

Information Technologies in Law Enforcement

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1. INTRODUCTION AND AIMS

The purpose of this paper is to present a brief exposé on the relevance of information technology to certain aspects and procedures in the administration of justice. The elements on which the report is based are numerous: their integration in a concise global view is forced by multifarious factors.

a) Information technologies are nowadays pervading everywhere, almost as is the term «information» itself.

b) The human systems with which law-enforcers are concerned are increasingly complex, among other things because the laws themselves continue to grow in volume. Without support from information technology, the law would be hard put to interpret its role in accordance with changing situations in society at large, where information technologies are widely used, sometimes to circumvent the laws and their enforcement and sometimes even to commit deliberate violations.

c) In recent years, moreover, justice has widened its scope in response to rapid and unceasing socio-economic development leading to innovations in organization and production and a degree of competitiveness that scarcely leaves pause for breath, all of which breeds conditions in which breaches of civil and legal ordinances are more the rule than the exception.

d) The overall presence of information technologies is rapidly – or slowly, depending on one's point of view – leading to a change in the meaning of the word communication that cannot be ignored by anyone – be he a judge, a doctor, a government official, or a scientist – whose day-to-day work depends on information and its implications.

e) The complexity of the investigations conducted by the so-called «Clean Hands» Pool, which transpired clearly from the Cusani trial, has served to emphasize the importance of integrated information technologies in the administration of justice.

f) Apart from the fundamental aspects listed under *a*, *b*, *c*, *d*, and *e* above, it has to be borne in mind that the law needs information technologies to keep the productivity of its procedures and structures up to a level compatible with public spending. The absence of satisfactory productivity inevitably causes a sense of frustration in striving to meet the demand for justice and coping with the spread of lawlessness, which is bound to lead to insistence that the law find new ways and means. Such means are, however, unlikely to be provided to an adequate degree, with the result that lawlessness will spread still further.

This paper is substantially motivated by the needs of productivity, its object – or hope – being to show how technology may be planned in the interests of justice in such a way that, albeit gradually, future changes will blend with the present culture, whose roots are in a past that, however vividly present in people's minds, has largely exhausted its role. The cost of technologies will to a great extent depend on how they are developed. The cost may be one, ten, a hundred, or more, according to the aims the planners set themselves. Those who aim only to embark on an uncritical increase in public spending, as has often happened in the past, will create high costs, inefficiency, and frustration, as more than a few examples from recent history have shown. It should be, for example, the evaluation of the effectiveness of the proposals to drive the investments towards certain suppliers and the planning activity towards certain decision makers, rather than absurd calls for tenders resulting in competitive bids that have nothing whatever to do with the public interest, public spending, or the administration of justice.

2. LAW-ENFORCEMENT PROCEDURES, INFORMATION AND TECHNOLOGIES

Justice has recourse to many procedures. All these procedures may be described in the abstract from the point of view of information. The training of personnel calls for the transmission of information. The buildup of competence requires that information be accumulated in concise and organized form. Penal or civil proceedings are information procedures that call for the collection of data, knowledge, and decisions. The latter, too, may well be seen in the light of data processing. We could easily continue with the list, but there would be little point in doing so, though it is important to recognize the existence of this situation. One of the first results of such recognition is the possibility of employing information technologies in all law-enforcement activities. The issue of laws, the distribution of legal

knowledge, the collection and the evaluation of law-breaking, the visualization of the legal behaviour in the country available for government authorities and individual citizens themselves, the recording and integration of information relating to proceedings (civil, penal, etc.), presumed breaches of the law, the imposition of penalties, the implementation of procedures, and much else besides, can become more productive and be supported by information technologies for purposes of productivity, quality, assessment, forecasting, management, control, or anything else.

As is well known, in the procedures managed by the Pool Mani Pulite, more than a few technologies were integrated in order to enhance productivity, including technologies to improve the transparency of acts and behaviour, the presence and meaning of which could be evaluated also by citizens.

From the methodological point of view, the procedures employed by the law may be analyzed in different ways. A very productive approach to make analysis easier and to make it possible to manage the complex structures associated with the administration of justice, is to consider the aspects of justice as separate entities subject to their own life-cycle. The description, at various levels of abstraction (detail), of the life-cycle of the separate entities, followed by establishment of the degree to which they are interrelated, is likely to lead the analyst to adopt suitable processes of synthesis that can be transformed into complex software procedures for the management of the entities in their interrelationship with others.

This procedure forms the conceptual basis of so-called «object-oriented technologies». The justice entities – all of them – are objects that can in part be classified and of which we can provide instances. Thus, anybody analyzing laws (objects) within the framework of an organization (say a company, or a ministry), would have to describe their life-cycles at various levels of abstraction. These are very numerous indeed, and it is very probable that any organization will be forced to draw on its own experience and knowledge to render the analysis feasible. According to the nomenclature of object-oriented technology, the life-cycle is nothing more than the ensemble of «methods» characterizing the object in question. For example, an application of a law in an organization may lead to the mechanized performance of an administrative procedure (as in a bank), or of a common, sealed cash-register (as in a shop).

In the light of the foregoing, law production and its promulgation are therefore nothing more or less than the production of instances of objects that, being interpreted by the «culture» in which such instances are embodied, lead to forms of behaviour that can be evaluated from the legal point

of view with suitable, though not necessarily uniform criteria. A fundamental aspect for the understanding of the legislative and juridical phenomenon is the autonomy of the parts – «part» being understood here in its general sense – and consequently the existence of concurrency. In the world of information technology, a considerable research effort is devoted to the concept of concurrency, in the hope of acquiring a more complete knowledge of the subject and of being in a better position to design reliable organization and information systems. In-depth understanding of the concept is certainly important, among other things for studying both the inherent phenomena of justice and those that the latter investigates. Nothing in the justice system or in the technologies it employs can be divorced from a knowledge of the concept of concurrency, whose aspects and consequences are, alas, little known.

Some of these consequences might lead to a far-reaching revision of the disciplines of Law themselves: for example, when we are set wondering about objectivity or subjectivity with regard to phenomena associated with time and cause, or as to the autonomy of the plaintiffs and observers, or of those who attempt to reconstruct what happened.

A realistic attitude with regard to the problems occasioned by concurrent processes is to adopt the technologies of coordination – often indicated by the initials CSCW (Computer Supported Cooperative Work) – in the management of activities, giving preference to coordination through painstaking human agency rather than an automated process in which the presence of autonomy and concurrency are sure to produce unexpected situations that are therefore difficult to manage.

3. PROCEDURES AND KNOWLEDGE

Data, information, and knowledge are terms that are often treated as interchangeable. Certainly, each of these entities is a data. For example, the time is a data, as is a law laying down a certain type of behaviour the purpose of which may also be specified. Data, however, do not have the same use. Data, therefore, depending on the context, are associated with other elements (data) that define the use made of the former. Pragmatic elements come into play, and only at that level it is possible to distinguish between various types of data. Thus, a law is a data that describes rules, or possible behaviour.

Not everything, however, is so simple, because the decision to associate the concept of knowledge with some form of evaluation – in extreme cases,

of universality or truth – with certain data, the presence of conflicting interests and autonomies however partial, the presence, albeit partial, of data useful for certain purposes, ..., this has so far made it difficult to define a serious nomenclature for uniform use.

Nevertheless, things can be simplified by adopting the idea that information is the knowledge required for solving (or introducing) conflicts in the hypothetical (deductive or inductive) context chosen. The solution of conflicts is, moreover, an event. It follows that the term «information» implies something dynamic not found either in the term «data» or in the term «knowledge». Naturally, the term «knowledge» is strongly related to the context, to the protagonists involved, and to their intentions. Thus knowledge in order to conceal the truth (event), in the attempt to resolve a conflict between two opposite assumptions, leads to an evaluation of truth that might be either subjective or actually false.

The importance of recognizing the details of the role of knowledge in the proceedings of justice and in real life cannot be denied. Indeed, starting with such details, we may imagine classes of problems in which justice can be aided by information technologies, which technologies make data available to operators that can be used to solve problems (knowledge) or make them more complex. Thus, for example, detailed knowledge on the many methods used to perpetrate criminal acts certainly render possible the organized collection of data under the guidance of knowledge in its various pragmatic expressions, including hypotheses. The decisions collected in various forms of case law certainly play this role. Much can certainly be done in this area. Thus, for example, suitably abstract collections on behaviour would finally make it possible to define a case language analogous to that of the laws, though with analytical and taxonomic rather than prescriptive objectives.

An important aspect of the evolution of the concept of knowledge that is slowly making headway and that might make contributions to the philosophy of law and the practice thereof is that of qualitative – i.e. vague, uncertain, approximate, rough, unrefined – knowledge. For such knowledge, the English language nomenclature has almost universally adopted the term «fuzzy». This adjective can nowadays be applied to information, data, knowledge, thought, procedures, and to many other entities. The concept of «fuzziness» has two sides to it: a numerical one that indicates the degree of subjective conviction in a given statement, and a linguistico-logical one that conveys the same idea without falling into the trap of classic logic whereby it is assumed that true is the opposite of false. If anything, there will be a degree of truth and a degree of falsity.

The reasons for the success of the «fuzziness» idea in Japanese practice and culture has to be sought in the considerable simplification thereby obtained in the solution of problems (of a technical nature), and perhaps in the naturalness of the idea as compared with the qualitative capacity of human judgments, which probably cannot be explained by resorting to the attitudes of classic logic. «Fuzziness» reduces the need for complex calculations and the knowledge of complex mathematical methodologies in the solution of control problems. From this point of view, it can very probably be used in setting up systems based on knowledge – both fuzzy and otherwise – to form opinions, or define procedures that are left somewhat vague. The association of vagueness with discretionality – for example – might go some way towards explaining the origin of discretionality by making it transparent and observable, and therefore assessable. This might help to modify the custom that has certainly led legislators and some legal practitioners to consider discretionality as a mechanism to be kept somewhat concealed, with the explicit intention of setting up power structures, whether legal or outside the law, perhaps without any explicit illegality. For example, it is easy to associate a number with the idea of the speed or slowness of a procedure (which is a qualitative idea of the «fuzzy» type). It would not then seem so strange that, in the event of illegality, it should be the extent of the «kick-back» to provide a measure of the speed or slowness of procedures.

All this may well be used to convince people that the exclusion from legal production of realistic aspects (discretionality, concurrency, etc.) in favour of idealistic elements is one of the bases of corruption.

4. DOCUMENTATION

The importance of legal documentation is well-known. The legal profession has developed a formal rigour and various languages to express a great variety of entities.

Legal parlance has thus become a specialized language that can easily be distinguished from ordinary expression – which, in its turn, is subject to various special uses. Legal language, in the context of the legal system, aspires to that rigour that is rightly prescribed for the administration of justice.

The appearance of information technologies is slowly increasing the variety of the elements that document legal practice. Use is made of audio recordings, of video recordings, of stenotypy, of photographic documentation, as well as small or very large exhibits, including drawings, computer programs, and many other items.

An enormous variety of new symbols have appeared in the exercise of justice. These symbols cannot, however, interfere with the determination of the legal system to maintain its documentary rigour. This inevitably involves becoming acquainted with the new languages and the instruments required for handling them. Within the terms explained here, it might be thought that the new languages involve difficulties. Of course, this is true in terms of the technologies needed for their use and the methods of communicating non-graphemic messages. The reading of a video cassette calls for special equipment, and the reading of computer software requires a special computer with a series of components (operating system, compiler(s), peripheral units), without which that program cannot be read.

Communicating the details of a physical exhibit of some kind calls for an on-the-spot inspection or the duplication of the specimen to enable other people to become acquainted with it.

To avoid all this, the officers of the law at times forgot their role and delegate to technicians assessments of situations in which facts that could not easily be described in legal language play a decisive part.

While this attitude is certainly acceptable when new linguistic elements first appear, this will in the long run result in the creation of a great variety of legal authorities, as can be seen from the fact that, in certain domains, there is a tendency for people to create their own justice systems, using a language of their own – see the authorities that mete out justice in the area of sport.

In a world that is rich and without competition, the prospects for separate systems of justice are certainly interesting. Nevertheless, it must be asked how far the present trend towards the automation of production, the increase in unemployment, and the need for the state to reduce public spending, is compatible with the tendency that, although it may seem potentially to promise cuts in government expenditure, in fact transfers to society the social cost of services that are not necessarily productive and tend to produce disputes and the proliferation of specialized bureaucracies.

And here it is worth inserting a parenthesis on the production of texts. The widespread use of word-processors has certainly increased both the volume and the quality of texts. Much research has been done by various technicians and manufacturers to devise efficient equipment for the production of texts, wherein the main considerations have been user-friendliness and productivity.

Private practitioners of the law make regular use of such equipment, although the most commonly used types of machine certainly do not represent the best that can be produced in the area of interactive word-processing,

which serves mainly to prepare contracts, draw up agreements and organize consortia, or administer property, and so on. Side by side with word-processing, optical memory supports have been becoming increasingly widely used, especially in the area of the law. These memories, which are of various kinds, make it possible to communicate enormous volumes of material on laws, decisions, opinions, and information on law enforcement, etc.

A flourishing market has developed that seems to have generated a private technocracy acting as a kind of intermediary between the public and the law in all its components (including the military). In Italy, this field is a particularly fertile one for a series of reasons: the first is the absence of information networks, and the second is the total unwillingness of the public legal system to make public information of an entirely public nature – that is, paid for by the government for the public and in the public interest. It is very difficult to arrive at an overall assessment of this situation in Italy.

Certain consequences are, however, inevitable: for, in addition to textual communication, instruments providing direct support for decision-making will slowly be developed. This is bound to have consequences for the public administration, whose role will be curtailed. The administration, therefore, will perhaps end by opting for further complications of the citizen's life – thus consolidating its role by means of more or less direct resistance to any change, with a consequent loss of competitiveness in Italy due to inflated administrative costs – or else for an increase in financial discrimination to the detriment of the poorer classes, or for an increase in illegal behaviour, accompanied by superficial calm and serious-mindedness.

As we shall also see further on, another important aspect of the greater simplicity of producing and distributing texts by means of optical memory supports opens up the way to standardized styles of communication and faith in one's neighbour. Indeed, the growing volume of texts is making life difficult for people in all areas of activity. Producing texts is easy, retrieving information from texts and documentation is easy; but reading has become in fact impossible.

Technologies for reading and summarizing and, more generally, for searching for information in texts are usually limited to data banks. The same data banks are often used more to lend credibility to remarks in texts than in the interests of precision – scientific documentation is often like this: a quotation is used to draw attention to oneself or to attract some kind of support, but certainly not always for scientific or historical purposes. Similar behaviour may even be found in legal argument.

All this adds up to the need to find forms of textual expression that are

as concise as possible. For those who use electronic mail regularly, the problem has already become a dramatic one. Messages of more than a certain length cannot even be entertained because there is not enough time to read them. The consequences are many: those with the power to do so are driven to increasing the number of persons whose job it is to read and summarize. Those who have such power, but do not adapt themselves to the situation, lose that power. The information = power equation has therefore undergone a considerable change due to this new form of communication. Naturally, this inflexibility is capable of decreasing. But the habit of combining a summarized item with the whole text and documentation in support of statements made, nowadays made possible by the great reduction in the cost of producing and distributing texts, is likely to lead to a new kind of hypertextual communication on two levels: one level to state, another to justify. This was, indeed, one of the achievements obtained during the final summing-up of the prosecution in the Cusani trial. The prosecutor documented the statements made with evidence identified and stored in magnetic and optical memories (texts, video, documents) at all stages of the proceedings, including the initial documents and proceedings in the court room, with the possibility of interactive hypermedia (i.e., hypertext and multimedia) access.

5. INTERACTIVITY

Information technologies, taken as a whole, due to their processing capacity, graphic interfaces, memories, telecommunication networks, public display systems, software, and much else besides, make it possible to set up interactive systems thanks to which the user initiates a dialogue to gain access to information selectively, in order to communicate such information to third parties in court or on networks, either immediately or later on.

Information, nowadays nearly always multimedia, can be expressed in very many forms: texts, drawings, graphs, or animated and filmed sequences. Thanks to virtual technologies, the user will be able to interact directly with objects drawn on the video with some of the many techniques and «direct manipulation» methods that have been devised in recent years. Furthermore, again due to direct manipulation, techniques for creating virtual spaces are widespread (there are virtual offices, virtual museums, virtual laboratories, virtual administrative structures, and virtual cities that make it possible for the operator to perceive visually, and with the senses in general, the context in which his activity or communication is taking

place. The applications (still at an initial stage) are numerous, and it is very possible that some may be of direct interest to the justice system. The forms that such applications may take are very many; pride of place must go to the setting up of systems of graphic virtual offices to make electronic communication possible without needing to know any complex control languages, both for users of office systems and for the staff. The adoption of languages for the graphic representation of procedures and stories – perhaps with interactive animated figures – opens up the possibility of a summary graphic display of stories of trials, or of facts of life connected with legal procedures.

In other words, this is a kind of artificial interactive cinematography that can be set up by persons who are not technological experts and are interested only in communication, and that will certainly be able to convey both simple and complicated situations. The instruments available for producing these entities have not yet been perfected and are only at the research stage in the entertainment industry. This might make the foregoing considerations seem irrelevant, but this is not the case, there being a great deal to be said on the subject. First of all, it needs to be pointed out that the appearance of virtual reality in the entertainment world has far-reaching implications for information technologies from the cost angle. The computers used for entertainment and virtuality will soon have far greater computing abilities than the «serious» administrative computers. This fact will very quickly encourage the spread of virtuality to many other areas, among other things because the direct manipulation of objects, whenever available, can be performed without possessing any special skill. Moreover, the personal computer and word-processing, which have had such a significant effect on the economy and culture of the whole world, also owe their existence to the fact that the universal popularity of TV reduced the cost of cathode-ray tubes to the point of making it possible to design equipment such as the personal computer and word-processing systems for prices that would not otherwise have been possible.

Another aspect of virtuality is the creation of new forms of interactive communication that will be defined in the games based on interactive simulation of intelligent, relatively autonomous agents. These are just programs endowed with a sort of «appearance». Users without any special skills will therefore certainly be able to impart an image to concepts and set up communication structures able to become repositories of data, remarks, opinions, and the breach or application of laws.

Thus the role of these new forms of interactivity will become not only that of graphic communication, but also that of ensuring that graphemic

(symbolic, legal, etc.) information is directly associated with the entities in question. In essence, systemic models corresponding to knowledge – assumptions, procedures, etc. – would be constructed interactively, starting from behavioural facts (from cases) that were already known or to be set up on an ad hoc basis.

Suitable systems for designing legal narratives and procedures may be devised by classes of objectives. This may certainly promote not just productivity, but also the understanding of complex procedures by operators; such understanding which may currently be questioned by anyone, without fear of error, especially given the complexity of law-enforcement procedures. The presence of networks for local or geographical telecommunications and the possibility of cooperation through a network for one and the same purpose may – as happens in some areas of human activity – give rise to a form of interactivity between several operators working on the same problem. That is, a multiplicity of operators (for example, lawyers, judges, policemen, journalists, defendants and prosecutors) and clerical staff might work on a series of common data to construct, with care and rigour, the interactive documentation of the case in question. This kind of cooperation may well be called «inter-activity». In other words, interactive activity carried out by several persons in the attempt to increase everyone's productivity and reduce the distance from a truth whose existence not everyone admits, but that must nevertheless be pursued with great persistence, even in the face of basic doubts on the ratio of objectivity to subjectivity, or in the event of rising costs for the authorities – which costs prevent anyone without the necessary means from attempting to clarify his own position better, while those possessing means are able to obscure the picture almost at will.

6. RESEARCH ON TECHNOLOGIES EMPLOYED IN THE LAW

The foregoing sections have reviewed the various possibilities regarding research on information technologies for use in law-enforcement.

This is certainly a subject of great interest, among other things for business reasons, for suppliers of equipment, who are nowadays prosperous thanks to the technologies devised and developed in countries other than ours. This is a far-from-negligible fact and is largely inevitable. However, the Italian justice system possesses formidable skills and a tradition of its own that would enable it to supply some courageous information without having to go abroad to find out how to develop technologies for law-enforcement purposes.

Given purposeful effort by industry and researchers, such technologies might supply useful by-products for many other activities: sport, medicine, entertainment, education, training, corporate organization and many others besides, and could well be an important factor in the rebirth of Italian industrial self-sufficiency. This will be possible if, together with the indications, particular attention is paid to the evaluation of results – an evaluation that should not be carried out only to favour a few large or small companies. The protection of competitiveness calls for independence and honest evaluation. Without these characteristics and without freedom from traditional or social prejudices, all attempts risk being fruitless. These considerations are technical in the sense that integration of the past with new technologies and the recovery of the present operators, gradually and without plans, with considerable variety, and with flexibility based on the experience of those operators, would seem, logically, to offer the only possibility of success for any attempts at change. It will be up to coordination of those concerned to give overall guidance, with complete transparency, on such changes as may be embarked on.

Naturally, this calls for courage in research, or at least in promoting free initiative, in the hope that examples will encourage many to compete in an area in which the consequence of competition is the improvement of the quality of the services offered by the justice system and the reduction of its costs, but above all without going against the traditional interests of the profession.

For, failing confirmation of the role of the law and a real awareness of the potentialities and of the immediate future of information technologies, a decline in the efficiency of the law will be inevitable and individual violence of various kinds will end by gaining the upper hand.

In the interests of prudence, it must also be made clear that none of this is simple: it is not good enough to buy computers for all problems to be solved as though by magic. Much devotion and patience, sure errors, and determination are indispensable ingredients in the conduct of technological, human, organizational, and cultural research and development if it is to be successful.

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