

# ICT Law - A Kaleidoscope View

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## 1 Introduction

ICT law can be perceived from different points of view: As a range of legal issues more or less firmly connected with computers, as a field of work for practicing lawyers, as an element of a strategy for shaping the emerging information society, as an integrated part of legal informatics with an emphasis on regulatory aspects of information systems, and so forth. This paper explores possibilities of this kind, not least the significance of ICT as a driving force. Many of the viewpoints reflect my personal experiences and, indeed, preferences. Illustrations and examples are almost exclusively fetched from the field of privacy protection.<sup>1</sup>

## 2 Enter ICT Law

### 2.1 What's up?

In the 1960s ICT law had begun to make itself visible. The general impression it gave was that of a patchwork rather than a coherent field of law. At first acquaintance, the detailed questions could seem straightforward but they showed a tendency to quickly turn into more complex and difficult ones. For example, there was the question of protection of computer programs under intellectual property law. It moved rapidly from semantics to politics, i.e. from narrow discussions of definitions (“work”, “invention” etc.) to broad debates regarding the nature of computer programming, economic and market concerns, possible harm to traditional categories of protected subject matter, the need for a new type of protection for computer software, and so forth.

At the outset, only few ordinary people had any contact with such matters and no personal experience of computers and data communications. Among experts, however, there was a budding insight that the new information technologies were capable of bringing about even far-reaching changes in society, including the system of law. The following two sections illustrate how such matters surfaced and how they could be dealt with.

### 2.2 Radical Change?

In Sweden at this time a Government Committee on Access and Secrecy Legislation was working on the right of access to official documents. In 1971 its mandate was expanded so as to include the issue of protection of individual privacy in the light of new ways of handling and exploiting personal data. The immediate reason for this expansion was that a public census in 1970 had caused a heated debate on privacy and computers.<sup>2</sup>

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1 The paper is based on a lecture that I gave at a conference in March 2010 to celebrate the 40-year anniversary of the Norwegian Research Center for Computers and Law. The gist of the speech was to reflect on my personal experiences of work in the field of ICT law since the mid 1960s. Not least, the paper draws upon research in the PRIMA (Privacy in the Making, 2006-2010) project, funded by the NORDUNet programme of the Nordic Council of Ministers (see “[www.sics.se/projects/prima](http://www.sics.se/projects/prima)”).

2 *Data och integritet* (Data and Integrity). Swedish Government Official Report SOU 1972:47, pp. 41-43.

With the aid of detailed questionnaires the committee studied the growing number of computerised personal data files and their uses in Sweden. The committee concluded that the risk of invasion of privacy had increased since there was now 339 personal data files in the public sector, about 3,000 in the private sector, and a yearly total increase of about 500.<sup>3</sup> As the survey indicated, the information stored in these files could be both broad and deep, and data in different files could easily be matched in order to reveal sensitive facts and interrelationships. In conclusion, the committee stated that automated data processing increases the threats to privacy (“personal integrity” was the preferred term in Swedish). The committee noted that the threats at issue could also be associated with manual data processing so that in this sense the difference brought about by automated data processing was only *a question of degree*. However, the difference between manual and automated processing was so substantial that, in the view of the committee, the situation must be considered to have *radically changed*.<sup>4</sup> According to the committee, not only was it necessary to take into account “the real risks” of intrusion but also “the psychological effect” caused by widespread awareness among the citizens of the risks associated with computers and personal data files.

To summarise, the committee found that the rapidly increasing use of automated data processing and personal data files had brought about a new situation. The *quantitative* change had at some point turned into a *qualitative* change, a difference in kind as regards risks and countermeasures. This motivated the committee to design a new kind of legal protection. Among other things, the committee concluded that it was not possible to rely on traditional public sector secrecy legislation since it had not been drawn up with the risks associated with large scale, computerised data processing in mind. This led the committee to propose a new, special law regulating personal data files maintained in computer systems. The committee also proposed that a special public body be established (the Data Inspection Board) to administer a registration and licensing system and act as a surveillance organ. The proposed legislation was enacted as the Data Act of 1973 and was the first national-level data protection legislation in the world. The responsible minister characterised it as “provisional” and foresaw that it would have to be revised as more experience was gained.<sup>5</sup>

### 2.3 *Watch your Language*

Another early Swedish initiative was the Data Coordination Committee (Fi 1971:3), which studied the impact of EDP<sup>6</sup> on public administration and socie-

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3 Op.cit. pp. 47, 98. The committee was well aware of the uncertainty of the estimated numbers. The yearly increase of 500 personal data files included only files of a particularly sensitive nature.

4 Op.cit. p. 60. In the words of the Committee the situation had changed “exceedingly” or “decidedly”.

5 Government Bill 1973:33, p. 92.

6 Today the term ICT (Information and Communication Technologies) has replaced the older terms EDP (Electronic Data Processing) and ADP (Automated Data Processing).

ty.<sup>7</sup> In this context it commissioned surveys of various problem areas, among them a report on EDP and law.<sup>8</sup> In this work a number of issues of general interest surfaced, among them the following:

The issue had to do with a section of the report presenting a revised version of the provisions in Chapter 2 of the Swedish Freedom of the Press Act of 1949 dealing with the right of access to official documents. The revised text used words such as “data”, “data media”, “machine processing”, and “computer display”.<sup>9</sup> This part caused a certain irritation among the committee members and some of them raised objections. Briefly, should language of this kind be used in statutes?

One argument for acceptance was that in this case there was no intention to change the meaning of the law; it was merely a question of making visible how the law would function in the new technical environment. In other words, the intention was not to suggest a new wording but to facilitate discussions about further development of the law, a sort of ‘shadow version’ intended to make it easier to understand the relationships between new media and traditional access rights legislation.

The incident illustrates that language can become a problem when realities change, in this case realities associated with new tools for data processing. To begin with, there are matters of legal style and customary ways of dressing things in words. The legislation at issue was, and still is, a part of the Swedish constitution containing time-honoured concepts and ways of expressing them. It is not difficult to understand that suggested ‘tech-style’ changes can cause unease. On the other hand, ‘the shadow version’ was not simply a question of style; it uncovered existing basic problems having to do with the old-fashioned world view of the Freedom of the Press Act. Briefly put, in one way or another it was necessary to clarify the meaning of certain traditional terms and to raise the issue of complements and replacements.

This semantic tug-of-war is, of course, a well-known, general phenomenon having to do with the development of law as a means of steering in society. Legal norms are made from complex representations, usually expressed in natural language text (as opposed to, for example, logical formulas or icons such as traffic signs). They contain parts that are associated with the steering process as such (rules of procedure in a broad sense) and parts that link to the world to be steered (things, actions, activities, relationships, and so forth).

The pace of change can differ in different areas and situations but, for the most part, it is a question of a relatively slow, continuous adaptation of the law to non-disruptive changes of its socio-technical environment.

The non-disruptive changes can, however, take on another nature and become erratic and difficult to understand and control. The causes for such a turn are of different kinds: One can look for them in physical as well as social and mental

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7 Datasamordningskommittén. *En verksamhetsrapport* (The Data coordination committee, activity report). Ds Fi 1973:10.

8 Peter Seipel, *ADB och juridik. En problemöversikt* (EDP and Law. A Problem Survey). Ds Fi 1975:3.

9 Op.cit. pp. 256-258.

phenomena and they can have to do with accelerating speed, new inventions, new borderlines, new risks, new economies, new attitudes, and so on.

To handle the strain caused by such changes it is not sufficient to rely on slow and minimal adjustments of legal terminology etc. Whole legal norm structures may need to be reconsidered, including such elements as basic aims and ideas, stake holders, means of legal steering, and ways of implementation (how to reach goals).

The experiences of the two Swedish committees can be seen as early indications of the kind of problems that have become increasingly common in the wake of ICT. They provide a background for the themes that will be brought up in this paper: the nature of ICT law, its dynamics, its driving forces, the changes that these forces give rise to, and the relation between ICT law and legal informatics. To begin with, let us look at two basic mindsets that can result in quite different views of ICT law.

### 3 Traditionalists and Renewers

#### 3.1 *Extremes and Middle Ground*

Legal informatics as a field of legal science began to take shape in the 1960s when the tectonic plates of law and ICT collided along an extended front. Among those who engaged themselves in the issues one could, right from the early days, discern two inclinations: one focused on ICT law and the other on legal uses of ICT. One could also, in particular as regards ICT law, distinguish between *traditionalists* and *renewers*. As for the latter distinction, the scale of opinions spanned (and still spans) from scepticism to enthusiasm.

The extreme sceptic view can be summarised in the following way: There is no need to develop ‘a law of typewriters’, so why should the computer be viewed differently? ICT-oriented legal issues can be dealt with without redesigning existing normative structures and the various particular issues can and should be treated where they belong, i.e. in fields such as human rights, privacy, taxation, intellectual property etc. ICT law as a whole is a mirage.<sup>10</sup>

At the positive end of the scale, the enthusiast has no difficulties accepting ICT law. According to this view, the ‘typewriter argument’ is misleading since ICT as a tool is infinitely more complex and powerful. Ambitious and coordinated efforts are called for to better understand the impact of ICT on the legal system and the various problems associated with its legal regulation. The recognition of ICT law is a natural response to the emergence of the information society.

In the middle zone of the scale one can place the opinion that integrated study of ICT law can be motivated and useful but that the issues are, in principle, well-

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10 See, for example, Viveca Bergstedt Sten, *The IT-practitioner's World*. In: Law and Information Technology. Swedish Views. Ed. Peter Seipel. Swedish Government Official Report SOU 2002:112. Bergstedt Sten summarises her criticism in the following way: “... [T]here seems to be little in the way of either IT-law or cyber law to provide tailored IT-legislation or even legal harmonisation to constitute a new legal field set to join the ranks of other established areas such as tort law, commercial law or building law, just to mention a few.” (p. 73).

known and that models for dealing with them and possible solutions can be fetched or constructed from traditional law and legal science. This proposition can be interpreted in two ways.

### 3.2 *Interpretations of the Middle Ground*

Interpretation 1 is *narrow* and can be summed up as *business as usual*. Thus, ICT speeds up things, intensifies activities, and introduces new facts and concerns. It brings about changes, but these changes have to do mainly with *quantity*, i.e. growing numbers of, among other things, stakeholders, conflicts, claims, crimes, information channels, and so forth. Generally speaking, the scale of things increases – small scale things become large scale things. But basically, the change we are dealing with can be described as *more of the same*. Nothing is new under the legal sun.

Interpretation 2 is *broad* and accepts that there are needs for new perspectives. It strives to analyse and describe them. The conclusion that ICT brings about merely quantitative changes stays on the surface and fails to spot more deep-going changes. In fact, what is ‘the same’ (before and after the emergence of ICT) proves to be problematic. All in all, interpretation 2 accepts elements of qualitative change and considers work on defining problems and designing model solutions to be both demanding and non trivial.

Interpretation 1 and 2 are not mutually exclusive since different frameworks may motivate different choices. For the most part, however, they can be regarded as antagonistic. Against this background, let us consider the weaknesses of each interpretation.

### 3.3 *Weaknesses of the Interpretations*

Interpretation 1:

*Inability to free itself from existing patterns of thought.*

New things are pressed into the shape of old ones. Stiff thinking of this kind is common in all kinds of human endeavours. Viewed in retrospect the tardiness can be perceived as difficult to understand and sometimes even ridiculous. To take a simple example; why did it take so long to come up with the idea that tractors can use front-end tools and need not be seen as machines that are limited to trailing their tools (like horses and oxen)?

*Lazy solutions*

Thinking of this kind is often associated with categorical propositions. For example: ‘There are no significant differences between paper documents and electronic documents’ or ‘Legal research is carried out in the same way regardless of whether the information is stored on paper or in computer memories’.

*Linear thinking*

A disregard for the possibilities of new lines of development, a lack of understanding of the explosive nature of exponential growth (and decay). Consider these statements: “The Internet is only a craze. I don’t believe that in the long run, people will be willing to spend the amount of time that it actually takes to surf on the net.” Or this one: “I think there is a world market for maybe five

computers.” Although the authenticity of both propositions is shaky, they are good examples of linear thinking.<sup>11</sup> (If you think that they ought not to be ‘cited’, consider instead the estimates of the above-mentioned Swedish Committee on Access and Secrecy Legislation (2.2) of the ‘market’ for personal data protection legislation – 339 files in the public sector, about 3,000 in the private sector, and a yearly increase of about 500).

Interpretation 2:

*Exaggerated views of the effects and changes brought about by ICT*

Such as:

- We need a new, special legal order for ICT, a complete body of cyber law must be developed.
- Blogs should be recognised as a source of law in addition to the traditional ones.
- Computer programs are instruments that can assist human thinking but they can also act and think themselves as ‘software agents’. Therefore, the status of legal persons should be allotted to them and they should be recognized as ‘e-persons’.

*The hyperactive lawmaker*

In this case there is an anxious drive to change and renovate without a corresponding understanding of the real needs for such actions. The result may be low quality regulation and more or less meaningless experiments that ought never to have taken place.

*Surfing on the ICT wave*

Underestimation of the quality and usefulness of traditional solutions and ways of thinking. A hunt for new things for the sake of the hunt itself, a fad for ‘e-solutions’.

### **3.4 Choosing Sensible Strategies**

Given the pitfalls outlined above, it is essential not to ignore the difficulties associated with choosing strategies for the study of ICT law. Generally speaking, one can say that the Nordic law and ICT research environment has managed quite well to balance the two interpretations, i.e. ‘business as usual’ versus ‘reform’. There has, however, been no uniform, strict line of thought or doctrine and different situations and areas of research have been treated differently. As for strategic differences, it may be noted that the Nordic research centres and research groups have tended to be more or less interested in the field of legal informatics as a whole. A weak interest tends to be associated with ‘business as usual’ strategies for ICT law.

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<sup>11</sup> The first comment is often ascribed to the then (1996) Swedish Minister of Communications Ines Uusman. What she actually said is a matter of different opinions. See “sv.wikiquote.org/wiki/ines\_uusmann”. The origin of the second comment is also uncertain. It is an alleged statement of Thomas J. Watson senior; chairman of IBM Corp., in 1943. See “en.wikipedia.org/wiki/Thomas\_J.\_Watson” (“Famous misquote”).

To better understand the issues and the driving forces behind developments, let us take a look at some important central issues.

## 4 Factors that Count

### 4.1 *The Organisation of Research*

Not least for new areas of research such as ICT law, creating a stable organisation for the activities is of crucial importance. It is not sufficient that one or a few individuals get engaged in the issues for a more or less limited time. The step must be taken from such minimalist efforts to a stable organisation able to develop in terms of staff and commitments, and to stay in business for many years. But when and how such steps can be taken is a complicated matter.

One obstacle is that law as it is taught in universities and high schools can best be described as vocational education. This means that, basically, the goals are associated with the practice of law, that the pace of changes is relatively slow, and that those who specialise in new areas are wise to make clear and develop their role in relation to the traditional, local law school curriculum. Among other things, scholars who engage themselves in new fields and issues need to be well acquainted with and good at both mainstream legal science and their special field or angle (for example, privacy from the viewpoint of HCI (Human Computer Interaction) or forensic ICT).

Organisational work has many aspects. One is to create and make known an identity as regards both people and activities. Another has to do with competence and continuity. A third concerns economic resources and physical work space, including a traditional library that can also serve as a stimulating real world meeting place. Among the Nordic countries, Norway has been perhaps the most successful with its Norwegian Research Center for Computers and Law (NRCCCL), an institution of high reputation and well-known to the international legal informatics community.<sup>12</sup>

### 4.2 *Legal Informatics and its two Branches*

As mentioned earlier, since the beginning of the development of 'computers and law' as a field of legal study, there have been two orientations or branches; legal uses of ICT and ICT law. Early on, the former showed a tendency to move into abstract reasoning and to seek deep knowledge about information handling in legal systems.<sup>13</sup> The latter was more practical in nature and often closely tied to day-to-day application of law in society. The orientations were treated differently by the research institutions of the time. They could be kept strictly apart as two different fields having nothing in common. They could also be merged or blended to varying degrees. What decided the choices was often the back-

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12 For example, over the years about 200 authors have published scholarly works in the different NRCCCL series, among them the COMPLEX series comprising 270 publications (oral information from librarian Anne Gunn Bekken, 19 March 2010).

13 See, for example, Jon Bing, Trygve Harvold, *Legal Decisions and Information Systems*. Oslo: Universitetsforlaget 1977.



grounds and preferences of individual scholars, not least scholars of the ‘founding father’ type. Available local expertise was, of course, also an important factor.<sup>14</sup>

In the Nordic area, Norway and Sweden took early initiatives by creating special research units for ‘law and ICT’ at the law faculties in Oslo and in Stockholm.<sup>15</sup> Both institutions have chosen broad strategies for their work, encompassing both use and regulation aspects. Finland (mainly the University of Lapland) has followed this path, whereas Denmark (mainly the University of Copenhagen) has been more inclined to keep the two approaches apart.

The early trends have subsisted over the years. One of the two branches or both of them may constitute the research space of a particular institution or scholar. There is no uniform way of combining elements from the two branches and the particular emphases also tend to vary. For example, the theoretical platform of one research group or institution may be multidisciplinary, whereas another sticks to traditional jurisprudence.<sup>16</sup> Practical and theoretical concerns can be present in varying patterns as can be seen in, for example, the works of Cecilia Magnusson Sjöberg (Stockholm) and Dag Wiese Schartum (Oslo) on automation in public administration and the relationships between traditional legal regulation and information system design.<sup>17</sup>

Viewed in this perspective the borderline between legal uses of ICT and ICT law is neither precise nor fixed. The issues made themselves visible at an early stage. For example, an interest was taken in automated application of legal norms and in methods of lawmaking in “EDP-appropriate form”.<sup>18</sup> Today, it may be maintained that the intersection of the two branches of legal informatics research (use and regulation) constitutes perhaps the most challenging part of the total field and an important element of the paradigms of legal informatics. The interest taken in this line of reasoning seems to be growing and taking on an increasingly diversified nature. One example is the discussion of so called ‘privacy-sensitive system design’ and the development of toolboxes for technically

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14 For an overview and historical remarks, see Peter Seipel, *Computing Law. Perspectives on a new legal discipline*. Stockholm: Liber 1977, pp. 71-116.

15 Oslo in 1970, Stockholm in 1968.

16 For an example of a multidisciplinary platform, see *PRIMA – Privacy Research through the Perspective of a Multidisciplinary Mash up*. Markus Bylund et al. I Nordisk årsbok i rättsinformatik 2006-2008. Stockholm: Jure 2010.

17 Cecilia Magnusson Sjöberg, *Rättsautomation. Särskilt om statsförvaltningens datorisering* (Legal Automation. In particular on the computerisation of State government). Stockholm: Norstedts Juridik 1992. Dag Wiese Schartum, *Rettsikkerhet og systemutvikling i offentlig forvaltning* (Rule of law and system development in public administration). Oslo: Universitetsforlaget 1993. Similar mixed use and regulation concerns can be found in, for example, Peter Wahlgren, *The Quest for Law – Law Libraries and Legal Information Management of the Future*. Stockholm: Jure 1999.

18 Peter Seipel, op.cit. pp. 45, 91, 101-102, 233-234, 248-249, 266-272.

dealing with various aspects of privacy protection (such as the empowerment of users to set levels of protection).<sup>19</sup>

In my view, the issues associated with the interaction of use and regulation aspects are bound to attract a continued interest and how we deal with these issues may very well influence the ways in which we view the legal system, its role in social steering, and its tools for achieving various ends. What will happen is that our view of what ICT law stands for expands. It will no longer be understood only as *regulation of ICT* (classical “computer law”) but also as *regulation through ICT*. The more the information infrastructure of society is marked by ICT, the more space there will be for ICT law in the second, expanded sense.

### 4.3 *Understanding ICT*

#### 4.3.1 A social engine

An important characteristic of legal informatics is the need to understand ICT both as a technical matter and as a social phenomenon. What we are talking about is professional knowledge, not the shallow, everyday acquaintance with information retrieval, surfing, blogging etc. It follows from the discussion in 4.2 that this need for knowledge is not exclusively associated with the use branch of legal informatics but also with the regulation branch – in fact, it may very well often be of greater importance to the latter. Generally speaking, ICT techno-social knowledge can be seen as a part of the platform for studies of both use and regulation aspects.

It should be emphasised that ICT as a social phenomenon is not to be viewed as a deterministic causation of particular, easily identifiable effects having to do with people’s behaviour, the set up and work of organisations, the nature of criminal activities, the use of telecommunications etc. The kind of insights that can be expected involve complex combinations of many factors and uncertain conclusions regarding their interplay.<sup>20</sup> The preconditions and the information needs vary from field to field – they are not the same in, for example, privacy law, the law of evidence, and gambling law. While recognising the difficulties and the time and effort that is often required to produce relevant and reliable information, the important thing is to foster an awareness of the value of a broad understanding of ICT in diverse legal contexts. Endeavours of this kind are supported by a large literature. For my own part, three categories of works have been particularly important:

- a) Speculative but serious works on the future of ICT, such as J.C.R. Licklider “Libraries of the Future”.<sup>21</sup>

19 For an overview from the HCI point of view, see Giovanni Iachello and Jason Hong, *End-User Privacy in Human-Computer Interaction*. Foundations and Trends in Human-Computer Interaction Vol 1 (2007) No. 1, pp. 6, 42-43, 47-49, 101 et seq.

20 See, for example, Christine Kirchberger, Peter Seipel, *Integritetsskydd – vad tycker folket? Ett planeringsunderlag* (Privacy protection – What do people think? A ground for planning). In: Swedish Government Official report SOU 2007:22, del 2, bilaga 3.

21 J.C.R. Licklider, *Libraries of the Future*. Boston: MIT Press 1965. Other ones: Ray Kurzweil, *The Singularity is Near: when humans transcend biology*. London: Duckworth 2005 and Alvin Toffler, *Future shock*. London: Pan Books 1971.

- b) Works on ICT and information system design from particular angles, such as Carl Shapiro and Hal Varian “Information rules”.<sup>22</sup>
- c) Works on ICT and information system design from legal viewpoints, such as Niklas Luhmann “Recht und Automation in der öffentlichen Verwaltung”.<sup>23</sup>

### 4.3.2 Six dimensions of ICT

The complex nature of ICT as a techno-social phenomenon calls for a multidimensional approach. For example, one can focus on the following six elements or aspects (the labels are formulated so as to aid the memory)<sup>24</sup>:

- Automation
- Information
- Communication
- Dissemination
- Integration
- Sensation

(a) Automation was the natural first element of ICT to attract legal attention. Among the early topics of interest one finds the question of the situation of computer programs vis-à-vis intellectual property rights (see above 2.1). Briefly, should computer software be protected by patent or by copyright, or was it necessary to develop some kind of new proprietary right, tailor-made to suit the new object? As for privacy, automation (or rather mechanisation) early on caught attention in connection with the 1890 census in the USA. Over the years, the privacy protection discussion has been a faithful companion of ICT. There are two main reasons. One is that automation means increased processing speed and thereby enables handling of more data than would have been possible using manual methods. More data means more detailed descriptions of individuals and

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22 Carl Shapiro, Hal Varian, *Information Rules. A Strategic Guide to the Network Economy*. Boston Mass.: Harvard Business School 1999. Other ones: Hans Jonas, *The Imperative of Responsibility: In Search of an Ethics for the Technological Age*. Chicago: University of Chicago Press 1984 and Sherry Turkle, *The Second Self: Computers and the Human Spirit*. 20th Anniversary Edition. Cambridge Mass.: MIT Press 2005.

23 Niklas Luhmann, *Recht und Automation in der öffentlichen Verwaltung: Eine verwaltungswissenschaftliche Untersuchung*. Berlin: Duncker & Humblot 1966. Other ones: Richard Susskind. *The Future of Law. Facing the Challenges of Information Technology*. Oxford: Clarendon Press 1996, and Lawrence Lessig, *Code and Other Laws of Cyberspace*. New York: Basic Books 1999 (version 2.0 Basic Books 2006).

24 Over the years, I have used the (for the present) six dimensions of ICT to understand, describe and discuss ICT in diverse legal settings. The account in this paper cannibalises on my PRIMA report “*Alone no more*” published in Festschrift to Marianne Levin, Ed. Antonina Bakardjieva Englbrekt. Stockholm: Norstedts Juridik 2008.

their activities, and more details mean increased risks of erosion of privacy.<sup>25</sup> The other reason has to do with automation as such and the nature of automation.

Automation means that data processing is formalized and governed by rules/instructions that are set out in advance. In this respect it differs from traditional work methods where human involvement is the rule.<sup>26</sup> In what respects and to what extent the switch from human action to machine action affects legal reasoning is a complex matter. Obviously, it can entail both strengthened positions (e.g. non-biased and uniform evaluation of given facts) and increased risks (e.g. easy copying and distribution of sensitive information). Among other things, the growing use of ever more sophisticated automation in connection with personal data gives rise to needs for analyses and possibly new kinds of legal safeguards. One example may stand for the rest: In many situations it is of interest to know whether you are dealing with a live human being (a 'real person') or with a machine (basically, with a computer program). Situations of this kind can be of diverse nature – cf. gambling, playing, contact seeking, advising. Today, the problem may seem narrow and even far-fetched. Tomorrow, given further developments of computer science and, in particular, human computer interaction (HCI), it may be one of the major concerns.<sup>27</sup>

(b) The label 'information' here (admittedly somewhat ineptly) stands for machine readable data. At an early stage of the development of ICT, the information element did not mean very much. Both input and output data were mere trickles compared with what we have become used to. Step by step the situation changed and the new technology began to be perceived as an instrument for storing and processing large volumes of data. Computer systems found uses in many new contexts where automation could be combined with comprehensive filing systems and databases. It goes without saying that this development caused, above all, growing privacy protection concerns (cf. above). Today, there are practically no limits to the amount of data that can be kept about individuals etc. At least, storage space is no longer the bottleneck.<sup>28</sup> Instead it is difficulties inherent in the handling of large data volumes, difficulties that are often associated with data management costs (updating, compatibility, quality control, back-up, long-term archiving, etc.). The large data volumes that have been made possible by automation have in their turn led to an interest in developing advanced auto-

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25 Compare with the conclusions regarding 'radical change' of the Committee on Access and Secrecy Legislation commented on in section 2.2 above.

26 The description could be considerably expanded and deal with different types of programming and their relations to human activities. However, the nutshell description given here is sufficient for the modest purpose at issue.

27 So, after all, may be the idea of e-persons mentioned above in 3.3 is not totally unworkable.

28 This statement can be put in question, *see* The Economist Vol. 394 (2010) No. 8671, *Special report on managing information*, p. 4. According to this survey, available storage is already insufficient for the volume of data created.

mated methods for mining the data treasures kept in store.<sup>29</sup> Data mining often gives rise to abuse concerns (cf. online profiling) but just as automated decision making (see above) it can also serve to safeguard various legitimate interests, among them privacy protection. For example, data mining may involve alert functions that can help people become aware of and take measures against identity theft.<sup>30</sup>

(c) Communication via local and global data networks has been a reality for decades. But it is not until the Internet revolution of the 1990s that communication has begun to be perceived as an essential element of ICT on a par with, and perhaps even surpassing, the automation and information elements in terms of importance. This development is reflected in the increasingly frequent use of the term ICT instead of the older IT. It should be underlined that communication has to do not only with communication between machines but also with communication between people. Thus, ICT has become a medium both for private communication (e-mail, chat) and for mass communication (spam, streaming audio). The development is reflected in the legal discussion. Generally speaking, it has moved from relatively straightforward issues of traditional telecommunications regulation involving ‘conduit’ to issues of ‘content’ having to do with such themes as free speech, crime in cyberspace, and different strategies for the governance of global data networks. Not least, data communication brings up issues of protection of personal privacy. Some examples can illustrate.

Since ICT has become a medium for mass communication, collisions between freedom of information, above all freedom of speech, and privacy protection have become increasingly common and in a way typical for today’s privacy discussion. This was not the case in the 1970s when ‘modern’ data protection legislation began its development in Europe and elsewhere. This does not mean that the conflict was invisible before ‘the web explosion’. For example, a Swedish journalist, Anders R. Olsson, in 1991 applied for a permit to use his PC to write a book on freedom of speech. Olsson openly declared that the text file would include sensitive data about several persons. The Data Inspection Board had evident difficulties and kept the matter open for two years before it rejected the application. Two years later, upon appeal, the Government concluded that the constitutional right of free speech took precedence over the Data Act and that a personal data file, which otherwise required permission, was acceptable if the file was used as a direct technical tool for producing a printed work.<sup>31</sup>

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29 Data mining may be defined as the non-trivial extraction of useful information, often implicit, from large databases. For a full discussion of terminology etc. see the English Wikipedia (“en.wikipedia.org/wiki/”) under the term ‘data mining’.

30 Identity theft is a growing concern. It has many shapes, one of them being ‘identity cloning’ by using identification data of another person and thereby assuming the identity of the unknown victim.

31 Government decision of 14 April 1994, Ministry of Justice docket number 93-3260. See also Anders R. Olsson, *IT och det fria ordet – myten om storebror* (IT and the Free Word – The myth of Big Brother). Stockholm: Juridik & Samhälle 1996, pp. 26-33.

Free speech doctrines apply to ICT as a new mass medium. But ICT can also serve as a medium for communication person to person. In fact, the dividing lines between different modes of communication on the 'private/public' scale are blurred. Thus, a single individual may use personal web pages or a blog to communicate with a vast, international audience in a way that used to be the (technical) privilege of traditional, big mass media enterprises. The new roles and technical possibilities contribute to make the conflict between freedom of speech interests and privacy protection interests more difficult and complex.

Finally, data about communication patterns (who contacted who, where and when) are stored in the form of logs of different kinds. Such data are a tempting target for various surveillance purposes and have been one of the main concerns of privacy protection groups during recent years. The conflicts will certainly not go away. The volume and complexity of various kinds of traffic data will continue to grow and so will the interests in making use of them (for purposes of customer relations management (CRM), administrative planning, crime detection and crime prevention, commercial information services, etc.).<sup>32</sup>

(d) Integration has to do with phenomena of convergence of different kinds. Perhaps the most well known is the convergence or the melting together of telecommunications, mass communication media, and data processing. These fields have traditionally been regarded as separate areas of legal regulation and their coming together has required (and still requires) changes of regulatory strategies and instruments. Generally speaking, digital technology has implosive effects due to the simple fact that ICT is universal in nature and can be used to process and communicate information of any kind as long as it can be reduced to ones and zeroes. As for the effects on privacy protection regulation, it should be noted that a growing range of objects and equipment contains data processing capacity, not least in the form of so called RFID (Radio Frequency Identification). To the extent that such 'intelligent things' are related to individuals and their various activities and whereabouts, whole new fields of privacy protection issues open up.

(e) Dissemination means that ICT penetrates all areas of life. Originally, computers were 'mathematical machines' with narrow areas of use. Today their true character has become evident: they are all-purpose data processing automats capable of finding uses in each and every corner of the information society. One of the present key concepts is 'ubiquitous computing' or 'pervasive computing', which is commonly defined as ICT-supported information services available everywhere, in all kinds of combinations, and at all times. Ubiquitous computing presupposes widespread use of microcomputers embedded in all kinds of devices (cf above), among them sensors of varying kinds, making things more or less 'intelligent' and capable of communicating with their outer world. All the well-

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32 Some core problems are signalled in the 2002/58/EC Directive on privacy and electronic communications and the 2006/24/EC Directive on the retention of data generated or processed in connection with the provision of publicly available electronic communications services or of public communications networks.

known privacy issues and some new ones come with the development of ubiquitous computing. Not least, the overarching issues need to be formulated. One of them has to do with widespread reliance on invisible and complex forms of automation, which result in unquestioning trust where critical scrutiny would do better.<sup>33</sup> And the dangers of electronic trails may grow far beyond our present understanding and experience.

Obviously, matters of privacy protection are not the only concern. One example may stand for the rest, viz. ICT as a framework for the law of evidence and related legal procedures. The legal systems of nations may differ but they all share certain basic problems of proof in digital environments. These problems concern (among other things) volume, character, and methods. As for *volume*, nearly all activities of business companies and other parties have found their home in computers and data networks. This has led to a widespread reliance on machines rather than human beings, and data archives of an almost unbelievable scale that reflect all kinds of activities from routine back-up of all data for security purposes to the activities of employees on social networks (such as Facebook). The question of *character* is, of course, associated with digital processing and storage. The new modes of information handling bring about new problems of reliability and authenticity. They also put demands on the environment where the material is going to be presented and used, not least the court room. As for *methods*, there are, on the one hand, questions of needs to amend the traditional rules of procedure so as to function well in the ICT environment and, on the other hand, questions of developing design criteria for information systems with a bearing on evidence. Mention should also be made of so called forensic ICT with its focus on securing, interpreting and analysing information on digital media used in criminal activities.<sup>34</sup>

(f) Sensation, finally, is perhaps the most difficult of the six elements to grasp. Marshall McLuhan in “Understanding Media” (1964) attempted to describe, among other things, the characteristics of different media in terms of “hot” and “cold” depending upon such factors as the intensity of the communication and the degree of involvement of the participants. If nothing else, McLuhan helped making people aware that media as such are not neutral, that they affect our behaviour, our expectations, our experiencing, and so forth. Modern cognitive science studies the relationships between mind, body, and various tools for information processing (notational systems, books, maps, calendars, speedometers, microscopes, etc.). It emphasises interaction and interdependencies. Briefly, human beings think and sense not only with their brain and body but also with their tools. One looks in vain for a clear dividing line between the “inside” and the “outside” of man’s mind.<sup>35</sup> As for ICT, we are only beginning to understand the

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33 Early warnings can be found in Hannes Alfvén writing as Olof Johannesson, *The Tale of the Big Computer. A vision*. New York: Coward-McCann 1968.

34 The term is often used in a broader sense covering all kinds of security aspects of ICT, e.g. information collection from data networks and so called discovery procedures.

35 See e.g. Edwin Hutchins, *Cognition in the Wild*. Cambridge: The MIT Press 1996. Hutchins’ study deals with ship navigation and the complex relationships between representational sys-

consequences and to formulate theories.<sup>36</sup> And a legal understanding hardly exists. In the area of privacy protection one may look for its first signs in themes such as ‘protection of minors’, ‘self-determination’, and ‘multiple identities’.

One branch of computer science that is of particular interest in this context is known as ‘affective computing’. It is devoted to the relationships between computing and emotion. For example, a goal of research may be to design new ways for people to communicate affective-cognitive states to machines, especially through creation of novel wearable sensors.<sup>37</sup> Mention may also be made of so called ‘haptic computing’. Haptic has to do with the sense of touch. Briefly, research in this area focuses on man-machine interaction methods involving touching, pointing, lifting, squeezing etc. and their use and design in different contexts, e.g. in telemedicine or in public space. Studies also involve effects on people’s behaviour and actions, e.g. their experience of proximity, affinity, certainty etc. The overall goal is to develop methods for multimodal and multi-channel communication between man and machine.

To summarise, the six aspects of ICT cover a vast field of study. The listing contains elements of a chronology but it would be wrong to view ‘automation’ etc. as step after step or stage after stage. Instead, right from the outset the six aspects or dimensions have developed together and they affect one another in a continuously changing pattern showing the overall progress. The aspects are interdependent to such an extent that they should always be treated as *a complex whole*.

Obviously, the present situation has much to do with ‘ubiquitous computing’ as presented above. The ideas as such – information present everywhere, at any moment, and integrated into all kinds of things and activities – is not new. But it is not until relatively recently that its implementation has begun to be possible thanks to the development of crucial technical elements, such as super high speed computing, sensors of all kinds (such as RFID technology), low cost broadband communications, and the concepts and protocols (IPv6) necessary to expand the possibilities of the Internet to match the expected heavy information loads. It is foreseen that computers will be everywhere, visible or not visible, and functioning together for all kinds of purposes and services, individual as well as social.

There are, of course, many obstacles and brakes: costs, risks and security issues, needs for standards, environmental concerns, priorities, education, digital divides, and so forth. In spite of such unavoidable complications, it seems fully possible that within a few decades ubiquitous computing will have developed so

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tems, physical information handling tools, and the relationships between culture and cognition. One of his key concepts is ‘culturally constructed technical and social systems’, which is a way of describing ICT. His ambition is “to move the boundary of the unit of cognitive analysis out beyond the skin of the individual” and to see human cognitive activity as an integral part of the larger system, the ‘socio-cultural system’ (e.g. a navigation team and the physical structures in which the navigation computations are implemented).

36 Work in this direction is underway. See e.g. Nicholas Carr, *The Shallows: What the Internet is doing to our brains*. New York: W.W. Norton 2010.

37 See “affect.media.mit.edu”.



as to both enable and be part of a society that has radically changed. This means that in many contexts development will be non-linear and marked by surprising, rapid changes. The system of law will, of course, also be affected by such developments and for legal informatics it appears to be an important task to help clarifying the nature of the changes and in what ways they put strain on the legal system and challenge ‘business as usual’ thinking.

## 5 Dealing with Change

Today, millions of people ‘live digitally’. This means that modern information technologies affect their lives in more and more deep-going ways and over the many dimensions of existence: ‘*homo politicus*’ (being a member of society, life in the open), ‘*homo privatus*’ (being an individual, life behind the doors), ‘*homo cogitans*’ (being a thinking creature, seeking understanding and truth), ‘*homo oeconomicus*’ (being an economic actor, rational and irrational, striving to make means meet ends), ‘*homo ludens*’ (being a playful creature, enjoying the surreal and the childish). As for privacy protection, the early Swedish experience of drawing up the 1973 Data Act showed the importance of paying attention to change generated by ICT and, in particular, change of a radical kind (see above 2.2). At present, it may be asked whether privacy protection based on concepts and concerns dating back to the 1970s and 1980s and expressed in, for example, the EU Data Protection Directive of 1995 can still be regarded as workable. This question is subject to a growing concern among, for example, national data surveillance authorities, research organs, and all kinds of stakeholders.

So far, the scrutiny has not resulted in any clear and simple view of the new problems and their solutions. Criticism of existing data protection legislation certainly exists.<sup>38</sup> Its targets include, among other things, bureaucratic practices of surveillance organs, ineffective implementation of protective measures, malfunctioning regulations and paper laws, insufficient education of the operators of networks and network services, and insufficient and/or inadequate information to data subjects.

To illustrate what the problems look like in practice, mention can be made of the Swedish decision to make a difference between ‘innocent’ processing of personal ‘harmless’ data and processing that is harmful. After a several-year-long discussion of the need for such a division and attempts to formulate the dividing line, a new section in the Personal Data Act was finally drafted and enacted.<sup>39</sup> It must, however, be regarded as a provisional solution. On the one hand, its main intention is to regulate personal information that is contained in ‘unstructured data’, typically texts of all kinds.<sup>40</sup> On the other hand, the enormous and rapid

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38 See, for example, Neil Robinson et al. *Review of the European Data Protection Directive*. RAND Europe, document TR-710-ICO. Cambridge U.K. 2009 and *Reinventing Data Protection?* Eds. Serge Gutwirth... New York: Springer 2009.

39 *Översyn av personuppgiftslagen* (Revision of the Personal Data Act). Swedish Government Official Report SOU 2004:6 (with a summary in English).

40 See also above 4.3.2 (b).

growth of stores of data that are only loosely connected with specific individuals ('data exhaust' or 'data sediments') can be used as raw materials for many kinds of activities from non sensitive ones such as automated translation of languages to (possibly) harmful ones such as real time profiling and analyses of behaviour, preferences etc. that can be used as an instrument of power in all kinds of situations and activities. Data mining of this kind may be seen as something qualitatively new and something more than the digital trails that are used to record details of the behaviour of specific individuals. The broader 'data sediment' issue goes beyond digital trails and has to do with who is 'the Lord of Data'. It would take a lengthy discussion to clarify what this development means in different discourses ('power relations', 'digital divides', 'behavioural marketing' etc.) and in what ways it relates to the traditional notion of privacy protection.<sup>41</sup>

Generally speaking, there has been a move from simplicity to complexity. The basic notions are still there – high speed automated data processing and large data volumes. But the setting into which these concepts must now be placed is totally different, viz. ICT as an utterly complex technological, legal, and social phenomenon.

It is no longer sufficient to focus only on a '*surveillance technology*' that poses threats to individuals and various societal institutions. ICT may very well continue to be seen in this perspective but there are also other, equally important or perhaps even more important perspectives. For example, ICT is a '*survival technology*', i.e. a technology that supports, in a critical way, individuals and societies in their efforts to develop and prosper. It is a '*service technology*' in the sense that it constitutes a worldwide market that caters to all kinds of needs and demands. And it is a '*surreal technology*' in the sense that it is fundamental for building virtual spaces with new preconditions for human activities and interaction. Above all, ICT breeds '*information ecologies*' as described by Nardi and O'Day in their study with that title.<sup>42</sup> According to their definition, an information ecology is a system of people, practices, values, and technologies in a particular local environment. In information ecologies, the spotlight is not on technology as such, but on human activities that are served by technology.

It follows from the foregoing discussion that lawmaking initiatives involving ICT may require deep and detailed knowledge about the regulatory targets and their environment. This will be the case not least when 'information ecologies' or 'information infrastructures' are undergoing change. Consider, for example, the development of so called *cloud computing*.<sup>43</sup>

Cloud computing has to do with what has been called an industrialisation of information services on the Internet. More will be done with less, and virtual machines can quickly be set up according to continuously varying demands. The

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41 Cf. Herbert Burkert, *Towards a New Generation of Data Protection Legislation*. In: Reinventing Data Protection? Eds. Serge Gutwirth... New York: Springer 2009, pp. 339-340.

42 Bonnie A. Nardi, Vicki L. O'Day, *Information Ecologies. Using Technology with Heart*. Cambridge: The MIT Press 1999.

43 For an excellent survey of concepts and issues, see *The Economist*, Vol.389 (2008) No. 8603. *Special report on corporate IT*.

data centres that provide the solid ground under the cloud use hundreds of thousands of servers.

Cloud computing has the potential to give a new meaning to the word ‘information industry’ and there will be changes of the same kind that took place in the automobile industry when Henry Ford set up his first large factory with moving assembly lines. It goes without saying that the legal aspects of cloud computing are manifold and that they mean both new risks and new options for dealing with the risks. Note for example the possibility of segmenting the cloud so that data from country X are processed according to country X regulation and data from country Y according to country Y regulation. What we are talking about is a sort of partial return to centralisation and a reintroduction of legally relevant national borders through technical means.

The possibility of reintroduction of national borders through technical means is a reminder that traditional legal instruments of steering can often be combined with and/or complemented by other instruments. A key concept in this context is ‘law by design’. In short, it means that the architecture of information systems can be regarded and used as an instrument to obtain regulatory goals – see the previous discussion of ‘regulation through ICT’ in 4.2. This can involve anything from facilitation of the application of existing laws (secure ways of producing electronic signatures, for example) to doing away altogether with the need for traditional legal regulation by designing information systems so that the regulatory goals are obtained through technical, not textual means. In short, the system architecture can support correct behaviour and disallow deviations.<sup>44</sup>

Law and technology in cooperation has many advantages and the two can help each other in setting goals and developing the means to reach them. Consider as a practical example ‘data portability’, i.e. the possibility for individuals to collect ‘their’ data exhaust (see above) in connection with particular digital services and transfer the data to a new provider of the services at issue (compare with number portability in connection with telecom services). Technology opens up possibilities of this and many other kinds and it is up to the lawmakers to assess them and find uses for them.

To be able to handle the dynamic world of ICT, legal science has to pay attention to what goes on in other sciences that take an interest in ICT. Since this is easier said than done, the difficulties of such contact seeking deserve a few comments.<sup>45</sup>

Firstly, in many situations where the ‘business as usual’ strategy functions well, adding other perspectives than the traditional jurisprudential will be superfluous and can, at worst, cause confusion and misleading results (cf. above 3.3 on “interpretation 2”). On the other hand, it may be difficult to distinguish situa-

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44 As mentioned above, issues regarding law by information system design are not a novelty; in legal science they have been taken notice of and formulated in varying ways for several decades. See above 4.2, footnote 18 (in particular pp. 91-102 on “legal applications of computers”).

45 For an illustration, see *PRIMA – Privacy Research through the Perspective of a Multidisciplinary Mash up*. Markus Bylund et al. In: Nordisk årsbok i rättsinformatik 2006-2008. Stockholm: Jure 2010.

tions where useful information, perspectives etc. can be brought in from other disciplines from situations where this is not the case. Moreover, it is as a rule not a simple question of yes or no but rather a question of what kind of insights can be imported from the outside. Consider, for example, the ICT law expert's continuous need for updated basic knowledge about the development of technologies, applications, terminology etc.

Secondly, there is the issue of parallel work as opposed to integrated work. Parallel work is probably the most common version of multidisciplinary efforts. It means that experts with different theoretical backgrounds agree on a general framework or set of basic issues and leave it to each participant to define the participant's research objects, the knowledge that is to be obtained, and the methods to be used in the participant's work. For example, the general framework may be 'anonymity on social networks' or 'creativity in networked environments'.

Thirdly, integrated work means working together in the sense that the participants strive to bring about a common ground in terms of concepts, goals, methods etc. with contributions from each participant. Obviously, integrated work is more difficult to achieve and therefore more rare. There are good reasons to believe that efforts to develop integration ought to be carried out with caution and have a limited ambition. Many difficulties have to be considered. They have to do with differences as regards general worldviews, basic goals, terminologies, taxonomies, research methods and other basic paradigm elements. There appears to be two ways of dealing with this. (a) One way is to limit integration efforts to subsets of problems where there is a firm reason for integrated work and a good hope for useful results. An example could be the issue of online gambling and its consequences for gambling law with participants from law, gambling psychology, and information security theory. (b) The second way can be seen as a more ambitious version of the first. It involves development of what may be called reconnaissance disciplines of a mixed nature. Such disciplines have their base in one particular discipline (the host discipline) and strive to bring together elements (world views, concepts, theories, methods etc.) from different sources and make them fit into a discourse suiting the host discipline. Legal informatics, with law as the host discipline, is a good example. It strives to develop a research space where law is brought into close contact with neighbouring information sciences, not least HCI (Human Computer Interaction). From the point of view of legal informatics, HCI is of interest for several reasons. It can enrich the legal discussion of regulatory targets, basic concepts, stakeholders, specific threats, and the like. One can call this 'descriptive support'. It can also deliver 'operative support', i.e. contribute to an understanding of how technical means can be combined with legal means to achieve efficient solutions. For example, the handling of privacy-sensitive situations may involve intentional blurring of identification data, systematic 'disremembering', informing individuals about their 'privacy context' or 'electronic identity' as they move along in cyberspace, and so forth. Of course there is also the aspect of developing and experimenting with different kinds of possibly invasive technologies, RFID, for example. Early knowledge can be of great value both for the lawmakers and for those who have

a stake in developing and marketing particular new technologies that may give rise to legal complications (e.g. digital rights management systems).

## 6 ICT Politics

The development of national and international ICT politics has accompanied the march towards an Information Society. Its concerns and focal points have, of course, undergone considerable changes. Over the years there has been a movement from more or less narrow interests associated with national defence and advanced science to interests that concern society as a whole. In Sweden like in many other countries the early initiatives aimed at developing national competence in the new field. This meant designing and building Swedish computing machines, a task that was given to a special “Board for Mathematical Machines” that existed from 1948 to 1962. Today, ICT politics covers a much broader area as can be seen in all kinds of debates and initiatives. Consider, for example, the vision of “a Green Knowledge Society” presented during the Swedish presidency of the EU in the autumn of 2009 as a suggested part of a European ICT policy agenda to 2015. The vision encompasses several policy areas, among them “a knowledge economy”, “a next generation infrastructure”, “eGovernment”, and “online trust”. “Economic boost” is seen as a short-term driver and “An inclusive society” is the foundation.<sup>46</sup>

A look behind the curtains of energetic digital agendas and flashy political speeches reveals a complex reality in need of further academic study. One Swedish contribution has focused on privacy protection as information politics.<sup>47</sup> Among other things, the study sheds light on the fact that privacy protection is a difficult political turf both as regards the use of traditional political slots for sorting the issues and as regards the handling of changing opinions etc. that can rapidly be disseminated over data networks. The widespread criticism of the Swedish Personal Data Act of 1998 (which replaced the earlier Data Act of 1973, see above 2.2) came as a total surprise to the lawmakers who must have believed that they had done their best to implement the EU Data Protection Directive of 1995 and to protect the interests of the data subjects. A loud crowd of critics had other ideas and many of them demanded that the law be withdrawn and redrafted. An anti-Personal Data Act campaign was organised on the Internet under the digital sticker “Don’t touch my Internet”. The Parliamentary Committee on the Constitution organised an open debate and efforts were made to inform the general public about the new legislation, explain its virtues, and disarm its opponents. Eventually, the ‘resistance movement’ subsided.

Generally speaking, ICT politics can be difficult to situate in the traditional right-wing/left-wing political framework. It is also possible that the ICT issues

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46 *A Green Knowledge Society. An ICT policy agenda to 2015 for Europe’s future knowledge society.* A study by SCF Associates Ltd for the Government Offices of Sweden, September 2009.

47 Åsa Söderlind, *Personlig integritet som informationspolitik* (Privacy Protection as Information Politics). Borås: Höskolan i Borås 2009 (with an English summary).

give rise to new political movements. Thus, in January 2006 a “Pirate Party” came into being in Sweden. Its core issues consist of privacy protection, a “free culture”, and limits to intellectual property rights, not least copyright. The Pirate Party shares some of the ideas behind movements such as “the creative commons” and “free software”. It was not successful in the general election in 2006 (only 0.63 % of the votes). But later on and due to the emergence of heated debates on, among other things, the implementation of the EU Data Retention Directive (2006/24/EC) and the enactment of legislation that authorises the State to wiretap telephone and Internet traffic that crosses Swedish borders (the so called FRA Law), the Pirate Party jumped in popularity. In the summer of 2009 it had more than 45,000 registered members and its youth branch “Young Pirate” was the largest youth division of any of the Swedish political parties. In the European elections in 2009 the Pirate Party managed to win one of Sweden’s 18 seats in the European Parliament.<sup>48</sup>

It should be emphasised that ICT politics is not a single-issue affair. It can be developed in many directions and can very well deal with basic issues regarding the distribution of power and welfare in society. It is difficult to tell whether the Pirate Party will disappear within a few years or whether its growth in respectability and numbers will continue in a manner similar to what has happened in the field of environment protection. Maybe “The Green” will find a steady companion in “The Digital”.

One of the tasks of ICT politics is to find efficient ways of moving from theory to practice, or rather; efficient ways of moving between the two. A typical way of dealing with this can be to set up special commissions or the like with a mandate to explore the issues and suggest action. The Swedish Data Coordination Committee of 1971 was such an organ (see above 2.3). A later one was the Swedish Government’s Information and Communication Technology Commission (1964-2003).<sup>49</sup> The latter produced a large number of studies and scenarios and for some years served as a sort of semi-official Swedish knowledge centre and think-tank for issues of ICT and society. It met not only with approval but also with varying degrees of resistance from the environment that it was to serve, i.e. permanent organs such as the Government ministries and public authorities defending their habitual turf. Generally speaking, the ICT Commission had to be careful not to engage itself in political matters and go beyond its mandate as an expert organ.<sup>50</sup> After some friction of this kind, the ICT Commission strived to engage itself in above all two tasks. The most important one was early discovery and structuring of problem areas – a sort of scouting aimed at creating problem awareness (but not necessarily problem definitions). The other task consisted in advising legislative committees and the like seeking such support and, occasionally, in follow-up of the implementation of particular action plans etc. (e.g. tax deductions for so called ‘personnel computers’).

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48 “[www.piratpartiet.se](http://www.piratpartiet.se)”.

49 Committee Terms of reference Dir. 1995:1.

50 It may be noted that the chairman of the ICT Commission was always one of the ministers of the Government. This meant that he or she in the ICT Commission headed the working out of proposals to himself or herself in the Government.

As for ICT law, in November 1996 the ICT Commission decided to set up a Legal Observatory.<sup>51</sup> The Observatory was a sort of forum for advanced discussions and analyses of legal aspects of ICT. It supplemented the ordinary machinery for lawmaking. It had three layers of participants. The core consisted of sixteen members (mainly legal professionals) from the public and private sectors who met regularly to set the agenda, discuss selected issues, listen to oral reports by experts, prepare reports to the ICT Commission, and so forth. The second layer consisted of persons with whom the Observatory had close working contacts over a short or long period (e.g. experts from private business and from universities). The third layer consisted of interested parties from all over the nation who took an interest in the Observatory by attending its open meetings, commenting on its proposals, and so forth. The Observatory strived to look beyond present-day legal aspects of ICT and to engage in a “legal futurology” in a bid to dispel the criticism frequently voiced concerning legal backwardness.

Summing up, the Observatory sought to operate through a speculative, prospective consideration of new legal structures as an adjunct to the discussion of current law (*lex lata*) and argumentation for proposed changes etc. (*lex ferenda*). One can speak of *lex ponderanda* – a speculative, critical analysis of the law in view of ICT developments. A typical example of the work pattern can be found in “electronic plumbing” (building physical data networks) where the Observatory helped prepare the ground for an “ordinary” legislative committee dealing with specific matters of real estate law and data communications law.<sup>52</sup>

## 7 Turning the Tube

A kaleidoscope brings order and symmetry to the small movable objects (scraps of paper, pebbles etc.) that are reflected off the mirrors in the tube. As the tube is rotated, the objects become parts of exciting, changing patterns.

The approach to ICT law in this paper can be seen as an attempt to mimic the kaleidoscope experience. It invites the reader to reflect on ICT law as a component of different patterns (changes in society, legal language, conservatism vs. radicalism, legal informatics as a whole, ICT as a social engine, HCI and other neighbouring disciplines, ICT politics etc.). Given the complexity of the many points of view and topics, the scale of the paper is modest. In particular, the examples that it uses to illustrate and explain are almost all from the field of privacy protection. The reason has to do with both limited space and my conviction that bringing in other fields (e-government, e-democracy, e-commerce, data protection, ICT procurement and contracts, internet governance, global concerns

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51 The decision was taken in accordance with Government Bill 1995/96:38. The Legal Observatory was quite successful and served as a model for other observatories of the ICT Commission focusing on: “information security”, “democracy and citizenship”, “infrastructure”, “learning, knowledge, competence” and “ICT and growth”.

52 Anders Victorin, *Electronic Plumbing – Building the Telecom Infrastructure*. In: Law and Information Technology. Swedish Views. Ed. Peter Seipel. Swedish Government Official Report SOU 2002:112.

etc.) would certainly have enriched the discussion but *not* led to a different main pattern.

To sum up, according to the main pattern, *ICT law* can be seen both as '*regulation of ICT*' and as '*regulation through ICT*'. The latter, the '*through*' view, links *ICT law* to *legal uses of ICT*. In other words, it signals that the two classical branches of *legal informatics* – regulation and use – intersect and that there is no fixed, impenetrable borderline between the two. The *through* view also has consequences for the development of contacts between legal informatics and other disciplines, e.g. HCI.

Another element of the main pattern concerns *the nature of ICT*, both in general and from the point of view of legal informatics. In sum, ICT can and should be seen as *a social engine* with capacity to generate and/or support far-reaching changes in society. Traditionalists are slow to accept this whereas renewers see *opportunities* to develop ICT law so as to improve democracy, conditions of life, access to knowledge etc. Efforts of this kind presuppose an ability to deal with social change and to be aware of the importance of a sound information infrastructure in society. Among other things, the idea of ICT as a *surveillance technology* must be balanced against other ideas of technology, not least the idea of ICT as a *survival technology*. On the whole, how one sees ICT law – as a matter of business as usual or as a matter of renewal – depends perhaps more on one's understanding of ICT than on one's understanding or jurisprudence. Or, why not: it depends on understanding ICT as jurisprudence.