IT and Legislative Development

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1   Introduction

Legislation is presently under strain. Technical progress, internationalisation and the growth of legal information alter the presuppositions at what seems to be an ever accelerating pace.

These developments do not merely affect the issues to be regulated. This process also challenges the concept of legislation as such. It is in several ways apparent that traditional means of solving legal problems are becoming less efficient, and that alternative solutions ought to be considered.

This article focuses on the latter. More precisely, the objective is to discuss whether there exist methods, or ways of approach, which may support law-making in a complicated technical environment characterised by a fast pace of change. The discussion is tentative; the ambition is merely to make an inventory of possible ways ahead.[1] Three alternatives are addressed:

- The traditional approach in which legislation as we now know it is being adapted and elaborated by conventional means.

- The embedded approach in which rules are being physically implemented in technical mechanisms.

- The utopian approach in which (what is now known as legal) problems are eliminated in a proactive way before they actually occur, diminishing the need for legal rules as such.

2   Background

Traditional, black letter law can be adjusted in several ways. When a new problem emerges the standard procedure is no doubt to amend or alter existing provisions so that adequate solutions can be reached. In a short-term perspective there can be little doubt that this is the most efficient method. New rules can be implemented with relatively little delay and the mechanisms to produce them are readily available. From the point of view of the politicians it is also obvious that this method will always be preferred. Prompt legislative actions are not only important because they eliminate acute problems – they are also profound illustrations of vigorous leadership.

A continuous aggregation of detailed, often reformulated rules also has drawbacks, however. In a long-term perspective it is apparent that a common side effect is the accumulation of inconsistent regulations, exhibiting a poor overall structure. Equally problematic is the continuous vitiation of the legal language, following from a frequent use of *ad hoc* solutions, and the ever

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1   *Cf.* for additional discussions about legislative strategies in the IT sector, and for further references, the contributions of Jon Bing and Peter Seipel in this volume.

increasing complexity of piecemeal legislation.[2] An additional problem is that legislation tends to become more and more voluminous.[3]

The negative effects of the traditional legislative approach often make themselves felt; in many areas there is no doubt that it is impossible for anyone not trained in law to understand the legal system. Sometimes it is difficult also for lawyers to grasp legislation, at least when it comes to issues outside their day-to-day practice. To identify, retrieve and evaluate the different components that may be relevant can simply be too complicated. Updated and detailed background knowledge about the situation at hand is in most cases a precondition for efficient work.[4] Moreover, the situation appears to be worsening as the rules become more diversified and the particularisation of solutions continues. The usual criticism, that much of current legislation is made up of short-lived provisions of dubious quality, in which contradictions and incompleteness are rife, is often valid.[5] An additional consequence of this state of affairs – as is clearly reflected in frequent debates in the media – is an increasing demand for greater transparency in the legal sector.

The shortcomings of the traditional approach are readily apparent in the case of information and communication technology (IT) – which means in effect that the difficulties are revealing themselves in all possible situations. The reason for this is quite easy to understand. The IT sector tends to offer solutions of a complex nature and the lawmaker often encounters problems in trying to satisfy the prevailing demands. How shall, for example, poor health advice and medical prescriptions via Internet – perhaps occurring between two countries, and by the use of a drug supplier in a third country – be managed from the legal point of view? What aspects of new services should be regulated, what kind of regulation is desirable, and how can legal solutions be enforced?

To solve acute problems within a reasonable time, and simultaneously uphold a consistent structure for all parts of legislation is an overwhelming task for several reasons. Persistent complications flow from the fact that the conceptual apparatus of IT lacks in many respects equivalent counterparts in law. Yet another problem is that the meaning of legal concepts often changes, or becomes blurred when linked to new technology. In this respect a number of familiar phenomena, e.g., marketing, the signing of contracts, and forms of agreement must be looked upon in totally different ways when trading occurs via telecommunications. What is more, previously unproblematic concepts, such as e.g., documents, rules and media almost constantly require reinterpretation.

Limiting factors are also that the time allotted for preparatory investigations is continually decreasing, even as the complexity of the subject matters to be

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2 *Cf.* Hellner, Jan, *Lagstiftning inom förmögenhetsrätten: praktik, teori, teknik*. Juristförlaget, Stockholm 1990, Westman, D., *Rättspolitik på IT-området – ett diskussionsunderlag*, Stockholm 1999 (Det IT-rättsliga observatoriets rapport 9/98), and Wahlgren, P. *On the Future of Legal Science*, Scandinavian Studies in Law, Vol 40, 2000 p. 515-525.

3 *Cf.* Tarras-Wahlberg, Björn, *Lagstiftning till döds?* SAF, Stockholm 1980.

4 Danelius, Hans, *En lagrådsledamots tankar om lagstiftningen*. SvJT 2004 pp. 25-33.

5 *See e.g.*, about governmental countermeasures initiated in Sweden, Näringsdepartementet, *Reglers effekter för små företag - Hur gör man en konsekvensanalys?* and *Regeringens redogörelse för regelförenklingsarbetet med särskild inriktning på små företag*, Rskr 2003/04:8 "http://www.nnr.se/pdf/skr2003_04_8.pdf".

regulated increases. If one adds to the equation the necessity to continually adapt the legal language as new phenomena arise, it is clear that the objective to avoid inconsistencies is unrealistic.

Another aspect to observe is that the rapid development of communication technology and its logical consequence – internationalisation – generates previously unknown demands for standardisation and uniform solutions. This creates additional pressure on the lawmaker. A national legislature can do little on its own to solve these problems and, at our present level of development, truly effective instruments for the implementation of international legislation do not exist.

3   The Traditional Approach

Various strategies have been launched to cope with the accumulating difficulties. Within the traditional paradigm, several more or less efficient remedies are being advocated. At least three such approaches can be discerned, and although the terminology may appear a bit provocative, they are discussed in this context under the following labels: the quantitative strategy, the hands-off strategy and the qualitative strategy.

3.1   *The Quantitative Strategy*

From the citizens' point of view, a frequent explanation as to why legal problems occur is that no adequate legal rules exist, or that the available rules are not updated. From this standpoint, it can thus be argued that the most realistic counterattack against accumulating legislative problems is to radically increase the pace of *ad hoc* rule production.

To suggest that the cure for inadequate legislation lies in the production of more rules may, considering the aforementioned side effects, appear a bit whimsical. Implicit in a strategy based on an ever increasing production of specific rules is that all the negative factors, i.e., inconsistency, lack of standardised language, incomprehensive and disparate solutions, as well as other evils, will endure and even grow worse. On the other hand, in a short-term perspective, it may be suggested that it is difficult to identify any realistic alternatives. Or, to put it a bit more cautiously, it is reasonable to claim that the alternative approaches that have been suggested still have to prove that they are practically viable. Therefore, to be sure to accomplish anything, the best thing appears to be to stick to established recipes. Concrete patchwork legislation, however poor its quality may be, is doubtlessly in many cases better than no solution at all.

The acute need for short-term problem removal is not however the only reason why *ad hoc* legislative measures must be looked upon as a pragmatic alternative. An additional argument indicating that an intensified rule production is the most logical course to follow is that such a strategy can avail itself of an established administrative mechanism. Moreover, this approach is pedagogically

easy to understand, and, after all, publicly heralded legislative measures are important survival kits for politicians.

It is to be noted that a quantitative approach need not be entirely related to a worsening situation, nor does this traditional approach reflect a status quo. From the methodological point of view, the means to handle large volumes of legislation has gone through revolutionary stages of development in recent decades. To manage legal rules today is entirely different as compared to the situation thirty years ago, and despite the fragmented nature of the legislation there is no doubt that the potentialities to work efficiently have improved in recent decades. The events of digitalisation, computer-based information retrieval, and the Internet have radically changed the methods for extracting relevant information from the ever increasing bulk of legislation. It may also be noted that explanatory information about legislation has improved considerably.

It is important to understand, however, that these changes do not reflect more efficient ways of producing updated, high-quality legislation. The advances are related to new ways of managing legislative information and in this respect it is beyond doubt that IT has been able to counterbalance many of the negative side effects of the legislative quilt approach.

On the other hand, it may be argued that the employment of IT has done little more than to postpone a possible breakdown of the traditional legislative approach by drastically improving the possibilities to locate and manage scattered information components. Following this line of thought, an even more critical argument would be to suggest that IT actually has had a negative influence on the development of the legislative method by obscuring the core problems. That is simply to say that without access to computer-based tools and modern information retrieval techniques it would probably not have been possible to accumulate such a great bulk of inconsistent material.

Arguments of the latter kind are not possible to prove, nor is it meaningful to try to isolate the factors affecting the prevailing development. What is however beyond doubt is that IT has had a considerable influence over how legislative information can be managed. It also seems uncontroversial to suggest that this development to some extent has shifted the focus; away from methods of developing legislation as such, towards research into such aspects as legal information retrieval, indexing of legal documents, and legal data-base design.

A further consequence of this is that a legislative strategy based on increased rule production appears to have little to offer in the long run. A strategy based on increased rule production means that the difficulties handling an accelerating technical development, problems of internationalisation and the growth of legal information would persist. The quantitative strategy is not a well-defined, elaborated remedy – it is a way of doing things as they always have been done, although in a more hastened way.

From this perspective, it is also clear that an increased use of IT for the management of legal information does not address the critical issue – which is to develop high-quality regulations. IT is in this respect merely a band-aid, used to diminish problems caused by primitive legislative techniques.

3.2   The Hands-off Strategy

For quite a long time it has been argued in various circumstances and from various standpoints that the state should intervene as little as possible and that the development of self-regulation and legal free zones is a better alternative. Quite frequently such ideas have been proposed concerning the use of the Internet, the digitalisation of music, etc.

Theories concerning self-regulation are usually underpinned by legitimate and easily understandable desires to avoid unnecessary administrative burdens and bureaucracy. At the surface level, they can therefore appear attractive, and in some situations there is no doubt that private dispute resolution and other kinds of non-authoritative agreements provide well-functioning solutions. Such approaches may also be preferred since they are comparatively cheap, can be conducted with little delay and completed without making the process public.

If one investigates this approach a little bit further, however, it is apparent that in many cases it is unrealistic to maintain a system based on self-regulation. It may even be questioned whether this approach should be recognised as a general strategy at all, and there are several reasons for this.

In an analysis of the prospects of self-regulation mechanisms it is important to keep in mind that the lawmaker usually has access to a system of sanctions, and that legislation is usually upheld and supported by a system of authoritative institutions. In an environment where self-regulation is presupposed many of these factors are absent, which is obviously a considerable complication. If the parties involved are not on an equal footing, and if mechanisms for the effectuation of legal decisions or enforceable sanctions are lacking, the incentives to follow the rules are likely to diminish.

It is important to note that large portions of the legislation seeks to balance different opinions and various needs in an authoritative manner. To accomplish this is more or less impossible if the parties have unequal access to resources and no third party is involved. In many cases the objective of the law is to protect the weaker party and without access to authoritative powers it is difficult to reach acceptable solutions. In that respect, the IT sector is no exception – access to foreseeable rules and authoritative decisions are necessary prerequisites in this context as well. It is here sufficient to mention the need to vindicate consumers' rights vis-à-vis dominating software producers, and the necessity to balance privacy-infringing state control and individuals' right to be left alone.

Apart from apparent problems concerning the administration of a self-regulating system, there exist a number of substantive reasons supporting the view that substituting legislation with self-regulation is not a realistic alternative. As regards the IT sector it may well be argued that a well-functioning system of legal rules, including the means to implement them, is an indispensable prerequisite for the continued growth of the Internet and IT-related services. The presence of an authoritative legal system is not only essential for individuals engaging in business and other activities on the Internet. An adequate and reliable system of rules is also required to attract investors and companies prepared to develop new solutions – both being crucial ingredients for further advances. In this context mention may be made of issues concerning free competition, balancing of intellectual property rights, and security aspects – all

examples having a poor record of functioning smoothly without intervention from the legislature.

Moreover, in any discussion about self-regulation it is to be recalled that IT and the Internet are in many ways being used in criminal and unethical activities. In this respect, there is a clear and large-scale need for mandatory legislation. Criminal activities often affect third parties, i.e., persons that have little or no influence over such activities, and to suggest that all acts performed with the assistance of IT, public networks, or telecommunications should remain unattended to by the legal system is, of course, absurd.

A further argument against various kinds of hands-off strategies is that the state and all public authorities use IT and telecommunications in their relations with the public. In this context, the need for legislative safeguards is so obvious that any hands-off strategy would for several reasons appear naïve. Constitutional principles and fundamental legislation protecting core issues such as freedom of information, privacy, and secrecy can simply not be abandoned solely because the media and the ways of communication change.

Thus, a quick overview of the so-called hands-off strategy indicates that although self-regulation may be considered in some situations, it cannot be looked upon as a *general* legislative strategy. This is not to say, however, that this approach should be ruled out altogether. Frequently, various kinds of co-operative efforts between private enterprises and the government are likely to generate better solutions as compared to what can be accomplished by the legislature alone. Obvious examples are the joint development of codes of conduct, assistance in the setting up of consumer organisations, and the authoritative backing up of self-regulation so that enforcement is guaranteed.[6]

In many cases, nevertheless, it is quite obvious that arguments about self-regulation must be looked upon as rather short-sighted and already past their time. What is more, when arguments in this direction are being put forward it is important to analyse whether there exist opposing interests, perhaps less articulated or less resourceful, that need to be protected. Instead, it may be argued, it is more likely that the development will be in the opposite direction, i.e., that the increasing number of technical components and additional activities in the IT sector will generate demands for more legislation of the traditional kind.

3.3   *The Qualitative Strategy*

Putting aside the primitive quantitative approach, and leaving out unrealistic arguments concerning self-regulation, a remaining question is whether the existing legislative method can be elaborated in order to better combat the

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6   *See e.g*., The UK Cabinet Office, Regulatory Reform Strategy Team, *Better Policy Making: A Guide to Regulatory Impact Assessment*, London 2003, Annex 2, Alternatives to Legislation "http://www.cabinetoffice.gov.uk/regulation/docs/ria/pdf/ria-guidance.pdf", *and* U.S. Department of Commerce, *Privacy and Self-regulation in the Information Age*, Washington D.C. 1997 "http://www.ntia.doc.gov/reports/privacy/privacy_rpt.htm".

problems it is facing. Historical parallels indicate that this may well be the case and that the legislation as we now know it can be relatively flexible.

Legislation has repeatedly changed its appearance. The urbanisation and development of more technically advanced societies are for instance doubtlessly reflected in the way legislation itself. One example is the abandoning of casuistic models of legislation in favour of more sophisticated solutions based on general provisions – a transfer which obviously has been closely interrelated with the industrialisation and the need for a more competent legislation.

In an attempt to improve the present legislative method, several approaches are interesting to investigate. One way of strengthening the law-making process, it may be suggested, is to form more or less standing committees that are able to accumulate domain-specific knowledge over longer periods of time. As compared to the usual strategy – the setting up of *ad hoc* committees which are regularly subject to restrictive time limits, and bound by short-sighted political directives – such an approach has several advantages. Most importantly, extended investigations make it possible to deepen knowledge about the preconditions in various fields, and, consequently, are more likely to produce high quality solutions.

To try to improve legislation by providing better conditions for legislative committees is by no means a new idea. Strengthening of legislative committees is an often-suggested remedy and several kinds of "law observatories" have been established under different labels.[7] In an inventory of possible ways ahead this approach must nevertheless be mentioned. It may also be argued that the potentialities of this line of development are not yet fully understood. The need to enhance the competence of legislative committees is in many cases patent, but the possibilities to reorganise the preparatory process are seldom debated. To what extent are e.g., disparate political goals, the need to balance contradicting interests, etc., actual problems in this respect? What are the pros and cons of expanding the time frame for legislative undertakings – and how can negative effects be minimised?

In addition to potentialities that may relate to the reorganisation of legislative committees, the possibilities to develop the (written) legal language should be mentioned. The possibilities to improve the quality of legal texts have attracted a lot of attention in recent years and several projects have been initiated, both by the EU, and by national governments.[8] The assumption is that the understanding and transparency of legislation will be enhanced if the language of the law is made clearer. The focus has been placed on several aspects such as grammar and sentence structure, systematic replacement of outmoded words and phrases, means to avoid technical concepts, and the possibilities to supplement legislation with explanatory components. In this respect there is no doubt that considerable improvements have been achieved. It is also clear that a lot more will be done, as the bulk of legislation is slowly being revised from this point of view. Difficult

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7 *See e.g.*, *Law and Information Technology: Swedish Views. An anthology produced by the IT Law observatory of the Swedish ICT Commission.* Stockholm 2002, (SOU 2002:112).

8 *See e.g.*, the home page of the Swedish Government and the Government Offices, *The Plain Swedish Group - for a plain authority languag*e at "http://www.regeringen.se/sb/d/480/a/ 3565;jsessionid=apXn5oCi6qyh".

remaining problems are however the obvious need to incorporate legal concepts of a technical and generic nature into legislation, and the fact that the background knowledge and hence also the requirements of the individuals affected by the laws varies a lot.

A less common but probably more prosperous way of enhancing the quality of legislation would be to introduce elaborated analytical tools. Broadening the horizon somewhat, it appears rather uncontroversial to suggest that legislative drafting can be supplemented by methodological rethinking of a more profound nature. At least two approaches can be envisioned; the use of knowledge representation languages (KRL) for analysis and drafting, and a more systematic utilization of sociological methods for the evaluation of regulatory effects.

KRLs are rarely used in the jurisprudential context but they are regularly employed during the development of IT systems, in order to systematise and understand the tasks that are to be programmed.[9] A variety of KRLs exist, ranging from pure logical languages to numerous graphical forms. Several tools of this kind are in fact available as interactive computer programmes.

Representation languages of a more elaborated kind are not just essential vehicles during the production of IT applications. KRLs can also be utilised in other situations and any cautious recasting of knowledge with the use of KRLs is likely to deepen the understanding of the subject matter under investigation, regardless whether any IT application is intended. A number of positive effects can be achieved. Among other things it is apparent that KRLs make it possible to eliminate repetitions and minimise the need for cross-references when complicated matters are to be described. The use of KRLs usually also makes it easier to spot inconsistencies, the need for conceptual elaborations and voids. Moreover it is beyond doubt that KRLs lack many of the weaknesses associated with conventional texts, e.g., vagueness and excess volume.

In the legislative context this means e.g., that a collection of provisions analysed with a KRL can be more easily given a distinct logical form, and that they can also be perceived in a more holistic way. Moreover, elaborated knowledge representations can be used solely as analytical tools, i.e., the result of a KRL analysis can be easily translated back to conventional text format. It follows that, if wisely employed during analytical phases, KRLs have the potential to radically improve the quality of written legislation.

Sociological methods, in turn, include the use of statistics, observations and interviews. In addition, various forms of surveys can be employed and it is also possible to conduct experiments.[10] In this respect various components originating from the field of Law and Economics will naturally become relevant.[11] Sociological methods can be used not only to evaluate how legislation actually

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9   *See e.g.,* the American Association for Artificial Intelligence, *Languages & Structures* at "www.aaai.org/AITopics/html/struc.html" and, for a illustration of potential use in legislative drafting, van Engers, Tom M., Boekkenoogen, Margherita R., *Improving Legal Quality – A Knowledge Engineering Approach*, International Review of Law, Computers & Technology, Vol, 18, 2004, p. 81-96.

10 *See e.g.,* for a discussion and for further references, Hyden, Håkan, *Rättssociologi som rätts-vetenskap*, Studentlitteratur, Lund 2002.

11 *See e.g.*, Posner, Richard A, *Economic Analysis of Law*, 5 ed., Aspen Law & Business, New York 1998.

works; a more systematic use of sociological methods also makes it possible to accumulate knowledge of how various legislative approaches turn out, and indicate in which situations different types of provisions ought to be employed.

Sociological methods are with one exception, i.e., criminological research, much forsaken aspects of jurisprudence. Consequently, the understanding of legislative effects is poorly developed and, if one compares legislative actions with other kinds of applied sciences, it may be argued that in many cases a similar oblivious approach to the impact of initiated activities would be unthinkable, e.g., in the development of medicine, construction activities, technological investments, etc.

The incompleteness of knowledge in this respect is easy to illustrate. When is it for instance appropriate to select solutions based on prohibitions and sanctions? When is it more efficient to implement incentives (e.g., tax reductions, subsidies, etc.) for those who act according to the intentions of the legislature? In what situations is it appropriate to establish standards, and when should stipulated licensing, compulsory educational exams or informative actions be preferred? Does there even exist an established taxonomy over various possible legislative solutions?[12]

The shallow understanding of regulatory impact clearly indicates that a more systematic study of the outcome of various legislative actions is a fruitful approach, and that there is every reason to enhance the use of sociological methods in the further development of legislative techniques.

If one tries to summarise this brief overview of how "classical legislation" may develop it appears indisputable that there exist several interesting options. Organisational re-thinking, a more intense focus on legal language, the employment of analytical tools such as KRLs, and a more systematic use of sociological methods are all approaches which appear to harbour considerable potentialities for the improvement of legislative quality within the traditional paradigm. A further consequence of this is that a lot can be achieved with comparatively little effort, and that legislation as we now understand it can be improved in many ways by utilising already available methods. It also seems clear that the IT-sector can play an important role in such a development, not primarily by means of providing off-the-shelf applications, but by means of illustrating how analytical investigations can be carried out in a more structured way.

4   The Embedded Approach

An entirely different way of increasing the efficiency of legislation would be to actively develop the means to embed regulations in the physical environment. Under such a strategy a variety of alternatives can be envisioned, depending on the ambitions and the nature of the issues to be addressed. An illustration of a more elaborated solution is road tolls with the purpose to cut congestion and

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12 *Cf*, The UK Cabinet Office, Regulatory Reform Strategy Team, *Better Policy Making: A Guide to Regulatory Impact Assessment*, London 2003, Annex 2, Alternatives to Legislation "http://www.cabinet-office.gov.uk/ regulation/docs/ria/pdf/ria-guidance.pdf".

predicted traffic jams, which are based on pay-as-you-drive charges. Such regulation is entirely dependent on technical systems, e.g., various types of satellite tracking devices and/or on microwave signals identifying tags adhered to the vehicles.

Although technical systems of this kind cannot be looked upon as alternatives to traditional legislation it is quite clear that they often provide important complements to the regulations. Illustrations of this are abundant. It is for instance obvious that modern regulations concerning verification of transactions often presuppose technical solutions. Likewise it is clear that rule-based activities within public authorities and the government rely to a large extent on technical solutions for the management of decisions, taxation, administration of elections, etc. Noticeable is also that in many situations it would be impossible to return to a "pure", non-technical legislative strategy. Frequently, technical components are taken for granted, and they may also be essential for the effectuation of particular legislation. A good example of the latter would be the Swedish Land Register Act, which in fact is a description of an IT-system.

In this respect it is beyond doubt that IT provides many new potentialities and that the possibilities to integrate rule-based solutions into technical systems are constantly increasing. This development is reflected in a variety of activities. Currently under discussion are for instance Privacy Enhancing Technologies (PETs) for data protection and digital rights management systems for the administration of intellectual property rights. Potential extensions into more advanced technical solutions may include elaborated forms of e-government for virtually all kinds of administrative services, automatically supervised, dynamic road traffic regulations and, eventually, legal decision-making within the courts, perhaps based on computerised sentencing guidelines and pre-programmed procedural codes.

It should be underlined that the inclusion of regulative aspects in physical components in no way represents a new phenomenon. The need to combine legal rules with physical arrangements has always been present, and the illustrations can be quite mundane. That is simply to say that if you want to protect your home efficiently, it is seldom a good idea to depend solely on legislation concerning trespassing and burglary – locks and other tangible means are often necessary supplements to the provisions. Noticeable is also that physical means sometimes are necessary in order to communicate the content of certain legislation. This is for instance the case with road traffic legislation and for such functions there is no doubt that IT provides considerable potentialities for further developments.

Looked upon from this point of view it is quite clear that most legislation presupposes some kind of physical counterparts. From this also follows that it appears logical to utilise more sophisticated mechanisms when the technical abilities to enforce the regulations increase. In many situations such a development appears unavoidable. At present it is for instance necessary to rely on technical means in order to vindicate the regulations aiming to combat computer viruses and the situation is doubtlessly the same when it comes to upholding security for electronic communication, develop electronic payment systems, etc.

It is also to be borne in mind in this context that the legislative system fulfils the function of providing an important steering mechanism on an aggregated level. In this respect embedded solutions may bring about considerable improvements as regards efficiency. Wisely employed, IT can eliminate many of the present problems of poor legislative impact and the interest for further developments in this direction are likely to increase as understanding of the potentialities becomes more widespread.

A further consequence of this is that the prospects for traditional legislation may seem meagre. When compared to sophisticated technical solutions, do classical laws offer any realistic alternatives with respect to effectiveness, clarity and predictability? Or, to polarize a bit more, do paper laws represent anything else than a primitive form of social instrument?

In an analysis of this approach it is also relevant to discuss a number of secondary effects. Several important questions come to mind. One thing to speculate about is, for instance, whether the development of more integrated forms of legislation should be reflected in the ways in which legislative investigations are carried out. That is to say would it not be more logical to start out by means of designing technical systems when new regulations are being prepared? Likewise, if various forms of technically embedded solutions are likely to be more efficient, should not technical solutions be perceived as the primary objectives of legislative processes? And, consequently, should not black letter legislation primarily be looked upon as a documentation of technical solutions, and, ultimately, be designed as manuals for how to operate the systems?

On the other hand, although a development of more sophisticated forms of technically dependent regulations may for several reasons seem attractive, it must be conceded that a development of this kind raises a lot of questions. A number of difficulties must be acknowledged and noticeable is also that the debate about potential negative effects has at times been intense. The contributions range from pure fiction to well-researched investigations and balanced discussions concerning the pros and cons of more technically elaborated solutions.[13]

A fundamental objection is for instance that a development of more technocratic societies puts democratic ideals in peril. This is simply because technical standards can be established without the involvement of authorities, and that actors with sufficient resources can easily alter the balance laid down in embedded legislation, by means of altering technical platforms or introducing mechanisms obstructing the systems.

A continuous development of more sophisticated systems is also likely to give rise to problems of transparency. Intricate technical solutions are often difficult to understand and they may thus be viewed as a threat. Closely related to such a scenario is the development of an Orwellian Big Brother society in

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[13] The study of Legal Automation (Rechtsautomation) has generated a comprehensive literature in the Scandinavian countries. *See e.g.*, Magnusson Sjöberg, Cecilia, *Rättsautomation. Särskilt om statsförvaltningens automatisering*, Norstedts Juridik AB, Stockholm 1992, *and* Schartum, Dag Wiese, *Rettssikkerhet og systemutvikling i offentlig forvaltning*, Universitetsforlaget, Oslo 1993. *Cf*, also, for a somewhat different perspective, Lessig, Lawrence, *Code and other laws of Cyberspace*, Basic Books, New York 1999.

which technology becomes ubiquitous and where surveillance and privacy control seriously delimits the freedom of individuals.

At a somewhat more concrete level, problems of adequate transformation of legal provisions into computer code, difficulties in upholding essential legal principles, e.g., concerning freedom of information, and unpredicted secondary effects originating from system complexity should be acknowledged. It is also obvious that the issues that need to be considered and the obstacles that have to be dealt with will vary depending on the type of issues addressed.

If one tries to summarize this approach it is clear that IT provides interesting alternatives to black letter law in the sense that many normative aspects of legislation can be implemented in physical systems.

How this development will progress is not possible to predict in detail, however. Several of the risks related to development of a more technocratic society are of a very serious nature. It is also beyond doubt that these aspects must be given a lot of attention. The use of embedded regulations is not unproblematic, and in many respects the development provides entirely new challenges for the legal domain.

Nevertheless, in the long-term perspective, a development of more integrated solutions appears unavoidable. Huge potentialities for increased efficiency, improved predictability for the outcome of legal decisions, and the development of more detailed specifications of legal processes will not be easily dismissed.

5   The Utopian Approach

5.1   Introduction

Although many of the methods that have been touched upon so far may appear well suited for the development of the legislative technique, it is quite clear that the remedies discussed in the preceding sections will not solve all of the problems legislation is likely to meet in the future.

Consequently, still additional lines of development should be taken into consideration. It may also be argued that the goal should be set even higher, i.e. the objective should not only be to improve legislation – the goal should be to *eliminate* as many legal problems as possible. Ultimately legal problems should not be solved, they should not occur at all. Hence there is a need for a utopian approach.

In the search for a more ambitious strategy it appears important to try to find new, perhaps unorthodox angles of attack. One potential strategy would thus be to first identify underlying requirements for legislation and thereafter, as an intellectual experiment, assume that conventional laws do not exist and then try to come up with ideas about how to satisfy the existing requirements by alternative means.

If this plan is followed, there are at a very general level at least three basic needs that appear to explain the existence of legislation:

- Individuals must be able to plan ahead and society must be able to cope efficiently with changes,

- individuals, enterprises and society as a whole seek to avoid dangers and need to manage risks, and

- humans are imperfect social creatures.

If the task is defined in this way it is possible to envision several alternatives to traditional legislation. For each of the requirements identified above at least one complementary remedy can be suggested, and in sections 5.2 – 5.4 three additional approaches, pattern recognition, risk analysis and biotechnology, are elaborated a bit further.

5.2   Pattern Recognition

One potential way of increasing the efficiency of legislative actions, it may be argued, would be to utilize various forms of pattern recognition.

The use of pattern recognition appears promising for several reasons, most importantly because the method can support the identification of situations in which legislative actions are likely to be requested. Noticeable in this respect is also that systematic attempts are very rarely made to identify problems that may generate demands for legislation before they actually manifest themselves. Pattern recognition can therefore be interesting to use as a planning tool and thus also, by providing means to speed up the initiation of legislative actions, facilitate the handling of changes.

Underlying these assumptions is the indisputable observation that only a few of the issues which actually could be recognised as legal issues actually establish themselves as legal problems. This is a precondition that obviously makes it interesting to try to identify factors that may have a decisive influence over the process which qualifies certain problems as legal issues.

A characteristic of pattern recognition, as compared to sociological investigations, is that the former is pursued on a general level, i.e. the focus should not primarily be set on the impact of isolated regulations. The objective is instead to pinpoint social factors and their potential interaction with the legal system. In this respect, pattern recognition represents a "law generic" perspective, as contrasted to sociological investigations which often seek to understand the instrumental qualities of the law ("law as an instrument"). In practice, however, the two approaches are related, and pattern recognition may well be conducted by a variety of sociological means. Doubtless is also that statistics will be essential for the accumulation of knowledge of this general kind, and this is of course also a feature in common with sociological research.

In this context it would be premature to point out any factors that are likely to have a decisive influence over how certain issues become accepted as legal problems. As an illustration, nevertheless, it appears reasonable to speculate about the extent to which access to media, communication channels and

lobbying activities can shift the focus of the legislature towards previously less noticed phenomena, and theories like this thus also give indications about how studies of this kind may be designed.

In a similar way it may be worthwhile to investigate the extent to which economic resources, the presence of conflicting interests, knowledge and experience of the legislature, the complexity of the problems, and the nature of the existing legislation may influence the introduction of new issues. It may also be relevant in this respect to investigate whether factors of an indirect nature, such as the need for simplification in mass media, educational activities and the pace of change can be important factors in the process of establishing problems as legal issues.

5.3   *Risk Analysis*

In many undertakings routines for the avoidance of mistakes are essential. The traffic pilot preparing a departure, the engineer designing a machine and the insurance company preparing to launch a new product are all likely to rely on established methods to ensure that nothing important is forgotten, and to gain an overview of the consequences of the activity initiated.

From a general point of view, efforts in this direction can be looked upon as risk analysis, and it is also quite clear that the need to avoid dangers is nearly always present in innumerable situations. Despite this it is clear that risk analysis is a rather unexplored aspect of the legislative technique. As compared to many other activities, it is quite apparent that legislation often is surprisingly reactive in its nature and that the law often reflects solutions based on prohibitions and sanctions. Efforts to avoid dangers and preventive components are rather rare. It thus appears reasonable to discuss the preconditions for amending legislation using risk analysis and various prescriptive solutions.

A scenario of this kind has been described by *Richard Susskind*, who under the sub-heading "From legal problem solving to legal risk management" has suggested that "While legal problem solving will not be eliminated in tomorrow's legal paradigm, it will nonetheless diminish markedly in significance. The emphasis will shift towards legal risk management supported by proactive facilities which will be available in the form of legal information services and products. As citizens learn to seek legal guidance more regularly and far earlier than in the past, many potential legal difficulties will dissolve before needing to be resolved. Where legal problems of today are often symptomatic of delayed legal input, earlier consultation should result in users understanding and identifying their risk and controlling them before any question of escalation."[14]

Although this vision of a proactive approach is of a general nature, i.e. it does not only focus on the design of laws, there is no doubt that a risk analysis perspective can be reflected in legislation as well. A proactive legislative approach could for instance include the use of checklists and matrices. Another

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14 Susskind, Richard, *The Future of Law*, Clarendon Press, Oxford 1996 p. 290. See also pp. 23-25 on "The paradox of reactive legal services" and "Towards legal risk management".

alternative would be to more frequently stipulate certifications and licensing of various kinds.[15] Noticeable is also that traditional legislation could often be supplemented with customised informative activities and that the establishment of various kinds of advisory services would in many cases presumably reduce the need for control and reactive sanctions.

Likewise it can be suggested that legislation often can be supplemented by interactive instructions, codes of conduct and instructive schemes describing how various kinds of applications or proceedings can be completed. This would be another way of establishing a more proactive perspective, and if elaborated in the directions mentioned here there can be no doubt that legislation could be more efficient as a risk management tool.

5.4   *Biotechnology*

Biotechnology is presently one of the most intensive research areas and in 2002 a group of researchers stated "that research in behavioural genetics has the potential to advance our understanding of human behaviour, and . . . the research can therefore be justified."[16] As a final point in this study on legislative development it could therefore be discussed whether genetic information could also have significant implications for the legal sector.

That is simply to say that if factors such as sexuality, criminal behaviour and intelligence prove to be largely of genetic origin, it is likely that it will eventually be possible to alter the behaviour of individuals. That such a development will require regulation is quite obvious. The question in this context however is whether such a development can also be utilised by the law-maker.

Although the transformation of biotechnology into a social instrument can in many respects be viewed as a controversial development, it may nevertheless be argued that it is necessary to reckon with this eventually becoming an accepted standpoint. It follows that a number of questions must be addressed. The most fundamental issue is of course whether biological remedies could be admitted as complements, or even accepted as alternatives to legislative actions.

Is it for instance reasonable to accept that the predictive use of genetic information about behaviour "in conjunction with information about other, non genetic influences on behaviour may be justified if the aim is to benefit the individual, and in doing so, to benefit society also"?[17] Or, to put it bluntly, being aware of the fact that humans are imperfect social creatures, and noting that this is a major cause of human suffering, should we accept that DNA manipulation, drugs and psychotherapy can be used for purposes other than addressing mental illness?

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[15] *See*, for an extensive inventory of "legal risk analysis methods", Wahlgren, Peter, *Juridisk riskanalys*, Jure, Stockholm 2003.

[16] Nuffield Council on Bioethics, *Genetics and human behaviour: The Ethical Context*, London 2002. paragraph 11:17.

[17] Nuffield Council on Bioethics, *Genetics and human behaviour: The Ethical Context*, London 2002 (p. xxxii).

In a less polarised discussion it may be relevant to analyse whether an extension of social instrumentalism which includes biotechnology in the legal arsenal must represent a dramatic shift of perspective, or whether innovations of this kind can be utilised in a step-by-step fashion? In what ways, if any, could findings of biomedical origin be utilised in specific cases? What are the potentialities, what are the dangers, and what factors should be used to balance conflicting interests?

More concretely, what can be learned from the ongoing discussion concerning chemical castration of sexual offenders, which has (with the offender's consent) in several jurisdictions been advocated as an alternative to imprisonment?[18] Is the recommendation that "[w]ith regard to the sentencing of convicted *offenders*, the criminal *law* should be receptive to whatever valid psychiatric and behavioural evidence is available"[19] acceptable?

Still again, if such statements do not represent fair and balanced descriptions of the state of the matter, is it not the objective of jurisprudence to be in the forefront, pointing out obstacles and/or initiating discussions about possible ways forward?

6   Which Way to Choose?

The purpose of this article has been to make an inventory of possible ways of developing the legislative technique, especially in the light of challenges brought about by IT.

Ten different approaches have been possible to identify. The quantitative *ad hoc* procedure, the hands-off strategy, a potential reorganisation of the legislative preparatory process, undertakings to develop the legal language, the employment of KRLs in analytical phases, utilisation of sociological methods to learn more about legislative impact, the elaboration of means to implement laws in physical mechanisms, the introduction of pattern recognition, the development of proactive risk analysis tools and, finally, the suggestion that biotechnology may function as a social instrument.

The discussion has in parts been speculative and some of the approaches that have been mentioned doubtlessly appear provocative. In summing up it should be mentioned, however, that it is highly unlikely that the law of the future primarily will reflect one or another of the approaches outlined here. The approaches that have been discussed here should not be understood as mutually exclusive alternatives. Instead, they must be looked upon as complementary strategies. The most probable development of legislative techniques is the one of pluralism in which many kinds of methods will find suitable roles, including many which have not been observed in this tentative survey.

From such a scenario follows that an additional objective for studies of legislative technique comes into focus. Apart from further investigations into specific methodological approaches it will become important to outline a

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18 *See*, for a comprehensive list of literature on the subject, "http://www.csun.edu/~psy453/ crimes_y.htm".

19 Nuffield Council on Bioethics, *Genetics and human behaviour: The Ethical Context*, London 2002 paragraph 14.32.

functional typology for problem areas and related legislative solutions. It may also be argued that this task should be given high priority, at present there can be no doubt that the knowledge concerning where and when various legislative solutions are best suited is poorly developed.

In what situations is it for instance appropriate to rely on short-term solutions (which would be a realisation of the quantitative approach) and when should long-term organisational reforms be initiated? And, although it may be assumed that language reforms are of great importance when large groups are affected by legislation, as e.g. is the case when tax law reforms are to be launched, under which premises would it be more efficient to implement legislative solutions in physical components? When are meticulously formulated laws to be preferred as compared to interactive IT-systems available via Internet and vice versa?

Likewise, a current debate in Sweden concerns mandatory installation of alcohol breath-analysers in cars, the purpose being to minimise drunken driving incidents.[20] Also such an illustration raises a lot of questions. From a methodological point of view, is this a suitable solution only for certain types of problems? Must a development of this kind be propelled by technical innovations, or is it possible to detect a pattern of components that need to be satisfied when solutions of this kind are to be adopted?

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[20] A portable breath testing machine is built into the key fob. When you use the fob to unlock your car door, you must blow into it (and pass) before the car will start. A Swedish car maker's version, the "Saab Alcokey" is presently being tested with the support of the Swedish National Road Administration. See e.g. "http://www.autoweb.com.au/cms/A_ 101770/newsarticle.html".