceable systems.

NEEDS

Access to information, efficient coordination of resources and communications and, above all, speed, are crucial for many organizations. For the emergency services like the police they are most vital. At the same time, security is a key issue for the man in the street, who looks increasingly to the public services to guarantee safety in his daily life, for himself and his family, his property, his workplace and the environment. In maximizing efficiency, emergency-service providers have always recognized the importance of modern communications.

Today, the advances made possible by the growing convergence of telecommunications with information technology have led to the development of innovative integrated solutions to optimize management of the nerve centre of the emergency service - the operations room. Geographical information systems, mobile computing, computerized remote alarm systems, radio transmission systems are just some of the facilities that today can be combined to create decision-support and dispatch solutions providing the levels of efficiency and quality that modern emergency services must be able to guarantee.

¹ Business Unit Executive Manager, Olivetti, Italy.

SOLUTION: COMPUTER-AIDED DISPATCH

Computer-aided dispatch systems are rapidly becoming the rule in emergency service/dispatch centres around the world. This paper discusses the Cadic-system².

Cadic is an open comprehensive information management system designed to optimize the information processing efficiency and to meet the specific needs of law enforcement agencies and other emergency services. The openness of the architecture covers the hardware as well as the software components of the system.

The Cadic-system improves and accelerates the processing of requests including telephone requests, walk-in calls, alarms and self-initiated field activities. Complete statistical reports are provided to help in the every day management of the organization. Query capabilities allow the search of local or state-wide databases.

The purpose of the computer aided dispatch system is to reduce the response time to calls from citizens and to enable dispatchers to ensure better support to officers in the field. This is achieved by facilitating the entry of service requests (call-taker) and by the dispatching of appropriate resources (dispatcher).

Cadic is basically a decision support system that is open to integration of office information packages for further information management. The benefits of open systems are enormous as each component of the system has being put together by a specialist organization and large economies of scale are reached. The components of the system are engineered to work well together because of industry standard specifications. These systems have the potential of keeping abreast with the latest technologies and because of open design can quickly take advantage of the latest available product and technologies.

Command and Control

Emergency room operators deal every day with headline disasters: crime, accidents, fire, natural calamities. It is their responsibility to take the split-second decisions on which human life may depend.

The potential of technology, whether in the recognition and handling of fingerprints and marks, in the command and control of incidents and resources, in the management of crime investigation, in the keeping of records or the analysis of crime and criminal methods, to the more mundane but important day-to-day administration of policing, appears to be

² Cadic is a comprehensive information management system developed by Olivetti and installed in police forces of various European countries.

almost limitless.

The management of the command and control centre is of paramount importance to the achievement of the basic objective of the system: efficient response and effective operation.

The core of the system provides the indispensable support emergency-room operators need to filter telephone calls, locate and identify the nature of the emergency and consequently organize and coordinate assistance.

Reporting

The back office work is the most important evolution of an emergency situation. It is estimated that station staff and beat constables are busy during 42% of the working time in strictly administrative tasks, consisting of form filling and crime recording. The last step can be considered as a post-processing (or off-line) one: the system offers to responsible officers all the facilities for carefully monitoring service's activities in form of statistics and reporting.

There are few systems today able to fully integrate the complex information process.

In order to increase the efficiency of all the actions that follow the emergency operation, the Cadic-system provides a reporting layer, which is in charge of the complex handling of the information collected in the field, of the case documentation and of the release of the required administrative or penal actions. The wide range of facilities also includes incident-reporting and record-management tools to streamline the every day management of the organization and continuously improve the quality of the service provided.

As result of this integration the clerical effort has been reduced, the repetitious data entries have been eliminated, an increased operational efficiency at street level and much more rapid access to data related to reported crimes has been achieved, as well as general intelligence gathered on crimes and criminals.

Criminal Information Management Cycle

The further analysis of the collected data duly reported by the field officers, is concluding and complementing the cycle.

The integration of an automatic fingerprint identification system provides the basic tool for completing the criminal information management system.

Criminal trends, various relationships among different crimes, statistics on individual trends and contextual searches are the most valuable on line output for the rapid support to event management. The system provides for a logical relationship among all related objects when an inquiry is made. Searches can be made on all objects related to a specific event, including arrests, complaints and statements (description of crime), objects (arms, stolen cars, drugs, etc.), people (criminals, victims). Reports can be produced in a matter of minutes for specific zones, times, dates and reporting areas, using report forms which are compatible with the Uniform Crime Report Handbook. Statistics for investigating officers can be also provided.

POLICE INFORMATION SYSTEM SERVICES

The field activities are addressed through a dispatch system that allows better reaction times for responding to an emergency and helps the officer in making available all kind of useful information for efficiently handling the event.

As central systems were around for a while and they have been usually built up in different times, they present a very low level of integrability due also to a proprietary architecture that is frequently found in that kind of specific equipment. For this reason, various specific systems were sometimes added to deal with different kind of information, mainly images concerning suspects. Fingerprinting management systems also fall in this specific range.

At our knowledge, there are today no systems available that completely integrate the whole information process. We can then think that a solution which is able to encompass the information processing flow will be in many aspects unique.

The information has to be dispatched when and where needed in order to allow a prompt, effective and efficient deployment of the resources in the field. Since multimedia capabilities are provided by the system, the context in a given situation can be better understood. For example, the detailed map of the theatre, showing the layout of the different floors and the location of emergency exits, may be very helpful to define the most effective intervention strategy, while the photos of a car after an accident and the recorder interview of a witness can become a valuable help for further analysis.

The second aspect of the day to day activities concerns more specific administrative tasks that are mostly carried out off line.

Any solicited or non solicited police activity steps out in the creation of a report. A report is also a result of any civilian complaint concerning property, offence, etc. Reporting

activity and the follow up of various documents represent a considerable amount of administrative charge for the police personnel to the detriment of its field activity.

It has been largely proven that constant and extensive field presence of public forces still represent the best prevention against law infractions.

A comprehensive form-driven incident reporting system is integrated in the office workflow for efficient information management. The module can be used separately from or in conjunction with the command and control system. Initial incident reporting procedures will be performed automatically if the dispatch module is being used.

The wide and varied information collected by the field personnel in their day to day duties is finally introduced in a crime and criminal information management system that represents the central repository for any investigating activity.

The last modules of the system provide for a logical relationship among all related objects when an inquiry is made.

Using the open system architecture and open industry standards with the availability of higher speed and quality of networks, makes it possible to distribute systems for automated fingerprint identification applications. A comprehensive automated fingerprint identification system by the Cadic-system being the value added the ability to integrate the automated fingerprint identification into the customer requirements and systems.

COMMAND AND CONTROL CENTRE

Basically the command and control process can be divided into four different phases:

- The call taking phase includes the reception and the localization of an emergency call and the entry of all the relevant information into the system.
- The dispatching phase is the management of the interventions to solve an emergency. It includes the definition of the appropriate intervention strategy, the engagement of intervention units, the involvement of external services, the coordination and monitoring of all the interventions until the event is solved.
- The completion phase includes the preparation of the reports of the intervention activities.
- The administration phase includes the preparation of journals, statistics or reports

related to the emergency centre activities and the maintenance of the database and the system as a whole.

The call taking and the dispatching phases can take advantage of two powerful aids: the mapping sub-system and the communication sub-system.

MORE ABOUT CADIC

Cadic Imaging System

The Cadic imaging system is an embedded extension of the dispatch core basic functionalities. The imaging system offers the capability to access a graphic information of various types including digital maps, digitized freehand sketches, technical plans, photos, frozen video frames, and more. The most important part of the imaging system is the mapping sub-system that offers the underlying framework for overlaying any other graphic information.

The mapping sub-system should not be considered in the sense of what is commonly intended an geographic information system (GIS). Rather, it borrows from a geographic information system the most basic topographic concepts, and adds, in a graphic form, whatever information is considered as relevant in the system emergency database to help operators in their day-to-day activity. It is extremely useful for an emergency service since it gives to operators a global view of incidents in field and the situation of intervention units. Graphic map presentation make it easier for dispatchers to monitor and respond to multiple situations; it thus represents a marked improvement over the systems which rely on the dispatcher's knowledge of complicated legal descriptions.

The imaging system is totally interactive and it offers a very natural way for queries and manipulation of displayed entities. It provides centralized operational status, vehicle tracking, and computer aided dispatch functions. Vehicles are graphically depicted as they move on scalable maps which show landmarks, routes, order points, alarms and other features which the service may wish to done. In addition, any widget can encompass supplementary information which can be simply retrieved by clicking on the object and displayed in adjustable windows. The related information can be of any type, structured or unstructured (incident call card contents, premises technical plan, a pre-recorded message, a video sequence, etc.).

The mapping system uses open standards for storing images (bitmaps or vectors). The map is displayed in a separate window and it is a good advice to use for that purposes a separate screen. This prevents any window switching and the operators can accomplish their

tasks in a much more effective way. Both screens are controlled by the same keyboard and mouse.

Cadic Dispatch Core

The Cadic-system is primarily based on a generic core, the Cadic-core. Basic core functionalities are further completed by optional modules to best fit into customer's particular environment. These modules easily interface to the core.

It is worth noting that the services provided by the probably most important option, the switcher module, are already embedded in the core. This module deserves a particular interest since it fakes a computer assisted communications system that makes most of the difference between Cadic and a generic emergency computer based application.

The switcher module basically handles the connection between the Cadic server and different communication lines. The offered functionalities essentially depend on the available communication equipment and the capacity of the latter to exchange data (not only voice) with an external intelligent device. The different options thus largely matter on establishing the required communication protocol between the emergency system and a variety of voice peripherals (PABXs, radio trunks, voice loggers, etc.).

From a developer's point of view, a common set of core components is shared by any instance of Cadic. The multi-service requirement can thus be achieved with a limited effort.

For any particular customer, the generic core requires a specific specialization or instantiation, eventually complemented by some optional modules.

Open Object Architecture

Also the software is designed in an open object oriented technology which allows the applications running in a cleanly defined standard distributed platform.

Shared services are managed in a server resilient or fault tolerant environment, while operating processes are monitored in the different specialized and distributed window based workstations.

Distributed Emergency Architecture

It is possible to connect different emergency entities in the wide area network managed by the system. As a natural system extension, different interconnected Cadic centres can be accessed by any station and can thus interact during a multi-service intervention.

These centres can belong to a single emergency service or to different safety agencies.

This architecture allows to use a single emergency number that is then dispatched to the appropriate Cadic centre(s) according to the service requested by any single event. Sharing common data in real time is an emergency requirement for handling multi-force intervention cases.

We can speak about a real emergency network, where all the centres are coordinated by a single dispatching function increasing dramatically the efficiency and effectiveness of the operation.

CONCLUSION

Summarizing, Cadic is aiming to provide the public safety operators with a global integrated system and effective tools in order to timely, accurately and efficiently deploy resources, to allow a continuous and effective coordination and monitoring of these resources and to provide the subsequent working phases of the criminal cases management process with an appropriate and structured input.

Based on innovative technology, Cadic allows the integration of state-of-the-art solutions, which deliver the high performance levels needed by emergency services without requiring users to have an information technology background.

COMPUTERIZATION OF LAW ENFORCEMENT IN EMERGING COUNTRIES

Adelbert L. Roark¹

INTRODUCTION

In today's rapidly changing world, law enforcement officials are facing more pressure and criticism than they have ever experienced. This attention by the public is being brought about by several conditions. These include the following:

- **Economic Conditions:** The economic problems being experienced by most countries, the increasing disparity between the haves and have nots, and the desperate search for means of survival experienced by many individuals yield increased crime rates. People expect law enforcement officials to deal with the crime problems. At the same time, the economic conditions bring about reduced budgets for the law enforcement agencies. This means that these law enforcement agencies must accomplish more with fewer resources. Management of resources becomes the major factor and few traditional law enforcement officials are trained in this technique.
- **Sophistication:** Crime today produces higher monetary returns to the criminal than ever before. This means that the criminal element can use more sophisticated technology than in the past. Criminals are also moving rapidly to employ management techniques which yield even higher returns and more technology. This places additional pressure on the already strained law enforcement community's resources.
- **Communications:** Everyone realizes that we are living in a communications based world. Information is available to everyone - even highly sophisticated crime analysis techniques. This is reflected in a major way in the O.J. Simpson trial. The general population is exposed to how police operate, errors that are made, and how the entire criminal justice system functions. Since errors seem more newsworthy than success stories, the result is increased doubt, more criticism, and less respect for law enforcement.
- **Mobility:** Travel in previous periods was more limited. Criminals tended to operate in limited geographical areas. Today, the criminals, as well as the rest of the population, are more mobile. They can no longer be expected to remain in the same local area. This increases requirements on law enforcement agencies, particularly with

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respect to cooperations between agencies and countries. When criminals remained in one area, they established modes of behaviour with the local police. Now this cooperation does not exist. As Chief Darryl Gates pointed out, "We don't have as good of a class of criminals as we once had".

- **Expectations:** Many social programmes initiated by both national and international organizations have increased the population's expectations that government can solve all problems. Law enforcement is no exception. For emerging countries, all of these problems are further complicated by the changing nature of their cultures and environment.

Objectives

Technology is one means that law enforcement agencies have adopted to cope with the many problems they face daily. This paper is intended to document the following:

- Technological trends;
- Data sharing;
- Experiences in emerging countries.

Outline

The next section will discuss the history of the use of computers in law enforcement. This is followed by a discussion of trends in the use of computers in law enforcement. Finally, as a result of a discussion of several case studies, conclusions are reached regarding the present and future role of computers in law enforcement and how they can assist management to address the multitude of problems and pressures which confront law enforcement managers.

HISTORY OF COMPUTERS IN LAW ENFORCEMENT

The earliest uses of computer technology by law enforcement agencies dates to the early 1960s. There is a major debate over which agency can claim to being the first user. The nature of systems used in law enforcement have evolved since the 1960s in similar ways as in the business sector as a result of technological advances. This evolution can be classified into several phases. The remainder of this section presents this classification.

Shared Systems

When governments entered into the technological age for financial systems, police departments shared the computer. The software used was devoted to the following:

- Statistics;
- Ticket lists;
- Contact lists;
- Government reporting.

Such systems were limited in nature and, of course, the information was only available as historical information. Key punching and other batch oriented procedures were used. These imply that the information was not available immediately to the law enforcement agency.

Special Purpose Systems

With the advent of interactive and on-line computer systems, several categories of special purpose computer systems were developed. These dominated in the 1970s and early 1980s. Among the types of special purpose systems which were implemented were the following:

- Computer aided dispatch;
- Case management;
- Crime analysis;
- Central records and reporting;
- Property and evidence.

The major characteristic of these systems was that they could not share data directly with other software modules. The systems either required re-keying of the data or the use of special transfer programmes. There was considerable redundancy of data entry and functions in the systems.

Integrated Systems

Beginning in the late 1980s, systems began to appear which provided for single entry of data and the building of a single database which could be shared by all functions within a department. This led to improved communications, more rapid response to problem areas, and better management of resources. Among the functions integrated into a single system are the following:

- Computer aided dispatch;
- Central records and criminal records offices;
- Investigations and case management;
- Traffic;
- Crime analysis;
- Government reporting;
- Public information;
- Intelligence;
- Narcotics;
- Internal security;
- Internal investigations;
- Prisoner intake;
- Property and evidence;
- Patrol;
- Marine unit;
- Major incidents and investigations;
- National emergency response;

- Warrants and wants;
- Statistics and planning.

The key to the success of such systems relied not only on the data processing capabilities to handle such large databases, but also on the security technology available within the computer systems. Many branches within the agencies require certain pieces of information to be kept secure from other functions within the department. Current computer systems can ensure such restrictions.

Criminal Justice Systems

Many concept papers and reports relative to the total integration of criminal justice functions have been published. As above, the concept of integration can be characterized as one which requires only a single entry of data and which yields a single database of information which is available, except for security restrictions, to all users. The actual implementation of such systems has only begun within the last few years. Again, the security systems and database management systems are key to the successful implementation of this concept. Each agency must control its own data. The agencies included in a totally integrated system include the following:

- Police (national or local);
- Detention and/or prisons;
- Courts;
- Prosecutions;
- Parole;
- Public welfare or assistance;
- Fire;
- Emergency medical;
- Immigration and passports;
- Driver's permits;

- Vehicle registration;
- Civil processes.

Total integration does not exist in any jurisdiction at the present time. This is the direction, however, of many implementation projects.

Several developing countries have learned from the errors made in the United States where each agency had its own system and then worried about integrating or interfacing it to the others. Emerging countries are attempting to specify the same criteria and design for local and national systems to eliminate this problem.

CURRENT TRENDS IN COMPUTERIZATION

From the above discussion, it is obvious that integration is a major trend in the computerization of law enforcement agencies. Many technological trends are occurring which facilitate this movement. This section presents an overview of these technologies and their impact on law enforcement.

Relational Database Design

Relational databases were developed initially in the 1960s and 1970s. Unfortunately, at that time, the data storage and data access facilities were too slow for practical applications. Recently new hardware and software algorithms have made such technology usable.

The mathematical definition of a relational database is that it is an information structure in which each piece of information is related to the others using a simple tabular structure. A relation is a table consisting of records. There are three major relational operators: select, project, and join. Selecting means paring down a relation by eliminating rows (records) according to criteria. Projecting refers to paring down a relation by eliminating columns (fields) based on criteria. Joining means creating a new relation by combining two relations.

While this definition provides a theoretical basis for understanding relational database structure, law enforcement agencies are more interested in the benefits and capabilities which this data storage bring to their computer systems. These include:

- Single storage of information;

- Access to data based on any combination of data fields within the database;
- Single entry of data;
- No requirement to define a counter of a given length or a specified number of buckets for storing data items which can occur a variable number of times.

These features have the benefit of providing the maximum amount of flexibility in the computer. New implementation techniques also eliminate the requirements of pre-sizing the database segments or of performing database reorganization techniques. These mean that less training is required for system administrators.

Mobile Computing

The placing of computer capabilities with law enforcement personnel in the field is one of the more important advances in the use of computers. The early systems provided car to car and car to/from dispatch communications, limited inquiry capabilities, and status reporting. Recent advances, through the use of intelligent terminals, have expanded the applications available to include:

- Mapping in vehicles;
- Report and data entry;
- Vehicle locations.

Pilot systems are testing bar-code reading, mugshot display, and fingerprint identification capabilities in the field. Special purpose terminals are also used for ticket and summons generations.

The main problems in the use of mobile computing are related to available radio systems. Even the best radio technology provides limited data transmission capability - especially for large data files. If these problems can be overcome, smaller and more functional terminals with expanded applications will be readily available.

Imaging

Decreased costs of data storage devices have made the storage of images realistic. When coupled with improvements in display technology, law enforcement agencies can apply imaging technology to several areas including the following:

- Mugshots;
- Document storage;
- Scene of crime photographs;
- Crime laboratory photographs;
- Fingerprints.

In the police environment, the detail and security of such images is very important. This is especially true if the images are to be utilized in court proceedings. Thus far, most courts have accepted such images.

The area which has seen the most advance is in mugshot systems. Recent advances have included:

- Storage of mugshots;
- Preparation of photographic line-ups based on various parameters;
- Preparation of composite images on computers;
- Matching of composite images against mugshots;
- Aging of subject's image photographically.

While many of these capabilities are limited to major departments, they are rapidly expanding to be generally available.

Fingerprints

Images of fingerprints, to a limited level of detail, are stored by many imaging systems. The size of the files generated from the detailed imaging of fingerprints is the major restriction encountered today. As a result, several approaches are currently in use for the analysis of fingerprints. These are the following:

- Recording and search by types. Many computer systems allow for the recording of fingerprint categories. These include both Henry and NCIC protocols. Search procedures also allow for the recalling of suspects based on ten print or partial ten print classifications.

- Automatic fingerprint identification systems (AFIS). AFIS systems use imaging and minutiae searching techniques to identify individuals. Such systems, which are very expensive, are particularly suited for processing of latent prints. The major benefit of AFIS systems is that the data input is primarily through the scanning of images. It should be noted that such systems do not eliminate the requirement for a fingerprint examiner to be involved in the use of the system and the interpretation of the results.
- Near AFIS. In an effort to reduce costs, Near AFIS systems are being developed. These rely on the entry of expanded codes by the examiner. They can be used to match suspects with latent prints. While not as sophisticated, the cost factor of one thirtieth of the cost of an AFIS system makes these systems very popular. If an AFIS system is available, the Near AFIS system can be used to reduce the population of potential matches.
- Pattern matching. Another fingerprint identification technique, which is in limited use, relies on the overlaying of images. This can be phrased in terms of multiple dimensional fitting of patterns. This technique provides potential for future technological expansion.

CASE STUDIES

For emerging countries, we are seeing a priority for implementing computer systems. In this section, an overview of several projects which are currently underway.

Royal Bahamas Police Force (RBPF)

The Royal Bahamas Police Force is an excellent example of a police force's effort to employ technology. The force serves a population of approximately 250,000 with a staff of approximately 2,500 officers. Among the modules installed or soon to be installed are the following:

- Law enforcement records management;
- Personnel records;
- Purchasing and inventory control;
- Computer aided dispatch;
- Detention management;

- Vehicle registration;
- Equipment maintenance;
- Personnel records;
- Mobile data terminals or computers;
- Drivers permit issuance.

The Royal Bahamas Police Force is also considering the implementation of immigrations, courts and traffic ticketing systems. These would also be integrated with the other modules. The Royal Bahamas Police Force also provides support to the Royal Bahamas Defence Force.

The most interesting aspect of the Royal Bahamas Police Force's computer organization is the staffing. No staff members were recruited for the computer centre, nor did any of the staff have any computer expertise. Regular police personnel are assigned and trained as the system administrator, system operators, hardware specialists, database administrators, trainers, etc. Because of the leadership within this Force, the personnel were dedicated to a successful installation. It should be remembered that the Bahamas encompass many islands. Thus, by most standards, this is a complicated system from both the hardware configuration and software application point of view.

Barbados

The computer implementation in Barbados has taken a very different approach. The immigration and passports system was implemented first. The Royal Barbados Police Force is now implementing law enforcement records management and computer aided dispatch modules. While different computers are involved at the two departments, the distributed database capabilities allow each agency to share information. It also allow each agency to control the security of its own data. Again, the leadership ensures that the necessary emphasis is placed on the implementation. An assistant commissioner is assigned to direct the project.

Caribbean Criminal Information Centre

A concept of integration which is currently being explored by several governments in the Caribbean area is the sharing of data between countries. This is particularly important in this region since there is a major problems with the movement of criminals between countries. With a significant number of police forces using the same system, the integration

is not a complicated implementation - it is almost automatic. This, of course, enhances each police organization's ability to achieve its objectives.

Force X

In contrast to the forces discussed above, Force X has been working on its implementation for over two years and is expected to take at least two more years. Why have the other countries, where there is little computer expertise, implemented complex systems very quickly while this small department (one hundred fifty officers serving a population of approximately 100,000) located in a high technological area, taken so long? Several important events have led to this situation.

- The chief has repeatedly said, "I know nothing about computers. My computer nerds will take care of it";
- The lieutenant who was originally assigned to the project and who had the start-up training, was transferred after six months and a records clerk, who had not attend any training sessions, and who had not been involved in any way, was put in charge of the project;

The staff members assigned to perform various implementations tasks had to perform their regular duties in addition to the new ones.

The chief, of course, now feels that the provider of the hardware and software have not performed their duties, because, if they had, his system would have been functional a long time ago. In looking at the history of this force, this is the third vendor who has failed to perform.

CONCLUSION

Computer technology is now available to law enforcement agencies without the requirement for highly trained technical staff members. As such systems are implemented, the overriding characteristic is the integration of applications. This concept applies not only between agencies within a country, but also is applicable across political divisions. The technical aspects of such systems is the easiest, and is available today. The political considerations give rise to the most difficult aspects of the technological environment - yet solving this issue would give the greatest degree of safety to the communities served and the officers who serve them.

Most law enforcement officials have heard horror stories about failed implementation

projects for computers in police organizations. The brief case studies illustrate several guide lines for successful projects. While technology expertise is important, this is not the overriding criteria. Money also cannot ensure a success.

The Bahamas and Barbados examples illustrate the important criteria for a successful implementation. These are the following:

- Support from the highest ranking officers.
- Setting the correct expectations regarding the implementations and the computer system.
- Assignment of an officer to manage the project who has high enough rank to command respect and who has earned the respect from force members that the rank implies. This person must be assigned for the entire implementation process and his attention must not be divided between old and new responsibilities.
- Assignment of a full time project team to implement the system. This team must be composed of trained police officers who understand the functioning of the department.

The system must be tailored to the methods and terminology of the force by the project team.

While these may seem obvious, it is surprising how many times these simple steps are not done. Policemen are like other individuals. They resist change. The support and expectations from the top leads to the acceptance of the change. The assignment of personnel provides the necessary continuity, influence, and expertise.

A FINAL NOTE

Consultants cannot do everything for the force. They do not have the depth of knowledge of how the force functions, the internal political environment, nor the respect of the members of the force required for such a project. The force must do the implementation if it is to be successful. Implementations of computer systems is difficult. A consultant can only assist in minimizing the pain.

These case studies also yield some conclusions regarding the capabilities which a computer system in such countries must possess which differ from those normally found in the United States:

- The processing of the geo-file must provide additional flexibility. This includes the lack of house numbers and the use of descriptive fields.
- Multiple home address must be available for each person the police contacts, such as local address and permanent address.
- Different descriptive factors must be maintained.
- In recording crimes, less dependence can be placed on references to statutes.
- Because of the nationwide nature of the force, increased security concerns must be reflected in the software.
- Marine units must be considered in the implementation. Thus, vessels as well as vehicles must be tracked.

From an implementation perspective, the force must be made more self-sufficient in terms of the operation and maintenance of the system and the software.

The successful implementation of a computer system in most environments is not dependent on technological concerns. The most important factor is management.

NEW IMAGE PROCESSING TECHNOLOGIES HELP TO FIGHT AND PREVENT CRIME

*Rüdiger Franzel*¹

INTRODUCTION

Image processing has been a field of research and development for long time. The primary goal, however, has been the development of new technologies without a close view to applications, i.e. the affordability of those technologies affordable for applications in areas where hardware must be cheap enough that they can be run widely.

This paper discusses applications that came within reach by the use of formerly scientific technologies that were developed for high-tech applications to the areas of crime prevention and combat of crime. Further, this paper discusses future developments.

A brief overview² will be given of the results of research and development in the fields of:

- Support for the police officer at the border control with respect to travel documents;
- Support for the law enforcement forces in the area of traffic-control and control of car criminality;
- New methods of recognition of persons;
- Building a completely new base for the wide field of fingerprint recognition.

BORDER CONTROL: TRAVEL DOCUMENTS

We all have welcomed that borders that prevented the free movement of people, of goods and ideas seemed to become obsolete in the last few years. The free movement of money that is part of that process is subject to other control mechanisms that will not be

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² This overview applies to research and development by Siemens-Nixdorf, Munich, Germany, and Computer-Gesellschaft, Konstanz, Germany. Siemens-Nixdorf is a main supplier in Europe for law enforcement authorities.

We have realized that the first area where borders were abolished, namely Europe, has encountered many problems with that concept. Before, within the Schengen Treaty, the border controls were abolished criminal organizations were prepared to increase their criminal business by making their activities Europe-wide. Therefore, it was necessary to establish control mechanisms to get information about movements of people within the great area of the European Union.

Currently, only one check can be made easily with people that attract the attention of the police officer, at least as far as data processing support is concerned. This is the control of the identity of the person claiming entry into the area of the European Union (or any other region with a similar structure).

The person to be checked can be:

- A citizen of one the European states;
- A foreigner with a valid visa, issued by any embassy of any European state;
- A person who should be treated with special care.

The European Union requires, therefore, that its borders be checked very carefully, in fact, the requirement is that every person is checked, despite the common practise that only random checks are done.

After a person has entered the area of the Community checks can be made only if there is a substantial suspicion; this legal practice does not allow for routine checks at random spots (i.e. at inner borders) that might bring further information. Up to now, about one third of the pick-ups of searched persons were made by routine checks at inner borders. The legal premises for checks within the area of the European Union are presently negotiated between the governments, a process which will take quite a long time to yield results for the police officer in the daily work.

The only conclusion for the daily work for the border police can be, therefore, to make the check of the person entering the European Union as secure as possible.

This is where the development of a new Border Control Terminal³ is aiming at.

³ Border Control Terminal is a new computerized system for border control, which is being developed by Siemens-Nixdorf.

As mentioned earlier, at the point of entry into the European Union, we have to distinguish between:

- European citizens, having a valid passport or identity card;
- Foreign people with a visa issued at an embassy of one of the European Union Member States;
- Other persons.

Within short or long, all European passports will be according to the International Civil Aviation Organization (ICAO) standard that provides for machine readable information about the passport holder. The common envisaged European visa will follow that standard as well. This is the point where the difficulties arise. For the ordinary ICAO travel document the position of the two lines of information (recorded in OCR-B1 font) is standardized, that means, i.e. they can be read with a special device, customized for that purpose. As the visa, however, may be stucked into the passport into any page, more or less in any position, and it may have not only two lines, but up to three, conventional devices will not be able to recognise the relevant information.

The development goal was therefore to provide a device that can read the ICAO information anywhere within a travel document, extract the relevant information, transform it into an ASCII format that can be forwarded to the specific countries investigation system for further processing.

With that objective in mind a system has been developed consisting of:

- A small capturing unit (details to follow) that can be customized to the requirements of the local police force; and
- A standard plug-in card for a industry standard PC.

To reduce the requirements for the local PC, the system does not demand a high performing PC for the control position, the necessary performance is provided by the plug-in card. The PC is the link to the police network (and, of course, the power supply for the plug-in card).

Much effort has been put into the security of travel documents, and ICAO gives some recommendations. That means that a device for the support of the border control officer must check for all security criteria before giving the information read to any system for further processing (up to now, only one criteria is checked, much more are possible).

The officer at the border control position places the travel document on the glass screen of the capturing device (the size is 148 * 105 mm). The reading is starting without manual command, just when an infrared ray is interrupted; or a mechanical switch. Immediately after reading the officer gets the information whether the document is complying with ICAO and all other relevant security criteria. The result of the inquiry to the countries particular investigation system will give additional information, that might be shown either on the capturing device or on the screen of the PC.

The document is read by infrared light because of two reasons. First, security criteria make use of the fact that some visible features are invisible in the infrared, but if the document is copied with a normal copying machine, these criteria will be visible in the infrared as well. Second, to save the police officer from the flash of light that would be a real nuisance for him, if he was exposed to it thousand times a day. Nevertheless, the user may switch on additional scanning by red light in special cases, because coloured photographs may become completely dark if they are read only by infrared light.

The described device provides for the following additional services:

- Send the complete image of the passport page to the centre of border police (e.g. if the form of the passport is not known, which might be easily the case with so many new states arising, or if a certain stamp is valid);
- Send any other image information (except fingerprints, due to the resolution of the image) to the centre of border police for further processing.

The advantages of that solution compared to conventional techniques are:

- The relevant information may be anywhere on any page of the passport;
- The visa may have any position (turned by 90 degrees or 180 degrees);
- The visa may be inclined, up to 10 degrees;
- The font of the information do not need to be OCR-B1: the device can handle with any other font (this can be changed either manually by a hot key or automatically);
- New fonts can be brought into the system by a new software release without hardware changes;
- New security checks can be introduced by a new software release without hardware changes.

The benefit for the user is evident: implementing that system now means that he can work with the system immediately and, nevertheless, can introduce new fonts and new security criteria later.

TRAFFIC-CONTROL AND CONTROL OF CAR CRIMINALITY

The recognition of number plates of cars might improve the work of police forces in many ways.

Some prototypes of systems have been developed and implemented for that purpose:

- Recognition of cars authorized to enter a private car parking;
- Checking of reserved lines (busses and taxis) against violators;
- Checking for stolen or suspicious cars within the running traffic;
- Checking for cars entering a motorway in the wrong direction.

There are many difficulties in that area. To quote only the most obvious ones:

- Bad illumination;
- Find the number plate within a mass of other image information (a process that is easy for the human mind, but rather difficult to a computer, as the whole image must be screened for information that might contain the number plate);
- Determine the best time to take the image for processing;
- Distinction of different designs of number plates (different in every European country);
- Reducing the information of the plate to the relevant data.

All these difficulties could be solved in the prototype installations. As those prototypes are based on neuronal networks, improvements of their recognition abilities can be achieved by teaching, which is a rather cumbersome and time consuming process. Nevertheless, new software releases will bring better results to that point where action is required, without changes in the installed hardware base.

PERSON RECOGNITION

If the information contained in a human face could be reduced to a mathematical formula, distinguishing persons would become much easier, as the comparison of the image of a person (e.g. on an identity card) with the actual person is much easier than the comparison of fingerprints or other biometrical data.

Much effort has been spent on possible classification of persons according to their faces. The driving force for that research were systems to grant entrance to restricted areas, but not systems to recognise criminals within a crowd.

For entrance control the present systems meet quite well the requirements, as one can assume that a person requiring entrance will not hinder the process (e.g. by wearing glasses, attaching a false beard, etc); in the work of the police officer one has to assume that the persons he is interested in, will try to change his appearance.

Systems developed for entrance control have been tested with persons who were allowed to change their appearance. These systems, however, do not present a suitable base for a further development for police applications. Research on this topic is going on. However, at present the only reliable procedure for the unambiguous recognition of persons (with affordable effort) is, presumably, fingerprinting.

FINGERPRINT RECOGNITION

By far the most important and most used method of identifying persons unambiguously is the use of fingerprints. This method has a long tradition within police forces. Many algorithms to extract the essential data from fingerprints have been developed but not all of them may serve as base for an automatic procedure.

In the past, in order to cope with the huge amount of processing power necessary for the encoding and matching of fingerprints, computerized systems needed special hardware development. The disadvantages of such solutions are obvious:

- The user is dependant on a proprietary system;
- The user may not benefit from the continuous improvement of processing power and software technology;
- The configuration of the system is not flexible and increasing the volume of stored prints means a considerable effort;

- The fingerprint system becomes the centre of the user's application and forces the user to customize the application around it.

For those reasons different approaches have been explored to come to a purely software based fingerprint system, e.g. neuronal networks and similar methods.

The result of these efforts is now a modular system that offers the user a series of advantages. It consists of core functions that can be configured freely according to the users requirements:

- Image recording of tenprint forms, latents and live scans, using flatbed scanners, live scanners or cameras;
- In the encoding process (running in the background) the features of the print are extracted. An automatic quality check informs the operator, if the quality of the print is too poor for a reliable matching. In that case the operator can add further features with the interactive feature editor.

The features that are detected automatically are:

- Position of cores;
- Position of one or more deltas;
- Position, type, direction and quality of minutiae (ridge ends and bifurcation of ridges);
- Number of ridges between adjacent minutiae or between core and delta(s).

During the encoding process the direction field is determined and knowledge about the morphological structure of fingerprints is applied.

- Classification limits the amount of complex minutiae-based comparisons between the search candidate and the stored prints;
- A fingerprint feature editor enables the operator to examine the extracted features and to modify them if necessary;
- The matcher compares the fingerprint to be processed with the base of stored prints. During the matching a score is calculated for each respondent as a measure of likelihood. As result of the matching process a hit list is established, sorted by score.

To assist the operator the matcher supplies a list of corresponding minutiae for each respondent.

The print matcher is invariant under rotation, scaling and translation of an enquiry or to a search print:

- In the visual confirmation the prints from the hit list can be compared by eye, so that the operators has the final judgement whether the prints are identical or not;
- Reports and evidences for the court can be prepared in many different ways;
- In the archiving component the fingerprints are stored and may be updated by more recent data. The data stored for each print consist of text, a compressed image, the encoded features and (if required) the full image.

Together with the core components the user is offered functions for the main processes:

- Tenprint processing;
- Latent processing;
- Import and export;
- Administration.

The functionality of the system has a graphical user interface with windows and menus in accordance to OSF/Motif. This interface is based on the following rules:

- **Simplicity:** The user is not confused by information that he does not need to know;
- **Efficiency:** The user may work at the speed suitable for his task, and efficiency is ensured by the system architecture based on the client/server concept and asynchronous jobs;
- **Flexibility:** The user may organise the work flow of the system according to his own requirements;
- **Error handling:** The system helps the user to prevent incorrect operations and assists in the recovery of data after serious errors.

To summarise the features of S-AFIS⁴:

- The user may benefit from the improvement of hardware and software technology;
- The user may embed automatic fingerprint identification in his own work flow;
- The user may exchange components of automatic fingerprint identification against others if required;
- The system is scalable to the requirements of the user, it may grow with his data without the need for complete new implementation.

Beside the classical applications of fingerprints in the work of the police the described system may be used by immigration authorities, within social security (to prevent frauds of social benefits) for admittance control and many other civil purposes.

While implementing S-AFIS a special algorithm was developed that can compress the essential information of a print to 14 characters. This allows to bring that information into an ICAO travel document. This highly compressed fingerprint may not be used for matching purposes but can be used for visual comparison between the bearer of a passport and his print to prevent forgery and misuse of travel documents⁵.

⁴ S-AFIS: Siemens-Nixdorf Automatic Fingerprint Identification System.

⁵ This procedure has been registered as patent by Computergesellschaft Konstanz.

Prosecution

COMPUTERIZATION OF THE PUBLIC PROSECUTOR'S OFFICE IN THE NETHERLANDS

*Fred G. Westerbeke*¹

INTRODUCTION

This paper should be read in conjunction with the paper "Computerization of Criminal Justice in the Netherlands: Solutions and Challenges" by Mr. Henk van Brummen, presented at the Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System². That paper discusses developments in the overall machinery of computerization in the criminal justice system in the Netherlands. This paper will focus on the use of information technology at the public prosecutor's office.

DEVELOPMENT OF THE INFORMATION SUPPLY

In this presentation in outline, three phases in the development are to be distinguished:

- The first phase consisted of the first larger, but still more or less isolated developments within the links of the chain of criminal justice. In this phase the most important larger criminal justice information systems were realized.
- The second phase provided mutual link-ups between the systems developed in the chain, so that the output of one system could be transferred electronically as input for the subsequent system, which among other things prevents double input. It is especially this phase that was preceded by thinking in a chain of criminal justice.
- The third phase, the one that prevails now, provides an even farther-reaching form of mutually linking-up all systems in use in the administration of criminal justice. It no longer concerns only input-output link-ups, but an ongoing possibility of exchanging information. The essence is that in any confrontation of the judicial system with a person subjected to it, no matter where in the process of the criminal law, all relevant information is immediately available for any decision that has to be made. This information may come from the various decentral and central systems in the Netherlands.

¹ Public Prosecutor, Public Prosecutor's Office at the District Court of Rotterdam, the Netherlands.

² See pags. 83 - 92.

INFORMATION SUPPLY AT THE PUBLIC PROSECUTOR'S OFFICE

The core of the information supply for the public prosecutor's office is a system called *Compas*.

The early development of this system (in the first phase mentioned before) was set in motion in the mid 1980s. In fact this kept pace with the ever increasing pressure on the police and judicial systems. Upto that moment the application of computers at the public prosecution had been limited to a few smaller applications, running on PCs, and for the greater part consisting of text processing only. The development of *Compas* was directed centrally, by the Ministry of Justice, and the intention was to develop a system for all districts, which would support the whole primary process of prosecution and execution. Meanwhile the *Compas* system is operational all over the Netherlands in all districts. It is a functional uniform system to make sure, within the decentral organization form of the public prosecution in the Netherlands, the working method is the same in broad outlines in all districts, partly from the point of view of equality of justice. Although the software has been developed and is managed centrally, all districts have their own decentral infrastructure, using a version of *Compas*, in which the data of defendants and criminal cases of that district are stored. The decision for this infrastructural construction was made at a time when large and medium-size mainframes were still in fashion. In hindsight, this choice appears to have been a sound decision from the point of view of performance and cost.

The main functions of the *Compas* system can be summarized in outline as follows:

- **Registration:** Each criminal case that comes into the prosecution office is registered in this system. The registration function has replaced large, hand-written entry registers.
- **Recording decisions:** On the basis of the registration a decision is then made about the further course of the criminal case. This could be the offer of a settlement, bringing the case to trial, combining the case with other criminal cases already pending against this defendant, transferal of a case to another district, or dismissal. Apart from the registration of this decision, the system also carries out the required administrative actions as a result of this decision, e.g. letters or giro credit slips.
- **After this the system supports the planning and preparation of criminal court sessions.**

Parallel to these functions the system monitors the various proceedings during the process described above. It monitors legal terms, e.g. within the framework of the detention on remand, it gives a warning if making a decision about confiscated goods has been overlooked, it monitors the progress, etc.

After the judge, who has his own system for this purpose, has passed sentence, the execution phase begins. This execution is also supported by the Compas system. It records the verdict and monitors that the executing agencies are informed of the decision.

Summarizing it can be said that the system supports the whole operational process of the public prosecutor. Any public prosecutor can look up immediately in the system what the relevant data are on every case and what the actual state of the case is; and on any suspect within the district, whether any other cases are pending against him/her; and decisions can be put in, which are processed immediately and will lead to progress in the process. The system supports, *inter alia*, the drawing up of charges/summons. For this purpose there are about 5,000 standard text fragments for offenses of virtually any kind in the system.

Some figures by way of illustration: the system includes some 325 user screens, it produces approximately 300 different lists and forms. It relies on a data base which consists of about 250 different tables. The system has more than 2,500 users in 19 courts at several locations in the criminal justice organization.

The foregoing is a description of Compas in its still isolated form, but meanwhile the second phase of the development has been completed. This means that Compas operates in a national and local network of various applications, which mutually exchange information in the chain of law enforcement. On the side of the investigation at the police a number of systems is operational. These systems are directly linked to Compas. As a result of this a large part of the cases is not only supplied on paper by means of an official report, but electronic transfer of the information takes place as well. This prevents an enormous amount of double input in the registration phase and hence fewer mistakes.

During the prosecution phase, national central registration of each case reported to a district takes place at the central criminal records system, in which the criminal records of all Dutch defendants and sentenced persons are computer-stored. An immediate response shows what the criminal record of the suspect in the reported case is. This affords the public prosecutor the necessary nation-wide survey. After the case has been completed this is also automatically reported to the central criminal records system.

The investigating judge has his own support system during the prosecution phase of his preliminary judicial investigation. This system is linked with Compas as well, in fact it is a module within the system. In this way mutual information can be consulted and exchanged. The public prosecutor is at once informed of the status quo of issues in each investigation on one of his cases. Also much unnecessary double input is prevented this way. Because of the separation of tasks, only certain information is provided, and the functions in the system are completely separate.

After a suspect has been sentenced, processing of the data of the decision takes place in a system that is used by the administrative and legal support staff of the judiciary. This system too, is directly linked to Compas. After processing the public prosecutor can start with the execution of the sentence, which in turn is again supported by Compas.

Execution of fine-sentences is centralized in the Netherlands for reasons of effectiveness and efficiency. For this purpose a central computerized system has been implemented for the collection of fines.

Further, there is a central system for the planning of execution of so-called pending sentences, i.e. for sentenced persons who are not in detention on remand when sentenced: usually the less severe punishments.

These systems are linked to Compas via a national wide area network called PODACS. Each sentence which has to be executed is delivered electronically by Compas to these two systems. This information on persons who are in remand custody is electronically passed on to the system of the prison such person is in at that very moment.

The Compas system is also electronically linked to the municipal registration service. In this way information on a person's place of domicile can be checked.

Finally, the Osiris system should be mentioned, by means of which the information supply to victims of crimes takes place about the course of criminal cases. Any for the victim relevant decision processed in Compas, automatically leads to the supply of information to victims of crimes. In the Netherlands much importance is attached to the position of the victim. Practice has shown the importance of supplying proper information to the victims about the state of affairs and decisions taken in cases in which they were victimized.

All this means that all together some 15 different systems on more than 700 separate locations are electronically linked and able to exchange data.

The next phase of development is now being entered into. This phase will be characterized by further integration of (information from) the systems over the parts of the chain. Because of the great diversity of systems - partly because of decentralization - there is a need for a central index that gives insight in the information about persons available in all these systems and that makes enables to pass this information on internally. A first part of this index has already been realized by the Ministry of Justice, called VIPS.

This enables a further person-centred approach, whereas upto now the approach was more case-based. This also helps in achieving the aim to have the different judicial authorities show one face to any offender. In the ideal situation, which is expected to be accomplished

within a few years, it will be possible to have access to all important/relevant information in all parts of the chain.

CONCLUSION

The introduction of information technology has enabled to increase the efficiency of the public prosecutor's office in the Netherlands with 400%. It enables the public prosecutor's office of the Netherlands to process more than 8 times as much cases with only twice as many staff.

Courts

**PLAN ESTRATEGICO INFORMATICO
DE LA CORTE SUPREMA DE JUSTICIA DEL ECUADOR:
IMPLEMENTACION DE SU PRIMER PROYECTO PILOTO**

Carlos A. Miranda¹

INTRODUCCION

Como sucede en todos los países con presupuesto y personal limitado para investigación y desarrollo, así como para la implementación de sistemas tecnológicos de alto nivel, el Ecuador ha experimentado problemas para el desarrollo de sistemas adecuados para ayudar al área penal ha desarrollar sus labores con mayor eficiencia. Este documento describe a breves rasgos como se ha desarrollado un plan informático para la Corte Suprema de Justicia del Ecuador con pequeñas metas que serán parte de un gran sistema en el futuro, así como el desarrollo de primer programa piloto (presos sin sentencia) que puede resultar de gran interés como modelo para países que están pensando en desarrollar sus primeros sistemas informáticos o quisieran empezar a migrar sus sistemas antiguos a nuevas tecnologías y no cuenten con los recursos suficientes. Este plan y sus sistemas han sido pensados tratando de aprovechar al máximo los recursos existentes, además se ha previsto que los componentes del sistema pueden sufrir modificaciones debido a cambios en la ley, por ejemplo cambios en el código de procedimiento penal o en los pasos de seguimiento del proceso penal, por lo que el sistema puede ser fácilmente adaptado a otros procesos penales diferentes a los del Ecuador fácilmente.

PLAN ESTRATEGICO INFORMATICO: DESCRIPCION

Se ha dividido de la siguiente manera:

- Localización, priorización, aislamiento y dimensionamiento de los problemas a resolver;
- Definición de metas a corto, mediano y largo plazo;
- Estandarización;

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- Obtención de recursos;
- Desarrollo e implementación;
- Administración y mantenimiento.

Localización, Priorización, Aislamiento y Dimensionamiento de los Problemas a Resolver

La Corte Suprema de Justicia en el Ecuador se divide en varias áreas, las dos mas grandes son el área penal y el área civil. Se han localizado los mayores problemas de cada área y se han priorizado tomando como criterio el de resolver primero todos los problemas que involucran a personas detenidas, ya que este momento existe una sobrepoblación carcelaria en el Ecuador, para luego resolver los problemas de orden administrativo.

Es por esta razón que el primer proyecto piloto se denomina "Presos Sin Sentencia" y su objetivo principal es tratar no mantener una innecesaria población carcelaria.

Una vez que el problema ha sido priorizado, se procede ha aislarlo y ha dimensionarlo, en este punto se analizan los requerimientos logísticos de el sistema en particular, los costos de implementación y los costos futuros de mantenimiento y administración.

Definición de Metas a Corto Mediano y Largo Plazo

Cuando se ha localizado el problema a resolver, se procede a la definición de metas de corto, mediano y largo plazo. En el programa de presos sin sentencia la meta de corto plazo era obtener información de cada uno de los casos penales existentes en el país, agilizar el procesos administrativo de jueces y cortes para obtener sentencias absolutorias o condenatorias lo mas pronto posible y así evitar la excesiva población carcelaria, poder realizar una evaluación de jueces y obtener un sistema estadístico que nos permita realizar programas adecuados de rehabilitación y prevención. La meta a mediano plazo es poder enlazar el sistema con los centros de rehabilitación, para poder obtener información directamente desde estos. La meta a largo plazo es enlazar todos las cortes y centros de rehabilitación al sistema.

Estandarización

Para poder optimizar los recursos y realizar sistemas que después sean fácilmente integrados, se ha procedido a una estandarización, tanto de los datos, como de los sistemas operativos, bases de datos, interfaces, sistemas de comunicación, y equipos. Para realizar

esto se han tomado en cuenta los siguientes aspectos:

- Personal técnico disponible;
- Capacidad de financiamiento y ayudas externas;
- Implementación, administración y mantenimiento;
- Proveedores locales de hardware y software;
- Interfaces amigables;
- Facilidad de crecimiento;
- Seguridad.

Debido a que en el Ecuador disponemos de poco personal técnico se ha preferido escoger bases de dato de bajo costo que no requieren de un gran personal especializado, además no requieren del desembolso de grandes cantidades de dinero en la compra de las licencias, funcionan en equipos de bajo costo y son fáciles de implementar, administrar y mantener. Además tanto el software como el hardware son fácilmente conseguidos a través de proveedores locales. En cuanto al software propietario, este se ha desarrollado pensando en el crecimiento y la integración así como las facilidades para los usuarios utilizando interfaces amigables y un sistema de seguridad que nos permita el rastreo de toda transacción realizada en el sistema.

Para el proyecto piloto se ha escogido como sistema Operativo Windows NT y Windows for Workgroups, y como base de datos FoxPro for Windows. El sistema se desarrollo de forma tal que esta compuesta por interfaces (front-ends) independientes de base de datos, lo que nos permite ir creciendo con una arquitectura cliente - servidor cuando la carga de trabajo sea mas grande y poder migrar los datos a una base de datos de mayor capacidad, además se escogió esta plataforma porque esta en una fase agresiva de crecimiento en el mercado, por lo que nuestros sistemas pueden crecer junto con ella, además es fácil conseguir gente que trabaje en ella, ya que no requiere técnicos de un elevado nivel, lo que es importante a la hora de presupuestar el mantenimiento y la administración del Sistema, ya que este es un componente que se pagará mensualmente durante toda la vida útil del mismo, y una decisión equivocada puede costar más que el desarrollo e implementación del proyecto.

El estándar escogido para los interfaces así como el sistema de seguridad serán los mismos que se utilizaran en todos los sistemas que se desarrollen dentro del plan estratégico.

Obtención

En este punto, una vez que se ha definido todo el proyecto, se procede a evaluar las capacidades técnicas y económicas, así como la posibilidad de ayudas externas. Para el proyecto presos sin sentencia se utilizaron recursos Financieros de la Corte Suprema del Ecuador, USAID-ECUADOR, bajo la coordinación del Grupo de Trabajo del Sector Judicial del Ecuador y la Asistencia Técnica de la Corporación Latinoamericana de Desarrollo. Para nuevos proyectos se ha pensado en la ayuda de la empresa privada, dando en concesión los sistemas para que sean administrados en su parte técnica por éstas.

Desarrollo e Implementación

Lo más difícil en el desarrollo del proyecto es definir el problema, corregirlo y luego automatizarlo. Para esto se revisan los procesos manuales y se los rediseña pensando en el sistema automatizado, evitando la redundancia de datos pero tratando de que el cambio en la forma de trabajo no resulte traumática para los usuarios. En el proyecto presos sin sentencia se partió de la ficha de datos que se llenaba para manejar los casos manualmente se le realizaron las modificaciones respectivas y se la utilizo como el documento principal para la carga de la base de datos.

Además se desarrollo un programa de actualización de datos utilizando parte del sistema manual existente. Una de las partes mas importantes al momento de diseñar una aplicación de este tipo es la codificación de los campos tanto principales como de enlace, ya que un código correctamente definido puede representar un ahorro importante en procesos de consulta y permitir que con solo una mirada se puedan saber muchas cosas relevantes al registro que se esta consultando.

Es importante tratar de codificar la mayor cantidad posible de campos de datos, ya que esto nos permitirá un ahorro en almacenamiento y una mayor facilidad a la hora de realizar las consultas, sobre todo en nuestro caso, ya que una parte del estándar de nuestras interfaces es el query by example (consultas por ejemplo).

Administración y Mantenimiento

Este campo es el mas importante de todos, ya que de el depende el éxito a largo plazo del proyecto. En el caso de nuestro proyecto Presos sin Sentencia. Se inicio la primera fase con una pequeña red de área local, la misma que después se puede integrar a otras redes de este tipo. El sistema es administrado como una unidad dependiente de la Corte Suprema, pero con la asesoría técnica de la Corporación Latinoamericana de Desarrollo para el mantenimiento y mejoras. Se ha asignado un presupuesto para el funcionamiento de esta unidad y lo mismo se realizará con cada proyecto que se siga adicionando al plan.

RECOMENDACIONES

- Trazar una meta a largo plazo, pero dividirla en pequeñas metas que pueden ser implementadas rápidamente.
- Para definir las metas pequeñas es importante definir los problemas existentes y en base a una priorización tratar de solucionarlos uno a uno, pero con una visión global.
- Definir un estándar. Se ahorra tiempo en el desarrollo de las futuras aplicaciones si se define desde un principio un estándar tanto en la metodología de trabajo, como en la definición de datos y el software y hardware a utilizarse.
- Cuando defina su estándar piense en los recursos que tiene a su disposición, tanto de personal como de suministros y proveedores locales.
- Trate de presupuestar sus sistemas incluyendo la fase final de mantenimiento. Se pueden crear de bajo costo de desarrollo, pero su fase de operación y mantenimiento puede ser muy costoso. Hay que crear un equilibrio.
- En lo posible no se convierta en dependiente de la tecnología escogida (técnicos, hardware y software), siempre escoja tecnologías abiertas, fáciles de mantener y modificar.
- Utilizar al máximo los procesos disponibles para evitar experiencias de reeducación traumáticas que pueden costar mas que el sistema informático.
- Mantener los nombres de todos los procesos existentes y utilizar lo mas posible de ellos, sin embargo en caso de tener que rediseñarlos hay que tratar de que el cambio resulte transparente para el usuario.
- Codificar la mayor cantidad posible de los campos de información.
- Utilizar códigos que en cada uno de sus dígitos o caracteres nos proporcionen una información lo mas completa del documento tratado, ya que caso contrario se necesitaría realizar procesos de consulta costosos en términos informáticos.
- En lo posible lograr que los interfaces presenten toda la información posible de la base de datos principal y las relacionadas, de forma que se eviten consultas innecesarias.

L'INFORMATION DE LA JUSTICE PENALE FRANCAISE

*François Franchi*¹

INTRODUCTION

La progression de l'informatisation de la justice pénale en France peut-être présentée en trois points:

- Le développement de l'informatisation;
- L'étendue de l'informatisation;
- L'analyse de l'informatisation.

LE DÉVELOPPEMENT DE L'INFORMATISATION

L'informatisation de la justice pénale en France est, comme j'ai eu l'honneur de le dire au Premier Atelier sur l'Informatisation de la Justice Pénale au Huitième Congrès des Nations Unies pour la Prévention du Crime et le Traitement des Délinquants, La Havanan, Cuba, 27 Août - 7 Septembre 1990², relativement ancienne.

Les Schémas Directeurs

J'avais expliqué à cette époque les conditions du démarrage de cette informatisation et le cadre dans lequel elle s'inscrit, à savoir des schémas directeurs. Trois schémas directeurs ont été mis en oeuvre:

- 1979 - 1983
- 1984 - 1988
- 1990 - 1994.

¹ Premier Substitut du Procureur de la République près le Tribunal de Grande Instance de Paris.

² Proceedings of the First United Nations Workshop on Computerization of Criminal Justice Information, Vol. II, R. Scherpenzeel (ed.), HEUNI Publication Series No. 20, Helsinki, Academic Bookstore, 1992, and Monsey, N.Y., Criminal Justice Press, 1992.

Le premier schéma directeur 1979 - 1983: la mise au point d'applications sur de gros systèmes informatiques destinés notamment à permettre de résoudre le problème de gestion d'une masse toujours plus importante de procédures et de données pour les juridictions les plus grandes:

- Le Casier Judiciaire Nationale;
- Le Bureau d'Ordre de la Région Parisienne, gérant les procédures pénales des 6 plus grosses juridictions de France.

Le deuxième schéma directeur 1984 - 1988: l'équipement des juridictions de taille inférieure à l'aide de mini-ordinateurs.

Le troisième schéma directeur 1990 - 1994: le plus ambitieux, reposait sur une modélisation complète des activités du Ministère de la Justice et la réalisation d'applications modulable à partir d'une méthode unique de conception et de conduite de projet, permettant de mettre en place un système de référence commun à toutes les applications.

L'ampleur de ce projet au regard des moyens notamment humains mis en place explique un échec relatif de ce grand projet et un dérapage financier dont la conséquence principale a été l'abandon ou le retard dans la mise en oeuvre de certaines applications.

Un plan intérimaire a ainsi été défini pour la période 1993/1996, dans l'attente de la mise en oeuvre du prochain schéma directeur dont l'objectif sera de favoriser une politique d'informatisation dite d'initiative locale, dans laquelle les budgets informatiques seront déconcentrés sur les 29 cours d'appel, l'administration centrale servant d'expert et de coordonnateur aux juridictions.

Le Plan Intérimaire

Pour en revenir au plan intérimaire, outre l'appui donné aux juridictions pour s'équiper en informatique, il s'agit - après l'abandon du projet de développement d'une application nationale destinée à gérer les procédures civiles (nouvelle chaîne civile) - après l'abandon du projet de gestion de l'administration centrale - après la reconversion vers l'initiative locale du projet de développement d'une application nationale de gestion des greffes pénitentiaires (PECD) - d'achever le remplacement des gros systèmes du premier schéma directeur.

La réalisation de ces applications est déclarée prioritaire et les moyens sont remobilisés pour permettre leur aboutissement dans un délai rapide. Des cellules d'administration de mission sont mises en place tant pour le nouveau casier judiciaire (NCJ)

que pour la nouvelle chaîne pénale (NCP).

Le nouveau casier judiciaire, comme le précédent, a pour objet de gérer les condamnations prononcées par les juridictions et de recenser par personne leur passé judiciaire. C'est donc un énorme fichier, tenu à jour en permanence et relevant de la responsabilité du Ministère de la Justice.

La nouvelle chaîne pénale traduit assez bien, par son appellation, l'ambition des processus d'informatisation toujours en cours en France. Il s'agit en réalité de gérer les procédures d'un bout à l'autre de la chaîne de traitement de celles-ci, depuis leur enregistrement au bureau d'ordre des tribunaux jusqu'à la mise à exécution de la sentence et aux incidents de cette exécution ainsi qu'à l'archivage. Elle associe ainsi tous les partenaires judiciaires: magistrats du parquet, juges d'instruction, juges des enfants, service de l'audiencement des procédures devant les formations de jugement, les formations de jugement, les services des greffes, les services de l'exécution et de l'application des peines, dans la mesure où tous travaillent sur les mêmes données de base et y apportent les données propres gérées par eux.

Ces deux projets sont aujourd'hui en route:

- Le nouveau casier judiciaire a démarré le 15 Avril 1995 et tourne sans problème, sur un gros système BULL (DPS 7000) et une base de données IDS;
- La nouvelle chaîne pénale tourne également sur des DPS 7000 mais avec une base de données relationnelle (ORACLE) et offre la particularité technique d'utiliser trois systèmes d'exploitation (GCOS 7 - UNIX et DOS). Elle est en place dans trois juridictions (Pontoise, Créteil et Evry) et le sera dans les 7 tribunaux concernés à la fin de l'année 1995.

S'agissant du Tribunal de Paris, le plus important, l'opération a démarré le 2 Mai 1994 et s'achèvera en décembre 1995, dans la mesure où il a été jugé impossible de mener d'un seul coup une opération qui concerne 600 utilisateurs directs plus 400 magistrats.

Une autre raison de cette implantation progressive, par phases (5 en l'occurrence), tient à la contrainte majeure de ne pas interrompre le travail de la juridiction et donc d'être capable de reprendre l'existant, c'est-à-dire les données gérées sur le précédent système (plusieurs millions de données).

Cette opération a réussi, permettant à la juridiction de ne perdre aucune des données enregistrées.

Cette dissertation ne doit pas vous faire croire qu'en dehors de la région parisienne, c'est le désert.

Comme dit ci-dessus, et sous la pression des utilisateurs c'est à dire des magistrats et fonctionnaires de justice, toutes les juridictions se sont lancées dans l'informatisation, avec des succès plus ou moins grand et généralement en désordre. Chaque structure a son propre système, parfois malheureusement incompatible avec celui du voisin, ce qui implique une ressaisie des données à chaque étape.

Ceci tient au fait que ces opérations d'informatisation ont été menés dans véritable analyse ni coordination, pour résoudre un besoin immédiat de remplacement de machines à traitement de texte et de substitution à des pré-imprimés de trames plus souples et présentables.

La raison de ce succès relatif tient en réalité à une absence de compétence conduisant les juridictions à faire confiance aux entreprises du marché pour conduire les opérations souhaitées, lesquelles n'ont aucune expérience de ce monde particulier qu'est le monde de la justice.

Ce constat est celui déjà fait par les utilisateurs et c'est la raison pour laquelle, aujourd'hui, l'on est à la recherche de solutions permettant d'apporter aux juridictions ce renfort technique spécialisé pour éviter les erreurs et le gâchis d'argent public: marchés type, schémas de processus d'informatisation, assistance d'experts, groupes d'utilisateurs, etc.

L'ETENDUE DE L'INFORMATISATION

Néanmoins, on peut dire qu'aujourd'hui tout le champ pénal judiciaire est couvert.

Le champ judiciaire d' informatisation part de l'enregistrement initial de la procédure au Parquet du Procureur de la République : plaintes, dénonciations et procès-verbaux des services de police - jusqu'à l'exécution de la peine et l'archivage des procédures.

Il faut en effet conserver à l'esprit que dans le système de droit français, les procureurs sont des magistrats et donc la prise en compte des procédures, dans le cadre des systèmes informatiques judiciaires, ne commence pas au moment où le Juge intervient mais avant, durant cette phase où la police judiciaire agit sous la direction du Procureur de la République.

Les données initiales de l'affaire sont donc saisies très tôt et conservées longtemps, ce qui implique leur mise à jour permanente par les différents services de la chaîne de

traitement des dossiers de procédure pénale: ainsi à Paris, cela représente 400 000 affaires par an.

Ces données sont conservées vivantes, avant d'être archivées, parfois pendant 30 ans en fonction des règles de prescription, et sont donc partagées par tous les utilisateurs d'une juridiction mais, bien évidemment, non ouvertes au public puisque les procédures sont, jusqu'à l'audience, secrètes.

Partagent ainsi les données: les procureurs et fonctionnaires du parquet, les magistrats instructeurs et leur greffier, les juges de enfants et leur greffiers, le service qui gère l'audiencement des dossiers devant les formations de jugement du tribunal, le tribunal et ses greffiers, le service de l'exécution des peines et celui de l'application des peines. Y ont accès les services de police et les auxiliaires de justice.

Les données peuvent même être partagées entre les juridictions travaillant sur le même système, c'est à dire en réalité les juridictions de la région parisienne, ce qui est extrêmement intéressant dans la mesure où la population sur cette zone géographique se déplace beaucoup et que l'essentiel des délinquants arrêtés sur Paris ne sont pas des parisiens mais des personnes de la région parisienne et des étrangers attirés par cette manne financière et monétaire que représente la capitale dans un pays à forte tradition centralisatrice.

Comme sur l'ancien système, une connexion entre les deux grandes applications sera mise en place permettant d'alimenter par support informatique le casier judiciaire avec les données en provenance des juridictions et aux juridictions, c'est à dire aux magistrats, de connaître à tout moment le passé judiciaire de la personne à juger.

Des applications spécifiques complètent le panel en gérant l'aide juridique, l'activité des chambres d'accusation et des chambres correctionnelles des cours d'appels, la Cour d'Assises qui, en France, juge les crimes, et la Cour de Cassation (chambre criminelle).

En fait, on peut dire que seuls deux domaines restent encore à développer:

- La phase antérieure à la saisine du procureur: c'est-à-dire la phase policière, mais la difficulté ici vient du fait que la police judiciaire relève de la responsabilité administrative de deux autres ministères: le Ministère de l'Intérieur pour la police et le Ministère de la Défense pour les gendarmes, lesquels ont leur propre politique d'informatisation;
- L'échange de données informatisées: l'aboutissement du processus d'informatisation ne sera complet que lorsque des données pourront être échangées, en aval avec la

police judiciaire, en amont avec les greffes pénitentiaire et, dans le respect du caractère secret des procédures jusqu'à l'audience, les auxiliaires de justice , au premier rang desquels sont les avocats.

L'informatique couvre également ou plutôt a les moyens de couvrir l'ensemble des besoins d'information des magistrats puisque la France dispose de nombreuses banques de données et y accèdent soit par le système propre à la France que constitue le MINITEL soit par le biais des réseaux nationaux et internationaux de communication.

ANALYSE DE L'INFORMATISATION DE LA JUSTICE PENALE FRANCAISE

Bilan

On peut toutefois se demander si ces opérations d'informatisation sont encore pertinentes. En quoi consistent-elles en effet?

Globalement, on peut dire qu'on est passé d'un stade de remplacement des tâches manuelles répétitives à un stade de mise en place d'outils d'édition améliorés et enfin à un stade de conception et plus rarement, même si le besoin s'en fait toujours plus vivement sentir, de réalisation de systèmes d'information. C'est en tout cas ce qui existe sur la nouvelle chaîne pénale.

Cet aboutissement qu'est la notion de système d'information est essentiel et traduit une maturité technique et conceptuelle importante en donnant à l'informatisation de la justice pénale une ampleur certaine et l'efficacité recherchée (qualité de la production judiciaire, réduction du délai de traitement des procédures). Mais, en réalité, il est aisé de voir que cette informatisation a consisté à faciliter le travail des fonctionnaires de justice dans leur fabrication de documents ou la gestion de dossiers pour le compte de magistrats.

Il s'en suit que les données gérées ont pour but de permettre de repérer la procédure en la situant procéduralement et physiquement, accessoirement de la gérer et de tirer des statistiques et tableaux de bords, intéressant au surplus essentiellement cette unité de fonctionnement qu'est la juridiction.

Les perspectives

Or, les outils du marché, l'évolution des mentalités dans le milieu judiciaire et les nouveaux défis de la délinquance permettent aujourd'hui de s'orienter vers de nouvelles fonctionnalités.

Les outils du marché: il s'agit de possibilités ouvertes par l'orientation de l'informatique vers le domaine des services grâce à la gestion électronique des documents, associée aux logiciels de gestion de bases de données en hypertexte et aux possibilités de conservation d'images et texte sur CD ROM.

L'évolution des mentalités: l'évolution des mentalités dans le milieu judiciaire correspond à une volonté de prise en compte de l'informatique par les magistrats et leur volonté d'obtenir maintenant des outils adaptés à leurs besoins propres: croisement de données, rassemblement de documentation, constitution de sa propre base de travail au fur et à mesure du développement de la procédure, tableaux de bords affinés, système d'alerte/relance fin.

Les nouveaux défis de la délinquance: les nouveaux défis de la délinquance provient de l'évolution de celle-ci vers des formes de criminalité de plus en plus astucieuses et essentiellement financières, y compris le crime organisé et au blanchiment de fond.

Cette évolution se traduit non par une augmentation de la délinquance et du nombre de procédures (on constate même une diminution du nombre de procédures sur les dernières années) mais des procédures de plus en plus complexes et lourdes à gérer.

Cette rencontre de phénomènes permet de penser qu'il est possible de passer à une nouvelle forme d'informatisation dont la conséquence essentielle est de situer l'informatique là où se trouve le pouvoir de décision, c'est à dire au niveau des magistrats.

Cette solution permet au magistrat de disposer directement sur son ordinateur personnel de la procédure en image et de travailler dessus, sans avoir besoin du papier. Elle lui permet de fabriquer directement sa décision en récupérant des données ou du texte sur les documents gérés. Elle permet de conserver la trace des documents sur un support aisément accessible pour lui. Elle résout les problèmes de plus en plus lourds de stockage des procédures. Elle permet, associé à un logiciel de workflow, de diriger le travail des fonctionnaires des greffes, directement sur sa machine.

C'est la raison pour laquelle les recherches sur l'informatique pénale s'orientent dans cette direction, surtout en ce qu'elle paraît plus adaptée aux besoins des utilisateurs que les systèmes experts, le raisonnement juridique s'adaptant difficilement à la logique de Boule.

Une expérience est ainsi en train de démarrer au Tribunal de Grande Instance de Paris, avec une souplesse d'autant plus grande que les matériels mis en place pour gérer les systèmes d'information sont parfaitement utilisables pour cette expérience. Cette expérimentation est d'autant plus intéressante qu'elle est faite dans un secteur important puisque c'est celui de la délinquance financière, fort consommateur de papier.

CONCLUSION

Il est possible que l'informatisation de la justice pénale, du moins en France, connaisse une évolution importante grâce aux nouvelles technologies.

Il ne faut cependant se dissimuler que le recours à ces outils se traduit nécessairement par une transformation du rôle et des fonctions des personnels de justice et du partage des tâches entre Magistrats et fonctionnaires des greffes. On peut penser que l'on assistera à un recul des tâches matérielles au profit de tâches nouvelles du type aide à la décision.

Par ailleurs, ce type de produit ne peut être mis en place sans une analyse extrêmement rigoureuse en terme d'organisation, encore plus rigoureuse que dans les schémas traditionnels. Or, c'est généralement le point négligé alors qu'il convient de rappeler d'une part que l'informatique n'est qu'un outil au service de l'organisation et d'autre part que l'informatisation ne peut gommer, à elle seule, les dysfonctionnements organisationnels.

THE DISTRIBUTED INFORMATION PROCESSING COMPUTER SYSTEM OF COURTS AND JUSTICE INSTITUTIONS IN RUSSIA

Andrei V. Morozov¹

INTRODUCTION

The present concepts of computerization within the broad spectrum of the administration of justice of the Russian Federation are laid down in the Programme of Informatization of the Courts and the Justice Institutions of the Russian Federation, adopted by decree of the Board of the Ministry of Justice of 21 January 1994.

The main goal of this programme is to introduce information technology in the Ministry of Justice, the courts, justice organs and justice institutions. The basic concept for the computerization of the information processing in the system of justice is that of distributed information processing, called Distributed Information Processing Computer System (DIPCS).

DISTRIBUTED INFORMATION PROCESSING COMPUTER SYSTEM

The Distributed Information Processing Computer System (DIPCS) is a set of workstations connected to a central information system via a national network. The workstations are multi-functional personal computers with dedicated software, e.g. Workstation Software Package for the judge, court staff and the clerks of the criminal and civil sections of the court, etc. The DIPCS is aiming at the introduction of computerization in the district courts, the regional courts and the Supreme Court, the Federal Ministry of Justice and its regional justice departments, the Ministries of Justice of the Republics of the Russian Federation, and the criminal expertise research laboratories. Within the scope of this programme, dedicated software packages and database management systems, such as Legislation, Office Work, Statistics, Court Practice, Jury Trial, Account and Staff Management, Criminal Expertise, etc., are introduced in the courts and the justice institutions of the Russian Federation.

It is planned to organize the DIPCS in accordance with the following principles of (i) providing the least processing expenses and, at the same time, (ii) solving problems reliably and efficiently:

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- Reduction of processing time using parallel problem solving, distributed information processing;
- Use of mass-produced cheap computers linked via networks into highly efficient and reliable systems;
- Formation of a flexible logically structured system that could unite the processing resources of multiple computers for solving urgent problems of extreme importance.

The DIPCS provides the management with databases of federal legislation and institutional regulations, theoretical and practical comments on them, court practice, civil and criminal cases, cases submitted for jury trial, etc. It also allows the selection of documents and other data in accordance with structured as well as arbitrary queries, to compute and generate statistical reports based on primary documents, to work out summary reports for each separate region and for all regions as a whole.

The creation of the DIPCS for courts and justice institutions implies introducing new information technologies which should replace the traditional, manual methods of compiling, processing, storage and transfer of legal information. Further, the introduction of new information technologies implies applying new methods and means of information processing, customized for the requirements and working conditions of the staff of the central offices, regional and district courts, justice organs and institutions.

The main tendency in the development of territorially distributed information systems is the increase of local information processing, in order to make processing technology simpler and cheaper. This is especially important for the Russian Federation, with its 89 members of the Federation, since the distance between two opposite border nodes of the system is about 12,000 km.

The courts in their work use local legislation as well. Therefore, the DIPCS stipulates also the creation of a network of Regional Centres of Legal Information (RCLI) which would transfer methodological and reference information to the courts, and statistical reports - from the courts and notarial offices to the justice institutions and finally to the Ministry of Justice.

Presumably, the base of the local information processing computer system of a court or justice institution would be an average mainframe computer, to which end terminals and/or personal computers are connected. This local information processing computer system would in turn be able to communicate with its RCLI. The RCLIs are to be connected to the main database of the Ministry of Justice.

The optimal solution would be the I.B.M. AS/400 system, taking into account the

investments in software in the 1980s, when the ES-series computers (clones of IBM-370) were used in our country, and the existence of appropriate specialists in that field. As for personal computers, one now is switching to the use of I.B.M. PS/2 systems.

The Distributed Information Processing Computer System is structured in three levels:

- **First level:**
 - Ministry of Justice of the Russian Federation: Department of Informatics;
 - Scientific Centre of Legal Information;
 - Federal Centre of Criminal Expertise.

- **Second level:**
 - Supreme courts and regional courts of the republics;
 - Regional justice departments and the ministries of justice of the republics.

- **Third level:**
 - District courts;
 - Criminal expertise research laboratories (CERL).

The coordination and general control functions of the DIPCS are carried out at the first level by the Ministry of Justice of the Russian Federation, since its Department of Informatics has access to any element in the system via communication networks.

At the second level, it is envisaged to install PCs with the Workstation Software Package in the DIPCS-network:

- **Regional justice departments and the ministries of justice of the republics:** head of the organization, codification specialist, criminal and civil statistics specialist (information collection, processing, drafting of reports, query processing), office manager (registration and control of execution of appeals, requests and other documents), staff manager, accountant;

- **Supreme courts and the regional courts of the republics:** chairman, deputy chairman and judges, court codification consultant, clerks dealing with civil and criminal cases, court board assistants dealing with civil and criminal cases, clerks of the jury trial section, archivist.

At the third level, it is envisaged to install PCs with Workstation Software Package

in the DIPCS-network:

- Criminal expertise research laboratories (CERL);.
- District courts: clerks dealing with civil and criminal cases.

The main objective at this level is, inter alia, increasing the efficiency of the judicial registration systems.

Legal Information Database System ETALON

The legal information database system ETALON, developed by the specialists of the Scientific Centre of Legal Information of the Ministry of Justice of the Russian Federation, consists of two parts: the system software and the legislation texts. The software enables the user to find necessary documents specifying various search parameters, to output the documents to the screen (in several different forms) as well as to the printer and/or into a standard text file. The text part of the database (150 Mb) contains about 12,000 regularly actualized legislation of the federal authorities, ministries and institutions. The actualization data for the system (about 500 Kb) is transferred twice a week via telephone lines (maximum transfer rate: 9,600 bps) or via the Iskra-2 network (maximum transfer rate: 19,200 bps) using modem communication. It is available also on CD-ROM and floppy disk.

Legal Information Database System FOND

From the second half of 1995, those users of the Scientific Centre of Legal Information who have access to high-speed communication lines can work in on-line mode with the legal information database system FOND (10 Gb), comprising all (actualized and previous) versions of legislation of the federal authorities, ministries and institutions, from 1922 to this time. This system also contains the materials of court practice: decisions of the Supreme Court of the Russian Federation and the Supreme Court of the republics, as well as the decisions of the district and regional courts, in civil, criminal, and economic cases.

Software Package Office Work

The software package Office Work enables to organize the work of clerks dealing with civil and criminal cases including those without training in that field, ensuring saving of information in use. A detailed help system is available for the user. Standard templates for information input are provided. After introduction of the programme, the huge card indices for storing registration documents will no longer be necessary.

Software Package Statistics

The software package Statistics has been designed for logical control and analysis of court reports, generating summary reports on the whole region, etc.

Software Package Jury Trial

The software package Jury Trial automates the generation of lists of jurors in the given region. According to the number of jurors specified by the chairman of the court, the regional authorities compile the main and reserve lists using the lists prepared by the district and town authorities. They, in turn, compile such lists using random choice algorithms specially designed for the system. The system automatically, on the basis of formal criteria in accordance with the law, excludes those who have no right to be jurors, and generates a list of candidates which is adopted by the authorities.

To obtain necessary information on the candidates, the court sends each of them a questionnaire. The system can process the questionnaires and make corrections to the list of jurors in accordance with the law. As a result, a final list of jurors is generated, from which the judge selects the necessary number of jurors for the given case, using a random choice algorithm, and prepares notices for calling jurors to the court. The system registers the participation of each juror in considering the cases, calculates their pay and fills in certificates of having worked in the court. Besides, the system makes statistical information available on the activities of the jury trial.

Network of Regional Centres of Legal Information (RCLI)

The Regional Centres of Legal Information are created under the aegis of the regional justice departments. They provide the courts with qualified technical and software support and can establish reliable modem communication between the Ministry of Justice and local courts. Such communication is realized using special hardware and software communication packages via telephone lines with a maximum transfer rate up to 19,200 bps, and as from 1996, when satellite digital communication channels will be put into operation, the transfer rate will reach 64,000 bps.

It is planned that the regional courts and justice departments will receive all necessary software and databases from RCLIs via radio-modems or in any other machine-readable form.

FINANCING THE PROGRAMME

According to calculations based on requests from the courts and justice institutions, being able to carry out the Programme of Informatization of the Courts and the Justice Institutions of the Russian Federation will require the equipment of about 10,000 work stations. Taking into account the average cost per work station with communication hardware and software, legislative software and databases, which equals approximately \$ 5,000, then the total expenses for the realization of the programme will amount to a considerable sum; it is questionable whether this can be allotted from the state budget at the present time.

Several variants of financing the programme can be proposed.

First, the problem of financing the programme is being solved by the federal authorities.

Second, there are several projects of international assistance: the United Nations Development Programme and the United Nations Crime Prevention and Criminal Justice Programme, and a credit project of \$ 15,000,000 of I.B.M. for informatization of the second level of the Distributed Information Processing System, on the condition of 30% discharge per year.

The third variant stipulates some kind of self-financing. The justice institutions organize, together with local authorities, the Regional Centres of Legal Information (RCLIs); the latter receive from the Scientific Centre of Legal Information at the federal Ministry of Justice the technology of the database management and the legal information database itself, with the right to distribute it at regional level. The subscription price of the SCLIs database is about US \$ 1,000 per year, the estimated number of distributed copies is approximately 1,000 per region. The total income, about US \$ 1,000,000 per year, is used for the informatization of regional courts and justice institutions as well.

The main stages of creation of the Distributed Information Processing System (DIPCS) of the courts and justice institutions of the Russian Federation are:

- Providing the courts and justice institutions with specialists in legal information having higher technical education and a basic knowledge of telecommunication equipment and hardware;
- Providing necessary telecommunication equipment, hardware, communication lines for the courts and justice institutions;
- Development of necessary software packages;

- Organization of RCLIs and putting them into test operation, the technology and software packages will thus be tested;
- Staff training to work within the new system;
- Activation of all possible ways of financing the informatization programme;
- Providing the completion with all necessary equipment;
- Putting the system into real operation.

In view of the experience of the world community in the field of the building of such systems and as well as the experience gained in the last years, it is hoped that the United Nations will provide assistance in implementing the Programme of Informatization of the Courts and the Justice Institutions of the Russian Federation. Special thanks are expressed to the representative of the United Nations Crime Prevention and Criminal Justice Network Programme Network Mr. Richard Scherpenzeel for his generous assistance.

Corrections

COMPUTERIZATION OF THE PRISON SERVICE IN THE NETHERLANDS

Frank van der Zanden¹

INTRODUCTION

This paper should be read in conjunction with two other papers: that on "Computerization of Criminal Justice in the Netherlands: Solutions and Challenges" by Mr. Henk van Brummen, presented at the Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System²; and that on "Computerization of the Public Prosecutor's Office in The Netherlands" by Mr. Fred Westerbeke, presented at the Symposium on Computerization of Criminal Justice Information³. These papers discuss developments in the overall machinery of computerization in the criminal justice system, and the introduction of computerization in the public prosecutor's office in the Netherlands.

This paper discusses the role of information technology within the Prison Service of the Netherlands:

- Challenges and solutions over the past few years;
- Position of information technology and the phases the Dutch Prison Service has passed through;
- Brief evaluation of the introduction of computerization in the Dutch Prison Service; the lessons that have been learned.

COMPUTERIZATION OF THE PRISON ADMINISTRATION: CHALLENGES AND SOLUTIONS

By the early 1980s, the first comprehensive development on the introduction of computerization in the Prison Service of the Netherlands started. This led to the development of an integrated system available to both the public prosecutor's office and the

¹ Information Manager, National Prison Service, the Netherlands.

² See pags. 83 - 92.

³ See pags. 329 - 333.

correctional administration, called Mitra. The Mitra system was designed to accommodate the requirements for a comprehensive criminal justice management information system instrumental in controlling the consecutive activities related to the stages in the criminal justice process: prosecution - sentencing - execution. The goal of the Mitra design was to create a single, unified comprehensive system to track defendants, those who are sentenced, their cases, and the occupancy vs. vacancy of cell capacity of the penitentiary facilities. Mitra was a centralized mainframe-based system with workstations installed at each of the offices of the public prosecutor and each of the penitentiary facilities, with datacommunication via a dedicated lease lines-based network.

By the late 1980s, it was decided to replace the Mitra system. The most pressing reason for this decision was that the cardinal concept - all detention centres and prisons using the same system - was not longer corresponding with the preference for more independent, decentralized business units, i.e. the detention centres and the prisons. This led to the Tulp-concept, aiming specifically at the decentralized tasks and responsibilities of the penitentiary institutions. Realization of this concept has for the greater part been achieved in the early 1990s. To this day this concept is, however, still not fully completed or fully implemented.

The fact that it has not been completed yet is by no means a weakness, on the contrary. Over the last years the business processes within the Dutch penitentiary institutions have really been set in motion. Actually by opting for the Tulp-concept it became possible to carry out the necessary adjustments and expansions. In this way the supply of information could continually stay in correlation with the business processes. Below, the phases the development of the Tulp system will be reviewed.

DEVELOPMENT PHASES OF THE TULP SYSTEM

The following three development phases of the Tulp system are to be distinguished:

- Tulp - the basic concept;
- Tulp - as a full partner in the criminal justice chain (police - public prosecutor's office - courts - prison system);
- Tulp - on to the year 2000.

Tulp - The Basic Concept

In the early 1990s, the first version of Tulp was introduced in the prison system.

This version supported the primary processes and key tasks of the remand detention centres and the prisons:

- Cell management system: cell capacity - per category (ordinary cells, isolation cells, punitive cells, etc.) - occupancy vs. vacancy, etc.;
- Registration of the personal details of the detainees;
- Registration of the title - preventive detention, sentence - of the incarceration and case data;
- Registration of the location of the cell where each detainee is held.

Tulp provides all kinds of supporting functions which facilitate these key functions. One of the most important supporting functions is monitoring terms. This function monitors semi-automatically:

- The impending expiration of the validity of an incarceration title;
- The consecutive execution in case of more than one incarceration-title.

During Tulp's implementation route, which was a period of about 2 years, three applications, which are also part of the Tulp-concept, were worked on:

- Central register of escapes: data on all detainees who have escaped from a penitentiary institution or, who did not return from a week-end leave;
- Central register of arrested escapees: data on arrested escapees who are held in a police cell until they can be booked in again;
- Central system of self-reporters: system for the planning, administration and monitoring of the execution of so-called pending sentences, i.e. of sentenced persons who are not in detention on remand when sentenced.

In the initial phase data communication between the Tulp systems was shaped in a simple mode: when a detainee got transferred to another remand detention centre or prison, the data regarding that detainee were transferred with the same convoy on floppy disc.

Tulp - A Full Partner in the Dutch Judicial Chain

After the prison system had gained some experience with the new systems, it was

faced with a new challenge. With the replacement of the central information system Mitra by the decentralized Tulp-concept, great progress had been achieved in supporting the primary business processes within the prison system. However, one crucial aspect of the concept was still imperfect: an effective and efficient support of the data communication between the penitentiary institutions, and between the different partners in the whole judicial chain was still wanting.

By 1992, it was decided to link all the penitentiary institutions to the national police wide area data communication network, called PODACS. This made it possible to realize the following link-ups:

- Penitentiary institutions;
- Penitentiary institutions - central index VIPS;
- Penitentiary institutions - public prosecutor's office;
- National cell information system;
- Policy information system.

Data exchange between penitentiary institutions. By linking all the institutions to the PODACS-network it became possible to replace the old method of communication via the floppy disc by data communication via this wide area communication network. The advantages are evident: faster, and no more errors through floppy discs being lost.

Data exchange penitentiary institutions - central index VIPS. Concurrently with the realization of the connection of the penitentiary institutions to the PODACS-network, a central index system, called VIPS, was developed. VIPS is designed as a central reference index to the Tulp systems, as well as the information systems of the public prosecutor's office, on all current cases or incarcerations of all persons anywhere in the criminal justice process.

Data exchange penitentiary institutions - public prosecutor's office. In close cooperation between the prison system and the public prosecutor's office a data communication link has been realized between the administration of the prison system and that of the public prosecutor's office. This link enables that:

- Incarceration titles are transferred quickly from the public prosecutor's office to the prison system, without the need for retyping these data into Tulp;

- Short notices and messages from the prison system to the public prosecutor's office are handled fully automatically;
- Inquiries by the public prosecutor's office will be answered fully automatically by Tulp, without having to consult any staff member of the prison administration.

National cell information system. The Dutch policy is that in principle one cell is occupied by one detainee. Further, the Dutch situation is characterized by an increase in the number of people to be detained. To realize optimal use of cell capacity is a hard task to accomplish with these two givens.

In the issue of optimal cell use, two roles are of importance:

- The one of the public prosecutor's office: The public prosecutor decides on who is to be detained in preventive detention and who is to be released from preventive detention;
- The one of the prison system: The prison system must - on the basis of the judge's verdict - assign the sentenced persons to the right kind of prison. The prison administration must also fill in the detention phasing: a path the detainee follows through ever lighter regimes, so that he is increasingly prepared for his return to society. Lastly, the prison administration must inform the public prosecutor's office fast and accurately about the use of the cell capacity.

In order to be able to support these complex tasks adequately, it was decided to expand the Tulp-concept with a national cell information system. This system contains an overall picture of all the cells in the detention centres and prisons. Of each cell a record is kept showing whether it is in use or vacant. If the cell is occupied, it is also recorded by whom and for how long.

The national cell information system is used by the three district offices of the prison administration. These district offices have two key tasks:

- Supporting the public prosecutor's office with placements in the remand detention centres;
- Assigning the sentenced detainees to the different prisons.

Realization of this system has made it possible to optimize the average cell occupancy.

Policy information system. A disadvantage of a decentralized system concept is the fact that it is quite difficult to have insight into the most important developments in policy-issues on a national scale. In order to be able to supply the Dutch prison administration and senior management of the Ministry of Justice with sufficient information about policies, the national policy information system was developed. This system is a central database designed for research and statistical purposes. The database is filled every month with data from the Tulp-systems in the institutions. A special toolkit is used for defining questions for the database.

Tulp - Modules for Business-Conduct within the Penitentiary Institutions

In the midst of the pressure to finalize the Tulp-concept, an important cornerstone of the Tulp-concept nearly escaped notice: the penitentiary institutions. Although, in the first phase they were gratified with a good information system that brought them much improvement, in the second phase it seemed that no thought had been given to the local needs. For, all the adjustments to Tulp were being made to satisfy central management needs.

By the end of 1994, this omission was acknowledged, and in the beginning of 1995 a start was made to realize some modules specifically meant for the local business-conduct within the institutions:

- Module which specifically supports the planning of activities of the detainees. In this respect one should think of the planning of activities such as:
 - labour;
 - (compulsory) sports and recreational activities;
 - education;
 - visits to physician and/or psychologist.
- Module which is supporting a number of local activities such as:
 - drawing up of conduct-reports for detainees;
 - drawing up of selection-proposals: to which institution a particular detainee can best be transferred in accordance with the detention phasing (preparation for return to society);
 - registration of incidents.
- Module for local management information.

Tulp - On to the Year 2000

Adaptations of the Tulp-systems to the latest technologies are envisaged. They comprise, inter alia:

- Rebuilding the systems in a Microsoft-Windows-environment;
- Realization of a graphic user interface;
- Improvement of the support for users (help-functions).

Apart from that the question needs to be answered whether to integrate the administrative automation with the security systems, and if so to what degree, such as:

- Entrance control systems;
- Alarm systems;
- Keyring systems;
- Person-tracing system.

EVALUATION: LESSONS LEARNED

To conclude, a brief review of the most important lessons learned:

Is Information Technology the Solution?

Information technology has proven to be a good solution to a number of the problems to be faced, but certainly not for all of them. Information technology can make a fine contribution as long as it is clear which problem it is supposed to solve.

The Growth Model as Critical Success Factor

In the past years the information systems of the Dutch Prison Service were introduced in phases. By opting for such a growth model the following was achieved:

- High degree of flexibility, and
- High level of stability.

Flexibility

It has often been possible to react swiftly and adequately to changing circumstances mainly due to the following reasons:

- Choice of a system-concept tailored to the organization;
- Choice of a relative low cost platform.

Stability

Thanks to opting to follow international standards as much as possible, a stable system environment was achieved. There have been next to no losses of investments in this area.

Involvement of Users

The involvement of users has proven to be very important. At a certain moment it looked like as if this was going to cause problems, because the attention was temporarily too much focused on the central needs (mostly politically initiated). Over the past two years the involvement of the users has greatly improved, inter alia due to:

- Giving more attention to informing the remand detention centres and the prisons about intended activities;
- Organizing the users in regional meetings where they evaluate the daily functioning of the specific functions of the information systems;
- Establishing an advisory committee consisting of governors of detention centres and prisons. This advisory committee has an important say in all major information technology decisions.

INFORMATION TECHNOLOGY IN THE SWEDISH PRISON AND PROBATION SERVICE

*Per-Erik Lundh*¹

INTRODUCTION

Four years ago the Swedish Prison and Probation Service initiated a major work in the area of information technology in the handling of offenders. The purpose of this work is to make all the changes possible within the operations and to achieve efficient routines. All sectors of the organization are to have a good information supply through information technology. They shall be able to operate efficiently with the help of information technology.

The now existing client routines were developed in the early 1970s for a central mainframe with terminals. These routines are to be replaced and different forms of support for client issues, other environmental routines and office support will be developed.

WHAT IS SPECIAL FOR INFORMATION TECHNOLOGY IN THE TREATMENT OF OFFENDERS?

The development of information systems for the treatment of offenders is basically the same as for other systems. The methods of development are the same; so are hardware, methods of documentation, etc. However, in some ways the information technology systems for dealing with offenders are special:

- They cannot be bought ready for use from a supplier;
- They are a link in a chain which forms the information system of the judicial system;
- Security issues are characteristic;
- The possibilities of the system can be limited due to matters of integrity;
- Alterations have to be made in accordance with new legislation;
- The organization performs at different units on various locations and the sites vary in size;

¹ Deputy Director-General Swedish Prison and Probation Service.

- Prison buildings do not easily meet the needs of high level physical security of the infrastructure.

INFORMATION TECHNOLOGY IN THE SWEDISH PRISON AND PROBATION SERVICE

Technical Solutions

There is a rapid development in technology. The technique chosen has to be modern but it still has to be thoroughly tested. In Sweden, the Prison and Probation Service chose to develop client server applications with Ingres in the beginning of 1991. The concept chosen is local networks with Unix-server and PCs with MS-DOS and Windows as work stations. This concept will be available as a technical platform at all authorities within the Swedish prison and probation institutions.

Communication Net

There are activities being developed on more than 150 different places and a secure and stable communication net is necessary. The computer net selected is operated by France Telecom Transpac and an encryption method is for the time being tested between seven authorities.

Encryption is a demand in Sweden when sending integrity data via net communication.

Development of Applications: Development Tools

The most important part of information technology is access to well functioning applications offering the appropriate support. When developing, the concentration has been to divide in well defined divisions of the system, and to develop each division separately. The system shall be able to work on its own when installed and be connected to other systems later on. The users form a great support in the development process; representatives from the branches are responsible for the design of the systems.

Choice of Standard Software

To keep costs down and to manage the extensive organization in a rational way it is necessary to standardize. For instance, it was a policy decision to use WordPerfect for text processing and Lotus for calculations. All software are purchased by the central level and they also decide when to upgrade it.

De-escalation of Old Techniques

The older systems were developed for I.B.M. mainframes and one difficulty in the process of development is to relinquish that system. It is very demanding to maintain both the new and the old systems for a number of years.

Gradually there is a transfer from different solutions of communications for different systems to the new joint computer communication net.

Purchase of Equipment and Contact with the Supplier

As a result of a purchasing deal, concluded in the summer of 1993, an agreement was signed with I.C.L. It stated that I.C.L. was to deliver the technical platform to the Swedish Prison and Probation Service. They took on the obligation to be both the supplier and the integrator of the system. It is the duty of I.C.L. to ensure that the selected software products match with the hardware.

Experience shows that this presents problems. I.C.L. has difficulties adapting new versions of software and other products and to make them work within the existing platform.

Distribution of Equipment

The Swedish Prison and Probation Service consists of approximately 170 authorities in more than 150 different places all over Sweden. A specified project has had the task of distributing the equipment to the various places. Besides the project has included planning and execution of installations and also acceptance tests.

The training of the user staff was made on a local level. The tutors were trained on a central level.

Introduction and Operation Start of Applications

The Swedish Prison and Probation Service distributes the applications. It is left to the authorities to introduce them in their own activities. Also advice has been worked out, as well as examples and instructions showing the appropriate methods to introduce the applications.

Training of Staff

The regular staff of each authority is to operate the equipment. Any officer will be able to perform easy tasks after proper training, e.g. to make a back-up. The concept

contains a competence system which demands system administrative tasks with relevant training.

Some basic technical knowledge will be necessary in order to do a first troubleshooting before any report of errors can be made. The application training is local. The Swedish Prison and Probation Service arranges the training of tutors who later on will train the users.

Information Technology Staff and Customer Support

It may be difficult to recruit or to train staff skilled in the development of modern tools and this modern technique. It is considered to be a blessing to have enough of one's own staff involved in this development and thus avoid having to depend on consultants.

It is necessary to handle and canalize the problems. Errors, insufficient knowledge etc. will naturally occur. The investments have to be used efficiently. The staff are to call a special telephone number at the central administration's information technology support unit. The staff on duty will solve the problem or pass it on to the proper authority.

Information Technology Environment

The technical platform is based on a concept with a local network, a server, and PCs.

A twisted pair cable system is used. The server has an operating system called UNIX SVR4. TCP/IP and NETBIOS are used as protocols in the local networks. TCP/IP runs routed over X-25 in a wide area network. LM/X is used as a net-operative and a file-server. The server contains X-400 MTA in order to support message transfer based on X-400.

The PCs have DOS and Windows as their standard. Besides they have Lan Manager and Ingres client. SNA 3270 and VT-emulator are standard for communication.

I.C.L. has a product called Team Mail which has been chosen as the standard for electronic mail. It has been integrated with WordPerfect for text processing and Lotus 1-2-3 for calculation.

The authorization - and security system is the Workgroup Manager from I.C.L. It plays an important role in the concept, since the demands on security are extreme. It is used to give the users different levels of authorization and for user identification. In order to increase security even further, the traffic on the wide area network will be encrypted. Encryption equipment will be available connected to each router.

Systems now Running and Those under Progress

The system now about to be de-escalated was introduced in the middle of the 1970s. The older systems are run in an I.B.M. mainframe environment at a support agency. Systems for economy and personnel are mainly run at the support agency. Some systems are run by the Swedish Prison and Probation Service. They are for example systems for the operations, administration of wages and some client systems for the open treatment of offenders.

These operations are also handled in connection with a current project using electronic monitoring which has been going on for a year now.

There is a special application developed in Ingres, used for prisons and remand prisons. One project tries to develop a system for bed-planning.

A number of partial applications are now designed due to the recent development of an information system for client management. These systems are designed on local, regional and central level. Other parts of the system in the process of development are:

- Systems for injunctions;
- Systems for verdicts;
- Systems for executions.

Besides, a number of smaller systems are running. For example private means of the inmates, registers of supervisors, calculations of terms of punishments and electronic blanks.

Coordination within the Judicial System

A special committee has, since the 1960s, worked on coordinating the information technology issues within the judicial system. The committee consists of representatives from among other places the Department of Justice, the Swedish National Police Board, Chief Public Prosecutor' Office and the Swedish Prison and Probation Service. This coordination has made discussions concerning e.g. interface, security solutions and information flow in the judicial system a great deal easier.

SOME EXPERIENCES

Summary of experience gained so far :

- The work takes longer time than planned;
- It is important to fully establish the information technology work within the organization;
- It takes a lot of time and effort to change the routines in the prison and probation administration;
- It is difficult to obtain understanding for security in the broad perspective;
- The Data Inspection Authority requires very much time and it limits the possibilities of the applications;
- Important factors are the supplier's knowledge and cooperational interest;
- The staff and I.C.L. together have spent much time and resources to solve arising problems;
- It is important to have a supplier qualified to integrate the systems;
- The service and installation staff must be knowledgeable;
- The customer support must have the full picture of all errors and problems that occur; it gives them information on how to avoid problems and how to solve them;
- It is necessary with standardization and strict control when to develop, distribute and operate/administrate;
- It is important to review the administrative and manual routines before using the systems. Another important matter is to decide who are to do what. This can mean new tasks, a new level of delegations and quite a different way of working.

A COMPUTERIZED DECISION SUPPORT SYSTEM IN THE JUVENILE PROBATION SERVICE IN ISRAEL

*Meir Hovav*¹

INTRODUCTION²

The Juvenile Probation Service is a social-therapeutic service operating nationwide from within the Division of Youth Development and Correctional Services in the Ministry of Labour and Social Affairs of Israel. The service's function is to treat those juveniles referred to it by the Israel National Police as suspected of a criminal offense and to rehabilitate them. The service also treats juveniles who are the subject of a court treatment order, e.g. a probation order. Juveniles are aged from 12 to 18 but occasionally one may remain in the care of a probation officer up to age 21. All probation officers are professionals with a B.A. or M.A. degree in social work, who have taken a special orientation course in probation work.

The service's work is governed by laws and regulations that lay down, *inter alia*, three guiding principles for the probation officer:

- Any juvenile who is the subject of a criminal investigation by the police must be referred to a probation officer as soon as there is sufficient evidence to put him on trial;
- Once the juvenile has stood trial and been found guilty, the court must order a probation officer's report;
- The probation officer's report must include: the juvenile's biography; his familial, social and economic circumstances; his physical-medical state; and a recommendation as to the most suitable form of care.

With the referral of a juvenile to the Juvenile Probation Service, a probation officer will invite him for an intake interview during which the officer will obtain from him and his parents preliminary information on his and his family's situation and probe their attitude to the offence for which the juvenile has been referred.

¹ Ministry of Labour and Social Welfare, Israel.

² This paper is based on an article "Delinquency and Social Work: Knowledge and Intervention", Y. Vozner, M. Golan, M. Hovav, (eds.), Ramot-University of Tel Aviv, Israel, 1994.

Subsequently, the probation officer makes it his object to get to know the juvenile more deeply, his family and immediate environment too, including school or place of work. He may refer him for medical, psychological or other examination so as to reach a more exact assessment of his personality. This stage - the psycho-social investigation - has two aspects: it is a therapeutic process in itself and also serves as the basis for the report and recommendation as to rehabilitative treatment which the officer will present to the court, if and when the juvenile is brought to trial for the court to determine his responsibility for the offense. The probation officer also has the power to recommend to the police to close the criminal case against the juvenile without trial, should he be convinced that the juvenile would be best treated without one. The offense may have been a one-time act with no fear of a return to delinquency, or perhaps enough has already been done, during the psycho-social investigation to rehabilitate the youth.

THE DECISION SUPPORT SYSTEM

The computerized decision support system has been developed by Dr. Monica Shapira of the Hebrew University School of Social Work. It is Dr. Monica Shapira's contention that, since more than 80% of the recommendations made to the court by a probation officer are adopted by the court, it is essential that the professional judgement that the officer uses to decide on the content and manner of his recommendation, be as consistent, as reliable and as correct as possible.

Using statistical regression methods, it has been found that probation officers may collect many items of information but rest their final recommendation on eight variables only:

- The number of offenses committed by the youth;
- Instances of anti-social behaviour;
- His level of functioning in school or place of work;
- His relations with his parents;
- Pathological phenomena in the family;
- The youth's age;
- The gravity of the offense;
- Whether the offense was committed alone or with others.

Each variable has been accorded a weight and statistical modelling has been used to determine the influence of each on the probation officer's final decision. Her final linear model permits the officer's professional decision policy to be characterized in terms of weighted variables, by affixing pre-set weights to the eight individual variables.

Dr. Monica Shapira further states that the probation officer, in making his judgment (i.e. his clinical decision - his prediction and estimate of future human behaviour), the officer will employ predictor variables (i.e. the information about the juvenile) that stand in a conditionally monotonic relation to the criteria (i.e. the response of the officer to the predictor variables).

The second important feature of the probation officer's decision-making process, the feature that makes it structurable by regression equations, is the premise that the manner in which he arrives at his judgment and recommendation as to the juvenile's method of care (basing himself on character data and the circumstances of the juvenile's life) can be behaviourally defined as a cyclical process of problem solving and information processing.

Decisions to be Made by the Probation Officer

In deciding on his recommendation as to the further handling of the juvenile's criminal file, the probation officer faces two choices - to recommend to the police to file criminal charges in the juvenile court or to close the file without a trial. If the juvenile is brought to trial a range of recommendations are available to the officer, from the severest - imprisonment actual or conditional, if the youth is convicted - through further treatment orders without a criminal conviction, and the lightest - discharge of the juvenile without any court order.

If the recommendation is to send the youth for treatment (without criminal conviction) then the probation officer has eight options for further recommendation:

- To transfer the youth to the care and supervision of a qualified person who is not one of the parents;
- To have the youth put on probation;
- To have the youth or his parents stand guarantee for his future good behaviour;
- To have the youth attend a day centre;
- To commit the youth to an open or closed residential institution;

- To issue some other directive as to the youth's future behaviour, e.g. a period of public service or a prohibition on driving a vehicle;
- To oblige the youth or his parents to pay a fine or the court costs;
- To oblige the youth or his parents to pay compensation to the person injured by the youth's offence.

With respect to all these possible recommendations, the probation officer arrives at his decision by a process of probing and combining the items of information collected during the psycho-social investigation, and his recommendation is usual fateful for the youth's future.

Although it has been found that probation officers base their decisions on eight items of information alone, this did not prevent also finding important differences between the decisions of two different officers about youths with similar records. These differences stem from the personalities, education and general approach of the officers who come from varying backgrounds and cultures. The common training and supervision system does not succeed in getting them to employ a uniform process of judgment formation.

It is this problem that the computerized system is intended to help the probation officer overcome - by standardizing the data, and by creating pre-determined data combinations and a universal decision-making model. This model, founded on the accumulated practice of past officers, is intended to increase the uniformity and equality of officers' recommendations with respect to juveniles with similar psycho-social backgrounds and delinquency record.

How the System Works

Once an officer has completed his decision-making process with respect to a particular youth and arrived at a firm recommendation, he opens a dialogue with the computerized programme (running on specially developed software). He taps in the youth's identity number and the computer proceeds to ask him a series of 73 questions, to which the officer replies by keying the appropriate code. The questions are divided into four groups:

- Data on the youth's family: e.g. parents' employment status and state of health, relations between the youth and his parents, the family's delinquency record, signs of pathology;
- Data on the youth himself: e.g. age, his place in the sibling order, where he lives, physical development, state of health, occupations, school record, behavioural

problems at home and school and the strength of his motivation to rehabilitate himself;

- Data on past and present delinquency by the youth: e.g. category and gravity of his offense(s), the injury or damage caused, the youth's attitude to the current offense and the intention or not to commit it, previous offenses and previous treatment in the JPS;
- The therapeutic relationship between the probation officer and the juvenile and the former's assessment of the chances of rehabilitation: e.g. the relations between the youth and the officer, results of previous treatments (if any), the youth's abilities and his response to the treatment.

The dialogue between the probation officer and the computer programme lasts ten to fifteen minutes. Only after he has given answers to all the questions and keyed in his recommendation, does the programme display its own recommendation on the screen. If the two recommendations are the same then the probation officer may forward his report to the court or his professional opinion to the police. Should the programme's recommendation be severer or milder than the officer's, then the latter has two options - to accept or reject the computer's recommendation - but, in either case, he must record his reasons for so doing.

The computerized system stores the probation officers' new recommendations as well as its own in a databank and this accumulated material is used to monitor the efficiency of the system. The arguments of the officers for rejecting the programme's recommendations are used to update, expand and improve it. In this way accumulating experience reveals subjects and issues, both known and new, on which the Juvenile Probation Service has yet to lay down policy or where policy is either unclear or inconsistent. Thus, the system in the Jerusalem district office has been updated three times since its installation and that in the Tel Aviv district office once, and probation officers have added to their list of possible recommendations. The most important of these additions is a recommendation to the court to defer continuation of the legal process pending the receipt of new information on the youth or his transfer to a diagnostic centre for observation.

The Influence of the System on the Officers and on the Organization

One of the changes anticipated as a consequence of the installation of the system in the Juvenile Probation Service is that the officers will feel that have undergone a professional and emotional re-adjustment.

34 officers with at least one year's seniority, 12 in Jerusalem and 22 in Tel Aviv, have filled out satisfaction and attitudinal questionnaires with regard to the system. They were requested to respond to 51 clustered statements, each cluster representing a facet of

their relation to the system:

- Satisfaction with their use of it;
- Its contribution to equality, fairness, etc.;
- Its effect on the officer's organizational environment;
- Its effect on the officer' professional performance.

Despite the difficulties of analyzing the meaning of the responses due to the high number of statements (51) and small number of respondents (34), the organizers of the survey report a number of findings:

- The majority of respondents agree that the system does not infringe on their professional judgment, but allows them full discretion in weighing their recommendation against that of the programme;
- The system helps the officer keep track of all his decisions and to test their validity;
- The officers dismiss any fear that use of the system might dehumanize their work or over-emphasize its technical aspects;
- Disagreement between the officer's and system's conclusion leads the officer to re-examine and re-think his decision;
- Satisfaction with the decision to participate in the innovative project was unanimous;
- The respondents' recommendation that the system be installed in other welfare services is further evidence of its positive influence on their work;
- The officers do not feel threatened by the system and their relations with their supervisors have not been changed by it.

It is the expectation that the installation of the system in all the Juvenile Probation Service's units will permit management to set a policy of supervision and control that, on the one hand, will meet the personal needs of each probation officer and, on the other hand, will conduce to more equal and consistent recommendations uninfluenced by individual predilections.

Probation officers are supposed to reach their professional decisions independently, relying on their understanding, moral sense, experience and knowledge. Within this context, the supervision and guidance exercised by the Juvenile Probation Service should be such as to cope with three sorts of professional behaviour: invariable rejection of the computer's recommendation, invariable acceptance of it, and patternness decision making in response to irrelevant criteria. The computerized system is an extra tool to enable the probation officer/social worker achieve and maintain quality of judgment and it is management's responsibility to see that it functions as neither more nor less than this.

SUMMARY AND CONCLUSIONS

The computerized decision-support system supports the probation officer's decision-making process by providing him with computer-generated rules for assessing and combining the separate items of information that he collects. These rules are formulated linearly, on the premise that the relation between the independent and dependent variables can be represented by a straight line uninfluenced by the scores of other dependent variables. In other words, officers can characterize the juveniles in their charge by a weighted combination of variables.

The probation officer and the computer collaborate in reaching the decision in each individual case by combining the pieces of information on the youth and his surroundings with the subjective assessments of the officer. This process of combination is executed by the computer in conformity with the overall policy of the Service or of one of its regions which, in turn, is based on the accumulated practice of all past and present officers.

The system permits the officer to diverge from the computerized model's recommendation whenever he feels justified in so doing, because that recommendation is no more than an extra item in the bank of information at his disposal. Any one recommendation by the computer reflects the average of all past judgments in like cases: it is not binding on the probation officer in the present. The distribution of the arguments against the computers' conclusions serves as important feedback for modifying and upgrading the software and permits the adaptation of the average judgment to new norms generated by current practice, at both regional and national level. Although the system has brought about changes in officers' perceptions by exposing them to a fusion of technology with therapeutic methods, experience to date does not yet permit the management of the Service to commit itself to long-range conclusions. In our estimation, however, a decision-support system should find its place in other social services that make fateful decisions about persons in their care so as to raise the level of their professional performance and advance them to new standards of quality of care.

**Applications of Information Technology in the
Justice Agencies of England and Wales:
Law Enforcement, Prosecution, Courts, Corrections**

APPLICATIONS OF INFORMATION TECHNOLOGY IN THE JUSTICE AGENCIES OF ENGLAND AND WALES

*Christopher G. Lewis*¹

INTRODUCTION

This paper gives an overview of the way different criminal justice agencies of England and Wales have applied information technology in their areas. It does not attempt to be comprehensive, since the majority of applications have been introduced locally and there are many hundreds of these. However, the main systems are covered, together with plans for national information technology strategies which are now being drawn up for all agencies. Many of the present systems are quite sophisticated in their own right and all of them have greatly improved the efficiency of the criminal justice system in England and Wales.

This paper first discusses centrally maintained databases and then goes into more detail about applications of information technology in specific areas of the justice system.

CENTRALLY MAINTAINED DATABASES

Three databases are discussed:

- The Police National Computer, which exists mainly to assist police in the investigation of crime;
- Databases related to crime which assist the administration of activities in which the majority of the population are involved: Drivers Licensing, Vehicle Licensing and TV Licensing;
- Statistical Databases, which assist the evaluation of current and future criminal justice policy and monitor social trends.

Police National Computer

The Police National Computer comprises Siemens-Nixdorf H120S hardware and Adabas-Natural software. Some 100 or more Gigabytes of storage are involved. The

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Police National Computer provides all the police forces in the United Kingdom with 24 hour access to operationally essential information, including criminal records, details of vehicle ownership and details of wanted and missing persons. The mainframe is linked to over 2500 police terminals via a sophisticated communications system known as the Police National Network.

The Police National Computer is the centrepiece of national police information technology services provided by the Home Office. The year 1994 saw the completion of the changeover from the first generation police national computer, PNC1, to the one described above. A full disaster recovery facility has also been instituted that can be brought into play both if a major disaster strikes but can also be used to maintain service while new applications are introduced or essential maintenance is required.

It is vitally important that the Police National Computer is available to police officers throughout the United Kingdom, twenty four hours a day, every day of the year. Just as important as availability is the speed of transactions. It is essential that each Police National Computer enquiry - and there are now close to 150,000 transaction each day on the Police National Computer - is handled quickly. The disaster recovery system ensures that these requirements are met in full. Planning has now started to provide the next generation of the Police National Computer, PNC3, to carry nationally provided information technology services into the next century.

The present facilities available through the Police National Computer have developed over the last 20 years and continue to expand. The Police National Computer has been substantially enhanced with Phoenix - the computerized Criminal Justice Record Service - in 1995. The Phoenix system, developed by the United Kingdom Home Office, will initially be fed information by the police but it is planned that other criminal justice agencies (prosecution, courts, correction) will contribute and have access to Phoenix in the future. This new application makes details of all persons cautioned or convicted of imprisonable offences instantly available. This eliminates not only paperwork but is a major investigative tool for police officers. It generates, for example, lists of possible suspects from an examination of their descriptions and criminal histories. This application constitutes the most comprehensive criminal records system available anywhere in the world.

The Police National Network, supplied by a major United Kingdom company, Mercury, provides all the necessary links between the Police National Computer and users. The Police National Network consists of a state of the art X-400 telecommunications network connecting together police forces. In the not too distant future it will be extended to handle the data and voice communications between police, courts and other parts of the criminal justice community and then form part of a wider ranging Criminal Justice Network.

The National Automated Fingerprint Identification System (NAFIS) will supersede current local fingerprint recognition systems used to identify and detect offenders. A contract for development of NAFIS has been awarded with implementation planned to begin in 1998. This technically advanced system, capable of accommodating a requirement to examine the millions of fingerprint records that constitute the national fingerprint collections of England and Wales, will further enhance the capabilities of forces to detect offenders. It will complement the detection and identification facilities of Phoenix.

Driver Vehicle Licensing Agency

This agency maintains up-to-date records of all United Kingdom licensed drivers and vehicles. There are many millions of infringements of traffic and vehicle laws and regulations each year. Most of these are dealt with by a fixed-penalty system outside the courts. However a small, but significant proportion of such cases come to the criminal courts, making up about one-eighth of the total workload of the courts. Thus, a high degree of interconnection is necessary between the computers of the criminal justice system and that at the Driver Vehicle Licensing Agency computer.

At present, much of the contact is between the magistrates' courts and DVLA using magnetic tape. However, a pilot study is taking place for passing information on drivers' convictions to and from the police, courts and the Driver Vehicle Licensing Agency by electronic data links. When successful, this will be rolled out across the country and will reduce delays in cases. It will also reduce the number of cases which have to be dropped because evidence is not available in time.

The Driver Vehicle Licensing Agency has several developments at the pilot stage or in planning, with appropriate safeguards in each case:

- Direct on-line access by the police to their databases;
- Linking the Driver Vehicle Licensing Agency drivers and vehicles databases to enable them to let the police know which cars a driver is associated with;
- Linking their databases to those of commercial insurers;
- Using EDIFACT to enable fleet car operators to renew group licences via funds transfer.

National TV Licence Records Agency

All records of television licence ownership are kept on a database, and the agency

prosecutes large numbers from the 1 - 2 million or so TV households who do not buy a licence. Again tape interchange is used between courts and the agency.

Statistical Databases

The use of statistics for policy analysis is covered in more detail in the paper "The Use of Criminal Justice Statistics in Criminal Justice Policy in England and Wales" presented at the Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System². Such databases are fed from local administrative systems and used centrally for policy and social analysis.

Statistical databases fed from administrative systems are relatively inexpensive. Also, because they use the same information held by local agencies, national data is thus compatible with local data. There are, however, potential data quality problems where data is input for a different purpose from that which it will eventually be used.

LOCAL APPLICATIONS

Police forces are autonomous and have access to a range of computer systems, some being based on specifications developed centrally but most being specified, procured and managed by forces themselves. The Home Office Large Major Enquiry System (HOLMES), used for storage and analysis of information collected during a major incident, is the prime example of a nationally specified system used locally by forces. The system is currently supplied by four United Kingdom companies (each based on the Home Office specification) and has been adopted by other forces overseas. The Lockerbie enquiry into the Lockerbie air disaster, where a mass of information was generated by police forces in both the United Kingdom and the United States, required the adoption of HOLMES by the police forces in both countries. The HOLMES system is currently being redeveloped (HOLMES II), the new enhanced system being planned for delivery to all United Kingdom forces in 1996.

Police Forces have also developed their own computer systems which are now used in well over fifty different ways including accounts/finance, command and control, crime recording, firearms, liaison with courts, incident logging, personnel, crime reporting, payroll, stock control, statistics, training, administrative support and intelligence. These tasks and many others are being undertaken much more efficiently as a result of the use of computers. Investment in information technology by forces has been extensive. For example, in 1993, police forces spent well over £ 150 million on buying and using information systems and over 2,000 staff are employed in force computing departments. The estimated

² See pags. 139 - 152.

expenditure over the next five years will be in the region of three quarters of a billion pounds. This widespread adoption of information technology by police forces in England and Wales has led to well over 200 companies being active within the United Kingdom to meet the specific needs of a significant and demanding police information technology market.

The systems available from these suppliers have also constantly improved over time. To take just one example, a command and control system available from any of the major United Kingdom suppliers would now be expected to encompass incident logging and resource allocation as well as sophisticated street indexing and geographical information systems, contingency planning to assist in guiding responses to incidents, provision of registers of burglar alarms, firearms and children at risk as well as gateways to the Police National Computer applications and potential links to mobile data terminals. The ability to feed information to other systems, such as force intelligence systems, may also be expected. The quality and scope of such systems has thus improved dramatically to accompany a widespread adoption of information technology systems by United Kingdom police forces.

National Systems

The Police has taken the lead in maintaining large central systems such as the Police National Computer and has made the largest investment in computers over the years. However, they are the least advanced in common local systems. The Crown Prosecution Service is part way towards introducing a common system. The magistrates' courts have a small number of common systems at present and will roll out a common system over the next few years. Crown courts have now introduced a common system as has the Prison Service. The Probation Service intends to roll out its common system over the next five years.

Police

A national strategy for police information systems was announced in November 1995. This has as its starting point the recognition that planning at national level is required if police information technology systems are to be used to greatest advantage. Police forces perform largely the same tasks throughout England and Wales and they need the same kinds of computer systems in order to carry out those tasks with maximum efficiency.

It does not make sense for each to develop its own local information technology systems to support those common needs. Big savings in development and procurement effort could be made if standard systems were specified and purchased by every force. Indeed, many police functions are common throughout the world and such systems may then have much wider scope than the purely domestic one. It might be expected that they would be attractive and find acceptance within the wider international police community.

Improvements will also result from development of common systems because of their ability to communicate with each other. Criminals are no respecters of local or national boundaries, so computers cannot afford to be. Within the United Kingdom there are up to 150 million transactions each year between forces and other parts of the criminal justice community, many of them still on paper. Valuable manpower could be released for priority policing tasks by automation of these exchanges.

The existence of the Police National Network provides the infrastructure whereby such exchanges can be automated. But the adoption of common information technology systems by forces which incorporate well defined strategic data standards and accepted technical standards to promote interoperability is required for full use of this facility. And of course information when consolidated in this way is often of greater value than the sum of its part : new patterns emerge; unexpected links are perceived. So both efficiency and operational effectiveness can be improved by eliminating incompatible police systems. It is a key part of the national strategy to put in place the common systems and the standards needed to allow these links to be made.

The initial priority for implementing the strategy is to develop five common, national systems as a matter of priority. These systems, command and control, custody, case preparation, crime and incident reporting and management information, should start to appear by 1996. It is proposed that such systems will be thoroughly tested within the United Kingdom police environment and their functionality agreed by the police service as a whole. They would then be recommended for purchase by all for those specific policing tasks.

As part of this national strategy for police information systems, care will be taken to enable Interfaces to be developed between the police systems and systems in other agencies. In general, these interfaces will use the Police National Network/Criminal Justice Network: for example, there will be information links between the traffic systems and the Driver Vehicle Licensing Agency and between the pre-court system and the Crown Prosecution Service.

It is expected that the national strategy for police information systems NSPIS will be introduced over the next few years. Where links with other agencies are needed then data and technical standards will be followed as set by the Committee for the Coordination of Computerization in the Criminal Justice System (CCCJS).

Crown Prosecution Service

The prosecution system in England and Wales was reorganized in the latter half of the 1980s. Most prosecutions are now undertaken by the Crown Prosecution Service. A case-tracking computer system has been developed for the Crown Prosecution Service known

as Standard Case Operations (SCOPE). This is being implemented throughout the Crown Prosecution Service during 1995 and 1996. It runs on Unisys U6000/210 and 220 hardware, under UNIX, with ORACLE database software.

The main purpose is to register and maintain Crown Prosecution Service case details. The system will perform the following:

- Register case information;
- Prepare for trial/hearing;
- Record counsel details;
- Maintain reminders/requests;
- Maintain court hearing details;
- Maintain witness requirements;
- Produce performance indicator and management reports.

At present no interfaces are in development, but E-mail pilots between the Crown Prosecution Service and all other agencies are being carried out in two areas of England. However, it is likely that substantial savings could be made by the passing of case details electronically between the police, prosecutors and the courts and the potential for this is now being investigated.

Other specialist authorities are responsible for prosecutions in certain areas and have their own computer systems to enable them to carry out their functions; for example, The Serious Fraud Office deals with the prosecution of complex fraud cases, and has invested a good deal of effort in using information technology for storage of evidence and presentation of case information in court.

Magistrates' Courts

Magistrates' courts deal with the vast majority of cases, especially minor cases, where administration is high in relation to the time taken in court. There are three main systems in use at present, each of which have a good share of the market. These systems provide slightly different functionalities, covering the areas of pre-trial, post-trial, court administration, including listing and scheduling, resulting, and accounts.

A national development is now taking place to deliver a single common system known as MASS. This will be based around ORACLE software, and run on hardware working under UNIX. It is planned to pilot the first sites in 1997 and roll out from 1998. Interfaces will enable links across to banks, to the Driver Vehicle Licensing Agency and the police and to statistical databases for sentencing details.

It is also planned that there will be direct links with the criminal records database on the Police National Computer, both for new sentencing details to be sent from the court and for criminal histories to be sent to the court from the Phoenix database.

Crown Courts

The crown courts deal with the more serious cases and have a much lower caseload than the magistrates' courts. They introduced a nationally specified computer system known as CREST to all courts by the middle of 1994. This runs on Siemens-Nixdorf Targon 31 Hardware, operating under UNIX, and uses ORACLE-based software.

The computer provides support for the office administration of crown courts on case management, listing and scheduling, monitoring of legal aid accounts, accounting, local and distributed management information.

Pilot studies are now taking place to set up interfaces between the crown courts and all agencies who would wish to access their current listings, including the legal professions: links are being developed to pass statistics information on results and appeals direct to the central statistical databases. Future plans will include direct links between CREST and Phoenix so that criminal records can be passed to and from the criminal records database held by the police.

Probation Service

The Probation Service has developed a national system known as CRAMS, a case record administration and management system, which is being rolled out over the next five years. It runs on Bull Escala and desktop personal computers, in a UNIX environment, with ORACLE and COGNOS-based software. It is primarily to support practitioners in the operational business of probation and is designed around the three main stages of a case; referral, progress and outcome. Management information is extracted as a by-product of normal case monitoring.

Prison Service

Since 1993 the Prison Service has installed computers in all prisons in a system called

Local Inmates Database System (LIDS), which provides operational information locally for prisons. Each night relevant information is passed down an electronic link to Prison Service headquarters to feed the Inmates Information System (IIS).

By using these systems, the Prison Service is able to fulfil many of its tasks more efficiently:

- Staff can trace rapidly the whereabouts and entire history of any inmate held or recently released;
- Efficiency of inmate and parole casework has been greatly improved;
- Statistics of prison population are more up-to-date.

Linking Agencies Together

Each agency has its own information technology priorities: these may not always include making interfaces with other criminal justice agencies. However, much of the work of individual agencies relies on contacts with other agencies of the justice system. If information technology is to succeed to greatest effect, it is important that information can be passed easily between agencies. This is a separate, albeit very important issue, which is covered in the paper "Coordination of Computerization within the Criminal Justice System of England and Wales" presented at the Workshop on International Cooperation and Assistance in the Management of the Criminal Justice System³.

³ See pags. 77 - 81.

Information Retrieval

INTELLIGENT CONCEPTUAL SCANNING AND CATEGORIZING OF DOCUMENTS

*Richard V. de Mulder*¹

INTRODUCTION: THE NEED FOR CONCEPTUAL FLEXIBILITY

The original research that led to this paper was concerned with legal information retrieval. Many recent publications on this subject agree that traditional automated retrieval systems do not satisfy lawyers' demands. Many of the multitude of suggestions for improvement have in common that legal information retrieval systems should be conceptual. Roughly speaking this means that legal information retrieval systems should be able to deal with knowledge about the law and be more intelligent. One of these studies² gives a review and an assessment were given of the attempts that have been made to achieve this. The main conclusion of this study was that none of the proposed systems would enable the users to define, enter, store, retrieve and revise their own concepts.

Particularly in the field of legal information retrieval this is a marked disadvantage since, as P. Leith³ and others have convincingly argued, legal concepts are not objective data but rather interpretations determined by social circumstances. Unlike in the physical sciences, the concepts used are not derived from empirical observation nor, as in mathematics, are they based on explicit and unequivocal conventions⁴. The post-positivist philosophy of science gives a characterization of concept formation within the field of physics which is very close to Leith's description of legal concepts. Although this post-positivist point of view has not been generally accepted I would argue, that for the purpose of information retrieval in the law as well as other fields, conceptual flexibility in the hands of the user is an important

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² C.A.M. Wildemast and R.V. De Mulder "Some Design Considerations for a Conceptual Legal Information Retrieval System", C.A.F.M. Grütters, J.A.P.J. Breuker, H.J. Van den Herik, A.H.J. Schmidt, C.N.J. de Vey Mestdagh (eds) *Legal Knowledge Based Systems: Information Technology & Law, JURIX '92*, Koninklijke Vermande, Lelystad, Netherlands, 1992.

³ Ph. Leith "Formalism in AI and Computer Science", Ellis Horwood, Simon and Schuster, 1990.

⁴ See R.V. de Mulder "Een Model voor Juridische Informatica", Koninklijke Vermande B.V., 1984; R.V. de Mulder, C. van Noortwijk, H.O. Kerkmeester "Knowledge Systems and Law: The JURICAS Project", Pre-Proceedings of the Third International Conference on Logica, Informatica, Diritto, Legal Expert Systems, vol.1, A.A. Martino (ed.), Florence, 1989; R.V. de Mulder, M.J. van Hoven, C. Wildemast "The Concept of "Concept" in Conceptual Information Retrieval, *Law Technology Journal*, CTI Law Technology Centre and Bileta, No. 1, October 1993.

feature. There is always a possibility that documents that have been written in the past would contain relevant information if not the whole answer to new questions asked by somebody in the present. An interface to full text information retrieval systems (a concept processor) is proposed⁵ that would fulfil the demand of conceptual flexibility.

First, this paper discusses the concept of concept that was developed with an eye to this concept processor, and that is also at the basis of the system for ranking documents which is proposed here. Second, the actual prototype of the system will be described. It was conceived as a part of an ongoing research project at the Centre for Computer and Law at the Erasmus University to develop conceptual legal information retrieval systems and its particular function was to rank judicial verdicts according to their relevance to the presence of certain factors in the decision. The research with respect to this use of the system is still in progress, but the prototype that is described here was adapted for a number of specific purposes. The programme has been in use for over three years now in several practical applications and it has proven its use for ranking and categorizing documents. An adaptation of the programme for searching in large databases has recently been completed and has so far appeared to be very effective, especially when the search concerns a vague concept.

THE CONCEPT OF CONCEPT

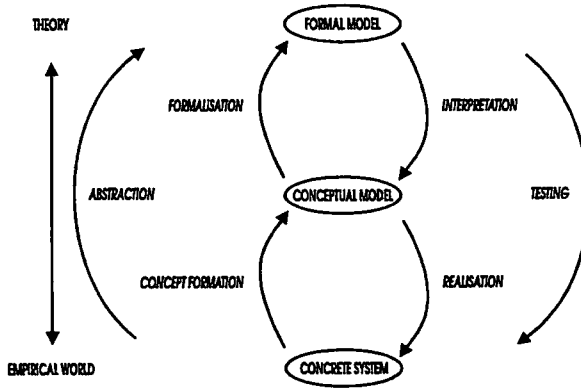
Concrete, Conceptual and Formal Systems

Knowledge acquisition in empirical science as well as learning in general is characterized as a process of abstraction. Concepts are of a quite different kind from objects in the world of experience (the real world): they are abstract. This means that concepts can exist in human minds and possibly in a special world (the world of consciousness⁶, but they cannot be observed or otherwise be a direct object of experience. I will call combinations of concepts a conceptual system (or conceptual model if it could represent something). As a consequence of their abstract nature, concepts as such cannot be entered into or processed by a computer. In order to use the result of knowledge acquisition in a computer it is necessary to construe a formal model which is a combination of mathematical or logical symbols. The two steps leading to a formal model (concept formation and formalization) can be graphically represented in Figure 1 (below).

⁵ R.V. de Mulder, M.J. van Hoven, C. Wildemast "The Concept of "Concept" in Conceptual Information Retrieval, Law Technology Journal, CTI Law Technology Centre and Bileta, No. 1, October 1993.

⁶ K. Popper "Objective Knowledge", Oxford University Press, Oxford, 1973; C.G. Hempel "Fundamentals of Concept Formation in Empirical Science", International Encyclopedia of Unified Science, vol II, no. 7, 1967; J.S. Bruner, J.J. Goodnow, and G.A. Austin "A Study of Thinking", New Brunswick/Oxford 1986.

Figure 1: Concept Formation and Formalization



Over the last couple of hundred years, scientific methodologists have put forward demands for the construction of conceptual and formal models of concrete systems (objects or combinations of objects of the world of experience). These demands have meant that statements which are made within the framework of a discussion aimed at the acquisition of empirical knowledge must be falsifiable except in so far as the content of the concepts is fixed by conventions. The concepts involved are empirical concepts (formed according to certain procedures based on observation), or concepts of which the content is fixed by conventions.

As law is not an empirical science, I do not stipulate that concept formation and formalization should, in all cases, be subjected to the demands mentioned above. It is, however, desirable to make use of the results of the methodology of science as even everyday learning such as the way children learn could be better understood and teaching could be more effective by doing precisely so⁷. We have applied this idea in the process of building the concept processor by making use of a concept of concept that is in accordance with modern scientific methodology and a formal model that has shown its relevance in empirical science.

Terms and Concepts; Initial Definition of Concept

Concepts should be distinguished from the terms that refer to them. Different terms could refer to the same concept, and more than one concept could be referred to by one term. In our concept processor, the user will be entirely free with respect to the terms that

⁷ J.S. Bruner, J.J. Goodnow, and G.A. Austin "A Study of Thinking", New Brunswick/Oxford 1986.

he wishes to employ to refer to a concept. These terms will not be used as search terms (or keywords) in our system. In general, a user does not have to have an entirely clear idea of the intension of the term that he uses for a certain concept, but he can define his concept by entering what he already knows about the extension of the term into the computer.

The extension of a term is the totality of all things to which it applies⁸. In logical terms, it is the class or set consisting of all the things, if any, to which it applies. The extension of a term could cut across boundaries of time: the extension of the general term lion, for example, includes not only living lions, but also the lions of the past, and those of the future. The intension of a term is the sum total of all the properties (or attributes) that must be possessed by every entity to which the term can be applied. Cats, for example, may differ in many ways, but anything to which the name is properly given will have to have certain specifiable properties: it must be a living thing, have a backbone, nourish the young by suckling, etc.

We will use the extension of a term to define a concept. Within the universe of a data base of documents the extension of the terms that the user employs to refer to his concepts consists entirely of documents. Therefore, we define a concept as: A concept is a set of documents.

This means that in principle a user of our concept processor will be required to define his concepts by entering a list of documents in the database that he considers to be relevant. These documents, identified by the user as relevant to his concept, are called exemplars. Consequently, the searching facility of the system will search for documents that are similar to the exemplars. In order to fulfil this task, the programme will compare the properties or attributes of potentially relevant documents with those of the exemplars. These attributes consist of the words used in the documents, their frequency, possibly the order in which the words appear, etc.

Below a - somewhat simplified - description will be given of the standard that will be used to decide whether and to what extent a document is similar to the exemplars. The method of representation of the documents combined with the search method applied is capable of ranking documents according to their relevance. Those documents that are ranked at the top of the list are the ones that the user will be interested in most. If the system comes up with a document that the user identifies as relevant, he can decide to add it to the list of exemplars. The following search operation will then be based on more information than the initial one. There is, however, also a very important use for the documents that the system ranks highly, but that the user identifies as non-relevant.

⁸ N. Rescher "Introduction to Logic", New York, 1969.

Concept as an Ordered Pair of Sets of Documents

When we want to teach a child the meaning of the word cat, we would at first seem to have achieved some success if the child calls a dog a cat. Possibly the child has at least learned that cat refers to something living, furry, with four legs, an animal and a pet. For a more advanced level of knowledge, however, a fair demand would be that the child knows the difference between a cat and a dog. In order to teach this it is helpful if the child could be confronted with a dog and learn that this is not a cat. If we would just show a large dog to the child, it is not unlikely that it would still regard a small dog to be a cat. This means that in order to obtain a more precise notion of a concept, it is important to have counter-examples that are similar to examples of a cat. Translated to the problem of learning the meaning of a concept by the concept processor, it is important that it has at its disposal a set of counter-exemplars of documents that are as similar as possible to the members of the set of relevant documents.

It is for this reason that although possibly for the initial stages of learning the system could compare the set of exemplars to all other documents in the total set, it is necessary that the user can provide the system with a set of counter-exemplars that are as similar as possible to the exemplars of relevant documents. Typically, the user would inform the system that documents that are put forward as candidates for relevant documents are in fact counter-exemplars. These non-relevant documents will teach the system the finesses of the concept the user has in mind.

An example in the legal field would be that a user is searching for documents in a data base of legal cases. The documents the user is looking for are cases that deal with the concept eye-witnesses as evidence in criminal cases. The user could provide the system with some exemplars of the subject. If the system compares the exemplars to all other documents it is likely that along with relevant documents, the system will come up with documents that deal with criminal evidence in general as well as the use of eye-witnesses as evidence in civil law cases. Both kinds of non-relevant documents have to be taken into account as counter-exemplars for the next search in order to obtain a better result. For the final result, it will make a crucial difference whether these counter-exemplars were provided or not.

Given the importance of the counter-exemplars, a more precise definition of concept is desirable for use in the concept processor. The former definition: A set of documents, should be refined to: A concept is an ordered pair of sets of documents; the first set of the pair is the set of exemplars (of relevant documents); the second set of the pair is the set of counter-exemplars (a set of non-relevant documents that are as similar as possible to the relevant documents).

A concept can be referred to by a term that indicates the membership of the first set

of the pair, possibly by expressing its intension, e.g. (documents that contain) criminal law (cases).

THE PROTOTYPE

The Main Requirements of the System

As a first step in the development of a concept processor as described above, the Centre for Computers and Law at the Erasmus University has produced a programme which will order a series of documents in accordance with the level of conformity they show with the user's exemplars. Those documents which deviate from the user's exemplars on essential points can be called upon by the user to function as counter-exemplars. The counter-exemplars are also of importance in the ordering of documents. In order to decide whether a document is similar to another document, the word usage of the two documents is compared.

The programme in question was developed for a specific application within the educational work of the Centre for Computers and Law. The Centre gives an optional course in the Master's programme entitled "Computer use for lawyers" which attracts some 200 law students annually. Each student is required to hand in twelve assignments over the period of the course. Each assignment entails carrying out a number of tasks which are relevant to a legal computer application plus answering open questions on the subject. This means that every week 200 assignments are handed in consisting of several pages of text. These have been produced by the students with the help of the text processing programme WordPerfect and are sent to the lecturers in electronic form via the network.

The completed assignments should be checked and assessed within a short time so that the students can keep an eye on their ongoing progress. It was in order to enable these assignments to be assessed quickly without over burdening the lecturers that a programme was developed with the following specifications:

- It should be able to make a preliminary ordering of the assignments in which candidates for very good assignments and very poor assignments can be identified and checked;
- In order to make checking possible, the programme must be able to present the WordPerfect document with the assignment on the screen;
- The lecturer must be able not only to give a mark for each assignment but also be able to indicate which assignments could function as exemplars or as

counter-exemplars for other good assignments;

- The programme must be able to calculate repeatedly the level of conformity between all the assignments and the selected exemplars and counter-exemplars and then sort out the assignments on this basis;
- The list of marks which is kept in the programme must also be transferable to a file, so that it can be further processed, printed and archived.

The ultimate aim of this programme was to be able to identify in a very short time all the very good and all the insufficient assignments and to provide them with a mark. What would remain would be the large group of middling or average assignments, not characterized as very good but falling within the category of good to sufficient. The assignments could be checked through briefly (to verify the computer's assessment) and then provided with an average mark.

In the following paragraphs will be described how the system works and what it finally looked like.

Comparison of Documents by Means of Bayesian Statistical Techniques

Before the programme is described in more detail, it is first necessary to look at the technique which is used in the programme for comparing documents and putting them in order. A central role in this process is played by the word usage of the documents. Other linguistic aspects, for example word frequency in the document, position of the word in the document, interaction effects between (pairs of) words and particularly syntactical analysis, are not used in this system. In the initial stage of the programme, the assignments are read in (an ASCII version) and a matrix is produced. In the matrix, each word type (i.e. all different words) that is found while examining all the documents is reserved in a row and each document has a column. An indication is then given for each word type of the document in which it was found.

The technique, which is then applied⁹ amounts to the following. On the basis of their appearance or non appearance in the exemplars and the counter-exemplars, for each word, Bayesian word odds are computed. Words of which the appearance or non appearance is important to the relevance of the document (the quality of the assignment) will have high odds. Unimportant words will have low odds. Once the word odds are calculated, document odds are computed for all documents. These documents odds are obtained by multiplying all

⁹ G. Salton "Automatic Text Processing; The Transformation, Analysis, and Retrieval of Information by Computer, Addison-Wesley Publishing Company, U.S., 1989.

the word odds of the words that appear in the documents and furthermore, by multiplying the result of this process with the odds of non-appearing of words that are not part of the document. Salton explains the condition under which the multiplication of the word odds is allowed. Although the condition (i.e. independence) is generally not strictly fulfilled, in practice the document odds have appeared to be a good indication of the likelihood that a document is relevant.

The Programme for Marking Student Papers

Once the programme is running, the first step is to calculate an initial score for each document which indicates the extent to which the document is similar to all the other documents. This does not use the statistical technique described above. When two documents both contain a certain word, or they both do not contain it, a weight is awarded to them. When one contains a word which the other does not contain or vice versa, a negative weight is given. The weight is dependant upon the probability that the word would, or would not, appear in both documents. The total score, or similarity score of a pair of documents is computed by adding up the weights for each word. The total score of each document is the average of the similarity scores of the document with all other documents. The advantage of this way of calculating the initial score is, of course, that at this stage no exemplars or counter-exemplars are necessary.

The reasoning behind this initial method of calculation is that when students give the correct answer to a certain question in an assignment the texts of their answers will have many words (or their absence) in common. The assignments with the highest number of correct answers should then also contain the highest percentage of common words. The components of this initial score (i.e. the similarity scores between pairs of assignments) can also be used to detect if students have copied answers from each other; answers which are very similar will result in a high similarity score. The initial score is computed as the average of all similarity scores between one assignment and all the others.

The programme orders the list of assignments according to the initial score (with the highest mark at the top). Figure 2 (below) shows what appears on the computer screen:

The various columns contain the following data:

- The first column contains the ranking number of the assignment at this moment;
- The second column contains the name of the assignment, comprising the student's registration number, followed by a point and the number of the week in which the assignment was handed out;

Figure 2: Initial Ranking of Assignments

Index	Naam	Ex	Mk	Odds	Init	Size	WPSize	Token
1	083214.003			0.0000	0.3746	10446	31444	1594
2	062835.003			0.0000	0.3678	13535	43950	2155
3	113444.003			0.0000	0.3616	11071	30809	1696
4	100516.003			0.0000	0.3614	13164	42777	2066
5	068895.003			0.0000	0.3595	6057	26989	951
6	109220.003			0.0000	0.3595	13293	40107	2065
7	059396.003			0.0000	0.3594	8366	49726	1250
8	062182.003			0.0000	0.3585	9870	37906	1448
9	073627.003			0.0000	0.3584	13160	27997	1166
10	081811.003			0.0000	0.3574	17024	35189	2240
11	082381.003			0.0000	0.3550	9342	45315	1356
12	103036.003			0.0000	0.3534	7382	33508	1157
13	080053.003			0.0000	0.3497	13223	20233	1847
14	103784.003			0.0000	0.3493	11935	41119	1794
15	122044.003			0.0000	0.3491	14377	41358	2001
16	072688.003			0.0000	0.3479	9298	26143	1219
17	075167.003			0.0000	0.3460	7098	40490	1087
18	073885.003			0.0000	0.3457	6586	44563	1001
19	081271.003			0.0000	0.3451	8863	31011	1163
20	075884.003			0.0000	0.3449	10441	24036	018
21	081647.003			0.0000	0.3447	8179	32221	1314
22	106719.003			0.0000	0.3442	9551	34800	1354
23	106474.003			0.0000	0.3420	8480	28739	1254

F1: Calc—F2: Pos—F3: Neg—F4: Del—F9: Graph—A..G:Mk—Ctrl: >=—Alt: <=

- In the third column the user can enter which assignments will serve as exemplars (enter: +) and which as counter-exemplars (enter:-) (in the diagram no such pluses or minuses are yet filled in);
- In the fourth column the mark given to the assignment can be entered (in this case a letter, either A or D in which A stands for excellent and D for very poor) (in the diagram no marks are filled in as yet);
- In the fifth column the document odds (the word odds counted for this document) will be entered at a later stage by the programme;
- The sixth column contains the initial score; at this stage this list has been ordered according to this score;
- In columns seven, eight and nine are placed respectively the size in bytes of the ASCII version and the WordPerfect version of the document, and the number of words that it contains; this data may be of use in tracing the best assignments (which can serve as exemplars) and the worst (which may serve as counter-exemplars).

It is now the task of the lecturer to find a number (between five and ten is sufficient at this stage) of exemplars: particularly good assignments and counter-exemplars: inadequate assignments. By placing the selection bar on a certain row and pressing [Enter], the assignment in question will appear on the screen. When this has been assessed, the list can

be called up and the score can be directly filled in. Furthermore, an indication can be given of whether it is indeed an exemplar or a counter-exemplar. After several assignments have been assessed in this way, [F1] can be pressed which commands the programme to calculate the document odds and to re-order the list on this basis. It may be necessary to repeat this process several times until a sufficiently large number of exemplars and counter-exemplars have been selected and the ranking order of the list remains more or less stable. For the screen see Figure 3.

Figure 3: Ranking of Assignments after the Marking of Exemplars and Counter-exemplars

Index	Naam	Ex	Mk	Odds	Init	Size	WPSize	Token
1	128833.003	+	A	379.5310	0.3319	16282	56619	2419
2	082346.003	+	A	379.2320	0.3407	15715	43019	2323
3	062835.003	+	A	374.2330	0.3678	13535	43950	2155
4	123948.003	+	A	371.1170	0.3179	23318	43529	2188
5	114462.003	+	A	349.1670	0.3177	16513	40581	2385
6	113486.003	+	A	337.2870	0.3150	20076	59483	3029
7	908023.003	+	A	336.4940	0.3147	16339	37804	2395
8	079990.003	+	A	320.5480	0.3283	17679	42202	2657
9	122044.003	+	B	320.1460	0.3491	14377	41350	2001
10	109220.003	+	B	319.5250	0.3595	13293	40107	2065
11	100516.003	+	B	249.6860	0.3614	13164	42777	2066
12	103784.003	+	B	236.8820	0.3493	11935	41119	1794
13	083214.003	+	A	209.6090	0.3746	10446	31444	1594
14	080053.003	+	B	178.3070	0.3497	13223	20233	1847
15	107315.003	+	B	170.2750	0.3171	15139	33414	2338
16	081585.003	+	B	162.7200	0.3372	11179	45394	1748
17	069656.003	+	B	138.4520	0.3300	14921	39282	2206
18	057319.003	+	B	129.9910	0.3269	12746	29179	1750
19	081811.003	+	B	114.2630	0.3574	17024	35189	2240
20	113444.003	+	B	100.5940	0.3616	11071	30809	1696
21	075269.003	+	B	90.4720	0.3201	11683	43816	1560
22	082381.003	+	B	86.3560	0.3550	9342	45315	1356
23	103313.003	+	B	70.1720	0.3379	10771	41173	1694

F1:Calc F2:Pos F3:Neg F4:Del F9:Graph A..G:Mk Ctrl: >= Alt: <=

Index	Naam	Ex	Mk	Odds	Init	Size	WPSize	Token
24	070077.003	+	B	67.0270	0.3097	11304	51543	1800
25	062102.003	+	B	58.3710	0.3585	9870	37906	1448
26	900025.003	+	B	53.3260	0.3389	10198	31049	1352
27	074550.003	+	B	51.5520	0.3317	10233	31948	1411
28	114778.003	+	B	44.9030	0.3418	9840	31932	1402
29	103182.003	+	B	-1.1840	0.3300	9889	40106	1310
30	075129.003	+	B	-3.3480	0.3236	10116	40746	1466
31	106719.003	+	B	-4.8620	0.3442	9551	34880	1354
32	081642.003	+	B	-14.2900	0.3447	8179	32221	1314
33	073627.003	+	B	-15.0440	0.3584	13160	27997	1166
34	062700.003	+	B	-17.6600	0.3296	9261	29044	1195
35	113672.003	+	B	-22.1160	0.3233	8500	29909	1176
36	081271.003	+	B	-27.6430	0.3451	8863	31011	1163
37	059396.003	+	B	-30.2580	0.3594	8366	49726	1250
38	101002.003	+	B	-32.2910	0.3373	8438	37670	1265
39	131332.003	+	B	-35.2730	0.3412	7511	25613	1100
40	100227.003	+	B	-37.0070	0.3350	7372	40641	1260
41	072600.003	+	B	-42.4330	0.3479	9298	26143	1219
42	122665.003	+	B	-43.0400	0.3230	7503	27253	1143
43	057296.003	+	B	-46.8570	0.3252	9153	41494	1133
44	103036.003	+	B	-47.0250	0.3534	7382	33508	1157
45	106474.003	+	B	-53.0940	0.3420	8480	28739	1254
46	075167.003	+	B	-81.7070	0.3460	7098	40490	1087

F1:Calc F2:Pos F3:Neg F4:Del F9:Graph A..G:Mk Ctrl: >= Alt: <=

Index	Naam	Ex	Mk	Odds	Init	Size	WPSize	Token
47	107328.003		B	-87.6600	0.3130	9034	68085	1085
48	077781.003		B	-88.1410	0.3234	6543	32797	957
49	049878.003		A	-95.5820	0.2929	7074	27824	1090
50	118017.003		B	-101.5340	0.3406	7275	28381	1066
51	068895.003			-104.9510	0.3595	6057	26989	951
52	121699.003			-112.3230	0.3233	7855	31240	1114
53	069460.003			-119.7160	0.3155	6566	38132	858
54	073885.003		B	-122.8900	0.3457	6586	44563	1001
55	050918.003		B	-133.8400	0.3088	5137	38266	763
56	100535.003			-138.6370	0.3360	5495	30814	844
57	075166.003		B	-138.9410	0.3103	9704	15287	942
58	075884.003		B	-141.6390	0.3449	10441	24036	818
59	113071.003			-146.5770	0.3269	6379	29443	944
60	075038.003		B	-151.3390	0.3299	6454	28125	923
61	080036.003		B	-158.3990	0.3061	6599	27896	993
62	071894.003			-158.6960	0.3202	6013	14040	878
63	075032.003		B	-170.8170	0.3270	9262	24212	1222
64	075159.003		B	-244.1400	0.3044	3980	27971	598
65	054827.003		B	-257.4780	0.2789	5563	33896	707
66	074943.003		C	-330.0730	0.3309	5943	25141	694
67	056655.003		C	-392.2480	0.3029	4088	22792	627
68	055618.003		C	-474.2130	0.2466	2816	25855	395
69	136390.003		C	-504.0030	0.2249	2718	18903	398

F1: Calc F2: Pos F3: Neg F4: Del F9: Graph A..G:Mk Ctrl: >= Alt: <=

The screen also shows a graphical representation of the scores in the form of a bar graph. As the documents are ranked according to their document odds as the primary key, and to their initial or similarity score as secondary key, the graph initially represents the init-score. However, it represents the document odds as soon as exemplars and counter-exemplars are given by the user (in the third column), followed by the instruction to recalculate [F1].

The programme has been used in practice now for three years. Thirty six times approximately 200 assignments for the course "Computer use for lawyers" have been marked with its help. It has been able to reduce the time needed for the assessment considerably. A positive sign of the significance of the ordering of assignments that the system offered was that although the teachers often used A-assignments as well as B-assignments as exemplars, generally the A's would appear at the top of the ranking.

Other Prototypes

The system described above has been adapted for use for several other purposes. The first one was an application that could categorize a number of legal and other documents according to their subject. In order to do that the initial score referred to in the previous sections was replaced by a relevance score, calculated according to a series of query terms entered by the user. The query terms were attributed a weight by the programme and for every document in the data base a score could be calculated based on the occurrences of the query terms and their respective weights. The documents were then ranked according to the initial score and the user could start to mark documents as examples or counter-examples.

This programme has proved to be very useful in categorizing legal cases according

to the factual patterns that underlay the decision as well as for deciding which legal subject was dealt with in these cases.

A recent prototype takes the use of the programme a step further. It uses the descriptions of a subject by a user in terms of examples and counter-examples as a separate set of data and with these data it scans large text databases for relevant documents. Every document that is scanned is attributed a probability score with respect to the document's relevance to each subject defined by the user. The experiences so far with this system have been that the programme is extremely effective in finding relevant information, particularly when the concept given by the user is a vague one and traditional Boolean searches do not provide an adequate result. The average time it takes to scan a document and calculate its relevance scores does not exceed three seconds for documents of approximately 40,000 characters. Such a system could prove of great use, therefore, for searching in large data bases relevant to, for example, criminal investigations, journalist research or otherwise.

CONCLUSION

The starting point for this article was the desirability of a system for conceptual legal information retrieval that has a user interface which enables the user to define his own concepts. This facility was called a concept processor. It should be able to extract a maximum of information from the user, and to store this information for later use. It should also be flexible enough to be able to deal with a variety of concepts and with changes of concepts over time.

The logic of sets provides a concept of concept that is adequate for these purposes. Concept was defined as a set of objects and due to the scope of the problem, ranking of documents, consequently operationalized as a set of documents. Further investigation leads to a more refined definition of concept, namely an ordered pair of sets of documents. The first set of the pair consists of (exemplars of) relevant documents and the second set consists of counter-exemplars (exemplars of non relevant documents).

As a first step towards the implementation of a concept processor a programme was written that is capable of ranking a limited number of documents according to their relevance as indicated by the user in terms of exemplars and counter-exemplars. The programme applies Bayesian statistics to the word usage of the documents in order to calculate the odds that a document is relevant. It also offers initial help to the user in order to decide which documents should be a priori candidates for exemplars and counter-exemplars.

The programme has been used in practice as an aid to teachers in marking student assignments. It has reduced the time that it normally takes to mark as many as 200

assignments at a time. The similarity scores that the programme uses have been useful in detecting the fraudulent submissions of papers. A prototype has also been developed for categorizing legal and other documents according to their subject. Finally, a programme has been completed recently that uses a number of user defined concepts in order to scan large text data bases for relevant documents. This programme appears to be promising especially when the concept concerned is vague. The system is potentially of value as an aid for searching in large data bases relevant to areas as criminal investigations or journalist research.

**THE RULE OF LAW ONLINE:
CASE STUDY ON THE DEVELOPMENT OF
AN INTERNET MODEL FOR CROSS-NATIONAL
INFORMATION SHARING AND DISSEMINATION**

Sergey S. Chapkey¹

INTRODUCTION: WHY THE INTERNET?

Tremendous growth of the Internet is an indication that electronic information exchange and dissemination is widely accepted as the way of conducting information business in the future. Everyone who denies that is at risk of finding himself in the position of a person who rejects the use of a telephone on the grounds that the postal service still works fine. One simple argument in favour of the Internet as the preferred communication medium is the fact that to send a page of text by a computer network is ten times less expensive than to send it by fax.

The newest networking technology (World Wide Web or hypertext transfer protocol) was introduced in 1989. In the beginning, it was used primarily by computer scientists and engineers. A revolutionary change happened in 1993, when a 23-year old student at the University of Illinois-Chicago, Marc Andresseen introduced a simple, point-and-click, graphical user interface called Mosaic. Since then, because World Wide Web has become so user-friendly, the number of World Wide Web sites (online electronic libraries) has grown from 150 to over 20,000 and the World Wide Web data traffic has grown 3,500 times in just one year.

World Wide Web and Mosaic have made use of the Internet universal, affordable and simple. Everyone who has a personal computer, a modem and access to an ordinary telephone line can be connected to the Internet in a matter of minutes. And everyone who ever tried Microsoft Windows is fully trained to browse the Web.

The Internet is not merely a technology; it is also a new type of a community whose size is comparable to the population of France, Great Britain or Mexico. It is a cyberspace constituted of a collection of 5,000 computer networks linking over 4.8 million host computers which, in turn, connect over 40 million individual users in 160 countries around the world. One new online information repository (Internet server) is being added, literally, every minute. Every month an amount of information equal to 32 billion pages of text is being exchanged via electronic networks, and the data traffic is expected to exceed the world

¹ Office of Justice Programs, National Institute of Justice, United States Department of Justice.

voice communication traffic in 3 years. So far, the Internet traffic has been doubling every year. It has been estimated that by the year 2000 about one billion people will be connected to computer networks.

While criminal justice professionals are considering the pros and cons of using the Internet, criminals are already inhabiting the emerging cyberspace. Power of technology makes individual criminal hackers as dangerous as an army of traditional thieves and robbers. For instance, Kevin Muttnik, a famous computer hacker, apprehended in North Carolina in February 1995, stole 20,000 valid credit card numbers during a single raid on a California computer. The same power of technology combined with resources of organized crime can constitute a threat to the national security of even such a superpower as the United States. On 28 February 1995, the Central Intelligence Agency and the National Security Agency warned in a joint security report that the security of information systems and networks is the major security challenge of this decade and possibly the next century. In an article published in the 6 February 1995 Washington Times, international security expert and former Times editor-in-chief Arnaud de Borchgrave said that cyberspace detectives report that financial thefts by Russian organized crime hackers on the Internet in 1994 topped an estimated \$ 5 billion in the United States alone. Another major concern of the United States national security experts is the potential of using the Internet for acts of global terrorism, with such systems as the Social Security Administration, the Federal Reserve and air traffic control at risk.

These examples illustrate that new information technologies are not just a glitzy thing which gives old methods a modern look. The very mentality of criminal justice professionals has to change, to reflect the new paradigm. In many cases, there is no essential difference between local and global crime. The times of national isolation have passed. The free flow of information across national borders makes the world too small to ignore the global inter-dependency. It is not accidental that the word cross-national appears in the title of this report instead of the word international. The term international can too easily be misunderstood as something not related to domestic problems. The term cross-national is intended to overcome this problem and stress the idea that, because crime knows no borders, neither should co-operation between criminal justice professionals around the world.

As Philip Heymann wrote in 1990, "co-operation among states in law enforcement has assumed an ever more important role in both international and international law ... The reason is obvious just as developments in communications, transportation, and finance have greatly increased transnational commerce and tourism, so too they increased illicit commerce and the criminal exploitation of national borders".

SHARING KNOWLEDGE ELECTRONICALLY: HOW TO APPROACH

It is already commonly accepted that the world is in the process of transition from the industrial to the information age. The degree of informatization is a critical indicator of a mature society. Access to information is becoming as important for the nations as access to food, energy and natural resources. In the United States multi-billion investments are being made in production, processing and dissemination of information. Knowledge as such, and not even electronic processing tools, is being considered as the nation's specialized product on the global market in the 21st century.

Following the general trend, the National Institute of Justice (NIJ) is defining its mission as a broker of knowledge in the field of crime and justice. Since 1972, NIJ serves as a national and international clearinghouse of criminal justice information. Its National Criminal Justice Reference Service (NCJRS) is the largest in the world program of this kind. NCJRS serves over 100,000 criminal justice professionals in the United States and fifty other countries around the world. Being an important information source for such a large audience, NIJ/NCJRS has a significant impact on criminal justice community, both domestic and worldwide. As part of emerging NIJ's online services, the Rule of Law Online (ROL Online) shares the same philosophy and complements NIJ's efforts in finding the approach that works best.

As it has been learned in the course of working on the ROL Online project over the last year, there are certain assumptions which need to be applied in order to make online services successful. Below are some of the assumptions constituting the ROL Online philosophy.

Content is what matters, not the medium. Paradoxically enough, the newest advances in electronic processing and communications technology are bringing us back to the basics: only the content of your message matters, and not the means you use to deliver it. Ease, affordability and speed of the Internet make the information users much more demanding. Every college freshman can create a fancy Home Page on the World Wide Web; it takes tremendous efforts to create a high quality, reliable online information service. You have to offer a real value, otherwise your clientele will switch to a different information provider in a matter of seconds.

Empowering, rather than serving. Traditional clearinghouses were concerned with processing user requests and distribution of their holdings. With the Internet, delivery is no longer a problem. The problem is to find what you need. Users are no longer passive recipients, they become active players. The entire set of the user-provider relationships tend to change from publication distribution to assisted search for knowledge. In the so called cyberspace, navigation is a real challenge and the users have to be provided with proper

navigational tools.

Brokerage versus storage. Information resources on the Internet are so vast and so rapidly growing that there is no way for an information provider to maintain a monopoly. Decentralization is the dominating issue. Linear, one-way delivery of knowledge is replaced by highly interactive, distributed environment in which information givers and takers are constantly changing their roles. With easy accessibility of electronic repositories, there is no need to store and maintain large and expensive paper document collections. A library of the future are is not a warehouse of books, but rather an information brokerage service. On the Internet, a source offering nothing but easy access to someone else's information repositories is of greater value than an excellent as such, but isolated and hard-to-reach library collection. Competition goes hand by hand with co-operation; by multiplying electronic links with others, information services increase their own value.

Bureaucracy is anonymous, humans have names. Impersonality is not longer in fashion. The Internet philosophy requires reconsideration of the basic concepts of organizational behaviour and program management. Weberian bureaucracy is being effectively challenged by loose, adhocratic, network-type organizations. People work with people, and not with organizational charts. Need for personalization is reflected in many World Wide Web home pages holding personal information and even pictures of their authors. That calls for program managers to become real leaders and moderators for their constituencies, not just government bureaucrats handling the paper work. Also, the Internet gives numerous examples of people from different cities or even countries working together in the virtual workplace on the projects which, otherwise, would be impossible to staff or finance. This kind of human network knows no borders or bureaucratic constraints.

Order out of chaos: natural growth versus rational planning. The electronic environment is extremely flexible and, because of that, incremental. The technology is changing so fast and has so numerous professional applications, that it is virtually impossible to apply rational-comprehensive planning to the development of Internet-based information systems. There is no way to say the system is done, because it is constantly evolving. The top-down approach is no longer valid, the bottom-up approach is widely spread. Two years ago, the World Wide Web was unknown to the public. Today, this technology changing the way government and businesses operate. Not long ago, a solid information service required mainframe processing power and millions of dollars in staff time, software, database development and maintenance. Now, thousands of globally accessible Internet libraries operate from personal computers at people's homes. Chaotic on the first glance, the Internet environment is maturing by introducing commonly accepted principles, standards and values. The Internet order is based not on the chain of command, but rather on the recognition of what's best for the virtual community.

Keeping it simple. The World Wide Web and Mosaic-like point-and-click interface made use of computer networks amazingly simple. Today, one does not have to remember Unix commands in order to use the Internet. The interface is no longer a problem. Instead, the problem is how to present the information. If you have a chaotic collection of several thousands information sources, how would you present it in a logical way, so that the user will not get confused? The only way is to keep it as simple and straightforward as possible. The structure of information repository should be obvious, the graphics should not distract from the content and the signs (icons) should point in proper direction.

Local means global. The Internet knows no national borders. Any document on the NCJRS Web site, originally intended for the use by, for instance, the New York Police Department, can be as easily accessed online from Kiev (Ukraine), or San Jose (Costa Rica), or Kampala (Uganda). It works the other way, too. For instance, the database held by the Ministry of Internal Affairs of the Russian Federation has a vast variety of crime and justice information on 70 million descriptive positions. If it goes online, this data will serve Russia as good as they will serve the United States in fighting ex-Soviet emigre organized crime networks. Besides, the maintenance and updating is taken care of. So, why spend efforts on acquiring and managing someone else's information, instead of helping others make their information available online?

WHAT HAS BEEN DONE

The Rule of Law Online project was started in September 1994, as a result of the partnership formed between the National Institute of Justice and the Eurasia Foundation, a grantmaking institution of the United States Agency for International Development (USAID), established to provide technical assistance to the emerging democracies of the former Soviet Union.

This project has created a focal point on the Internet for users around the world who want to locate information and links to information on the topic of the rule of law. The initial audience is the new states of the former Soviet Union, but the information is also available to users worldwide who are involved in reforming the legislative process, strengthening legal institutions and building civil society. The focal point takes the form of the home page on the World Wide Web. When users access the ROL home page, they find links to Internet services that house documents, library catalogues, reference materials and other information. In other words, the information is not stored centrally, but is available through these hypertext links to other repositories. The ROL Online home page also provides access to a variety of law and justice related newsgroups and mailing lists (listservs).

The ROL Online home page is hosted and maintained by the systems technology staff

of the United States Department of Justice at its Internet site; the electronic address is: <<http://www.usdoj.gov/ojp/rol/docs/home.html>>.

A link to the ROL Online home page has been also included the home pages of NCJRS (Rockville, MD), Glasnost Network (Moscow), Friends and Partners (University of Tennessee, with a mirror site in Moscow), the United Nations Office/FreeNet (Kiev), and an experimental Web site at MITRE Corporation holding the UNOJUST, the United Nations Online Crime and Justice Clearinghouse.

The Rule of Law Online has become an important component of NIJ's international program. The established Rule of Law Online information service, just like the other online information services developed by NIJ, such as NCJRS Online, PAVNet Online, UNOJUST, etc., has already an operational value. However, much more can be done to fully utilize the tremendous potential of new information technologies, as a tool for the discovery, processing and dissemination of knowledge.

WHAT NEEDS TO BE DONE

The idea underlining the Rule of Law Online is to build the knowledge component into day-by-day operational activities of public officials, policy makers, researchers, practitioners and public interest groups who deal with governance, crime prevention and administration of justice. To get the world news, you can turn on a radio or TV in your office or at home. Why, in order to get scientific information, you have to stop your work and go to a library? Services like ROL Online are specifically designed to bring library resources right to the users' desks.

The project is intended to accomplish the following goals:

- Increase the amount of knowledge on the rule of law issues by creating a publicly accessible online repository of related materials;
- Improve the technology used for the networked information discovery and retrieval;
- Enhance international co-operation in the field of justice information exchange.

Knowledge

So far, the Rule of Law Online is an information brokerage service, with no materials of its own. It is an online directory of someone else's information resources. It is time for the virtual reference book to grow into a virtual library, a collection of carefully selected

materials (e.g., policy papers, research findings, programs descriptions, bibliographies, etc.) capable to serve as a knowledge base in itself.

Intended to be an encyclopedia on the rule of law issues, ROL Online will provide theoretical and policy materials explaining the rule of law as a governing system in which the highest authority is a body of law that applies equally to all (as opposed to the rule of men, in which the personal whim of those in power can decide any issue), as well as a wide range of materials at the operational level. It needs to be more focused on practical applications of the rule of law concept; namely, on how to reform criminal justice system coming out of communism by making it more humane, economical, effective and open for democratic public control.

Although there are multiple sources of law and justice related information on the Internet, so far, the ROL Online is the only online document collection devoted to the rule of law issues. With the explosive development of the information available online, the ROL Online is designed to serve as a filter separating pieces of knowledge from information noise and delivering this knowledge instantaneously, upon a user's demand.

Specific focus and extended foreign language capabilities make this knowledge base distinct from NCJRS or PAVNet Online. However, in the virtual world of the Internet, ROL Online is an organic component of other NIJ's online services. By improving itself, the ROL Online simultaneously adds value to other information services operated by NIJ.

Technology

The innovation proposed to appear next in the course of implementing ROL Online, is a user-friendly Internet software package, called Justice Navigator, for the non-technical user with professional interest in justice area. So far, NCJRS Online, UNOJUST, PAVNet and other rapidly emerging NIJ's electronic information services have applied different approaches and different technological tools. As a result, they offer a user different functional capabilities and they have their own, unique look and feel.

It is time to come up with an integrated set of technological tools (interface design, functional keys, graphics, gateways, database structuring, communication procedures, etc.) which will simplify and expedite the process of development of future Internet-based products and services. Simply put, it's time to move from an experimental to a production stage.

From a user's perspective, an all-in-one software package will help to overcome a traditional computerphobia of criminal justice community and make use of the Internet no more mysterious than the use of a wordprocessing software package.

International Cooperation

As part of the United Nations Crime Prevention and Criminal Justice Programme Network, the National Institute of Justice has been recommended by the Ninth United Nations Congress on the Prevention of Crime and the Treatment of Offenders to consider so-called capacity-building cooperation approach for its international program. The idea is that assistance should focus on the improvement or reform of the existing criminal justice infrastructure. Capacity building can be done in many different ways:

- Expert assistance;
- Material and financial assistance;
- Exchange of information and experience;
- Research;
- Training.

Based on its strengths, NIJ has to find its own niche on the international technical assistance market.

The task here is to help the United Nations affiliated institutes, which NIJ has recently joined, as well as other NIJ's international partners, set up their own electronic libraries. When accessible online, those document collections would become, in fact, an extension of the NIJ/NCJRS digital library. On the other hand, the NCJRS document data base would become an extension of the sister institutions' collections.

As an NIJ's international electronic outreach, the ROL Online is one more step toward a global virtual library, an idea being pursued by the international community through the World Criminal Justice Library Network. Originated as an information service for the countries of the former Soviet Union, Rule of Law Online is still focused on this important region of the world and can help the National Institute of Justice to improve its links with criminal justice and policy institutions in this area and develop NIJ's technical assistance programme in the region.

As compared to NCJRS Online, the main electronic gateway to NIJ's information resources, the Rule of Law Online will play an important complementary role. While NCJRS and other similar services focus on how to make the justice system more efficient and effective, ROL Online's priority is how to make the post-totalitarian justice system more humane and sensitive to the civil rights issues. Its mission is to offer civilized alternatives

to a plain use of police force to control crime.

In the course of ongoing United States technical assistance efforts this problem has not been properly addressed yet. For instance, in 1994, in order to fight organized crime, the Ukrainian President issued a decree authorizing law enforcement officers to detain any person suspected of involvement in organized crime, for a period of up to one month, while waiving all the criminal procedures required by law. As a result, over 6,000 people were put in jail without any judicial involvement or the minimum evidence necessary for a legal arrest. A similar presidential decree was issued in Russia and some other former Soviet republics. Being an interactive forum, ROL Online will allow to collect facts like this and make them known to international observers, so that to help them identify the specific needs for technical assistance.

The ROL Online can also facilitate feedback from countries receiving technical assistance, so as to assess the impact of the assistance delivery. Through electronic telecommunications and access to online databases, a lot of technical information can be collected before an evaluation team is sent to the ground. It also represents a perfect bulletin board for the dissemination of the evaluation reports. By increasing availability of international data on crime and justice, the ROL Online will expand the factual base for cross-national comparisons of crime and responses to it.

HOW IT WILL BE DONE

Building the Rule of Law Online Knowledge Base

For the purpose of this project, knowledge base is understood as an integrated collection of electronic information resources, a digital library.

Its holdings will include:

- Documents: texts, images, video and audio records, multimedia products, etc.;
- Links: hypertext links to other Internet-based libraries;
- Gateways: utilities used to access information servers based on different platforms;
- Tools: functional applications, e.g., electronic mail, automated translation, etc.

The structure of the knowledge base will include the following sections:

Section 1: Library: Library is a collection of documents, publications and reference materials stored locally at the ROL Online server. It will also contain hypertext links to other relevant information resources accessible online, including so-called online public access catalogues (OPACs) of major libraries, such as Library of Congress, etc.

Section 2: Academy: Academy is a collection of training materials, academic curricula and multimedia teaching aids. Today, for instance, many computer companies offer interactive training courses, as compressed electronic files which anyone can download from publicly accessible World Wide Web servers.

Section 3: Technical Assistance Reference List: This section will include a listing of internationally available technical assistance programs, including funding sources, educational exchanges, consulting capacities, etc.

Section 4: Roster of Experts: This is listing of names and contact information of prominent, internationally recognized researchers, scholars, consultants and practitioners who are capable of offering technical advice on various issues of justice reform.

Section 5: Calendar: This section will contain a listing of major events affecting international justice community, e.g., conferences, seminars, exhibitions, etc.

Section 6: Special Projects: This section will serve as a virtual workplace, an interactive forum featuring ongoing NIJ's projects in the rule of law field. It will display special events NIJ participates in, hold progress reports and help organize virtual teams to work on international projects.

Section 7: Discussion Club: The Discussion Club will provide access to interactive forums: USENET newsgroups, electronic mailing lists (LISTSERVs), Internet Relay Chat's (IRC) channels and, as technology allows, tele-conferences.

Section 8: Newsletter: This is an attempt to create the first, experimental version of an interactive Internet newsletter. It will combine features of an automated mailing list (LISTSERV) with advanced multimedia capabilities of the World Wide Web and hypertext markup language (HTML). A simple Internet robot will be written, to automatically, with minimum human moderation, collect, organized and present in hypertext publication format notes of the ROL Online visitors and most interesting postings from chosen LISTSERVs and USENET newsgroups.

Section 9: Guest Pages: This section will offer the Web space for those who do not have their own server, to hold their home pages. The demand for such service is rapidly growing. For instance, a collection of home pages presented by NIJ's international document

exchange partners will represent a worldwide virtual community of over 100 criminological institutions, a resource which could not exist otherwise. It can be done, at NIJ's discretion, free of charge or through its fee-for-service programme.

Building of the ROL Online knowledge base will involve the following activities:

- **Developing Rule of Law Thesaurus:** It will be done in order to specify the scope of ROL Online collection. When it's done, the ROL thesaurus can be included as a sub-section in the NCJRS Thesaurus which, at present, does not have the term rule of law. The key terms will be drawn from the following subject areas: political theory; policy making; legislative process; governance; judiciary; criminal justice and law enforcement; public interest activities (civil society); civil rights; education and training; technical assistance; international co-operation; social impacts of technology; the future of justice administration and public order. The thesaurus will be used for conducting online searches on the Internet, manual in the beginning and automated later on.
- **Literature review and networked information discovery and retrieval:** Paper based publications will be typed-in or digitized by scanning, online sources will be either copied (depending on copyright issues) or linked electronically to the ROL Online home page. Summary documents, annotations and other explanatory materials will be produced and incorporated as needed.
- **Evaluation and screening process:** Most of the materials will be screened and evaluated by the project director in the course of acquisition. However, to ensure high quality and consistency of the collection some expert opinions might be helpful. That will be done by working closely with NCJRS and informal network of international experts.
- **Russian language translation:** It is realistic to assume that, until automated translation tools are properly adjusted, most of the initial materials will be translated from English in Russian manually. When the translation tools are tuned up, there still will be need in proofreading and editing. Depending on the volume, this work will be done partially by the project director or private contractors (interpreters). As an option, some of the translation work can be done by NIJ's partners in Moscow, Kiev or Kishinev.
- **Structure development, HTML-editing and graphic design:** once the materials are partially collected, they need to be properly organized, converted into hypertext format and incorporated into previously elaborated structure. The physical structure of the knowledge base will conform with a directory structure on a World Wide Web

file-server. The logical structure will be presented through carefully designed graphic tools.

- User help and support: It is commonly accepted on the Internet that any online information service has to have a so-called system operator or sysop. Sysop's role is to provide day-by-day maintenance and troubleshooting of the system, regular update of its holdings and help users to learn the system and better use it. In addition to personal interaction, part of the job is the development of written policies and procedures, user manuals and distribution of the frequently asked questions (FAQs) postings.

Developing Software Applications

Justice Navigator: Since 1993, when the famous Mosaic was introduced as a revolutionary simple navigational tool for browsing the Internet, there were several attempts to overcome limitations of the first World Wide Web browser. To name a few graphical user interfaces (GUIs) developed since, Cello (Cornell Law School), InternetWorks (BookLink, Inc.) and Netscape Navigator (Netcom, Inc., a new company founded by Marc Andreessen, the author of Mosaic) can be mentioned. Beta-versions (trial, non-commercial versions) of these packages are available for free from the Internet public domains.

Flexibility of the World Wide Web protocol and available high level programming tools make it possible to design and developed a custom module adjusted to the needs of criminal justice professionals. This module will supplement standard functional capabilities of popular World Wide Web browsers, such as Mosaic, Cello, Netscape, InternetWorks and others.

A module, here and further on referred to as the Justice Navigator, will represent a collection of scripts written in hypertext markup language (HTML). The added value of the Justice Navigator, as compared to a popular World Wide Web browser will be its:

- Ability to integrate various Internet tools into a single interface;
- Easy and simple use;
- Transparency, in terms of using local and remote databases;
- Reflection of professional needs of the criminal justice professionals;
- Availability at no or low cost;

- Built-in foreign language translation tools.

Among others, Justice Navigator will have the following utilities represented by appropriate control keys (buttons) on the screen:

- **<tree>**: a utility presenting the structure of the ROL Online document database as an organizational chart;
- **<index>**: a utility presenting the ROL Online holdings organized by subject;
- **<geography>**: a utility presenting a geographical listing of Internet servers which contain law and justice information;
- **<language>**: a utility presenting the ROL Online holdings either in English or in Russian and activating the attached automated translation tools;
- **<usage>**: a utility counting the numbers of visits to the ROL Online and presenting the output as a statistical chart;
- **<comments>**: an electronic mail utility allow users to communicate with the system operator;
- **<help>**: a utility presenting context-sensitive user help information and Internet utilities available for downloading (e.g., FAQs, Cyrillic drivers, etc.).

Justice Navigator will be distributed on diskettes or through computer networks, as a compressed, pre-configured software application requiring minimal efforts to install and use.

The attached snapshot of the ROL Online entry screen (World Wide Web home page) illustrates its functionality expressed through its graphical design.

Among its other features, Justice Navigator will serve as a promotional tool for NIJ's programmes, products and services. Just like Mosaic which brings you first, by default, to its home page, the National Centre for Software Applications at the University of Illinois-Chicago, the Justice Navigator will start your search for knowledge with NIJ's resources and then will guide your search further, around the world.

Toward the Justice Information Centre: The Internet technology is based on so called client-server architecture. It means that any transaction on the network requires interaction between two software programs: a client, receiving the signal, and a server, which transmits

the signal. The Justice Navigator described above represents the client application and it is going to be used by information takers. Thanks to the ability of Internet protocols to handle multiple software platforms, the Justice Navigator will work with commonly used World Wide Web server software (e.g., httpd from the National Centre for Software Applications, University of Illinois-Chicago) and will not require a custom-made server.

However, currently available servers are just empty shells, with no actual information content attached. Currently, NCJRS is working on the development of a new product integrating a pre-configured software application, a set of hypertext links to major crime and justice online information sources, and a set of most important electronic documents. The product - called Justice Information Centre - would represent a portable Internet based electronic library. Distributed on floppy-disks, it would be ready to install and use by any information giver with no specific technical experience in networking.

By working closely with the Justice Information Centre development team, the applicant will be adjusting design of the ROL Online knowledge base and the Justice Navigator, and sharing the developed know-how as needed. Until the Justice Information Centre is ready, the ROL Online Knowledge Base will be packaged with any of the publicly available World Wide Web server software.

Capacity-building Cooperation

The ROL Online will address NIJ's international priorities, namely:

- Developing NIJ's technical assistance delivery capacity;
- Reinventing the NIJ's International Document Exchange Program;
- Strengthening information resource management of the United Nations Crime and Justice Network.

Once the ROL Online knowledge base and software application kit (the Justice Navigator) are fully developed and tested, specific project activities will include the following:

- Providing practical technical assistance to the selected 10 international sites in high priority regions of the world, so that they become experimental ROL Online hosts and part of NIJ's international information infrastructure. That will include help in installing and configuring World Wide Web server software, consulting and training local personnel on how to run Internet based computerized clearinghouses; assistance in digitizing initial materials and establishing Internet accounts for a trial group of

their constituency; technical support and troubleshooting for a 6-month start-up period.

The initial 10 international sites are proposed to be: United Nations Crime Prevention and Criminal Justice Branch (Vienna), United Nations Interregional Crime and Justice Research Institute, UNICRI (Rome), European Institute for Crime Prevention and Control, HEUNI (Helsinki), United Nations Latin American Institute for the Prevention of Crime and the Treatment of Offenders, ILANUD (San Jose), United Nations Asia and Far East Institute for the Prevention of Crime and the Treatment of Offenders, UNAFEI (Tokyo), United Nations African Institute for the Prevention of Crime and the Treatment of Offenders (Kampala), International Law Enforcement Training Academy (Budapest), Ukrainian Academy of Internal Affairs (Kiev), Information Centre of the Ministry of Justice of the Russian Federation (Moscow), Legal Information Department of the Ministry of Justice of the Republic of Moldova (Kishinev).

- Providing an interactive forum for NIJ's international document exchange partners, the World Criminal Justice Library Network, the United Nations Crime Prevention Programme, etc. on the rule of law issues. That will involve communication with NIJ's international document exchange programme, the members of the World Criminal Justice Library Network, United Nations affiliated institutes, and others on a regular basis; getting them involved in publishing of the ROL Online Newsletter; helping them in developing HTML authoring skills; hosting their World Wide Web home pages for an agreed trial period; serving as a gateway to the online resources in the former Soviet Union countries.
- Serving as a specialized online information resource for NIJ's international initiatives under way. The ROL Online will complement other NIJ's projects with its capacity to reach specific audiences in specific regions of the world. Its information resources can be used for the preparation of seminars, workshops and conferences as well as a virtual bulletin board where the proceedings of these events can be placed (in Russian) for public use. The section Academy will offer computerized training materials to be used for so called distant learning.

POTENTIAL IMPACT ON CRIMINAL JUSTICE POLICY AND PRACTICE

What will be the added value of the Rule of Law Online? First of all, it will create a new information repository with a focus on the rule of law issues which does not exist yet. Moreover, this information resource will be easily accessible from any distance to virtually unlimited audience. One way to estimate the target audience is to combine the existing

mailing lists of the institutions which are going to be involved; that will bring a number of about 200,000 professional users. Another, more practical, way is to count the number of visits to the ROL Online site. This kind of statistics is collected on an actual basis automatically by the World Wide Web server software and can be presented at any moment in the form of statistical table or chart. Of course, these numbers should be taken only as ground for a qualitative assessment, without playing a numbers game. An accurate assessment has to be put into the context of what is out there. For instance, currently, after one year of existence, the World Wide Web home page of the United States Department of Justice has 15,000 visitors a week. The Yahoo directory of Internet resources put together last year by two students at Stanford University, has 1.5 million visitors a day.

Second, it will produce a new technology application, never existed before. Distributed among traditionally conservative public policy and criminal justice communities, it will introduce this type of professionals to the networked information discovery and retrieval. Ease of use is the key here. Just as Mosaic made a revolution in the use of the Internet by general population, Justice Navigator has the potential of making a similar impact on the justice community. Again, its impact can be estimated by counting the number of copies requested and delivered. And, again, if those copies are distributed electronically, the World Wide Web server software automatically gives you an exact number of items which have been downloaded.

Third, it will, in coordination with the efforts put in other NIJ's projects (e.g., UNOJUST, NCJRS Online, etc.) help to create a new Internet based international information infrastructure which can be built upon in the future, in terms of organizing the information exchange, training, multinational research and evaluation, and other kinds of international co-operation. Using quantitative approach, the potential impact of the created system of information sharing can be estimated by analyzing the usage statistics of the World Wide Web servers established by the NIJ's partner institutions overseas, e.g., number of electronic documents requested and sent by the members of this information network. Qualitatively, the impact can be assessed by observing the number of new programs and projects occurred as a result of the information exchange among the new network's members.

CONCLUSION

One could think of the Internet as of a huge, world-wide television network. With the multimedia capabilities of the World Wide Web and Mosaic, this comparison becomes even more accurate. To get connected is becoming almost as easy as to buy a television set. And the cost is almost the same. A personal computer is needed with a modem (about \$ 2,000). A software package is under \$ 100. A monthly rate to pay the local Internet access provider, varies in different countries from \$ 15 to \$ 35. Once done all this, one has joint the

information age.

In theory, once you connected, all the information wealth of the Internet is at your fingertips. In practice, you have to spend hours and hours to find what you need. For instance, one of the popular Internet directories contains over 2 million entries. Research is needed to separate real knowledge from information garbage and to deliver that knowledge right to your desk by the time you need it. In the information science language, this mechanism is called a knowledge agent. Just like the online information system used by NCJRS, NCJRS Online, or the United Nations Online Crime and Justice Clearinghouse, UNOJUST, ROL Online is another knowledge agent, with its own specific knowledge base and specific audience.

NEW BIBLIOGRAPHIC DATABASES IN CRIMINOLOGY: KRIMDOK AND KRIMMON: AN EVALUATION

*Anton G. Nold*¹

INTRODUCTION

For access to criminologic literature a CD-ROM is offered in Germany with two bibliographic databases: KrimDok with over 21,000 documents (mainly German) and KrimMon with over 51,000 documents (mainly English)². This paper discusses these two databases and the retrieval system LitMan.

KRIMDOK

KrimDok is a bibliographic database for criminology and related fields. Analyzed and catalogued are journal articles, books and other documents from criminal justice and related fields since 1990. Providers of the database are the Institute of Criminology, University of Tübingen, Institute of Criminology, University of Heidelberg, and the Police Academy Villingen-Schwenningen, Germany. The database contains now over 21,000 documents with 2,000 to 4,000 additional documents per year. The language of the documents is mainly German, followed by English, French and Dutch.

Each document is related to one or more keyword-sentences. A keyword-sentence contains a chain of maximum four keyword-terms, ranging from the most general level to the most specific level. All the keywords appear in the German language.

The key-terms belong to a list with more than 20,000 terms (controlled vocabulary). This number seems quite high. But more important is that most of the keywords are very rarely used (75% of the key-terms are used with a frequency of 3 and less).

So, in the majority of cases retrieval with keyword-terms will lead to a high precision rate (hits are relevant) but there might be difficulties with the recall-rate (some relevant documents not found). Recall could be improved by lowering the number of key-terms by the database-producers to not more than 6,000 terms.

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² The CD-ROM may be ordered by: Fachhochschule Villingen-Schwenningen, Hochschule für Polizei, Sturmbühlstrasse 250, 78054 VS-Schwenningen, Germany.

KRIMMON

KrimMon is a bibliographic database for non-German criminologic literature (funded by the "Deutsche Forschungsgemeinschaft" since 1969). Much emphasis is put on cataloguing unpublished research reports and governmental documents. The scope of the database is best described by the thesaurus shown in Table 1.

Table 1: Main-Categories of Thesaurus for KrimMon

Category	Description (Keywords)	Frequencies
1.	Criminology, General Issues	839
2.	Law and Society, Norms and Breach of Norms, Historical Development	1,499
3.	Socialization and Prevention	604
4.	Formal Social Control (Institutions and Procedures)	5,675
5.	Prosecution, Non-Prosecution Decisions, Alternative Sanctions, Punishment, Preventive Detention, etc.	1,871
6.	Police Crime Statistics and Judicial Statistics, Hidden Crime Research, Index of Crime, Public Attitudes about Crime	765
7.	Society, Social Definition, Deviance and Crime as a Social Fact	3,318
8.	Personality, Individual Behaviour, Offenders Personality	3,768
9.	Social Problems, Special Behaviour Patterns	4,279
10.	Particular Fields of Personality, Crime Categories	5,747
11.	Categories of Offenders, Offender Groups	2,079
12.	Execution of Sentence, Imprisonment and Related Forms of Sanctions	3,715
13.	Alternatives to Prison: Traditional and Modern Forms of Supervision in Liberty	1,100
14.	Special Fields Relating to Criminology	153

Providers of the database are the Institute of Criminology of the University Tübingen and the Library of the University Tübingen. The database contains over 51,000 documents with 1,000 to 2,000 additional documents per year. The language is mainly English, followed by Dutch, French and Italian.

The database has a hierarchical thesaurus with four steps. The first step is the most common, the fourth is the most specific. To give an impression of the thesaurus a horizontal view over all the categories of the first step is shown in Table 1 (above).

Table 2 gives a vertical view for category 13 ("alternatives to prison...") from step 1 to step 4. All the keyword-terms in the system appear in the German language.

Figure 2: Main-Category 13 with Sub-Categories of Thesaurus for KrimMon

Category	Description (Keywords)	Frequencies
13	Alternatives to Prison: Traditional and Modern Forms of Supervision in Liberty	1,100
13.1	Supervision in Liberty: Concepts and Theories	43
13.2	Suspension of Sentence, Conditional Sentence, Conditional Release, Probation Requirements	193
13.2.1	Probation and Parole	2
13.2.1.1	General Issues, Concepts and Theories	317
13.2.1.2	Institutions and Proceedings (in particular) for Minors	52
13.2.1.3	Institutions and Proceedings (in particular) for Adults	59
13.2.2	Sanctions similar to Probation and Parole in other than Anglo-American Systems	14

RETRIEVAL SOFTWARE LitMan

With the retrieval software LitMan (literature manager) you may search in both databases KrimDok and KrimMon. The user-interface of LitMan is at the moment in the

German language. An English version will be available for the next update of the CD-ROM.

Standard-Retrieval

Search is most simply done by filling in the fields in the retrieval screen. One may fill in one or more search terms. Several search terms are by default connected with logic "and" (user may overrule defaults by using "and", "or", "not" with or without brackets). Each search term may be truncated ("*").

The browse-list may be sorted according to year, author or language. The list may be output to printer or file in both abbreviated and full formats. A document in the list can be selected for full information.

Index-Retrieval

Before starting retrieval the user may first look in the index-list if the search-term is present. The term of the index-list will be highlighted if found. Otherwise the term next to it was highlighted.

One may search in the index by simply typing in the new term and a window will be opened for input. After closing the window the search is done and the new word in the index-list will be highlighted if found. Otherwise the next term will be highlighted. The user can overtake the term to the retrieval-screen for the next retrieval.

Retrieval with Hyperlinks

Documents may also be searched using hyperlinks. For example if we see the document "drug control policies in Britain" on the screen with the keyword-hyperlink "aids", we may move along this link to the keyword-sentence "aids, drogen". From this screen a document-hyperlink moves us to all documents, which are connected with this keyword-sentence.

Retrieval with Sets

Each search-term of the retrieval-request results in a set of hits. The set is kept in a memory (history) called set-list. The set-list makes the retrieval process very transparent for the user especially when he uses several search-terms at one time.

A set can be selected to resort or output. In addition a new set can be made by combining existing sets with the operators "and", "or" and "not" (for example: #1 not #2). In this way quite complex retrieval-expressions can be built up step by step.

The formulas of the set-list may be changed by the expert-user. By this a new search will be performed and a new set-list be shown. An expert-user may even enter a new formula in the last line of the set-list.

Analysis of Results

Documents of a set may be analyzed. As a result you get a list of terms used in the title of the documents of the set. The terms are sorted according to frequency and alphabet. The most frequent terms are often well suited for further retrieval-requests.

When the user selects a term in the list a new retrieval starts. The new search is confined to the documents of the selected set.

Computer Crime

**NUEVOS CONCEPTOS EN MATERIA DE DELITOS COMETIDOS
CONTRA Y POR INTERMEDIO DE LAS COMPUTADORAS
EN EL DERECHO PENAL POLACO**

Barbara Kunicka-Michalska¹

Polonia no es todavía un país muy desarrollado en materia de las nuevas técnicas de los medios de comunicación. El uso común de las computadoras es un fenómeno bastante nuevo, ya que se comenzó hace unos años. Por eso nuestra legislación penal dedicada a los delitos cometidos contra y por intermedio de computadoras no alcanzó todavía una madurez satisfactoria. Hay que promulgar varias normas jurídicas nuevas y, el proceso de adecuar las viejas a los nuevos fenómenos delictivos no es fácil. Sin embargo ya se ha hecho mucho en esta materia; existen también nuevos conceptos legislativos, que se van a realizar en el próximo futuro.

En los primeros años noventa en Polonia se comienza una animación en cuestiones relacionadas con la protección de los programas de computadoras, para prevenir y perseguir los llamados piratas, es decir las personas que reproduzcan sin autorización y divulgen de manera ilícita los programas de computadoras. Esta animación era relacionada con las ideas de la Convención de Berno, la Convención Universal sobre el Derecho de Autor, revisada en Paris en 1971, la Recomendación No (89) 9, adoptada por el Consejo de Europa el 13 de septiembre de 1989, la Directiva del Consejo de las Comunidades Europeas del 14 de mayo de 1991 sobre la protección de los programas de computadoras y con el tratado entre Polonia y los Estados Unidos de 21 de marzo de 1990 sobre las relaciones comerciales y económicas.

Primeramente se había pensado en la elaboración de una ley especial contra los piratas. Pero después se decidió incluir las normas contra los piratas a la ley nueva sobre la protección de los derechos de autor.

Esta ley nueva sobre la protección del derecho de autor se promulgó en 1994. Es la ley de 4 de febrero de 1994, titulada: "De derecho de autor y de derechos conexos". Están descritos en ella algunos delitos relacionados con los programas de computadoras. La ley contiene el capítulo 14 sobre la responsabilidad penal (arts. 115 a 123), en que se preven las penas privativas de libertad, limitativas de libertad o las de multa por varios delitos relacionados con la violación del derecho de autor. Estas normas pueden se aplicadas a los hechos que violan los derechos a los programas de las computadoras. Especialmente interesante en esta ley es una norma que abarca la llamada piratería, es decir la fabricación

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de las copias ilegales de los programas de computadoras (y otras obras de valor intelectual). La pena está prevista también para el que adquiriera (compre) las copia ilegal, ayude a venderla, la admita para sí o ayude a ocultarla, sin autorización y con ánimo de lucro. Las penas previstas son diferenciadas dependientemente de las condiciones de la comisión del delito.

Si el autor del delito fije o hace copias de la obra de otra persona, sin la autorización, aceptando su divulgación, o actuando con ánimo de lucro adquiriera, ayude a vender, admita para sí o ayude a ocultar el objeto en que está fijada ilegalmente la obra de otra persona, incurre en la pena de privación de libertad hasta 2 años, limitación de libertad o de multa. Si el autor de delito ha hecho de la perpetración de la infracción comentada una fuente permanente de ingresos o organice o dirigiere la actividad delictiva, incurre en la pena de privación de libertad hasta 3 años (arts. 117 y 118 de la ley). Incurre en la pena de multa también el que imposibilite o dificulte la ejecución del derecho al control del uso de la obra (del programa) o se niegue a dar información necesaria para los derechos patrimoniales del autor de la obra (art. 119 de la ley).

Aunque, de acuerdo con la opinión de los especialistas del derecho de autor, la persecución de los piratas fue también posible según las normas de la ley anterior sobre el derecho de autor de 1952, abrogada por la ley nueva de 1994, la cuestión no fue clara y sobre todo las penas según esta vieja ley fueron muy bajas.

La ley nueva de 1994, en el art. 1 inciso 2.1). denomina expresamente los programas de computadoras como el objeto del derecho de autor.

Actualmente en Polonia a se comienza también un movimiento, relacionado con un intento de firmar la Convención de Roma para proteger los derechos de productores y ejecutores de las obras intelectuales (artísticas).

En 1992 se promulgó en Polonia una ley sobre la topografía de integrated circuit (ley de 30 de octubre de 1992), la que también contenía las normas penales. Según esta ley, el que apoderarse la autoría de la topografía, incurre en la pena privativa de libertad hasta 1 año, limitación de libertad o de multa (art. 42 de la ley). La misma pena se prevé por el delito de la violación del derecho de la registración de la topografía (art. 43 de la ley).

A los programas de las computadoras puede ser aplicada también la ley sobre las invenciones, que trata sobre las patentes. Es la ley de 19 de octubre de 1972 con cambios posteriores, que contiene las normas penales (arts. 121 a 123), así como la ley sobre las marcas de fábrica de 31 de enero de 1985 con cambios posteriores (art. 57.1).

En el año 1993 se promulgó una ley nueva sobre la lucha con la competencia

deshonesta. Es la ley de 16 de abril de 1993 y contiene normas penales que, como parece, pueden ser aprovechadas si se trate de la protección de los programas de computadoras (art. 23 violación del secreto de empresa, art. 24 reproducción del producto).

A la protección de datos pueden ser aplicadas algunas normas jurídico penales tradicionales, como por ejemplo las sobre el secreto del estado y de servicio (arts. 260 a 264 del Código Penal de 1969), el secreto de correspondencia (art. 172 del Código Penal de 1969). Si se trata del secreto profesional, su protección en el derecho penal vigente no es suficiente, ya que falta la norma autónoma sobre el delito de la violación del secreto profesional en el Código Penal, aunque algunos casos de la violación de tal secreto pueden constituir el delito de la violación del secreto del servicio (del cargo). Desde hace mucho tiempo en la ciencia penal polaca se postula la introducción al Código Penal la norma autónoma sobre el delito de la violación del secreto profesional y de los secretos conexos, que abarcaría sobre todo el secreto relacionado con la privacidad e intimidad. Este postulado se va a realizar en el nuevo Código Penal polaco cuyo proyecto ya está elaborado por la Comisión de Reforma del Derecho Penal (art. 269 párrafo 1 del proyecto del Código Penal).

El proyecto mencionado está relacionado con los trabajos sobre una gran reforma de toda la legislación penal. Al lado de los trabajos sobre la reforma del derecho penal subjuntivo, hay también un proyecto del código nuevo del procedimiento penal, un proyecto del código de la ejecución penal, así como del Código de las contravenciones.

El proyecto del Código Penal contiene muchos conceptos nuevos sobre los delitos relacionados con las computadoras, ya que algunos de estos delitos no se incluyen en el marco tradicional del derecho penal.

En el proyecto del Código Penal, las normas sobre los delitos cometidos contra o por intermedio de las computadoras se encuentran en tres capítulos, es decir entre los delitos contra la protección de la información, entre los delitos contra la seguridad pública y los contra los bienes.

En el capítulo del proyecto, titulado: Delitos contra la protección de la información, se describe unos hechos punibles con fin de protección de datos. Los tipos de estos delitos en el proyecto abarcan varias formas de adquirir ilegalmente la información, también por el acceso al sistema informático sin autorización y la violación de medidas de seguridad de los datos, las magnéticas, electrónicas u otras, así como la instalación o el uso de un aparato para escucha con fin de adquirir ilegalmente de la información. Así, el art. 270 del proyecto abarca el delito que consiste en el acceso no autorizado a un sistema informático, infringiendo medidas de seguridad, y la interceptación de tal manera una información. También es punible la revelación de la información adquirida de tal manera (art. 270 párrafo 4 del proyecto).

El art. 271 del proyecto abarca las acciones consistentes en el deterioro, tachadura o supresión, en el cambio de la información esencial sin autorización, así como en otras acciones que imposibiliten o dificulten de manera importante el acceso a la información por la persona autorizada. Si se trate de los datos computadorizados, el autor de estos hechos incurre en la pena de privación de libertad hasta 3 años. La pena será menor, a saber de privación de libertad hasta 2 años, de limitación de libertad o de multa, en los casos si se trate de otros datos. Incurre en la pena de 3 meses hasta 5 años de privación de libertad el que por el hecho mencionado causare pérdidas económicas graves.

El art. 271 del proyecto, pues, abarca todas las formas de destruir y dañar los datos computadorizados, incluso la introducción del virus y otras perturbaciones en el funcionamiento del sistema de computadoras.

El art. 272 del proyecto del Código Penal prevé la pena de privación de libertad de 6 meses hasta 8 años por el delito consistente en perturbar o imposibilitar del proceso de datos, relacionado con los datos importantes de manera especial para la defensa nacional, la seguridad del transporte y el funcionamiento de la administración estatal, abarcando varias formas de la actividad delictiva.

Los artículos 271 y 272 del proyecto, pues, tratan, como parece, sobre el delito del fraude en el campo de informática, la falsificación de materia informática, el sabotaje informático y los daños causados a datos computadorizados o programas informáticos.

Al grupo de delitos contra la seguridad pública pertenecen en el proyecto del Código Penal los tipos penales consistentes en la provocación del peligro general para la vida o la salud de las personas o para bienes de considerable importancia por el perturbar o imposibilitar el proceso automatizado de datos o influir de otra manera en este proceso, así como por influir en el proceso de la recogida o transmisión de las informaciones. La pena prevista por tal delito intencional es la de privación de libertad de 6 meses hasta 8 años y por no intencional la de privación de libertad hasta 3 años. Si el acto causare la muerte de alguna persona o la perturbación grave para la salud de muchas personas, el autor incurre en la pena de privación de libertad de 2 hasta 12 años (art. 148 del proyecto del Código Penal). En el art. 150 del proyecto del Código Penal se prevé el delito de la destrucción de la instalación de la navegación relacionada con el atentado terrorista a un barco (buque) o a un avión si esto pueda amenazar la seguridad de las personas (la pena de privación de libertad de 3 meses hasta 5 años).

Entre las infracciones contra los bienes se encuentra en el proyecto del Código Penal una norma sobre la estafa en el campo de computadoras (en el campo de la informática). Se trata del art. 288 del proyecto, que prevé la pena de 3 meses hasta 5 años para el que, con el propósito de obtener un beneficio material o causar daños para otras personas influya sin

autorización en el proceso automatizado de datos o de transferencia de las informaciones, así como para el que aporte, altere o suprima los datos. En los casos de escasa importancia la pena será la de privación de libertad hasta 1 año, de limitación de libertad o de multa. El art. 290 del proyecto prevé el tipo agravado del delito mencionado en los casos si se trate de bienes de gran valor o de importancia especial para la cultura (las penas de privación de libertad hasta 8 y hasta 10 años). El proyecto del Código Penal contiene también entre los delitos contra los bienes algunas normas sobre el delito de la piratería en el campo de computadoras (hurto y delitos conexos en el campo de programas de computadoras). Pero, como ya se ha dicho, ya está en vigencia la nueva ley sobre el derecho de autor, que abarca en gran parte estos delitos.

También otras normas del proyecto, las referidas a los delitos tradicionales pueden tener su aplicación a los delitos comentados. Se trata de algunos delitos tradicionales, conocidos en términos generales también por la legislación penal vigente, como por ejemplo los delitos de la violación del secreto del estado o de servicio (arts. 260 a 264 del Código Penal vigente de 1969 y el arts. 268 y 269 párrafo 3 del proyecto del Código Penal).

La legislación penal polaca vigente reconoce el delito de la violación del secreto de la causa penal (del procedimiento penal), como el delito tradicional contra la administración de la justicia. En Polonia, la violación de tal secreto constituye un hecho punible según el Código Penal vigente de 1969. El art. 255 del Código Penal de 1969 establece lo siguiente: Párrafo 1: "El que, antes de la audiencia pública, difunda públicamente, y sin estar autorizado, informaciones relativas al procedimiento preparatorio, incurre en la pena de privación de libertad hasta 1 año, de limitación de libertad o de multa". Párrafo 2: "En la misma pena incurre el que propague públicamente informaciones sobre la audiencia celebrada a puertas cerradas". Esta norma se mantiene también en el proyecto del Código Penal, aunque con algunas modificaciones en su redacción (art. 244 del proyecto). La norma indicada puede tener su aplicación también en el campo del proceso de datos en la esfera de la administración de la justicia. La problemática jurídica del delito de la violación del secreto de la causa penal provoca interés en la ciencia penal polaca desde hace mucho tiempo.

El problema de la importancia especial es el problema de la protección de datos relacionados con la esfera de la privacidad y de intimidad.

En el derecho penal vigente la privacidad puede ser protegida a través de las normas penales tradicionales que describen las infracciones contra el honor (art. 178 a 181 del Código Penal de 1969), contra el secreto de correspondencia (art. 172 del Código Penal de 1969), o en algunos casos contra la protección del secreto de servicio, es decir de cargo (art. 264 del Código Penal de 1969) así como las normas sobre el delito de penetración ilegal en domicilio (art. 171 del Código Penal de 1969), o sobre el delito de la violación del secreto

del procedimiento penal (art. 255 del Código Penal de 1969). La protección de la privacidad en el Código Penal vigente no es suficiente, sobre todo si se trate del proceso automatizado de datos.

La esfera de la privacidad en la legislación vigente está protegida también por la Ley de la Prensa de 26 de enero de 1984. Según el art. 14 inciso 6 de esta ley se prohíbe la publicación de las informaciones y datos concernientes la esfera de la privacidad, sin el consentimiento de la persona en cuestión, salvo de los casos cuando los datos estén relacionados de manera directa con la actividad pública de la persona de que se trate. El que viola de esta norma, incurre en la pena de multa (art. 49 de la Ley de la Prensa). En la misma pena incurre el periodista por la publicación de la información en el caso cuando un informador ha hecho la reserva para una información, tratándola como el secreto profesional o de servicio o de cargo (art. 14 inciso 5 y 49 de la Ley de la Prensa). En la Ley de la Prensa se prohíbe también la publicación en la prensa los datos personales y la imagen de las personas que sean sujetos del procedimiento preparatorio o judicial, así como los datos personales y las imágenes de los testigos, perjudicados y víctimas sin su consentimiento y sin la autorización del fiscal o del juez. El fiscal o el juez puede dar la autorización sólo en consideración al interés público importante. Actualmente en Polonia se lleva a cabo los trabajos preparativos sobre la nueva Ley de Prensa.

Los problemas de la protección de la privacidad y de la intimidad, como los problemas muy importantes y al mismo tiempo difíciles y complejos, desde hace mucho tiempo provocan gran interés en la ciencia jurídica polaca.

En lo tocante de la protección de la privacidad y de la intimidad en el proceso automatizado de datos, hay que subrayar, que todavía falta las normas penales maduras en esta materia. El anteproyecto del Código Penal tampoco contiene normas dedicadas especialmente a la protección de la vida privada en el proceso de datos. Aunque las normas del proyecto ya presentadas, así como otras normas que mantienen algunos delitos tradicionales, pueden abarcar la esfera de la privacidad, no sean suficientes. El proyecto del Código Penal no introduce normas autónomas adecuadas para proteger la privacidad y la intimidad en el proceso de datos. La Comisión de Reforma del Derecho Penal ha decidido que esta materia, como muy amplia y muy compleja exigiría su regulación en una ley especial futura, que debería regular todos los aspectos de la protección de la vida privada en el proceso de recogida de datos personales y su protección en los bancos de datos, incluso el problema de los datos falsos.

Todavía, pues, falta en Polonia una regulación jurídica adecuada sobre la recogida y la protección de los datos personales. Pero los trabajos sobre la ley nueva dedicada a este problema ya se llevan a cabo desde hace cuatro años. En Polonia se estudia la Convención del Consejo de Europa No 108 de 28 de enero de 1981 sobre la protección de las personas

de punto de vista del proceso de datos de carácter personal, así como las Recomendaciones del Consejo de Europa sobre este tema: R (81) 1 de 23 de enero de 1981, R (83)10 de 23 de septiembre de 1983, R (85) 20 de 25 de octubre de 1985, R (86) 1 de 23 de enero de 1986, R (87) 15 de 17 de septiembre de 1987, R (89) 2 de 18 de enero de 1989, R (90)19 de 13 de septiembre de 1990, R (91) 10 de 9 de septiembre de 1991 y también el proyecto de Directiva del Consejo de las Comunidades Europeas de 1990 sobre la protección de las personas de punto de vista del proceso de datos personales, así como las Convenciones relativas a la cooperación internacional y regional judicial y otros documentos internacionales y regionales en cuestión.

En la legislación vigente los datos personales cuya revelación viole la privacidad pueden ser protegidos de acuerdo con los arts. 23 y 24 del Código Civil, como los bienes personales. En el proyecto de la nueva ley sobre la protección de los datos personales se propone (al lado de las sanciones) la responsabilidad por los daños causados por la recogida ilegal y la revelación de los datos por el gerente del fichero, independientemente de su culpa civil (se trata de la responsabilidad civil).

Actualmente, el proyecto de la ley nueva sobre la protección de los datos personales ya está aceptado por el Comité Político-Social del Consejo de Ministros. En mayo de 1995 probablemente será examinado por el Gobierno y después será estudiado por la Dieta polaca. En el proyecto se proponen las penas hasta dos años de privación de libertad por la transmisión ilegal de los datos personales y las penas hasta 1 año de privación de libertad por los hechos que causen un descuido en la protección adecuada de los datos, es decir por la falta de la seguridad adecuada de los datos. Según las estimaciones de los especialistas del tema, los trabajos sobre este proyecto van a durar todavía unos meses. Gran importancia de este proyecto de la ley para la protección de la privacidad y de la intimidad en el proceso de datos no cabe dudas.

Si se trate de la protección de datos sobre la situación patrimonial de las personas, en Polonia está en vigencia la ley de 31 de enero de 1989 sobre los bancos, titulada: "Derecho de los bancos". El art. 48 inciso 1 de esta ley obliga a los bancos a observar el secreto de asuntos bancarios y del estado de las cuentas bancarias, en las condiciones indicadas por la ley.

Como se pueden ver, en Polonia se llevan a cabo los esfuerzos legislativos para mejorar y avanzar la legislación penal protector de las nuevas técnicas de la información.

Al mismo tiempo se observa en Polonia un desarrollo del interés de los penalistas, especialistas del derecho penal y de criminología por la problemática de los delitos cometidos contra y por intermedio de las computadoras y en general de las infracciones informáticas y el abuso de la tecnología informática. Así, el Grupo Polaco de la Asociación

Internacional del Derecho Penal (AIDP) participó en los trabajos preparatorios al XV Congreso Internacional de Derecho Penal de AIDP (Río de Janeiro, 4 - 10 de septiembre de 1994). El miembro del Grupo Polaco de AIDP y, al mismo tiempo el Presidente de la Comisión de la Reforma del Código Penal, Prof. Dr. Kazimierz Bucha, a fue el autor del informe polaco, preparado para el Coloquio Preparatorio al XV Congreso Internacional de Derecho Penal de la AIDP, dedicado a los delitos informáticos y otros delitos relacionados con las nuevas tecnologías de información. La resolución del congreso sobre este tema fue también un objeto de consideración del Grupo Polaco de la AIDP y provocaba un interés de los penalistas polacos.

En Polonia también ya se organizaron unos seminarios científicos sobre los problemas penales relacionados con las computadoras, como por ejemplo el Seminario Internacional en Poznań y se publicaron trabajos científicos dedicados al tema.

La ciencia penal polaca, entonces, participa en el movimiento mundial al favor del desarrollo de la legislación penal, para que las normas penales sean aptas para enfrentarse al peligro de la delincuencia nueva relacionada con las nuevas técnicas en materia de la información.

Al mismo tiempo se nota un interés de los representantes de otras ramas de derecho, sobre todo de derecho civil, por la problemática jurídica de las computadoras.



H E U N I

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