

CRIMINAL JUSTICE INFORMATION IN THE INFORMATION AGE: AN OVERVIEW

Graeme Newman

1. Introduction

The post modern age of information technology promises to transform both the content, accessibility and utilisation of criminal justice information. In this rapidly changing age, the structure of traditional authority is being undermined and replaced by an alternative method of societal control. The most significant instigator and reflector of this change is the Internet.

The Internet provides heretofore unregulated and unlimited exchange of information among individuals and organisations via two levels of activity:

First, anonymous exchange of information via electronic bulletin boards and discussion lists, using E-mail which has now come into its own. In criminal justice, the United Nations Crime and Justice Information Network-L (UNCJIN-L), an electronic bulletin board with over 700 members world wide, established by the United Nations Crime Prevention and Criminal Justice Division¹, has pioneered this mode of information exchange.

Second, the Internet provides the dissemination and storage of large amounts of information in the form of databases or text, graphics, audio, and video now mainly on what is called the World Wide Web. The United Nations Crime and Justice Information Network (UNCJIN) pioneered the development of criminal justice databases on the Internet via the World Wide Web in 1991. Since that time many criminal justice databases and so-called home pages have appeared in many different physical places throughout the world, linked electronically via the World Wide Web. A home page may contain simply links to other sites of related interest, links to large databases contained physically at that site, or both. UNCJIN on the World Wide Web falls into the latter category. A selection of criminal justice web sites is provided in the appendix. The Internet is also the reflection of deeper changes in the structure of the information society. Thus, this paper also reviews the ways in which criminal justice agencies must respond to these changes especially in respect to the changing structure of authority and control in the information society. With the rapidity of change, there is the danger that criminal justice agencies may become the victims of the information technology revolution, yet as major producers and users of criminal justice information they have the possibility to become leaders in the way in which criminal justice information is used and produced. The issues of utilisation, information, production, and the sharing of criminal justice information are therefore of crucial importance.

This section is organised in a rough historical sequence. It examines the broad historical and cultural origins of the revolution in information technology, culminating in an analysis of the changes both brought on and reflected by the Internet. It examines the deeper changes in authority and control in the post modern information society, linking them to the current needs of criminal justice agencies in terms of the generation, utilisation and sharing of criminal justice information.

2. The Information Age

In the twentieth century societies in most parts of the world have undergone immense changes regardless of their level of development. The most drastic changes have occurred in the Western industrialised countries where the base of economic activity has shifted from large-scale industrial production to one of a service economy. The service economy deals almost entirely in the processing, utilisation, and dissemination of information.

¹ Formally called the *United Nations Crime Prevention and Criminal Justice Branch*.

Industrialised countries have long exported their industrial strength and applied it to other, less developed countries, often being accused of exploitation. Particularly, industrialized nations have assisted in the creation of dependent economies in developing regions of the world. While this dependency throughout the world continues in many ways, it was at its height during the nineteenth century and the first half of the twentieth century when colonialism dominated the world scene. Throughout the twentieth century many countries have managed to throw off the mantle of colonialism and assert their political independence. However, economic independence has been very hard to obtain for many former colonial countries. The industrial might of the west seems unstoppable. Many of the positive aspects of the industrial west (e.g., improved health care, communications, and transportation) are attractive to many developing countries..

There exist a few success stories in which industrial or commercial development has transformed a country from one of wide-scale poverty in the mid twentieth century, to a shining example of capitalism, in which the standard of living for all citizens has risen dramatically (e.g. Hong Kong), with a quality of life easily matching that of the West. A number of Asian countries on the Pacific Rim are following this line of progress.

The problem that lingers on, however, is that the world appears dominated by a powerful Western agenda. Young people, no matter where in the world, prefer to dress in blue jeans, or western style clothes. Older people prefer to drive automobiles, adolescents prefer western music, and many--young and old--prefer the plethora of movies and television programs imported from the west. People all over the world are thus subject to a barrage of words, images and sounds that have been produced by Western culture. What makes it so powerful and popular?

Before we begin to understand the role of criminal justice information in the information age, we should first understand the origins of the information age, its implications for culture and life. For it is the larger issues of life and culture that will shape the way in which criminal justice develops in the information age, and constrain the ways in which criminal justice information may be used and spread. Many claim that we are in the midst of an information revolution and this may be so. However, if it is a revolution it began a few thousand years ago.

3. Origins of the Information Society

Marshall McLuhan argues that the information society has developed out of a particular kind of culture² which he calls *alphabetic culture*. McLuhan identifies three types of cultures as the forerunners of the major modern cultures throughout the world: *auditory cultures*, *alphabetic cultures*, and *ideographic cultures*. Auditory were the original cultures; the knowledge source was the elders such as parents, neighbours, or village seniors. The transmission of knowledge was auditory (i.e., by word--folklore, stories, and songs). This was, however, an inefficient and unreliable way of storing and transmitting information. Only certain individuals had the capacity to remember the knowledge of a particular culture, and on re-telling, there was a good chance that the folklore would be changed, or even forgotten.

Ideographic cultures were (and are) those cultures in which knowledge was transmitted through a particular form of writing called ideographs. Ideographs are written symbols that have specific reference to particular historical events and objects. Without knowledge of these events or objects, it is not possible to fully understand this type of written language. While this type of language allowed for the storing of information, it was highly specialised and required highly-educated individuals to truly understand and interpret it. Thus, it did not lend itself to wide-spread dissemination of knowledge. Knowledge, instead was the harbinger of elite educated individuals.

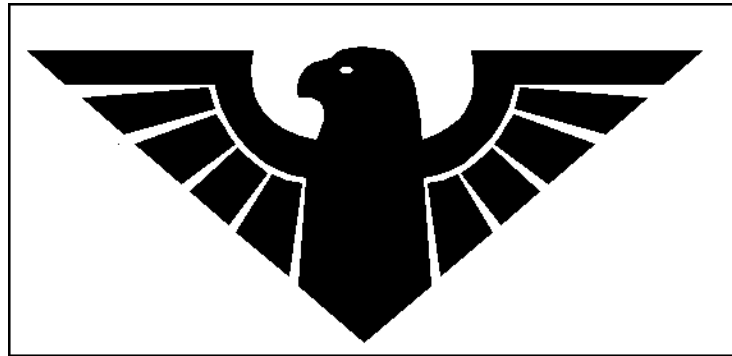
Alphabetic cultures probably arose out of the early hieroglyphics of the Egyptians although there is some controversy as to the actual origins of the alphabet as it appears in many languages today. However, in these cultures, the significant element is their efficiency. Letters can be used in virtually any combination to represent an object, thing or idea. They do not, as in ideographs and the earlier hieroglyphics, have to bear any resemblance at all to the object. A rough idea of the distance between object or idea and its representation as a word is provided

² McLuhan, M. (1962) *The Gutenberg Galaxy: The Making of Typographic Man.*. Toronto: University of Toronto Press.

in the figure below. The stylised representation of a bird similar to that used in hieroglyphics is still recognisable as representing a bird, but the word “bird” bears no resemblance to a bird at all. That is, the concept is completely divorced from the object. Indeed, some would say that form was separated from content. This is the crucial beginning of the information revolution.

The alphabet made knowledge transportable in a way like never before, making it possible to store knowledge in an efficient, error-free, shorthand form. Complex images did not have to be reproduced. Just the simple forms of letters combined in certain ways were sufficient. It is this ease of storing knowledge and its communication that are key to the information society.

Figure 1: Form Separated from Content



This bird is not a bird

This crucial beginning, the development of alphabetic cultures, gave rise to the now well known history of information technology (see Table 1). As we can see, technology, particularly after the discovery of electricity, has advanced greatly in this century. Technological development in the past 50 years has been especially rapid.

Table 1: Time Line of Information Technology Development

Generations ago	Event
200	Writing invented in the Near East; large amounts of information can be stored without error and transmitted to succeeding generations
100	Alphabet invented; the first “technology”

18	Gutenberg printing press with movable type shortens the labour of copyists; standardised printing
14	Luther and Dante free writing from Latin, thereby further democratising the printed word
5	The pace quickens. Morse demonstrates the electric telegraph. “News” can be communicated in an instantly
4	Telegraph cable laid across the Atlantic, thus linking Europe and America, reducing communication time by a factor of a million
3	Marconi invents the wireless (1895). Edison invents the phonograph
1	Television pictures transmitted. First IBM computer in 1953, which in 1977 was available as a hand held calculator
current	Personal computer in 1982, optical disks, fiber optics, satellite transmission, cell phones, multimedia
current	The Internet: communication and information come together
current	World Wide Web: knowledge universalised through hypertext

Although the speed of change in this century gives the impression of a revolution, the changes, in fact, represent a logical evolution of alphabetic culture.

As we see above, the primary separation of people from knowledge occurred as a result of the cultural elite having access to the secrets of written language. In the middle ages in Europe, this separation was visible in the structure of society--between peasants and lords, between the rabble and the educated (consisting largely of the priesthood whose education was entirely in Latin or Greek). In the time of Martin Luther these things began to

change, however.

Luther's translation of *The Bible* in the early sixteenth century provides one example (albeit non-technical) of the construction of new patterns of knowledge and the rapid dissemination of information. Suddenly, *The Bible* became German. Furthermore, Luther expressed great surprise at the speed with which his writings were translated from Latin using the printing press and distributed throughout Europe. The same occurred in many spheres of knowledge, particularly science and alchemy³. Historians have observed how the power of the printed word was expanded beyond the realm of the elite to an increasing proportion of society who could read the common language.

The late Middle Ages is known as a time of the passing of traditional society. Events such as Luther's questioning of The Church, and the explosion of new ideas that arose during and after that time led to breakdown of the traditional relationship between lord and serf, king and country. The questioning of ideas, loyalties, beliefs, and authority continued relentlessly, spurring social rebellion and the establishment of a new order. Concurrent with this dissention, or perhaps pushing it along, was the publication of masses of tracts, pamphlets, and books. Sometimes described by scholars as a period of the democratisation of knowledge, the late Middle Ages was a time when knowledge became accessible to all.

4. The Democratisation of Knowledge

With democratisation, individuals act freely, elect their representatives, and have open access to knowledge. There are at least six ways in which knowledge has been democratised since the period of the reformation:

4.1 Breath of Dissemination

Once Luther translated *The Bible* into German, and scholars such as Bacon and Dante wrote for the popular tongue, knowledge became accessible by a much broader range of people. Information was no longer confined to those who could read Latin.

4.2 Speed of Dissemination

The Gutenberg printing press made it easier to print multiple copies of articles and broadsides. With improvements in transportation, pamphlets could then be distributed more quickly. With technological innovations of the last two centuries, the speed of dissemination of knowledge has become virtually instantaneous, providing less opportunity for adulteration of information by social elites. Indeed, since the very first use of the telegraph in 1844, the importance of immediacy of news (often regardless of content) has reigned supreme in the media⁴. What better example of the undercutting of authoritative knowledge (and hence its democratisation) than the on-

³ Postman, N. (1992) *Technopoly: The Surrender of Culture to Technology*. New York: Vintage.

⁴ Postman, N. (1984) *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*. London: Penguin.

the-spot reporting of the Gulf war: Even before diplomats, politicians, and military personnel could filter it, the world gained access to news through the media.

4.3 Disembodiment of Ideas

As noted earlier, knowledge in auditory cultures was embodied in the communal elder, who established the authority of the knowledge itself. However, with the printed book, alphabetic culture transferred the authority of knowledge to the physical object--ideas were retained in books and could be widely distributed. While there has always been a tendency for the masses to embody ideas in a person of great stature (e.g. Mao Tse Tung's Little Red Book), the information society has emphasized ideology rather than glorify particular individuals. This change is particularly noticeable in the last decade.

4.4 Minority Views are Equalised

By separating knowledge from individuals, it has become possible for minority views to gain equal footing in the field of knowledge. For example, given the cultural (and Christian) climate at the time, Luther's views were of in the minority but gained visibility as he reached a broader audience. Thus, the established structure underlying knowledge was attacked and undermined.

4.5 Knowledge is Transformed into Information

In response to the surge in written word, an industry arose whose main function it was to reproduce and distribute books, pamphlets, and other written materials. These industries were only secondarily concerned with the content of the material they published, however (unless it affected distribution). Neil Postman makes a forceful argument that in the late twentieth century society has reached the end of this dissemination in that information is left with no structure to it. In effect, knowledge has lost authority.

5. The Relationship Between Knowledge and Order

On the side of order, it must be seen that the advent of the printing press with movable type brought an orderliness and standardisation to the publishing industry. Errors made when copying text and graphics by hand were eliminated. In 1516, the first book paginated with Arabic numerals was introduced--surely an indication of the order of the printed form. A chronological structure of books (starting at the beginning, and continuing in an orderly fashion, to the end) was established. Thus, the Middle Ages introduced an imposition of order and an aesthetic standard for printed work. In the modern printed book these standards and order remain apparent: most text is justified and proportional; running headers occur on each page; chapters are clearly marked and pages numbered. The layout of the title page is standardised, as is the copyright page. An index is always found in the back (in English language texts, that is). In fact, entire books have been dedicated to the instruction of rules of style, grammar, and punctuation (e.g., *The Chicago Manual of Style*). These are attempts to impose order on all printed documents.

Unfortunately, this order eventually affected the quality and substance of knowledge itself in that it required text to conform to a linear model. The rigidity of this model discouraged later thinking and made the dissemination of information difficult.

6. The Transformation of Knowledge into Information

We can see from the time line of change that another important event undermining the traditional structure of knowledge was the rapid communication of information that became possible after the invention of the telegraph, telephone, television and radio, and finally computers. The immediacy of information became of prime importance. The telegraph was initially used, for example, to convey results of a battle to a newspaper which then printed the story. Swift immediate knowledge of an event--*news*--became a premium, and has in many respects taken over the knowledge base of Western society. However, some believe that while such news may be information, it is not knowledge in the traditional sense; it fails to add to a body of knowledge in which there is the repository of wisdom. Television provides an example: sound bytes and news clips are used one day, and are gone the next. News has a very brief life. News organisations report on the most recent, striking events, while stories of the distant past are relegated to obscure television channels.

The transformation of communications into instantaneous news-making technology has changed the way society values knowledge. The immediate and the present have taken priority over history, undermining traditional order. Yet this change in the way information is viewed is but a logical extension of the alphabetic culture which began long ago: it is now the accumulated abstract and disembodied symbols of life. The traditional book is the last bastion of ordered knowledge. Moreover, the order of society has been transferred into the ordered linearity of the book. Change has separated the order that resided in the authority of revered individuals on to the physical objects of books. Once upon a time order was transmitted in traditional (auditory) societies from elders to the younger, and authority was recognised in age and experience. In contrast, the late twentieth century is a new age. Because of the primacy of immediacy over history, age and experience have come to mean much less. In fact, inexperience (i.e. youth) has come to be revered in western society.

In sum, knowledge has become a commodity, and in that sense is no longer knowledge, but information--a product like any other product⁵. Karl Marx wrote that the process of goods exchange erodes the intrinsic value of the commodity or product, such that it becomes only worth what the marketplace is willing to pay. Thus, the essential transformation of knowledge into information “gutts” knowledge of its substance⁶ giving it value only in terms of its exterior qualities in the market place, subject to the laws of supply and demand. What Marx could not have foreseen is that information used in the market place can also affect its demand in profound ways. Advertising, for example, is a way of using information as a means to enhance demand for products, many of which depend on information for their value. Thus, while information has little intrinsic value, it has tremendous value as a motivating force in the market place. As the twentieth century draws to a close, it appears that information has gained the upper hand, and has subsequently created a massive demand, despite the present glut

⁵ Postman, N. (1992) *Technopoly: The Surrender of Culture to Technology*. New York: Vintage.

⁶ Bouloukos, A. C., D. C. Benamati, G. R. Newman (1995) “Teaching Information Literacy” in *Journal of Criminal Justice Education* 6(2) 213-233.

of information, as Postman points out. It is out of this excess that mass culture is formed.

Yet in spite of the undermining events of recent history, society has remained relatively ordered. Chaos has not broken out, though we often think a breakout is imminent. Where does order come from in the modern alphabetic culture? The answer is that modern societies have transformed order into control.

7. Transformation of Order into Control

Order emanates from the very media that have been central to the revolutionary change in information technology: the mass media. Let us reconsider the essential elements of auditory cultures; knowledge is communicated interpersonally, through songs, rituals, and stories. There is a strong emotional element to this communication. The mass media, however, have circumvented the ordering role of elder statesmen, or other institutions for the communication of knowledge, and gone straight to the masses. Radio, television, and newspapers undermine the traditional veneration of age by placing priority on the immediacy and novelty of information, as we have seen above. More important, the mass media blur the distinction between information (daily activities such as records, statistics and events) and knowledge (the ordered, historical meaning of life). Thus, because authority no longer resides in knowledge, it is easy prey to the powers of modern mass communications. And modern mass communications are able to exploit and convey their message using emotionally-charged visual and auditory media. Their method of communication is similar to that of auditory cultures, but far more powerful. Yet mass media only superficially communicate knowledge, as they have unwittingly eroded the basis of knowledge itself. That is, as McLuhan and Postman have argued, the medium itself changes the nature and content of the message. Mass media exert raw power over the masses. They hold the power to create needs and desires where they did not exist (as through advertising).

The mass media market pre-packaged information to the masses who remain passive consumers of information. We should note that this is *raw power* exerted over the masses, as distinct from the authority exerted in the middle ages which emanated from the authority of religion (e.g. *The Bible* or *The Koran*).

In a democracy the free media therefore competes with established authority structures such as the bureaucracies of government for control, and exerts a powerful check on the control exerted by government. This is why in a less than democratic society, where the government regulates the media, control of the masses may approach the absolute. Thus, while the changes in media (outlined in Table 1) are important in understanding the revolution in information technology today, they tell only part of the story. Changes that have come about in society in response to the undermining of traditional authority explain the rest. These institutions are the bureaucracies of society, of which criminal justice is one.

8. Bureaucracies, Information and Control

As many sociologists have observed, bureaucracies arose to cope with the disintegration of traditional society, and in response to the demands of the industrial revolution. Bureaucracies provided a way of organising large numbers of people to perform together in accomplishing complex tasks (in the factory, for example).

However, in the twentieth century, these bureaucracies have developed special attributes. No longer are they merely concerned with the orderly transmission and storage of information within their own organisations, but because of the shift from an industrial to a service economy in the post modern society, bureaucracies have become large information gatherers. In fact, they have invented the special post modern form of information: the database. Bureaucracies have now become the mainstay of modern government, with databases displacing knowledge and even turning knowledge itself into a database.

Private sector bureaucracies, such as corporations, also arose rapidly in the service economies, especially in the competition to capitalise on multi-national economic opportunities. The forerunners of these were unique, part-government, part-private companies that carried out the main actions of colonisation of many parts of the world. The Dutch East India Company, for example, scoured the world in search of resources to exploit. Such companies managed their complex international affairs of trade through well-developed bureaucracies. Their modern counterparts utilise extensive databases in order to guide mass sales and marketing. While credit card databases improve sales efficiency and payments, the information they contain affords them a significant amount of social power. For example, credit histories of individuals may be bought and sold. Individual loan decisions and many other aspects of a person's life may be determined by a credit record.

Private sector demands for efficiency and a need to store vast amounts of data stimulated the development of new information technologies. Large filing cabinets and record books of nineteenth century bureaucracies have been replaced by mainframe computers in the twentieth century. Mass-marketing techniques demand immediate retrieval and processing of client information, and sifting of databases for specific information. Public opinion polls for private, political and governmental use, which provide instant feedback on mass inquiries, have become a mainstay of modern information societies. Instant databases, which provide reports such as credit ratings or car license registration, have become a necessity of modern information societies. Demand for easier access to information is met with increasingly powerful computers and less restricted computer access via cellular telephones and the Internet.

One outcome of this information technology has been that confidentiality and security of databases have become of great concern. The private sector recognises their financial value and seeks to restrict access to them from competitors. At the same time corporations compete for access to and compilation of new databases, which are viewed as assets. Access and ownership of databases, particularly those profiling individual citizens, has become a serious legal and political question, since individual rights of privacy are at risk. Originally, database content could be easily protected because information was stored on the single mainframe computer, to which outside access was limited. With the growth of the Internet and rapid improvements in telecommunications, however, it has become increasingly difficult to limit and control access to most databases. As we shall see, the Internet is providing drastic and exciting changes in the distribution of authority, knowledge, and control..

9. The Internet as a Vehicle of Radical Change

Mass communications and mass storage have come together to create what is popularly called the Global Village, of which the Internet is argued to be the typical reflection. The analogy between the village and the Internet is persuasive. Like a traditional village, on the Internet all voices can be represented as though in a small

town or village meeting, via various facilities of the Internet, such as bulletin boards and discussion lists and direct electronic communication. Individuals, otherwise isolated, may actually communicate, in a quite intimate way, with others who heretofore were (and are in a sense) complete strangers.

But it is a special kind of village - a global village. The Internet knows no national boundaries. It is immune from control by any particular country or nation, or even corporation. This is because its organisation, if it has any, is decentralised. It is not one computer, but millions of computers owned by different people and organisations who may have diverse interests. Therefore, no nation, no corporation, and no individual can control the flow of information. Some nations have already tried to censor particular types of information, or block the flow of information from particular sources. But there is in fact no way to do it; links among the millions of computers connected to the Internet are far too complex.

Because electronic communication via the Internet or satellite TV makes it possible for individuals to learn more about each other's world, there is the feeling that the world has become smaller, and thus resembles a village, since all individuals, no matter where or how many, can actually participate in each other's lives as if they were present.

Finally, the Internet's hypertextual qualities promote what is called the deconstruction of the printed document, which promises to return the structure of knowledge to the pre-Gutenberg era of non-linear ways of pursuing knowledge, those that were typical of auditory cultures.

But there is much about the Internet that makes it quite unlike the idea of the traditional village. As noted in the beginning of this section, knowledge has become democratised: all voices have equal weight. In the traditional village, the authority of the elders has almost always dominated. On the Internet, traditional authority is demolished in favour of equal voice and equal empowerment. Furthermore, knowledge has been externalised. The individual becomes in a sense an empty vessel, because all knowledge exists easily external to him. Erudition becomes obsolete, and is replaced by hypertext links to databases. Thus, post-modern man must be an analyser not an eruditer.

In the traditional society, knowledge is linked deeply to individuals and is passed on from one generation to the other by real people who are venerated and valued. Knowledge is therefore in the traditional village valued in a deeply personal way. As we have noted above in several places, knowledge in the technological society has been transformed into the depersonalised database: information that can be bought and sold like any other commodity. And on the Internet, a database is no longer a monolithic mass of information residing in one place, but many databases connected to each other all over the world. Provided they are accessible, therefore, they are far more extensive.

Organisation of the Internet is often described as chaotic. The typical portrayal of a traditional village is the opposite: a highly organised society in which all individuals know their place and their roles. Order is endemic to the traditional society. Disorder is endemic to the Internet.

The internet also provides a forum for communication between people of different races, ideologies, religions, and backgrounds; ideas have equal weight. In contrast, the traditional village values history and tradition above all else. The global village--particularly satellite television with its instant communication--values

immediacy over history. Satellite TV makes the world smaller at the expense of history and tradition.

The contrasts and similarities between tradition and modernity on the Internet suggest that the new age of information technology may have special implications for developing countries.

10. Information Technology, Modernity and Development

10.1 Low Cost Infrastructure

While the most startling growth in information technology in terms of sheer mass has occurred in western countries, there are unmistakable signs that information technology is rapidly increasing among developing countries. The rate of growth in developing countries in telecommunications which are essential for Internet growth has outstripped other countries in recent years (see Graph above⁷).

The amount of criminal justice information available on the Internet is nothing short of incredible, especially as this has occurred within only the last 2 years. We see these startling indications of this change in Table 2. The difference in availability of information for developed as against developing countries is not as great as would be the case with traditional information sources.

**Table 2: Hits Using Excite Search Service on the Internet World Wide Web
Searching for Criminal Justice Items for Selected Countries⁸**

Country	Number of Hits
Argentina	934,993
Iran	821,872
Kyrgyzstan	476,907
Mongolia	774,259
Albania	740,838
Chile	978,880
China	1,293,728

⁷ Adapted from "The Information Society: A Retrospective View", Herbert S. Dordick and Georgette Wang, Table 5.1, pag. 70. Sage, Newbury Park. Data for 1996 are straight line estimates.

⁸ Selection of the countries represents those countries that were represented by participants at the Interregional Training Course "United Nations Crime and Justice Information Network: Providing Information to and from Developing Countries"

Colombia	846,350
India	1,076,802
Indonesia	762,487
Malaysia	1,012,332
Nigeria	755,328
Poland	970,350
Qatar	726,429
Saudi Arabia	133,327
Sudan	744,310
Thailand	907,088
Tunisia	738,209
Viet Nam	277,067
United States	398,628

(Search Term: (Country) Criminal Justice).

It is interesting to see that in Table 2, on the date of the search (October 1, 1996) there were fewer “hits” (World Wide Web documents found containing the search term) using the search terms “United States criminal justice” than there were for China and many developing countries using the same search with the respective country names.

In this respect, the information gap between developing and developed countries has narrowed more than ever before. The accessibility of this information is also significant. One is able to obtain information for a table such as Table 2 in a matter of minutes. It would take hours, if not days, to compile such information from traditional sources in a library. In fact, we can be quite certain that the information simply would not exist in any single library in any single country.

The Internet offers developing countries exciting new opportunities. Compared with other gifts from the west, such as industrial development and infrastructure such as roads and energy plants, the development of communications infrastructure and computing technology is becoming less expensive all the time. New satellite technology makes it possible for telecommunications to be introduced at much lower cost, without the capital expenditure on laying miles of cable. New telecommunications companies can start with relatively little capital and offer service of high quality. This has been demonstrated in several parts of Eastern Europe in the 1990s.

Access to the Internet is also inexpensive--more so than telephone costs in most countries. While telecommunications are still expensive in many developing and developed countries the pressure for reduction of prices is strong because of the highly competitive market.

10.2 Empowerment

In contrast to other mass communications technologies, such as TV, the Internet makes it possible for individuals to be active consumers of information, rather than passive consumers as they are watching TV. Users must actively seek out the information they want. They are no longer at the mercy of the information that is fed to them.

Not only are users active, but the information flow can now be two way. Traditional mass communications send information only one way - in the direction of the passive consumer, or the captive audience, such as those in many countries, developing or developed, who survive on a daily diet of American TV-shows.

The Internet offers an alternative: Because its costs are low, those who traditionally have had little input into the knowledge base can now easily publish their information on the Internet without the restrictions of an authority structure or filtering mechanism. This is a change of tremendous significance to developing countries, in that for the first time they are not enslaved to the latest information technology of the west, but can actually contribute to it. As we can see from Table 2, developing countries have already taken advantage of this inexpensive medium. Many developing countries already have web sites where they can present information about their country from their own perspective--a perspective that is unfiltered and unaffected by the bias that often occurs when countries are characterised by other than themselves.

10.3 Disempowerment

Knowledge may not be democratised but commercialised. While the amount and quality of information from developing countries has increased tremendously, they continue to be dwarfed by the enormously developed and powerful information industry of developed countries. Alphabetic culture is accessible to all, because its form is totally separate from content, whereas ideographic cultures require special knowledge to learn. The open accessibility of alphabetic cultures makes them voracious consumers of other cultures: they infiltrate and take over other cultures because they are so accessible. It is both the sheer power of alphabetic cultures and the forced passivity of recipients of mass media that explain why western dress, clothes, automobiles etc., are so popular in the most remote regions of the world.

The great hope is that the new medium of the Internet, with its promised empowerment of users, will undercut the passivity that accompanies other mass media. The challenge is that the Internet demands a much higher level of literacy: information literacy which includes skills not only of reading, but analytical and evaluative skills as well. Unfortunately, the domination of television undercuts the push for literacy in developing countries, and undermines traditional values. In many developing countries, newspaper circulation is declining as television penetration increases⁹.

⁹ "The Information Society: A Retrospective View", Herbert S. Dordick and Georgette Wang. Sage, Newbury Park, 1993.

11. Information Literacy, the Internet and Empowerment

Information literacy is the skill to evaluate what one reads, hears or sees via multiple media for its validity and worth, and to efficiently seek out information to suit one's needs¹⁰. The information literate person will develop search strategies in order to find the information he or she wants from a chaotic and unstructured sea of information.

Information literacy is essential because of the very fact that users are empowered on the Internet to develop their own approach to knowledge. The more that users are empowered, the more skills they will need to use this power, lest they be left at the mercy of others who have such skills. The empowerment of users on the Internet brings with it problems for all cultures.

If information resides outside the individual, how does one decide what information to search for? An impowered user must make up his or her own mind as to what information is important and what authority to give it, since authority (and thus validity) of the information is no longer clearly apparent with much of the information on the Internet. Thus, personal choice becomes the guide to information search and assessment, and an external knowledge base may be used to rationalise personal choice.

In order to understand fully the importance of developing skills of information literacy, let us look briefly at the way in which information is structured on the Internet, and especially the World Wide Web.

The most important feature of information on the Internet is that it is non-linear. That is, the traditional way in which knowledge has been structured, as we saw earlier in this chapter, was in the physical book, with a linear structure: a beginning, middle and end. It was (and is) difficult to read such books without following the set structure of the information provided. On the Internet (and on other media such as CD-ROM'S) this structure is broken down, essentially by means of a technique called hypertext.

Hypertext is the term given to bodies of text, and also pictures or sounds, which are linked to each other through particular key words or phrases. The basic idea is that all knowledge is related to everything else. Instead of my reading from the beginning to the end of a particular document, I can begin reading anywhere that suits me, and if I see a particular word, phrase about which I want more information, I can click on that word, and be transported to another document that provides information on that topic, and so on and on. This arrangement of information was at first made functional on CD ROMs, especially in the early versions of encyclopaedias on CD-ROM. However, with the rapid development of the World Wide Web on the Internet, it is now commonplace to click on words that interest one, and be literally transported half way around the world to another document somewhere on another computer that speaks to the particular item of interest. Thus, on the World Wide Web, the physical location of data or documents is increasingly irrelevant, and the fantastic idea that all knowledge can be

¹⁰ For a more extensive treatment of the origins and arguments for information literacy see: "Report of Presidential Committee on Information Literacy". American Library Association, 1989. Chicago; "Beyond BI: Information Literacy in the Electronic Age", Anita Kay Lowry. Research Strategies, Vol. 8, No. 1: 22 - 27, 1990. "Information Literacy: Challenges for the Future", Mary F. Lenox and Michael L. Walker. International Journal of Information and Library Research, Vol. 4, No. 1:1 - 18, 1992.

related to everything else has become a virtual reality.

Unfortunately, the result has also been that we think of the Internet as composing a sea of information an unstructured, mass of information, a swirling sea of chaos. The need to impose order on this chaos is supreme.

This is why individuals must develop search strategies to obtain the information they want. Paradoxically, without knowing before hand what information is available, it is particularly difficult to develop a search strategy, if one does not know what the limits of the information base are, or its structure. In fact there are no limits, and structure must be imposed by the search strategy.

The gatekeepers of information have also changed with the development of the Internet. Librarians and publishers had been the traditional gatekeepers of knowledge. Today, for a very small sum, it is possible to publish one's own work on the Internet, making it available for millions of individuals to see. To achieve this through traditional avenues would be financially impossible. Furthermore, information submitted for publication in the traditional form must first go through a filtering process. Some 90% of book submissions to publishers are rejected. Librarians can only choose a small portion of all published books to hold in their collection. On the Internet, in contrast, anything is published. There is no filtering, or as others would say, no quality control.

Compared to some generations ago the amount of information that surrounds people today is virtually infinite. It has been estimated that the amount of information in one copy of the New York Times contains as much information as would have been processed by an individual in the fifteenth century during his entire lifetime.

The upshot of this is that all forms of information have equal value on the Internet: large organisations compete with single individuals in showing their wares. Thus, formal books and articles are no longer the sole authoritative source of information. People and organisations are now highly relevant to the authority of the information, and they are, by and large, directly accessible. This diversity of sources of information that are directly accessible requires that one design a research strategy to suit one's needs. Otherwise one will sink in the sea of information that makes up the Internet.

Furthermore, because the authority of the providers of information on the Internet is often difficult to determine, it is essential to develop critical and analytical skills in order to determine whether one should use the information or not, and which sources to believe. Paradoxically, while one may communicate directly with the authors of the information on the Internet, there is no way to determine who they are, necessarily. User/authors on the Internet are able to remain anonymous, in large part.

12. Search Services: A Compromise for Empowerment

In response to the chaotic and vast amounts of information on the Internet, search services (also called "search engines") offer a ready-made structuring or filtering of information, using different methods of construction and maintenance. These services are a kind of replacement for librarians, since they try to provide an organised or systematic way of searching through the information to obtain what one wants.

Some services use computer programs to “crawl” the Internet and search for information. The problem with this approach is that the filtering out of useless or sub-standard information is done rigidly (if at all) according to computer algorithms. Others use a team of individual researchers to surf the Internet to find and evaluate information sites. With this approach, one must trust researchers (who may have different interests than the user) to filter out inappropriate information. An example of the service that has adopted this approach is Yahoo. Yahoo has also attempted to provide a hierarchical structure to its search service, having developed a highly structured classification of all information. The problem with this approach is that it is particularly difficult to change the basic structure once it has been established, and it has grown, rather like branches on a tree. However, as of this date, Yahoo is probably the most popular search service on the Internet.

Table 3 provides a rough idea of the different results that are produced with different search engines, using the term, “prison.”.

Table 3: Comparison of Search Services for Search Term “prison”

Search Service	Number of Hits
Excite	167,180
Infoseek	11,024
Lycos	11,536
Yahoo	160
Magellan	6,591
AltaVista	80,000
Web Crawler	3,139
Hotbot	172,651

(Conducted 1 October 1996)

As we can see, the number of documents found by each service ranges widely. However, the service with the most documents found is not necessarily the best because we need to examine the content of the documents. Many of the hits may be documents that are of no value to our search. For example, if we are looking for information on prisons, such as how they work, statistics, etc. some searches may just as easily turn up documents that are, for example, songs that have the word “prison” in them. This is why it is so important to develop a clear and systematic search strategy, in an effort to eliminate useless or irrelevant information. Furthermore, examining some of the content returned by the searches will show that the quality and diversity of the information obtained is vast. Clearly, the most important piece of information one can get is to establish the source of the information. Mostly this is available on the Internet, but often it is not. Indeed, the very nature of the Internet makes it possible for sources to remain hidden and anonymous. The availability of sources may also depend on which particular resource on the Internet one is searching. Discussion lists and bulletin boards, for example, are bodies of information that are essentially produced by anonymous authors. Information on Web sites is much more identifiable, and, depending on the site, much more reliable. The types of criminal justice

information available on the Internet are outlined elsewhere in this document, and a brief listing of criminal justice sources on the Internet is contained in the appendix.

In sum, we can see that in the age of the information society, it is vital to plan ahead in regard to what information one needs. The amount of information is vast and diverse, and the organisations and individuals who produce information must be identified. However, what the Internet demonstrates much more clearly than ever before is that individuals and organisations are producers, disseminators, and consumers of information. With this in mind, let us consider the applicability of the new information technology to criminal justice.

13. Types of Criminal Justice Information

There are many different types of criminal justice information, some of which would not have been thought of as information or databases prior to the revolution in information technology. For example, guidelines, rules and legal codes are not, strictly speaking, databases in their physically published form such as a book of legislation, a handbook for police on guidelines to arrest, or a book of rules on searching a suspect. However, these types of information need not be sequentially ordered.

Take a book of legal codes, for example. Although each law may be numbered consecutively, it is often published in a loose leaf format, and it often has many, many footnotes. This is because legal codes and laws have many branching links to other laws and codes in the same codebook, and indeed to other codes physically located elsewhere, thus the need for extensive footnotes. The sequential numbering of codes is merely a way of organising the laws so that they may be easily referred to in short hand (e.g. “murder one”) but they do not have a linear structure *per se*.

Because of this embedded need for cross-linking, legal codes and were among the first documents turned into hypertextual databases. They can be easily searched by whomever needs information. A judge in sentencing may want to look up the relevant sentencing law, a police officer may want to check on the guidelines for search and seizure. In fact, books of guidelines can be easily transformed into databases that allow self searching and teaching. They can be used as training manuals in themselves, since they allow the user to browse freely across the information, following the information that one needs and learning at the user’s own rate. Other types of information that may form databases in criminal justice agencies are as follows:

Personal information on individuals such as births, deaths, marriages, taxation, licenses, court records, home addresses, telephone numbers. In some countries many of these data are collected and maintained by police or police-related agencies.

- Information on property such as serial numbers of cars, houses, radios, televisions etc.
- Documentaries, books, and reports.

- Statistics concerning crimes, criminal cases.
- Budgetary and accounting information on individuals and organisations, and criminal justice agencies.
- Personnel records of criminal justice agencies.
- Geographic maps and plans of urban and rural areas.
- Data on traffic movement.
- Criminal Records. This type of criminal justice database could of course mean many things. It may include finger prints, arrest record, prior convictions and many other items. What is most significant is that in order to develop complete criminal record files, it is clear that information must be obtained from all levels of the criminal justice system. In such a case, sharing of information is essential by all agencies.

14. Information Sharing

As the idea of the Internet and its vast array of information and accessibility becomes widely accepted and understood, and as technology for linking databases that are diverse in structure improves, criminal justice agencies must prepare to share their databases across many different organisations and agencies. Criminal Justice bureaucracies produce large amounts of information as a result of their everyday activities. Whether or not this information becomes a database will depend on the use to which the agency or other agency may have for the information.

The fact that most information produced by criminal justice agencies results directly from their everyday activities is one serious disadvantage, because the information is often stored and collected in a form and structure that is not conducive to evaluation and research or utilisation in other settings. For example, police may record their contacts with suspects, hoping to use this information to help them uncover other suspects, who may help them solve crimes. However, this same information, if collected systematically, such as location of contact with suspect, circumstances of contact, and other situational details, could lead to an overall assessment of the most common situations in which offenders are found, and thus to hypotheses of a broader kind concerning hot spots of crime, and so on. Such inferences do, of course, require that information that is stored can be aggregated and turned into statistics of one kind or another.

In criminal justice the agency that often collects information may not be the agency that later uses it. The interrelationship between the data collection of one agency to the next (e.g. police-courts-corrections) must be of great significance. Should a judge be aware that if he sentences an individual to prison, there may or may not be enough prison space? The serious attention to the collection and sharing of criminal justice information means that agencies must work closely together. As sophistication in the storage and retrieval of data increases, agencies will be more often confronted with the demand to share their information.

15. Utilisation of Criminal Justice Information

We may identify four broad areas where criminal justice information is of particular use. There are undoubtedly more, but we think that the following represent the most essential areas:

15.1. Manpower allocation

As noted above, collection of information and assembly into databases that may be analysed concerning the incidence of crimes, such as time of day, day of week, assists with the deployment of police patrols. Identification of hot spots of crime, allows police to focus special crime prevention strategies on particular areas and places. Allocation of space in prisons depends on the collection of data that allow analysis of trends in admissions and length of stays in prison. Allocation of personnel and offenders to special programs is made easier when such information is available. Of course, promotion decisions of personnel may be related to an assessment of personnel allocation in regard to special skills, ethnic, gender or age composition, all of which may be relevant to particular tasks at particular points of the criminal justice system. Databases on personnel may also improve the processing and allocation of cases where long term contact with offenders is required (e.g. parole or probation).

15.2 Education and Training

Databases in criminal justice may be used for education and training. As noted above, hypertextual databases, especially using new multi-media technology, may be assembled for self training modules of criminal justice personnel. Guidelines for police behaviour, such as arrest policies, warning policies etc. may be structured into modules that can be self-administered. The same modules may be used for distance education, and could be conducted over the Internet and World Wide Web. Statistical information on the activity of criminal justice agencies, especially examining the processing of cases and offenders are especially useful in training personnel, because they can learn quickly the decision points in the criminal justice system, and see more easily the effects of what they do on other parts of the system. With care, this information can be used for education of the public about the activities of the agency and its accomplishments.

15.3 Planning

Planning is the key to an efficient criminal justice system and requires not only the systematic collection of basic criminal justice information, but also its compilation and analysis. It is probably the most important use of information in any context. We list here only a few of the statistics that are important in assisting the planning and subsequent efficient operation of the criminal justice system. Indeed, without planning, the criminal justice system, would not be a system. A few examples of basic statistical data are as follows:

- How many crimes recorded by police, and what types of crime?
- How many arrests made by police and of what kinds?
- How many offenders processed through the courts?
- How many sentenced, and to what kinds of sentences, and for what crimes?
- How many criminal justice personnel are there and are these numbers related to the way in which the criminal justice system processes offenders?

- How many prison beds are available, what is the admissions rate, and how long do inmates stay in prison?
- What are the typical sentences given by judges for various types of crimes and criminals?

These are but a few examples. The United Nations Division of Crime Prevention and Criminal Justice publishes useful publications identifying these important aspects of criminal justice information¹¹. The U.N. Surveys of Crime Trends and Criminal Justice Systems is an excellent guide to the range and type of data that any criminal justice system should aspire to assemble.

16. Three Steps of Criminal Justice Information Utilisation

The utilisation of criminal justice information may be summarised as a three step process:

First, the data must be collected, and this must be done in a systematic way, which requires the structuring of procedures for collecting information as a part of the everyday activities of the agency. Second, the data must be assembled and aggregated so that they form a database that reflects the activities of the agency over time. Third, effective ways of sharing this information to criminal justice agency personnel of various criminal justice agencies and to the public must be developed.

The final step opens up two additional aspects of criminal justice information that must be confronted: accessibility to criminal justice information, and the policy implications of criminal justice information.

17. Accessibility of Criminal Justice Information

Communication and accessibility are essential for the effective use of databases and other criminal justice information. Databases may be linked to each other via other computers, using Internet and intranet technology. However, decentralisation brings with it problems of control, which are essentially political questions.

The question of right to know and need to know concerning access to criminal justice databases needs to be addressed. Remote access to databases such as police access from their patrol cars to vehicle registration or criminal record databases, or to dispatchers of medical aid etc. is essential for efficient use of criminal justice information. Access to these databases obviously should be restricted on a "right to know" "need to know" basis.

However, other databases such as court records are often legally public documents but they are rarely

¹¹ E/CN.15/1996/13 "Draft Action Plan on International Cooperation and Assistance with regard to Statistical and Computerised Applications in the Management of the Criminal Justice System"; E/CN.15/1994/3 "Progress Made in the Improvement of Computerisation in Criminal Justice Management, with Emphasis on Strengthening National Capacities for the Collection, Collation, Analysis and Utilisation of Data"; A/CONF.144/14 "Computerisation of Criminal Justice Administration"; ST/ESA/STAT/SER.F.58 "Guide to Computerisation of Information Systems in Criminal Justice" (1992)(E.92.XVII.6); "Computerisation of Criminal Justice Information Systems":Volume I; by Richard Scherpenzeel (1992); "Computerisation of Criminal Justice Information Systems": Volume II; by Richard Scherpenzeel (1992); A/CONF.144/14/Add.1 "Executive Summary of the Manual on Computerisation in the Management of Criminal Justice"; ST/ESA/STAT/SER.F/43 (E.92.XVII.6) "Manual for the Development of Criminal Justice Statistics" (1986); ST/ESA/STAT/SER.F.58 (E.86.XVII.16) "Guide to Computerisation of Information Systems in Criminal Justice" (1992).

easily accessible. They are usually only publicised by the media who focus on bizarre or unusual cases.

Statistical information of the sentencing by other judges of like cases could help greatly a judge trying to decide a particular case. Sentencing guidelines has used this approach to some degree, although it imposes other rules of its own.

The concept of database has undergone transformation since the Internet. Now, one can think of the recording by video cameras of the activities of citizens on a public street as a database. These have been shown to be most effective in apprehending offenders and in crime prevention.

Criminal records databases are becoming more and more sophisticated, but their utility depends on easy access from many different agencies involved in the control of crime, because offenders these days are often highly mobile and can move easily from one jurisdiction to another, and one level of activity to another.

18. Policy Implications of Criminal Justice Information

Basic statistical criminal justice information provides an accounting by a government concerning how it treats those who come in contact with the criminal justice system. The arrest rate, for example, can be interpreted from a number of different policy perspectives. It may be seen as good or bad, depending on one's point of view or political interests. Similarly, the publication of the number of persons in prison always imparts with it a political tinge, especially when compared with other countries.

More obviously, political categories such as offenders in prison awaiting trial or prison overcrowding may bring with them criticism from opponents of the prevailing system. Less obvious categories, such as delay in processing offenders in the criminal justice system, may also be identified through the careful collection and analysis of basic criminal justice statistics. A well-meaning government may remain unaware of bottlenecks in the processing of offenders if it does not have the basic data with which to review the effectiveness of its criminal justice system.

Publication of criminal justice information by separate agencies of the same government will also force a comparison of this information (e.g. prison rates with arrest rates) and thus encourage different departments and agencies to work more closely together, or at least see that what one agency does may well affect each other agency in the criminal justice system.

The publication of criminal justice information is also an important part of public relations of any agency or government, so that the way in which the information is presented may be crucial in terms of how it is received by the public and/or the media. In fact, criminal justice information released to the media requires special consideration because it may have unexpected political and social consequences.

What criminal justice information should be made publicly accessible? Should a sudden increase in violent crime, for example, be made public knowledge via the media? It is apparent, and has been documented, that a "crime wave" can be easily manufactured from the statistics produced by criminal justice agencies, which

are then re-interpreted by the media (and by governments and their opposition)¹².

How should statistical data be simplified, or alternatively their complexity made more apparent, if at all, for public and media consumption? Other difficult questions remain unresolved, except in the political arena. For example, should the impending release of convicts who have served their time be publicised? Databases of released sex offenders who have served their time, but which are made public, raise new issues concerning accessibility and the use of public information in criminal justice. As public records such as these become more and more available, issues of “individual rights” and privacy will continue to arise. One can see with these examples how the Internet, with its strong push towards open access to all information everywhere has set the climate for the publication and accessibility of criminal justice information of the most sensitive kind. We can only expect this to continue. Thus, criminal justice agencies must become expert users and producers of Internet information. Perhaps the term information literacy should be expanded to include not only user skills but information producer skills as well.

19. Summary and Conclusions

The accessibility, availability and variety of criminal justice information has increased geometrically since 1991. This increase is largely due to the deep changes in authority and control in post modern society, as well as the comparatively sudden popularity and effectiveness of the Internet.

The changes have brought with them new opportunities for all, with the possibility of empowerment of individual users, and open access for publication of information by individual producers.

The democratisation of information heralded by the Internet means that developing countries have a much greater chance of benefiting from the revolution in information technology, and are relatively less likely to become victims of this societal change, as has happened so many times in history when drastic changes have occurred in western society.

These changes require that the level of literacy, especially information literacy be raised for all potential users of criminal justice information. Workshops¹³ aimed towards this goal are essential for all users, whether from developing or developed countries, because until now, all users have remained passive recipients of information. It is essential that they learn to become active seekers and providers of information.

Criminal justice agencies are at the cross-roads. While their importance as information generators can only increase, the demands on sharing, producing, and using criminal justice information are expected to place strong pressure on all criminal justice agencies, many of which are not used to sharing information with other

¹² Brownstein, H. (1996) *The Rise and Fall of a Violent Crime Wave; Crack Cocaine and the Social Construction of a Crime Problem*. New York: Harrow and Heston.

¹³ For an example of a course in teaching information literacy in criminal justice see: “Teaching Information Literacy in Criminal Justice”, Graeme Newman, Dennis Benamati and Adam Bouloukos. *Journal of Criminal Justice Education*, 1995.

agencies, let alone the public.

Criminal justice agencies must therefore develop clear strategies for the collection of criminal justice information, establishing careful procedures not only for the production and aggregation of criminal justice information, but also for the collection and recording of criminal justice information which is generated by their day to day activities.

Planning within and across criminal justice agencies is essential if problems of accessibility and publicity are to be minimised, and if criminal justice information and databases are to be used to increase the efficiency of the criminal justice system.