

# Legal Informatics: a Modern Social Science and a Crucial One

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## 1 By Way of Background

In his doctoral thesis, one of my university mentors, Professor Kaarle Makkonen, described norms as “fruits of Tantalus”. Just when we think we have figured out the true content of a norm, it eludes us – just as the fruits escaped Tantalus’ grasp.<sup>1</sup> *Makkonen* studied the process of making legal judgements primarily on the basis of the philosophy of language. His approach left little room for the traditional logical syllogism as a description of how decisions are made. In the thesis, written in 1965, he also quite briefly argues against the idea of a machine making decisions in the legal world.<sup>2</sup> For example, he felt that no machine could ever understand the human factors that figure in the work of a judge.

Another mentor of mine, Professor *Aulis Aarnio*, continued *Makkonen’s* work in many respects.<sup>3</sup> Also figuring prominently in *Aarnio’s* thinking, particularly for his *theory of action*, was our well-known philosopher *Georg Henrik von Wright*. All in all, *Aarnio* can be credited with firmly instituting in Finnish legal theory profound expertise in the theoretical analysis of legal argumentation. His contribution to the international debate on the subject has been and continues to be significant.<sup>4</sup>

As a young researcher working with *Aarnio*, I had my first brush with German Legal Informatics in the 1970s when tracking the history of different schools of thought in German jurisprudence. At the time I knew something about first-generation Legal Informatics – and still do.<sup>5</sup> However, this first experience did not propel me into a career in research and teaching in the field. Neither did the idea – encouraged by *Aulis Aarnio* – of taking a course in Cobol programming at the University of Helsinki. It was typical at the time for those interested in informatics to start with programming.

My approach to information technology was more practical. Indeed, I was given the task in 1971 of bringing the entrance examinations for the faculties of law at the Universities of Helsinki and Turku into the computer age. Even though all that this involved at the time was calculating the results of 3000 or so applicants using a computer, the process was most instructive, beginning as it

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1 *Kaarle Makkonen* was Professor of General Jurisprudence at the University of Helsinki from 1968 to 1986. His doctoral thesis, written in 1965 in German and titled *Zur Problematik der juristischen Entscheidung* is internationally quite well known and highly regarded. In Finland it has been the one of the key sources in many theoretically oriented theses. The work was published in Finnish in 1981.

2 *Makkonen* op.cit. p. 61.

3 *Aulis Aarnio* was the first professor of Family and Inheritance Law in the Faculty of Law at the University of Helsinki, a position he held from 1970 to 1996. In addition, he worked as head of the Tampere University Research Institute for the Social Sciences from 1991 to 2002. Professor *Aarnio* is still one of the best-known experts internationally on the theory of legal decision making.

4 *Aarnio’s* works on legal theory have also been published in English, German and Spanish.

5 *Wolfgang Kilian* provides a succinct account of the history German Legal Informatics in his article *Idee und Wirklichkeit der Rechtsinformatik in Deutschland* CR 3/2017202.

did with planning personal information forms for coding on punch cards.<sup>6</sup> This revealed to me – and drove home – the importance of the *path information travels* in its lifetime – if that’s the word.

A number of years later, *Aulis Aarnio* and I wrote an article together on how *essential* Legal Informatics was as a legal science. The article was published in 1990 in the *Nordic Yearbook of Legal Informatics*.<sup>7</sup> The world had already changed. We had begun to speak about not only information technology but the Information Society. We even used the expression in the title of the article.

At that point, our academic paths diverged – at least where Legal Informatics was concerned. *Aulis Aarnio* continued his research on legal reasoning, with ever-increasing success. For my part, I devoted more attention to the early stages of the legal path information has to travel and *Peter Seipel* and *Jon Bing* had come to play a key role in my own legal thinking.<sup>8</sup> And I had already been teaching Legal Informatics at the University of Lapland for several years; I started teaching it in 1986 as a required subject for all the students in our faculty. Gradually, the subject came to include the *protection of personal data* as part of the *law of personality*. The Faculty of Law at the University of Lapland has long been the only one where Law of Personality is taught as a subject in its own right.<sup>9</sup> The initiative for including it in the responsibilities of the chair I held was put forward by *Aulis Aarnio*, who was a member of the University’s provisional Executive Board at the time.

As *Aulis Aarnio* is fond of saying, it is important to remember that nothing starts from scratch. This is true of legal thinking and the methods associated with it, and of research topics as well. It also applies to this paper: this introduction has been an essential start explaining why today I think that the subject-matter and functions of Legal Informatics make it one of the crucial legal sciences of our time.

## 2 Technology and Law

Taking advancements in technology into account in legislation and legal praxis has been and is an essential facet of the development of law. This is hardly a novel point today. An instructive parallel can be seen in the regulation of car and

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6 At the time, the Computing Centre at the University of Helsinki used a Burroughs B6500 computer, which was the machine recommended for universities by the Ministry of Finance.

7 Aarnio-Saarenpää, *Juristen, rättsvetenskapen, informationen: synpunkter på rättslivets framtid i informationssamhället*. Nordisk Årsbok I Rättsinformatik 1990.

8 A modest meeting held in Oslo in 1985 marked the beginning of opportunities to meet with these scholars personally. Also taking part as representatives of their faculties, with support from the Finnish Ministry of Education, were *Pekka Vihervuori* and *Rainer Oesch*. Neither has since been active in the field.

9 This was the topic of my demonstration lecture when I applied for the professorship in Family and Inheritance Law and the Law of Personality. In the lecture, I presented an assessment of *Tom Gerety’s* article on privacy: *Redefining Privacy*, 12 HARV. C.R.-C.L. L. REV (1977).

rail traffic in England after the mid-1800s. The legislator succeeded in determining the benefits and risks of a new phenomenon more or less on time.<sup>10</sup>

If there is no legal regulation on the books governing a new phenomenon or device, society has been caught napping.<sup>11</sup> Indeed, one often hears how we have been asleep at the switch. Comments like this clearly suggest that laws should be enacted to cover everything new. In my estimation, it would be better to speak of a *regulatory risk*. It is one way of assessing the relationship between technology and regulation. We must be able to determine when and how new regulation should be enacted – if special regulation is needed at all that is.<sup>12</sup>

Needless to say, there is no straightforward solution to this problem. The constitutional state cannot automatically churn out regulation for every new phenomenon or device that comes along.

Waking up to the need for something new is a complex process. It depends on expertise, the experts, the legal culture, legal communication and power structures as well as – and in increasing measure – on international cooperation, particularly in the case of Europe. *Weak* and *strong signals* of changes appear in different ways in different situations.

At the end of the day, individual agencies can hold up progress and for quite a long time. A particularly good example of this can be seen in the efforts to enact legislation on *identity theft* in Finland. Identity theft did not become a punishable offence until September 2015, when Finland implemented the EU Directive on attacks against information systems.<sup>13</sup> We just barely met the final deadline for implementation. The Ministry of Justice had rejected demands put forward several times by the *Data Protection Ombudsman*, for example, dismissing them as unnecessary. The Ministry was not familiar with the issue nor did it adequately understand what it entailed.<sup>14</sup> Even when the legislation was finally being enacted, identity theft was not considered much of a problem. Those who drafted the law were more concerned with adhering to the traditional general doctrines of criminal law when determining the penalties for violations.

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10 The Locomotives on Highways Act 1861, The Locomotive Act 1865 and the Highways and Locomotives (Amendment) Act 1878.

11 For example, this expression was used by Jorma Kuopus in his doctoral thesis on the use of information technology in government, published in 1988.

12 See e.g. Saarenpää, Pöysti, Sarja, Still, Balboa-Alcoreza *Tietoturvallisuus ja laki: näkökohtia tietoturvallisuuden oikeudellisesta sääntelystä: tutkimusraportti* (1997). The classification of risk in this work on the need for information security legislation is based primarily on ideas elaborated by *Tuomas Pöysti*. For a recent treatment of risk analysis as one of the hallmarks of Legal Informatics see Wahlgren, *Legal risk analysis: a proactive legal method*, passim.

13 Directive 2013/40/EU of the European Parliament and of the Council of 12 August 2013 on attacks against information systems and replacing Council Framework Decision 2005/222/JHA.

14 In her reply to a written question in 2012, Minister of Justice *Anna-Maja Henriksson* went so far as to say: "Use of the Internet requires responsibility and caution on the part of the user as well. Most of those who use the Internet understand that you should not trust everything you read there. People should continue to be informed of the risks and dangers involved in using the Internet and social media". This reply was hardly to the Ministry's credit.

Returning to the teaching of Legal Informatics, I would like to relate an event that took place in Rovaniemi back in 1989, one that strikes us as comic today. The Rovaniemi Court of Appeal turned ten that year, and one way it marked the occasion was an essay contest. One of the entries described lawyers who used computers as “keyboard lawyers”. This was by way of questioning their professional skills; real lawyers and keyboard lawyers did not belong to the same professional family. The Court of Appeal had no small number of people who intensely opposed the adoption of information technology at the Court. It was something new and strange.

These comments plainly reflected on the legal training offered at the University of Lapland. After all, in 1986 we introduced compulsory courses and exercises in Legal Informatics. One requirement – and achievement – of those courses was that students had to be able to use information retrieval systems. Some judges and other members of the court staff had trouble accepting that.

As the new President of the Rovaniemi Court of Appeal, *Martti Leistén* – the main creator of our national legal databank Finlex – had to spend a great deal of time getting a somewhat reluctant staff used to using information technology. He gradually succeeded in this project, but it took time.<sup>15</sup>

Back then – as today – everything naturally depended on the skills and attitudes lawyer brought to their work. Of course, the range of lawyers out there today is a very broad and diverse one.<sup>16</sup> There are those who fear technology and those who prefer to avoid the legal issues connected with it. Then again, there are those who welcome technological development enthusiastically as a new object of regulation. In that zeal, however, many fail to realize, as *Aulis Aarnio* observes, that nothing is created in a vacuum. Everything has its background influences, legal influences among them.

Yet another group can be identified – unfortunately – who sit back waiting for court rulings on the relation between law and technology. This group, by no means a small one, which seeks out and slavishly follows these decisions, is not always a credit to the legal profession. The development of society and technology might very well pass them by – to their peril and ours.

As a rule, law and lawyers work by combining normative and factual premises. In assessing facts, we often encounter something new; in assessing norms, we look for materials to aid in interpretation, with these mostly offering something old, telling us what has happened. Trying to draw conclusions on these bases thus involves a temporal tension. Law and its practices can be considered backward-looking activities. Ordinary law - normal science - is above all a *backward-looking* science.

It should thus come as no surprise that encounters with new technology sometimes result in considerable difficulties if we do not have tools in our professional toolbox that enable us to understand and solve the problems we are confronted with. We could and should be able to find those tools within Legal Informatics.

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<sup>15</sup> *Doctor hc. Martti Leistén* was President of the Court of Appeal from 1988 to 1997.

<sup>16</sup> See also Saarenpää, *Legal Informatics and the Scarcity of Justice* pp. 398-399.

### 3 Legal Informatics: Some Perspectives from Lapland

In 1997, an edited volume was published on legal methods containing contributions from 17 professors, myself included. The title, most appropriately, was *My Method*.<sup>17</sup> Each of us wrote an article on our own method. The volume, unfortunately available only in Finnish, is still very much worth reading as an overview of the discipline of law in Finland. It reveals the great diversity of methods and shows that in some cases people have not even thought about what their method is. They merely write what they do, drawing on a variety of sources. The “logic” in such cases is that their professional skill will be apparent from what they write about legal provisions – without an explicit method.

Yet it is precisely method that is the mark of a lawyer in the profession. Like the subject matter of any other discipline, law is a free object of scientific research and teaching. However, even practicing lawyers are typically required to have a law degree, which is seen as a guarantee that their skills meet certain professional standards. This in turn is the foundation enabling us to develop from novices to experts and, occasionally, beyond – to being recognized authorities.<sup>18</sup> Methods bind us together as a profession.

In the case of training for the profession, we have typically structured university degrees, particularly in the Nordic countries, such that the studies are neatly divided up into subjects. Indeed, one function of science is to create order. This is the way of thinking we have become accustomed to.

Yet, this approach is fertile ground for conservatism. There is usually no provision allowing us to make room for anything new. Professor *Peter Blume*, in his inaugural speech upon his appointment at the University of Copenhagen in 1993, spoke of the negative influence of *subject imperialism*, and was no doubt right on the mark. His observation has rightfully earned a permanent place in the history of Nordic Legal Informatics.

It is natural – and essential – for law to be open to investigating new phenomena. Otherwise, it would not be fulfilling its societal function. Yet encounters with the new should not be left to chance. This would mean we have forgotten part of what science is all about. Like Professor *Rudolf Carnap*, for example, we can say that science generally anticipates changes, takes a position on them, reveals problems and undertakes to preserve what the markets or the economy might in the short term see as being of relatively little value. In a word, science should always be proactive to a certain degree. To suggest that this is a novel or special responsibility is to undermine the pursuit of truth, which is the hallmark of science.

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17 Häyhä (ed) *Minun metodini* 1997 (in Finnish).

18 See more Dreyfus Stuart and Dreyfuss Hubert, *A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition* (1980) in “[www.dtic.mil/docs/citations/ADA084551](http://www.dtic.mil/docs/citations/ADA084551)” and Saarenpää, *Does Legal Informatics have a method in the new Network Society?* p. 51 in Saarenpää – Wiatrowski (eds) *Society Trapped in the Network - Does it have a Future?* (2016) and Burkert, *Information Law: From Discipline to Method*.

When computers were introduced commercially in the late 1940s, it was natural that the relationship between information technology and law fell within the realm of *legal theory*, an admittedly broad area. Legal databanks opened up new opportunities for processing legal information and discussion on measuring the factors involved in making decisions and doing so with precision could cite the potential of computers. Here we were operating squarely in the realm of legal theory. It is thus no surprise that *Kaarle Makkonen* took a position on the automation of legal decision making, as I have described above.<sup>19</sup>

In the years that followed, the increased use of computers for various purposes, including the work of lawyers and the courts, brought pressures making it inevitable and essential that Legal Informatics should develop into a discipline of law in its own right. The boundaries of legal theory were being crossed with increased frequency and merely highlighting what was a new perspective was not enough as a foundation for teaching and research. What we needed was a systematic field and general doctrines needed for its development. In creating order, science necessarily relies on a general doctrine, primarily concepts, principles and theories. Here the way we classify the subjects that make up our discipline plays a key role.

Without going into the discrete – and numerous – stages in its development, I would like to describe Legal Informatics as we have come to understand it at the University of Lapland, the site of the *Finnish Institute for Law and Informatics*.<sup>20</sup>

At the University of Lapland, Legal Informatics, like many other subjects, is divided into general and special components. The general component examines the impacts that the changes in IT and communications have had on society and citizens' rights and on the professional skills of lawyers. We need such general thinking. Today the key themes in the general part of Legal Informatics are 1) The Network society, 2) The Legal Network Society, 3) Digital justice, 4) Digital lawyers and, the most recent, 5) Law tech.

Naturally, what these themes share is the contribution they have to make to realizing the principles of *human rights* in the *constitutional state*. This is self-evident. However, it is well worth emphasizing inasmuch as one can cite literature in Finland in which an author, showing an utter lack of expertise, has wondered what the central legal principle of Legal Informatics is.<sup>21</sup>

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19 Clearly, one thing that prompted this contribution was the interest of his teacher, Professor *Otto Brusiin* in the legal cybernetics of his day. In this connection, *Makkonen* refers in his book to the work of *Viktor Knapp* and *Dzhangir Kerimov*.

20 The present director of the Institute is Professor *Rauno Korhonen*. He defended his dissertation in 2003 on the national basic registers that make up the key information store of the public sector.

21 See Pöyhönen pp 22 and 68. The author emphasized that he took constitutional rights as the point of departure in his work.

And naturally, we have discussed – and continue to discuss – about information and informatics. In the Network Society we must understand the role of information in society.<sup>22</sup>

The special component of Legal Informatics takes us to the level of more practical and regulation-related research and teaching. Here we are accustomed to dividing Legal Informatics into four different fields: 1) *Legal Information*, 2) *Legal Information Processing*, 3) *Data protection*, 4) *Information Law* and 5) *ICT Law*.

We plan to continue doing our research and teaching within this framework, although its broad scope creates problems on the level of the individual researcher. We cannot expect anyone to master the level of detail required to be an *expert* in all four fields. But we should retain *general knowledge* in the component fields of Legal Informatics if we are to avoid the problems of the negative tunnel vision brought by narrow specialization. It is general doctrines that help us, as lawyers, to ultimately determine what is right. Lawyers without general doctrines in their legal toolbox are no more than “paralawyers”, who fall short of the standard.

In international perspective, it is particularly important to remember that research on *legal information* has played – and still plays – a significant role in Nordic Legal Informatics. *Jon Bing* and *Peter Seipel* must be given much of the credit for having giving research and teaching on legal information the solid status they have as part of Legal Informatics.

Here we can be seen to differ in some measure from those countries where *law librarianship* is an area of learning and education in its own discipline. In Finland, in the early 2000s, the Library of Parliament considered a degree in law from the University of Lapland with a major in Legal Informatics and a thesis on legal information as sufficient qualification for the job of information specialist. Also worthy of note is that the Nordic countries do not have separate legal information institutes in which research could be centred.

The issue of legal information was important even when legal databanks made their first appearance. At the time we had to learn how to use different forms of electronic information storage and retrieval effectively. Reading increasingly became searching.<sup>23</sup>

Today things are a good deal more complicated in our digital environment. The focus has shifted to the legal path information has to travel, one that spans choice of mark-up language and template through how information appears to the user in its different forms to the kind of historical information it can later afford us.<sup>24</sup> What is more, our digital information environment is challenging

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22 See Mincke, *Knowledge, Information, and Individuals* pp. 34-50 in Saarenpää – Wiatrowski Society Trapped in the Network. Does it have a Future? Professor Dr. Dr hc *Mincke* has also been part-time Professor in Legal Informatics in Lapland.

23 See Bing (ed) *Handbook of Legal Information Retrieval* (1984) and Saarenpää, *Legal Data Banks and Legal Skills* pp. 173-178 in *Biotechnologie, Ethik und Recht Im Wissenschaftlichen Zeitalter*, ARSP 1991.

24 I have written about the fundamental general principles of legal information. It must be: 1) readily available, (2) accurate, (3) accessible, (4) searchable, (5) understandable, (6) usable and (7) free of charge or easily affordable. Saarenpää, *Oikeusinformatiikka* (2016) p 180.



the methods and quality of *comparative law*.<sup>25</sup> The issue is far too important in the modern constitutional state to leave it to experts in information management and to the operation of the markets. And here we must always look at things from the perspective of the democratic constitutional state and think of how law appears to the average citizen.<sup>26</sup> Can we afford to continue to rely on linear texts any longer, even if they are essentially of high quality?

One of the present and future challenges of Legal Informatics is to develop a new brand of legislation. The conception of laws as essentially lengthy, hard-to-understand, linear texts is rather at odds with efforts to promote human rights in the Network Society. The EU General Data Protection Regulation is one of the more recent and telling (negative) examples of this. At the very least we should see progress to the point where we have *interactive legislation*.<sup>27</sup>

I will return later to *Information Law* as an important part of Legal Informatics. Its development and present state as part of the development of Legal Informatics is essential for the entire discipline. Without Information Law Legal Informatics would be a far narrower discipline than it is today, although still an important one. We have progressed from the rather slow development of Information Law and its general principles to the point where we recognize the general significance of the subject. It is thus now in systematic terms an essential field within Legal Informatics.

If we think about the systematics of Legal Informatics, a natural first consideration is that the systematics we adopt must not be exclusionary. We cannot fall into the same trap as traditional subject systematics. As legislation on information technology has increased, we have time and time again witnessed situations where some question or questions have had to be assessed in terms of a dynamic systematics. In other words, they have to be analysed in terms of more than one field of law in order to develop an accurate picture of what is at issue.

A long-standing and illuminating example of this is the relationship between copyright and legal informatics, which *Jon Bing* once most appropriately called an *unholy marriage*.<sup>28</sup> Researchers on traditional copyright slowly began paying closer attention to the numerous copyright-related problems of interpretation connected with the use of IT and information networks as well as to the new

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25 Mikkola, *Comparative legal information and obstacles achieving it: mastering (surviving) the jungle of foreign rules in Finnish courts*, passim.

26 For example, *Doris Liebwald* has brought this natural but often forgotten perspective to the fore in her article *On Transparent Law, Good Legislation And Accessibility to Legal Information: Towards an integrated legal information system* pp. 301-314 in *Artif Intell Law* (2015) 23. Liebwald is partly following the ideas of *Jon Bing*.

27 *Erich Schweighofer* has written about three levels of communication. This is an acceptable conceptualization, but I would like to add one more from the citizens' point of view: interactive legislation. See Schweighofer, *Three-level Communication of Law*, Jusletter in: Jusletter IT Flash 17. August 2017 and Saarenpää, *Towards legal information and legal knowledge. Some basic issues in Finnish perspective* pp.524-525 in *Festschrift till Peter Seipel and Saarenpää, Law: linear texts or visual experiences? Challenges for teaching law in the Network Society* pp. 32-42 in Saarenpää - Sztrobryn (eds) *Lawyers in the Media Society*.

28 See *Bing, Perspectives for the Development of Computers and Law and Computer Law: The Next 10 years*, *Journal of Law, Information and Science* 1993.

regulation in the area. Linking on networks is a good example in this regard. It is one of the basic elements of the information infrastructure in the Network Society. In practice, the use of the Internet is very much based on linking.

Linking as a copyright issue came to the fore in Finland for the first time when it was taken up in a doctoral thesis in Legal informatics written by Lecturer *Brita Herler* at the University of Vaasa. I had the privilege of being the opponent at the public defence. In 2014 the Court of Justice of the European Union handed down a decision (Case C-466/12) in which it drew the same conclusions that *Brita Herler* had back in 2001.<sup>29</sup> Unfortunately, the thesis, written in Swedish and defended in the Faculty of Economics, is not always even mentioned in the later legal literature on copyright in Finland.<sup>30</sup> This is a regrettable example of the often closed nature that copyright law has traditionally had as a discipline of narrow scope.

In the Network Society, copyright has become an increasingly prominent topic in societal debate. The issues *Brita Herler* took up are now established topics in at least two fields – Intellectual Property and Legal Informatics – where they are studied separately and jointly; and they are discussed well beyond these fields. What at one time was a very narrow field of legal expertise has undergone – or is undergoing – a significant make-over. Copyright law is increasingly becoming a field of law that most lawyers should know quite well. And of course piracy in its various forms has emerged as a serious copying and access problem in the Network Society. Traditional copyright research is also gradually becoming aware of this. The unholy marriage pointed to by *Jon Bing* is coming to include newer issues, ones of interest to Legal Informatics as well.<sup>31</sup> This development is reflected in the judgement of the Court of Justice of the European Union handed down in November 2017 (C-256/16) on the remote recording on a cloud computing service of private copies of works protected by copyright (TV programmes).

Systematics plays a key role in legal life. It opens and closes the eyes. The general taxonomic location of a law in the legal system, along with the legal principles, theories and concepts that inform the law, tell us what is right in any given situation. Choices based on systematics can indeed open and close the eyes. We learned this the hard way in Finland when making the transition to the era of data protection. When Finland's first data protection law - the Personal Data File Act – was enacted in 1987, the editor of *The Laws of Finland* classified it under administrative law. There it was between the Bladed Weapon Act and the Bingo Decree. Bingo!

Three factors can be seen as leading to this classification. First, the Act was drafted in the Administrative Law Division of the Ministry of Justice. Secondly, in Sweden, the pioneer of such regulation, the legislation was seen as falling under administrative law – hardly surprising given that we were living in the era

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29 At the same time an assessment of linking was published by *Katarina Renman Claesson* in an article on the pages of IRI in Stockholm. The subject was quite topical for Legal Informatics at the time.

30 *Brita Herler* is not a lawyer.

31 See for example Still, *DRM och upphovsrättens obalans* (2007).

of the administrative state at the time. Thirdly, the editor had no established conception to draw on that would have indicated what category data protection belonged to in the Finnish legal systematics.

Later, in the 1990s, the classification of the Act in the law book was changed. We located it in the beginning of the first volume of the work, the part on Civil Law. The law found a home in the law concerning persons. And it is still there between the Equality Act and the Names Act. Our systematics says a great deal about our values. And when we consider that *The Laws of Finland – Suomen Laki / Finlands Lag* – is a collection of statutes intended for practitioners in particular, the work is also a key component of communication in and about law.<sup>32</sup>

I cannot avoid the impression that the systematics used in the law book, described above, had a great deal to do with the relative obscurity of our first Data Protection Act and how it was received. It is equally clear that a second key reason why data protection later had such a weak position as a body of regulation was the power of the Nordic principle of publicity. When we implemented the Personal Data Directive by enacting the Personal Data Act as a general law in 1999, it could be seen that different sectors sought exceptions in order to facilitate their daily work. Many such exceptions were enacted. The goals of the Directive and those of the bureaucracy took different directions. And when public-sector organizations provide information about relevant legislation, for example on institutions' web pages, they constantly emphasize that the principle of publicity is a top priority.

Another nagging problem is the attitude organizations and employees take towards data processing in their day-to-day routines. A case that occurred in autumn of 2017 provides an illuminating example.<sup>33</sup>

The National Institute for Health and Welfare inadvertently placed the health data of over 6000 people on an information network, the Internet. The leak was not discovered by the Institute; they found out about it from the national Data Protection Ombudsman. One citizen had alerted his office.

When the Institute ultimately made a public statement about the incident – over a month after it happened – the reason given was “human error”. One of the people working there had used information containing personal identity codes when putting together a report. They then, without thinking about it, put the information on an open network.

This incident, sadly, reveals the vulnerability of our society more generally, dependent as it is on information systems and information networks. Unintentional and deliberate violations of information security, as well as various leaks, now occur routinely, almost daily. It was with this in mind that the new European General Data Protection Regulation (GDPR) took as one point of departure that data breaches must be reported immediately, or at least within 72 hours. But a lot can happen in 72 hours, far too much.

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<sup>32</sup> *Suomen Laki* has always been published in Swedish as well, under the title *Finlands Lag*. Unfortunately it seems that many in the other Nordic countries do not always remember this.

<sup>33</sup> See also Saarenpää, *Legal Informatics and the Scarcity of Justice* pp 397-398.

I will not be going into any further detail on the Finnish incident, but I think there are three observations merit mentioning here.

First, the data protection legislation prescribes that when processing personal data, every effort should be made to avoid processing unessential data. This means avoiding the use of identifying data that could be exploited by unauthorized parties. More often than not, the case or file number or another pseudonym is a better identifier than the ever-risky personal identity code. These guidelines must be kept in mind when planning an information system; those designing the systems have to consider the entire path the information will travel in its lifetime.<sup>34</sup>

Secondly, information systems should always be planned to minimize the risk of human error and the impacts of such error if it occurs. This clearly had not been done in the case I have just described. Some “dummy” managed to make a major mistake because there were no safeguards in place in the system that would prevent such errors or alert users to potential problems.

Thirdly, I would point out that information security is a core value in the Network Society. Conscious of this, back in 1997, in a report drawn up by the Institute for Legal Informatics at the University of Lapland, we proposed that a general Information Security Act was needed in Finland.<sup>35</sup> At the time, the government did not find such legislation necessary, and to this day there is no such law on the books. Regrettably. Fortunately, however, European regulation – on both data protection and nowadays information networks – has step by step begun to take information security more seriously. It is one of the most essential forms of security in a society. The Institute for Health and Welfare had in no way sought to ensure that sensitive information would not end up on an open information network via an individual employee’s computer. This was an instance of their neglecting information security.

I will now go on to take a closer look at the position of Legal Informatics as an important social science.

#### **4 On the Road from Traditional Legal Science to Major Legal Social Science**

In the general classification of sciences, law is ordinarily considered one of the *social sciences*. This is natural, but comes as a surprise to many legal practitioners. We are used to thinking that our discipline is somehow distinctive – a science that studies law. What we know as ordinary legal doctrine, our guide to interpreting the law, has often little or no interest in society or its development.

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34 The interesting doctoral thesis written by *Jari Råman* is a good analysis of the problems we encounter today. See more Råman, *Regulating secure software development: analysing the potential regulatory solutions for the lack of security in software*, passim.

35 Saarenpää – Pöysti – Sarja – Still – Balboa-Alcoreza, *Tietoturvaluus ja laki: näkökohtia tietoturvaluuden oikeudellisesta sääntelystä: tutkimusraportti* (1997). The impetus for the report, commissioned by the Ministry of Finance, was the observation that sound data protection requires sound information security. Implementation of the Personal Data Directive was not quite a big enough step in that direction.

In the Network Society, we will inevitably see more regulation on the relationship between law and technology – even though our ambition is generally to produce *technologically neutral* laws.<sup>36</sup>

Having more regulation in the books will heighten the role of ordinary legal doctrine. At the same time, this development should alert us to the increasing importance of Legal Informatics as a modern social science. Data protection is a premier example of this status. We simply cannot afford to overlook its links to human and fundamental rights in the modern constitutional state. In my paper for IRIS18 I put forward the argument that today general legal science is a more important social science than ever before and that it will play an increasingly crucial role in how we interpret the law day in and day out. The development of Legal Informatics is a good example of this progress.<sup>37</sup>

In the first decades of Legal Informatics it was no doubt tempting to think of the field as a “gadget science”. Legal databanks caused practicing lawyers to sit themselves down in front of computers and keyboards, and having to assess the legal status of programs meant that lawyers had to have the skills to evaluate them as written works or the equivalent. The Swedish pioneer in the field, Professor *Peter Seipel*, has long emphasized in his textbooks that Legal Informatics has never been a gadget-oriented science focused on the information technology itself.<sup>38</sup> I have also repeatedly stressed this same point in my Finnish textbook.<sup>39</sup> Legal Informatics has always focused squarely on evaluating the different ways in which advances in information technology have impacted the society we live in. If we think of how scientific disciplines develop, we can unhesitatingly describe Legal Informatics as a legal science that concerns itself first and foremost with significant changes. One of those is the progress toward the *Network Society*.

In the modern Network Society, we – every one of us – are increasingly dependent on access to networks and to the information they contain and services they offer. We can speak about a *digital environment*. Society has definitely changed. That is why I would like to speak about the Network Society, not about the Information Society or the Cyber Society.<sup>40</sup>

Reference to the Information Society, which became a fixture of political programmes, initially described a stage of development in which the increased importance of information and information professions along with advances in

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36 The new European General Data Protection Regulation is interesting in this respect. In the recitals, it is described as being technology neutral but our possibilities to transfer our data from one service provider to another – data portability - requires a certain compatibility between the technologies they use.

37 Saarenpää, *Legal Informatics and the Scarcity of Justice* pp 397-402.

38 For example Seipel, *Juridik och IT. Introduktion till Rättsinformatiken* p. 269.

39 See for example Saarenpää, *Oikeusinformatiikka* pp. 67-273. in Niemi (ed) *Oikeus tänään* (2016). Unfortunately, the work was misleadingly marketed as a book required for the entrance exam for the Faculty of Law. However, my contribution to the volume was a general textbook on Legal Informatics.

40 The concept “Network Society” as used here is wholly different from that used by *Manuel Castells* and, also to some extent different from the same concept used earlier by *Jan van Dijk*, which was more important to me.

office automation combined to justify use of the term. As a society distinct from the earlier, post-industrial society, it sparked fresh discussion in the academic world and in society at large. Information technology was regarded as a tool, and information for the most part as cheap raw material. It was at this time that we recognized the need for and began to enact new legislation on information technology.<sup>41</sup>

Likewise, it is time to say good-bye to *eGovernment*. This was government in which IT produced tools for government. In today's information government we are dependent on a digital operating environment, and the average citizen's electronic links to government are more interactive and take place more in real time than before. The degree of engagement is markedly different from that originally anticipated in the days of e-government.

In one response to the unresolved vagueness of the concept "e-government", Professors *Victor Mayer-Schönberger* and *David Lazer* suggested, as far back as 2007, that we should adopt the new concept "information government".<sup>42</sup> One of their aims was go beyond the focus on efficiency in government to create a broader picture of government that makes increasing use of IT. In other words, rather than adhering to a narrow technological perspective, we should turn our attention to the broader concern of the *information flows* in society. In this connection, the authors spoke perceptively of a new conceptual *lens*.

*Mayer-Schönberger* – one of the pioneers of modern Legal Informatics – and *Lazer* presented their ideas in *Governance and Information Technology, from Electronic Government to Information Government*, a volume they edited. Despite its very distinguished contributors, the work, like many others, did little more than generate discussion; it did not provide a clear foundation for conceptual change. The upshot of this is that e-government as a concept has continued its victory march in scientific circles as well as in the strategies of different societies and organizations. Unfortunately.

But, as the late Finnish philosopher *Jaakko Hintikka* once insightfully pointed out, concepts eventually meet their fate.<sup>43</sup> Today, e-government, although a comparatively new concept, is not clear and robust enough conceptually, nor are the basic ideas it embodies even relevant. Indeed, there is every reason to doubt its usefulness. We really need a *new, sharper lens*. The working environment to which e-government originally applied has changed substantially. The concept falls short of the clarity that is required of scientific communication. We must reassess the principles that are relevant to the topic and to understanding it and do so in terms of the society we see around us today.

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41 See generally for example Webster, *Theories of information Society* (4th edition) passim. Frank Webster took part in the Network Society project from 2011 to 2014. I was head of the project.

42 See more Mayer-Schönberg – Lazer, *From Electronic Government to Information Government* pp. 1-12 in Mayer-Schönberger – Lazer (eds) *Governance and Information technology: From Electronic Government to Information Government*.

43 Hintikka, *Tieto on valtaa ja muita aatehistoriallisia esseitä* (1969, in Finnish).

I would now like to briefly present six key arguments that in my view establish the need for a positive conceptual change.<sup>44</sup> The perspective I proceed from is that of Legal Informatics, above all Nordic Legal Informatics. However, the considerations I wish to present are also global, although some cultural differences come into play.

The first (1) observation of note is that e-government as a concept reflects a bygone era. It was coined when society had just taken the first steps in the transition from what was routine progress in office automation to more extensive use of IT in government. The focus at the time was on more effective use of a *tool* that could make the work of government easier.

Today, the everyday use of computers is an everyday aspect of government. Government operates in an environment *defined by information systems and information networks*. I have emphasized on another occasion that all good lawyers today are *digital lawyers*. Information government is part and parcel of the world in which they live and work. The new information infrastructure is also lawyers' infrastructure.<sup>45</sup>

The second (2) point I would like to bring out is that in the 1990s, the temporal backdrop to the concept of e-government, we were still living in the *Information Society*. That is, as we have seen, an era now past; the transition to the *Network Society* we live in today was just beginning. Today, in the modern Network Society, we are critically reliant on information networks and their use in government and elsewhere. Use takes diverse forms, from the creation of documents to communication, and from initiating matters electronically to using the wide variety of *electronic accounts* –secured channels in fact – that individuals and organizations set up.

The third central change (3) we have to consider – a truly essential one in fact – is the development of the modern *constitutional state*. Throughout the world, countries have entered the era of the constitutional state - or are at least starting to.

It is a state which places far more weight on *human and fundamental rights* – the rights of the individual - than its predecessors did, and makes those rights essential elements in all systems planning at the governmental level. New Public Management, which held sway earlier and viewed people as clients whose needs were dwarfed by considerations of efficiency in government, has now yielded or will gradually have to. Government in its various forms – government IT services included – must now respect human rights to the full. Government is there to serve its citizens.

The fourth (4) crucial development I would like to cite is the change in the status of *information* in society. Today, views stressing the increased importance of information have their basis in an interest in our *right to know* and the *right to knowledge* this entails. The new constitutional state has a significant informational dimension, and this must be given due consideration in measures

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44 See more in Saarenpää, *Information Government*, passim.

45 Saarenpää, *The Digital Lawyer. What skills are required of the lawyer in the Network Society?* pp 73-85 in Schweighofer – Kummer –Hötzendorfer (eds) *Kooperation – Cooperation*, IRIS 2015).

geared to improving government. The solutions adopted in this development must support our right to knowledge. *Open data* and *big data* are more than merely market and communication products.

The fifth reason (5) why I would call for a conceptual change is the transition that is underway to a *digital working environment* across the board – citizens, organizations and the public sector. This change makes it possible to design *interoperable systems*, in which the path information travels can be optimized in technical as well as legal terms with a view to respecting the rights of the individual.<sup>46</sup> The long reign of static paper documents, when nearly everything was reduced in form and content to what would fit in a single paper document, is finally behind us. Our basic documents are *digital system documents* that live and die in information systems.

The sixth (6) – and in this connection last – crucial change I would like to mention is that we now take *information security* much more seriously than before. We must sit up and take notice of the fact that information security is a central condition for the realization of our fundamental rights both in general and in government. It is with this in mind that since 1997 we – Doctor *Tuomas Pöysti* and myself – have called information security a *meta right* where fundamental rights are concerned.<sup>47</sup> Rigorous information security is a guarantee that the fundamental rights we exercise when using networks are properly safeguarded.

In the era of information government that we have entered, government must show due regard for the rights of individuals and organizations when it processes their information on the long *path* that information travels in the Network Society. In legal perspective, that path begins early on – when we have to decide, with a view to further use, how data is attached to a template and what kind of template this is.<sup>48</sup> The information then continues down the path – with due consideration given to transparency – to be processed in a secure environment of interoperable software applications until it is expunged if no longer needed or is archived.

The days of the Information Society in its original form are long past. Then again talk of the Cyber Society as the presumed next stage of societal development only covers part of the key infrastructures and working environments in today's society. There is better reason to speak of the Network Society and legal regulation of it.

The protection of personal data – data protection – has been one of the central concerns of Legal Informatics since the early stages of German Legal Informatics. The world woke up to the need for data protection legislation as we entered the 1970s. The impetus was clearly societal, that is, concern for the rights

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46 Cf. Tornberg, *Edunvalvonta, itsemääräämisoikeus ja oikeudellinen laatu* (2012). *Johanna Tornberg* was the first one in Finland analyzing guardianship system from the information processing point of view.

47 Tuomas Pöysti has been Chancellor of Justice since the beginning of 2018.

48 See for example already Magnusson Sjöberg, *Critical Factors in Legal Document Management: A study of standardised markup languages. The Corpus Legis Project* (1998) and more recently Akoma Ntoso in “[www.akomantoso.org/](http://www.akomantoso.org/)”.



of the individual. Assessments of the new regulation in the fields of Legal Informatics and the law of personality were wholly natural at the time.<sup>49</sup>

Today we are witnessing the coming into force of the *European General Data Protection Regulation*. – GDPR. Its societal message is a clear one. Data protection, as an independent European fundamental right, is to be the indisputable guiding principle in all processing of personal data. When we combine this with the development of information government we can readily observe that what we see is a new stage in the Legal Network Society. We are all and in everything dependent on sophisticated data protection. It can no longer be an exception to the main rule nor a digression in the development of the Nordic principle of publicity.

Then again, the Regulation is fraught with a variety of problems. As Professor *Peter Blume* has often pointed out, as a legislative product it falls rather short of the European standard for “better lawmaking”. It is by no means an easy read, especially for the layperson.<sup>50</sup>

Even more problematic, however, is that the Regulation opens up a route not to the harmonization it sought to achieve but also to a possibly prolonged disharmonization. Namely, it has 69 exceptional rules; it leaves the treatment of sensitive data partly up to the discretion of the individual Member States; it leaves legislation on public documents wholly up to them; it leaves open the concepts of legitimate interest and public interest; and it leaves “journalistic purposes” to be determined on a case-by-case basis. If this is not discretion, I do not know what is.

As I see it, the legal planning of information systems in the Network Society must embrace and achieve a standard where the regulation of the systems, particularly in information government, meets the requirements of the constitutional state with respect to accuracy and effectiveness.<sup>51</sup> Accordingly, efforts to improve electronic judicial services have to set their sights higher than simply providing prosecutors and judges with better work stations.<sup>52</sup> Unfortunately, development in Finland does not reflect this level of ambition.

We must also remember that reconciling human and fundamental rights requires skill more than technique or strength. I would like to take up one insightful example, the well-known *Google Spain* case. At issue was our right to remain beyond the reach of search engines, beyond indexing.<sup>53</sup> In deliberating the case, the Court of Justice of the European Union concluded that the protection of personal data was a more important consideration than freedom of

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49 My chair at the University of Lapland, to which I was appointed in 1979, included Family and Succession Law as well as the general doctrines of the protection of the personality of the individual.

50 My point of departure in assessing legislation is that in a democracy legislation should be easy to understand. In the area of data protection, codes of conduct are applied to achieve this goal.

51 See more in Magnusson Sjöberg, *Juridik som stöd för förvaltningens digitalisering*, passim.

52 See more Saarenpää, *E-justice and the Network Society. Some comments from the Finnish point of view*, passim.

53 Bygrave, *A right to be forgotten*, Yulex 2015.

speech. Ultimately, the latter was not even mentioned in the Court's decision. The Court's Advocate General had come to a different conclusion in his proposal. To him the protection of personal data as a fundamental right was very clearly a less important issue, and he did not grasp the situation in which the Court reached its judgment.

One striking development in the interpretation of the law in recent years has been the heightened importance of human rights. As the Finnish scholar *Raimo Siltala*, drawing on the work of *Ronald Dworkin*, has compellingly pointed out, human rights have become trumps in the winner's hand.<sup>54</sup> Yet this requires that one be able to identify the problems correctly in legal terms and to assess the interplay of human rights in any given case. The Advocate General's proposal cited above did not quite meet this standard. As my mentor Professor *Aulis Aarnio* aptly wrote: "If systemic boundaries are violated, the decision made does not comply with valid law". There is no law. Or there are societal and political opinions without legal skills.

A very enlightening instance of skill in weighing and balancing rival fundamental rights, and of the need for such a skill, can be found in the 2017 judgment of the European Court of Human Rights in *Satakunnan mediapörssi v. Finland*. The case involved the publication of taxation information as is in a commercial publication. In Finland, some of the information on citizen's taxation – for example, taxable income and amount of taxes paid – is public. Everyone has the right to view that information. It may also be examined for journalistic purposes, in which case journalists are seen as implementing the principle of openness. But publication of the information as such for commercial purposes is not journalism. It is commercial processing of personal data. And this was the conclusion that the European Court of Human Rights ultimately came to, although, rather surprisingly, only after having to vote on it (15-2). The German and Spanish judges voted against.<sup>55</sup> This might well indicate that to them commercial freedom of speech was a more important fundamental right than the protection of individuals' personal data.

We must be careful not to heedlessly take thinking rooted in general fundamental rights beyond existing regulation. Here the principles of *information law* are of considerable help in interpreting the law. It is these that help us to maintain and further *legal welfare*. Without them it would be impossible to have a sufficient understanding of our rights in the Network Society. What is more, they help us to understand the nature of Legal Informatics as a modern social science. When one acts as an expert, an interest in information law cannot be confined to familiarity with a particular law only.<sup>56</sup> Here, information law, when used frequently as a general term, may easily be misleading.

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54 Siltala, *Oikeudellinen tulkintateoria* p. 503.

55 Also, the Court's chamber decision in 2015 was not unanimous, however; it reached its decision after a 6-1 vote, with the Georgian judge dissenting.

56 On principles of Information Law see more Saarenpää, *Information Law Revisited - Informationsrecht – noch einmal* pp 85-90 in Schweighofer- Kummer - Hötendorfer - Sorge (eds) *Trends and Communities of Legal Informatics. Proceedings of the 20th International Legal Informatics Symposium 2017*.

In my Finnish-textbook on Legal Informatics, I have consistently emphasised the following as what I consider the leading principles of Information Law: 1. The right to know, 2. The right to information, 3. The right to communication, 4. Freedom of information 5. The free flow of information, 6) The informational right to self-determination, 7. The right to information security. Two additional, equally important but often overlooked principles should be added: 8) The right to information balance in society and 9) The right to good information government.

The days when the need for information law in any form was questioned are no doubt a healthy distance behind us now.<sup>57</sup> Today the problem is that people want to talk about Information law without mentioning principles and that legal principles and societal and political aims become confounded. The criticism of the Google Spain judgement in the legal literature is an illustrative example of this.

## 5 Professional Interoperability

Legal Informatics has, by its very nature, always been – and will always be – a highly *interdisciplinary* area. If nothing else, this is abundantly clear from the recommendation put forward by the Council of Europe in the beginning of the 1990s urging the establishment of institutes of Legal Informatics.<sup>58</sup>

We genuinely need such “legal observatories” with a range of professionals to monitor, guide and supervise the legal development of our increasingly computerized Network Society. An institute is a premier example of an interdisciplinary forum for discussion within law as well as discussion directed to those outside the discipline. At the same time, it is crucial as a community of researchers engaged in thinking on dynamic legal systematics. Successfully bringing the protection of personal data, privacy, copyright and openness together under one roof requires very wide-ranging understanding.

Given the benefits of interoperability, it has been and continues to be very difficult scientifically to justify Legal Informatics being a subject that can be tackled by a single legal researcher. The typical arrangement at universities, where a single professor supervises what is more or less a narrow subject does not usually work in the case of Legal Informatics. And we must notice that, as individuals, we easily become prisoners of the scarcity of justice. Shortcomings in the conceptions of and approaches to law and IT, as well as distortions in the legal culture, jeopardize the realization of the rights of the individual in the constitutional state. The information we need is either nowhere to be found or is somehow outdated when we do locate it.

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57 When *Asko Lehtonen*, one of the pioneers of the teaching of Legal Informatics in Finland, officially made Information Law part of Legal Informatics at the University of Turku in the 1980s, many wondered what he was doing.

58 Teaching, research, and training in the field of law and information technology: Recommendation no. R (92) 15 adopted by the Committee of Ministers of the Council of Europe on 19 October 1992 and explanatory memorandum. *Peter Seipel's* and *Jon Bing's* contributions in drafting the recommendation were no doubt significant.

Here we can see why the idea of establishing institutes for Legal Informatics in our multifaceted Network Society is timelier than ever. If the network formed by the legal community is to operate effectively, it will need more than the traditional, static systematics and narrow professional legal skills.

But this is not the whole story by any means. In legal life we increasingly need a knowledge of sciences that goes beyond the boundaries of our discipline. For example, information systems can no longer be assessed and developed solely on the basis of what the final outcome – most often a document – looks like.

In planning, using and evaluating legal information systems it is essential to follow from beginning to end the long path information travels. Legal knowledge is not enough here; other expertise is required, above all forensic IT expertise in its different forms.

A good example of this over the years – and to this day with the coming into force of the GDPR – is the personal data filing system. Such a file is a logical file. Its existence and boundaries are often determined with sufficient certainty only after forensic scrutiny. We need the skills to search for and to process digital data. And often the certifications, audits and standards essential for information systems involve expertise beyond the bounds of ordinary legal skills. And, more and more, we must be ready to make forensic IT analyses on the long path data travels.<sup>59</sup>

This fact, too, is a point in favour of setting up strong institutes – like CIRSFID in Bologna – of Legal Informatics in this era of information systems and information government. In this connection it is also essential to realize that the institutes have an ethical mission as well. They create and reinforce a joint code of ethics that will inform their work. This will no doubt play a crucial societal role as technology continues to develop apace.

As *Peter Seipel* has insightfully noted, Legal Informatics as a science has always sought to anticipate.<sup>60</sup> This is also an important point given that as technology develops briskly, we find ourselves constantly confronted with the technological imperative as a societal problem. It is often considered essential that we exploit the potential of new technology – without adequately reflecting on the possible problems it may involve.<sup>61</sup>

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59 See more Saarenpää, *Professional interoperability in the Legal Network Society*. in Palmirani, Sánchez Jordán, (eds) *Informatica giuridica e informatica forense al servizio della società della conoscenza*. Scritti in onore di Cesare Maioli.

60 Seipel Nordic School of Proactive Law Conference, June 2005 *Closing Comments*.

61 A good example has been the increasing use of biometric information. See for example Korja Tutkimus biometristen tunnisteiden lainsäädännöllisestä asemasta (2016) and Korja, *The Privacy risks of Biometric Identification* pp 196-213 in Saarenpää- Wiatrowski, (eds) *Society Trapped in the Network*.

## 6 Conclusion

I have earlier described the General Data Protection Regulation as a law that will inevitably change data protection from exception to rule.<sup>62</sup> As the democratic constitutional state develops, we cannot see data protection, fundamental right that it is, left as an exception to freedom of data processing and the societal principle of openness. That principle serves us all but it cannot infringe our right to informational self-determination and protection of our personal data. This must be taken into account from the outset, when data processing is being planned. Here in Europe we cannot view data protection as a facet of privacy. It is a genuine and strong fundamental right of its own.

A broader societal task here is to develop an *information culture* in which the protection of personal data is recognized as a crucial fundamental right and where problems in the realization of this right are recognized as early as possible.<sup>63</sup> The practice in government of striking out confidential information or personal data on paper documents should be past history. The new legal information culture must be built by enriching the debate on fundamental rights and developing the principles of the law of personality and information law as they apply to the entire path information takes – from beginning to end. There we will see the strong link Legal Informatics has to the social sciences in the modern European constitutional state. And this should be legal, not political

Lastly, I would like to note that old-fashioned information technology and old-fashioned lawyers are a very bad combination where the rights of the individual are concerned. This is worth bearing in mind in any course of education or training, whether it involves law, government or information technology. And this training is very necessary indeed in all phases of a lawyer's career, as can be seen from the following closing example. In 2017 an attorney's office sent a client a bill that had the wrong penalty interest on it. When the client filed a complaint with the Disciplinary Board of the Finnish Bar Association, the attorney denied any wrongdoing, claiming the incorrect information had come *from the computer!*

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62 Saarenpää, *Data Protection in the Network Society – the exceptional becomes the natural*, pp 85-128.

63 See also Bull, *Informationsrecht ohne Informationskultur?*, RDV 2008, S. 47-88.

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