

## Simplifying the law- can ICT help us?

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Katrin Merike Nyman-Metcalf, Ermo Täks  
Tallinn University of Technology  
[katrin.nyman-metcalf@ttu.ee](mailto:katrin.nyman-metcalf@ttu.ee), [ermo.taks@ttu.ee](mailto:ermo.taks@ttu.ee)  
Ehitajate tee 5, 19086 Tallinn

### 1. Introduction

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Usability is a well-known term in information science. According to the International Usability Standard, usability is related to: “The effectiveness, efficiency and satisfaction with which specified users achieve specified goals in particular environments”.<sup>1</sup> In other words: information is useful if it is delivered to the right person in the right location at the right time in the right amount and the right form (and so on). The same principle can add value also in other areas of our social life meaning in our existence as members of a society, in legislation for example.

There is no denying that legislation plays a big role in any society. From a sociological viewpoint it can be said to be a tool of government to organize society and protect citizens. Versions of the kind of legal systems that exist today have been used for thousands of years and have thus in essence proven their value, but inevitably the systems have organic weaknesses that have to be considered and overcome. It is interesting to see if modern technology in the form of information communication technology (ICT) can assist in counteracting such weaknesses. Legislation is usually a huge collection of different normative documents, obligatory to know and follow for everyone yet effectively handled by a few. This huge collection furthermore tends to keep growing and changing with time. It is no exaggeration to say that finding a relevant norm may be a challenging task even for experts and all the more so for laymen. However, the information age is offering new ways of organizing and presenting the legal content and there are various on-going research activities to study such possibilities. Despite this, most legal work is still performed in a very traditional manner.<sup>2</sup>

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<sup>1</sup> ISO 9241-11:1998 *Ergonomic requirements for office work with visual display terminals (VDTs) -- Part 11: Guidance on usability* (International Organisation on Standardisation) 1998

<sup>2</sup> T. Agnoloni, L. Bacci, E. Francesconi, P. Spinosa, D. Tiscornia, S. Montemagni and others, *Building an ontological support for multilingual legislative drafting. Proceedings of the 2007 conference on Legal Knowledge and Information Systems: JURIX 2007: The Twentieth Annual Conference* (IOS Press, Amsterdam 2007) 9-18

The various possibilities that ICT offers appear not to be fully appreciated and used for legislative or law implementing purposes.

Key elements of the normative system, such as its construction and through that its accessibility are constantly under observation by those involved in legislative or law implementing activities. The law must be understood in order to be properly implemented. The law must also be sufficiently understood by the general public. This is essential in order to be able to assess if the society is one governed by the rule of law, with legal certainty and equal opportunities under the law. The constant growth of both the national and the international legal corpus and the rapidity of changes to it, mean that the legal system gradually and constantly becomes more complex to manage. This complexity affects legal hierarchies as well as the substance of laws. The unwanted consequence and by-effect of the complexity is its negative influence on the intelligibility of laws for citizens.<sup>3</sup> Not knowing the law is not an excuse for not following it, so navigating at least to a certain extent in the ever more complex legal system is a necessity not just for specialists. Any help to do this is worthwhile and modern technology should be able to give such help to an even greater extent than what is already the case.

A well accepted and widely recognized ICT solution in the legal field is representing legislation and related documentation in the web, making the legislation physically easily accessible for everyone and thus solving many distribution and production related problems. Still this can be considered as a relatively small advancement compared with traditional presentation of laws. Usually the legal documentation is “reflected” on the web, thus following the logic and build-up of the traditional “paper based” legal system. Such an approach greatly underestimates the possibilities and services ICT systems are capable of offering. To understand the different possibilities that exist, to present the legal information better with help of computers and choosing the best option from these many possibilities, is a big and extremely challenging task. In order to succeed in the field of systematisation and simplification of the law, a combination of well-established traditional methods and promising new ones has to be explored.

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<sup>3</sup> A. Boer, R. Hoekstra and R. Winkels, *METALex: Legislation in XML. Legal Knowledge and Information Systems. JURIX 2002: The Fifteenth Annual Conference* (IOS Press, Amsterdam 2002) 1-10 and D. Bourcier and P. Mazzega, *Codification, Law Article and Graphs. Proceeding of the 2007 conference on Legal Knowledge and Information Systems: JURIX 2007: The Twentieth Annual Conference* (IOS Press, Amsterdam 2007)

This article offers a brief overview of the research that has been undertaken recently specifically regarding use of ICT systems for legislative simplification and as a key element, the article presents some novel suggestions developed by the authors. This article primarily focuses on the research carried on within the European Union (EU) to support the usage of EU legislation at different levels. The first part of the article analyses the subject of systematisation and simplification of the law from the EU legislator's point of view, while the second part gives an overview over research activities carried out in this field. The idea behind the overview of the EU initiatives is to see how well these can be supported by ICT, which through matching identified problems with proposed solutions also helps to determine how valuable in practice the various ICT solutions may be. The idea behind the overview of research activities is to verify whether on-going academic research is adequate and addresses the same issues as the EU legislator has identified. The scope of the article does not permit a detailed evaluation of all such research activities, but the aim of the information is to provide a descriptive framework for determining what possibilities ICT provides and how the suggestions of the authors fit in with other on-going research. The illustration in a table format of the correlation between issues and research undertaken shows the links very clearly. Finally, a new system is presented to assist in the endeavours to use ICT for simplification of legislation and its overview.

## 2. A need for simplification

Practical effects resulting from the complexity of legislation and the difficulties in getting an overview over the normative system are apparent, not least in the EU with its large mass of normative instruments applicable in 27 (soon 28) different countries. When the EU is criticised for being distant from the citizens, the complex legal system is often mentioned as one aspect. There are several initiatives of the European Commission that aim at improving quality in European (and consequently also national) legislative texts. In particular, harmonizing legal terminology is considered a precondition for improving the quality of legislation and for facilitating access to legislation by legal experts as well as citizens. In a multilingual environment, only genuine awareness of the subtleties of legal terminology in the different languages enables drafters to maintain coherence among the different linguistic versions of the same text. This is essential for the EU Member State legal orders, especially in relation to regulations that are directly applicable in all Member States. It is essential to know that the meaning of the legal text is the same in all Member States. Coherent legal terminology is however also important in order to be able to implement EU

directives properly into national law. Over the years, the European Court of Justice (ECJ) has had the occasion to point out the importance of terminological correctness and the equal validity of language versions in a number of cases, in different contexts (Case 29/69 *Stauder*, Case 283/81 *CILFIT* and Case C-257/00 *Nancy Givane* for example).

Well planned, easily searchable and user-friendly presentation of legal documents contributes greatly the accessibility and understandability of the legislation and through this may improve the quality of implementation. This is understood well by EU officials, declaring that “Developing a user-friendly and easily accessible European law is a major concern for the Commission and the other EU institutions.”<sup>4</sup>

Against this background, the EU has at the highest level undertaken a lot of efforts in legislation simplification. Officials have found that improving the quality of legislation is in fact a public good in itself, enhancing the credibility of the governance process and contributing, it is said, to the welfare of citizens, business and other stakeholders.<sup>5</sup> Better regulation is a driver to improvement of the policy making process through the integrated use of effective tools - not an attempt to impose further bureaucratic burdens. High quality regulation instead prevents unnecessary burdens on businesses, citizens and public administration. If the regulatory system and legislation are clear and effective it helps to avoid damage to competitiveness caused by increased costs and market distortions. Indeed, studies from various sources have estimated the burden of regulation to fall in the range 2-5% of GDP in Europe.<sup>6</sup> Although such a burden can only be estimated, nonetheless the figure does indicate the importance of this issue to European economies. Another aspect, also hard to measure exactly but still very essential, is that high quality regulation assists in the restoration of confidence in government and consequently is better able to accomplish its desired purpose as it is more likely to be followed. Implementation of such regulation is less problematic for public

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<sup>4</sup> European Commission, *Accessibility and Presentation of EU Law*, available at [http://ec.europa.eu/governance/better\\_regulation/access\\_eu\\_law\\_en.htm](http://ec.europa.eu/governance/better_regulation/access_eu_law_en.htm) (accessed 1 September 2012)

<sup>5</sup> Dieudonné Mandelkern, Ernesto Abati Garcia-Manso, Kees Burger, Marc Cabane, Luigi Carbone, Bruno Chavanat, Colin Church, Dermot Curran, Erwin De Pue, Michael Fruhmann, Pierre Gehlen, Roberto Hayder, Lars Hjortnæs, Panagiotis Karkatsoulis, Erich Milleker, *Mandelkern Group on Better Regulation, Final report* (European Commission 2001) i.

<sup>6</sup> Kai Wegrich, *The Administrative Burden Reduction Policy Boom in Europe: Comparing mechanisms of policy diffusion* (Centre for Analysis of Risk and Regulation, London School of Economics and Political Science, London 2009), e.g. 2 and 8.

administrations and compliance is easier for citizens.<sup>7</sup> Thus the benefit of simplification are easy to see in any legal system and especially against the background of the EU legal system.

### 3. Legislation simplification approaches in the European Union

The cited Mandelkern report proposes an Action Plan with deadlines, suggesting that the implementation of the Plan would contribute significantly to achieving the required improvements of the EU regulatory process. It describes a comprehensive overall approach with a set of seven core principles: necessity, proportionality, subsidiarity, transparency, accountability, accessibility and simplicity.<sup>8</sup> The suggestions of the plan have been implemented to some degree through various initiatives (discussed below), although work still remains and the core content remains relevant, even after more than ten years.

The core content of the Action Plan in the Mandelkern report can be summarized as follows, using the bullet points of the report.<sup>9</sup> The issues described in each of these bullet points is subject to analysis later on in this article, primarily in light of how ICT solutions can support the suggestions made:

**Policy implementation options:** This, in the words of the report, means that EU and national policymakers should consider the full range of possible policy options and choose among them that which is most appropriate in any specific case. The practical meaning of it is that although adoption of a legal act may frequently be the most appropriate option it should not always and automatically be the only choice.

**Impact assessment (IA):** The Mandelkern report states that regulatory impact assessment (RIA) is an effective tool for modern, evidence-based policy making, providing a structured framework for handling policy problems and as such should be an integral part of the policy making process at EU and national levels and not a bureaucratic add-on. The importance is described as ensuring that decisions are taken based on sufficient knowledge.

**Consultation:** Early and effective consultation of interested parties is described as means of and an important tool for open governance. This should not take over the role of civil servants, Ministers or

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<sup>7</sup> Mandelkern and others (fn 5) 7.

<sup>8</sup> *Ibid.* 9-10

<sup>9</sup> *Ibid.* i-ii

Parliamentarians in the policymaking process (such as it is under national or EU law) but aims to supplement the information these experts have. Even if consultations take some time and effort, if they are correctly done they can help avoid delays in policy development due to controversies that may arise later. Consultations can thus speed up and facilitate rather than delay or hinder progress.

**Simplification:** In the Mandelkern report simplification is highlighted in a special bullet point. Simplification does not mean deregulation. In this context it is aimed at systematic and targeted efforts that while preserving rules, makes them more effective, less burdensome, and easier to understand and to comply with. The report states that programmes need to be established at both EU and national levels.

**Access to regulation:** The report points out that those affected by European or national regulation have the right to be able to access it and understand it. Access here has two sides. One is that the coherence and clarity of regulations must be enhanced through consolidation (including codification and recasting) and the other that access should be improved by better practical arrangements (especially using ICT). The suggestions of the report are that the coherence and clarity should be achieved through consolidation programmes at national and EU level, while the practical access is best served by having within Member States as well as at EU level a public access service (either free or for a small fee). Since the report was written, it is more common that access is free.

**Structures:** Under this bullet point, the Mandelkern report reaches the conclusion that better regulation needs the appropriate supporting structures for its promotion if it is to be successful. The best arrangement at EU or national level will depend on various relevant circumstances. To give this task to a single unit at or near the centre could be considered, but the essential is that an effective solution must be found at each level – central structures alone may not be sufficient.

**Implementation of European regulation:** The final bullet point in the summary of the Mandelkern report states that high quality regulation forms a chain from the earliest stages of its preparation through to its implementation. The consequences drawn from this is that more attention should be paid at the European level to implementation concerns in order to ensure that the full consequences are understood and taken into consideration. Member States should also give higher priority to the implementation of EU legal acts.

### 3.1 EU initiative “Better regulation”

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Based on the Mandelkern report a series of initiatives have been launched in the EU aimed at making EU legislation “better”. The many initiatives include the following Commission instruments: “European governance - A white paper”<sup>10</sup>; “Interinstitutional Agreement on Better Law-Making”<sup>11</sup>; “Communication from the Commission - European Governance: Better lawmaking”<sup>12</sup>; “Communication from the Commission - Action Plan: Simplifying and improving the regulatory environment”<sup>13</sup>; “Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - Updating and simplifying the Community acquis”<sup>14</sup>; “Communication from the Commission to the Council and the European Parliament - Better Regulation for Growth and Jobs in the European Union”<sup>15</sup>; “A strategy for the simplification of the regulatory environment”<sup>16</sup> and “Smart Regulation in the European Union”<sup>17</sup>.

To some extent the Commission has in these many proposals accepted the proposals made in the Mandelkern report. Some suggestions were however modified or not included.

In this paper we give a short overview over the adopted initiatives, based on the various instruments listed. The list includes a combination of methods and tools adopted and statements of fact, regarding elements that affect the process and that need attention if real improvements are to be made. The steps are listed on the European Commission web-site under the general headline of Better Regulation, with some links to the proposals or normative documents. This outline of what steps to take toward better regulation is based on the mentioned Commission overview.<sup>18</sup> Later in the paper, the potential of ICT to contribute to the goals set out for better regulation will be examined and presented.

#### 3.1.1 Impact assessment

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<sup>10</sup> COM(2001) 428 final

<sup>11</sup> 2003/C 321/01

<sup>12</sup> COM(2002) 275 final

<sup>13</sup> COM(2002) 278 final

<sup>14</sup> COM(2003) 71 final

<sup>15</sup> COM(2005)97 final

<sup>16</sup> COM(2005)535 final

<sup>17</sup> COM(2010)543 final

<sup>18</sup> See fn 4

As suggested in the Mandelkern report and brought up in many of the EU documents since (and highlighted at the European Commission web-site), impact assessment is designed to help in structuring and developing policies. If it is correctly carried out it helps to identify the main options for achieving the objectives and analyses their likely impacts in the economic, environmental and social fields. Through such a system the Commission aims to improve the quality and transparency of its proposals as well as identify balanced solutions to reach policy objectives through:

- A. “a coherent analysis of potential impacts,
- B. consideration of various policy choices (e.g. to use alternative instruments to 'control and command' regulation or non-intervention),
- C. consultation of stakeholders; and
- D. enhanced transparency (IA roadmaps and IA reports published on the Impact Assessment website).
- E. Executive summaries of impact assessments are translated into all EU languages.”<sup>19</sup>

### *3.1.2 Consultation*

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The next mentioned element of better regulation consists of consultations, meaning that the Commission consults and is in constant touch with external parties when elaborating its policies and before making proposals and taking policy initiatives. Among other questions, the Commission must consider whether EU legislation is needed in the specific situation. Consultation can be made in different ways, using various methods. Listed methods include consultation papers (Green and White Papers), communications, advisory committees, expert groups, workshops and forums. In practice, any combination of such methods or more informal ones can fulfil the goal of consulting properly. Examples of consultations include public consultations on regulatory issues for a possible future EU – US trade agreement or on the future for EU and US trade and economic relations<sup>20</sup> or on the implementation of a data and transaction reporting framework for wholesale energy markets<sup>21</sup>. All policy home pages of the EU include a heading for consultations where open and recent public consultations can be seen and there is a possibility to participate. The exact manner and content of a consultation will be decided based on what is suitable for the issue

### *3.1.3 Expertise*

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<sup>19</sup> *Ibid.*

<sup>20</sup> <http://trade.ec.europa.eu/consultations/index.cfm> (accessed 1 December 2012)

<sup>21</sup> [http://ec.europa.eu/energy/index\\_en.htm#t\\_0\\_2](http://ec.europa.eu/energy/index_en.htm#t_0_2) (accessed 1 December 2012)



Just like consultations, expertise can take various forms. If consultation is needed specifically in order to get external input, the expertise is to a high degree available in-house but the Commission also (and increasingly, given increased technical or other complexity of many policy areas) calls upon external specialists in different fields. There may be expert groups or workshops, hearings, conferences or seminars to get access to the expertise.

#### *3.1.4 Administrative costs*

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To have a sub-heading called “Administrative costs” under the main heading of better regulation may not be immediately obvious, but the idea is to show awareness of the fact that implementing regulations and laws entails costs and there is consequently a need to take this into consideration in regulatory reform work. To deal with this issue has become an important driver for reform, as some legal obligations like on providing information or access to information have become expensive as well as time-consuming, complex and perhaps even useless. The Commission finds that there can be saving of time and money if certain reporting requirements are terminated. To support this, an EU Standard Cost Model has been developed as part of the European Commission Impact Assessment Guidelines<sup>22</sup> () to help making it easier to make comparisons cross-country or cross-policy.

#### *3.1.5 Choice of regulatory instruments*

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Public authorities intervene in the markets and lives of the subjects through setting standards, by levying taxes and charges, by financing specific actions and groups, or by providing information and advice. The most direct means of intervention is regulation through law and other regulatory instruments. For the EU, in addition to the same kind of considerations that states take before deciding on actions, the question of division of competence between the EU and its Member States arises. The instruments of regulation at the disposal of the EU are clearly set out in the Lisbon Treaty (Article 288 Treaty on the Functioning of the European Union, TFEU) that provides the current legal basis for the EU. Forms of legislation in the EU are:

A. Regulations and directives

- a. A large proportion of EU law is found in directives which set out a result to be achieved but leave national authorities the choice of methods: “A directive shall be binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and

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<sup>22</sup> [ec.europa.eu/governance/impact/commission\\_guidelines/commission\\_guidelines\\_en.htm](https://ec.europa.eu/governance/impact/commission_guidelines/commission_guidelines_en.htm)

methods.” (Article 288 TFEU). Directives may go beyond what is required by EU legislation, adding obligations and procedures, which is called 'gold-plating'. This can affect the implementation of the legal requirement as well as the coherence of the entire regulatory system. The effect of gold-plating and how to deal with it is subject to current debate. Another aspect of the debate is whether directives are becoming too detailed and in fact are not in accordance with the original idea of this type of legislation.

- b. The other main legal instrument for the EU is the regulation. Regulations are directly applicable in all Member States and require no transposition. Consequently, there is no problem of gold-plating. On the Commission Better Regulation web-site it is thus suggested that replacing directives with regulations may under certain circumstances be conducive to simplification. However, although some provisions of the EU Treaties permit a choice between different types of legal instruments, in many instances the choice has been made in the Treaties and cannot be changed without a Treaty change, which is a slow and cumbersome process.
- B. Review/sunset clauses: Another points raised on the Better Regulation web-site is that of obsolete legal acts that no longer have real effect, but which remain in force because they have not been expressly repealed. To deal with obsolescence of legislation, specifically in rapidly developing areas such as high-technology, the Commission often introduces review, revision or sunset clauses in its legislative proposals. Yet, in some areas alternative mechanisms to legislation, such as self- and co-regulation, may be more suitable to handle rapid developments.
- C. Alternative instruments: To avoid obsolescence but also for other reasons, alternatives to traditional regulation should be considered, like self- and co-regulation.
  - a. Self-regulation by private parties, usually members of a profession or producers in a sector or between operators and their clients/consumers. This can include codes of conduct in a specific sector, with obligations to submit to tests by approved laboratories and labels to this fact. Media also self-regulates to a large extent as do liberal professions (lawyers etc.).
  - b. Co-regulation is used for occasions when authorities give recognized private parties the duty to ensure that certain objectives are reached. These may be economic operators, the social partners, non-governmental organizations or associations.

- c. Self- and co-regulation require monitoring and evaluation. This is essential to their credibility, the Commission states. For this purpose, to share information but also encourage the setting up of self- and co-regulatory systems, the Commission and the European Economic and Social Committee (EESC) have established an internet EU self- and co-regulation database.<sup>23</sup>

### *3.1.6 Transposition and application of EU law*

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Continuing down in the Commission's list of measure for better regulation<sup>24</sup> the timely and correct implementation of EU law by the Member States is the next issue listed. This ensures that the results intended by EU policy are attained and conversely late or incorrect implementation can deprive EU subjects of their rights. The transposition into national law is done by national governments and parliaments, sometimes involving regional and local authorities. At this stage, laws risk being 'gold plated' i.e. requirements or procedures which are not required by the initial directive are added. This may be unproblematic, provided the original intent of the directive is not lost. However, often the effect may be that added matters distort the intent of the directive. Member States may even have legislation that similarly affects the substance of a regulation (that itself may not be transposed into national law, as it is directly applicable). If the way in which EU law becomes part of national law is thus distorted, this affects both transposition and implementation of EU law as well as the quality of national and regional regulation.

Concerning directives, the monitoring of the transposition process relies on the correlation tables provided by the Member States. These tables show the link between the provisions in directives and national rules – either new legal acts adopted to implement the directive or existing legislation that already contains the relevant objective. This highlights the importance of such correlation tables and that the content in them really shows actual correlation and not just surface correlation. The complexities of EU legal terminology and making it fit with traditional national legal terminology highlight potential problems. This is a concrete example of where the use of systematisation with the help of ICT can have a great practical impact.

### *3.1.7 Simplification*

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<sup>23</sup> *Self- and Co-Regulation* from the European Economic and Social Committee Website: <http://www.eesc.europa.eu/?i=portal.en.self-and-co-regulation> (accessed 10 August 2012)

<sup>24</sup> Fn 4

On this matter, the Commission says that “It is essential in a rapidly changing world to review laws, streamline and remove overlaps to ensure that EU legislation is clear and poses as few burdens as possible for operators and citizens. The EU has progressively developed a broad strategy to improve the regulatory environment and thus provide a more effective, efficient and transparent regulatory system for the benefit of citizens and reinforce competitiveness, growth and sustainable development [--].”<sup>25</sup>In its strategy to simplify the regulatory environment<sup>26</sup>, the Commission uses the following methods:

1. repeal: removes from the statute-book those legal acts which are unnecessary, irrelevant or obsolete;
2. codification: contributes to the reduction in volume of EU legislation, and at the same time, provides more readable and legally secure texts, thus facilitating transparency and enforcement;
3. recasting: is a simplification method as it simultaneously amends and codifies the legal acts in question;
4. co-regulation: can be a more cost efficient and flexible method for addressing certain policy objectives than classical legislative tools. Standardization by independent bodies is an example of a well-recognized ‘co-regulation’ instrument;
5. use of regulations: replacing directives with regulations can under certain circumstances be conducive to simplification as regulations are directly applicable (i.e. no need for transposition into national legislation) and guarantee that all actors are subject to the same rules at the same time. This presupposes, as mentioned above, that EU law allows such a choice of legal instrument.<sup>27</sup>

For such simplification a system that provides a simple, graphic overview of legislation can be very useful. It will be a starting point from which the most appropriate measures can be decided. Here is thus another area where ICT – to help make the graphic overview – is of immediate use.

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<sup>25</sup> [ec.europa.eu/governance/better\\_regulation/simplification\\_en.htm](http://ec.europa.eu/governance/better_regulation/simplification_en.htm)

<sup>26</sup> Commission, Communication of the Commission to the European Parliament, the Council - *Implementing the Community Lisbon programme: A strategy for the simplification of the regulatory environment*, COM(2005)535 final

<sup>27</sup> *Ibid.*

### *3.1.8 Accessibility and presentation of EU law*

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The EU makes a lot of use of ICT to give access to EU law. This is mainly in the form of reflecting legislation, adopted and structured for a traditional, non-ICT environment. The EU operates two websites for free access to EU law, directed at the general public as well as specialists:

1. EUR-Lex website: free access to the full range of EU law and treaties, including consolidated legislation, international agreements, parliamentary questions, case law, new legislative proposals and much of the EU Official Journal in all EU languages. EUR-Lex also contains a register of documents of the EU institutions.
2. Pre-Lex: a possibility to follow the major stages of the decision-making process between the Commission and the other EU institutions starting from the Commission proposals. Commission communications are also accessible through various search possibilities.

These web-sites are easily accessible for specialists, while their design may be somewhat complicated for infrequent users from the general public. This may have more to do with the amount of information and the rather complex legislative procedure of the EU than with any serious weakness in the design of the web-pages. The EU presents a lot of information about its activities as well as for example summaries of legislation and collections of main instruments under clear subject-matter headings that are more easily accessible for the general public than the legal databases as such. The need to think about how accessible internet information is in practice, for the intended target groups, is an issue given increased prominence as the web-based information amount grows.<sup>28</sup>

### *3.1.9 Evaluation*

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Evaluation can be made ex-ante to determine prospective results of regulation or ex-post to retrospectively see the real results and impact. There is often a combination, to better determine results and impacts in relation to the stated needs and objectives compared with resources used. The outcome of evaluation should be used for planning, designing and implementing future EU policies.

### *3.1.10 Inter-institutional coordination*

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Given the distribution of tasks and competences in the EU, it is clear that better regulation is a shared responsibility (between the EU and the Member States as well as between different EU

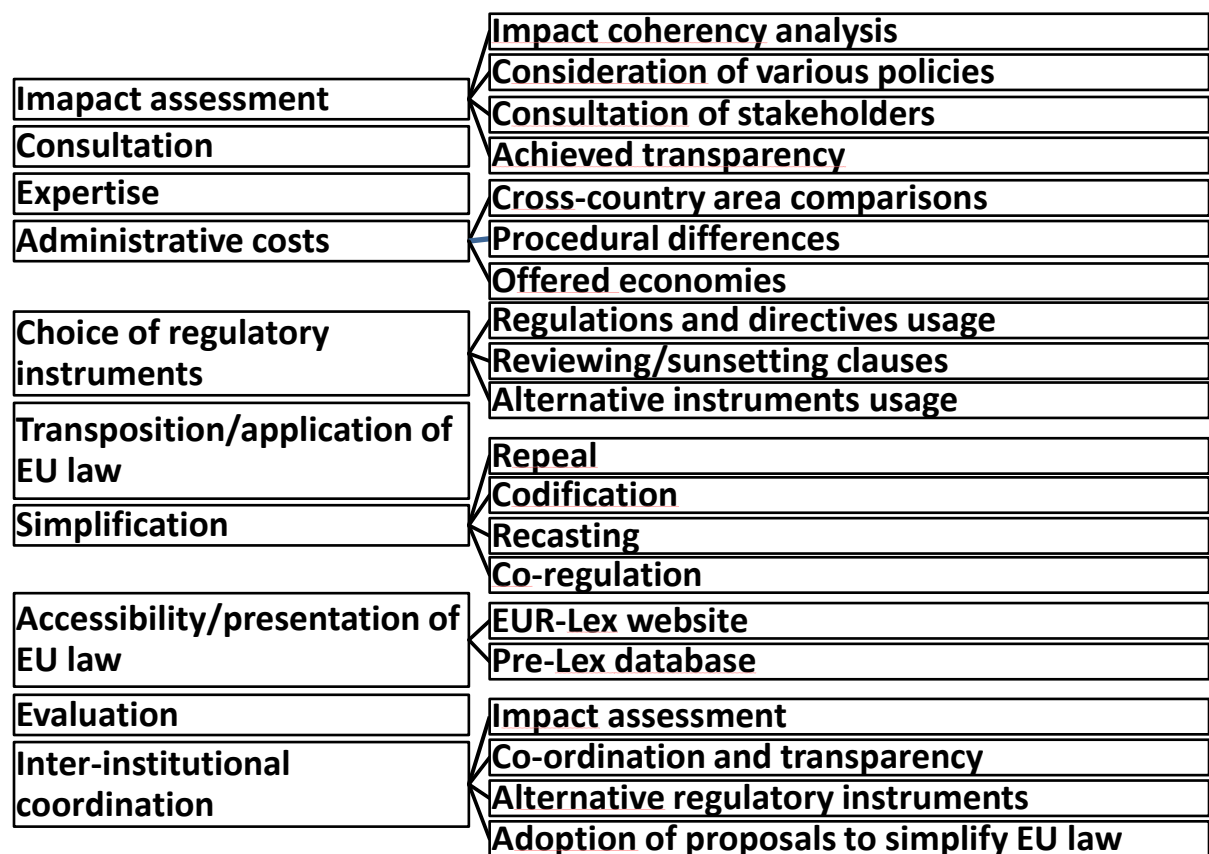
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<sup>28</sup> See for example <http://www.accessforall.eu/2011/10/level-of-accessibility-in-public-websites-in-comparison-with-legislative-provisions-and-the-deadline-for-implementation-of-wcag-2-0> (accessed 1 December 2012)

institutions), so although the Commission lists the different initiatives and issues on its web-page, the real impact will only be felt if there is proper coordination. As is known, the process very briefly described is that the Commission submits proposals for adoption to the European Parliament and the Council. EU laws are transposed into national law by national governments and parliaments (depending on type of legal act) and often applied at regional and local levels. The responsibility for regulating well is hence a shared one. The Inter-institutional Agreement on Better Law-Making<sup>29</sup> concentrates on:

- A. improving inter-institutional coordination and transparency,
- B. providing a framework for alternative regulatory instruments (self- and co-regulation),
- C. increasing the use of impact assessment in Community decision-making, and
- D. working methods for the adoption of proposals to simplify EU law.

Below the EU better regulation components are graphically presented.



<sup>29</sup> 2003/C 321/01

**Figure 1. Different EU activities within the initiative “Better regulation”**

#### 4. How can ICT help?

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The past decade has shown an impressive increase of legal informatics-related works in science as well as in the public sector. Many problems can at the present time be solved more efficiently with help of computers and many promising research fields indicate the potential to offer even more solutions in the near future.<sup>30</sup> The question is not any more whether ICT can be usefully exploited in the legal field but more where and how ICT can support or even replace existing approaches.

In this part of the article we are going to introduce shortly some of the most promising research aimed to support legal specialists in their work for better regulation. One purpose of such an approach is to tie up both ends of the same issue, traditional and well proven legislative activities versus novel and innovative ICT centric aspects. Due to the complexity of the issue, these two aspects tend to drift apart so that it is hard for outsiders to keep track of the main issues. There may be too much emphasis on the technological side of various solutions, whereas ideally the solutions should primarily relate to the issues to be solved in a comprehensive manner: including ICT solutions and any other means to achieve better regulation. The area selected to be described in somewhat more detail is that which constitutes the main research topic of the current authors, with other research alluded to briefly in order to keep the article in reasonable length.

Many efforts have been made in the last few years to investigate two problems in the analysis of legal texts: how to automatically identify structural portions of legal documents through their mutual references and how to grasp semantic information of the legal text. Legislation usability for human beings as well as for computers is under consideration as these two elements of usability are quite different. Human accessibility can be increased with help of additional structural analysis and a visualisation technique, whereas computer usability can be enhanced through new standards and mark-up technologies

Most of these approaches are based on XML and RDF, so it might be useful to first give some background information about these acronyms before describing the visualisation system proposed by the authors.

##### 4.1 XML, RDF and OWL

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<sup>30</sup> Such solutions are presented below in this chapter, including that proposed by the authors of this article.

During the last couple of thousand years the usual, paper based document has evolved to the most convenient form considering human readers. Now, the digital revolution is introducing new challenges and one of them is to teach computers to understand open text. XML stands for eXtensible Markup Language. XML is designed to transport and store data and has a limited ability to add some meaning to text. It is done through text structuring and adding markings (tags) to these structural units. This forms a basis for a next generation World Wide Web- semantic web or WEB 2.0.

For example, a heading is easily recognizable for human readers within a text. It is usually separated from the rest of the text and is visually different. However, it is very complicated to create a good rule with the help of which computers can independently recognize headings in the same ways as humans do. Even if it were possible to create such a function, it is impossible for computers to perform a reverse operation: decide which parts of text are suitable to use for headings. So the best thing we can do is to divide text manually into smaller but meaningful parts - like heading, signature, date, addressee, etc.- and surround them with tags: *<heading> Chapter 1</heading>*.

RDF is used to define the structure of the data and is used to give additional semantic meaning to the structured text. If XML is a method to separate and mark textual parts, RDF provides a way to link these parts together in a meaningful way. The way how it is done is estimated like this: *Subject - Predicate – Object*. This is called triple and allows us to describe needed relationships between two entities: *Chapter 1 is written by John More*. For more complex relationships, different ontology related methods are used like a Web Ontology Language (OWL) etc. This kind of manually added information enriching information is called metadata.

The abovementioned method increases the usability of the legal text dramatically and therefore related technologies are among the main topics of research in Europe and abroad. There is a reasonable hope that such novel technology could increase the usability of legal information a lot, not least in the EU with its multilingual structurally complex, constantly changing and sometimes internally conflicting legal information.

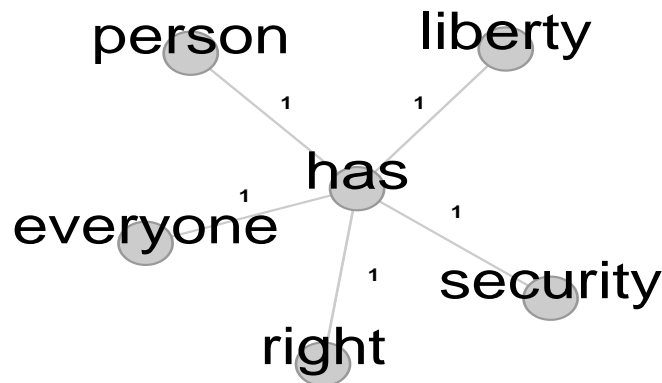
## 4.2 Visualization of the law (short name: Visualization)

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A normative system is a collection of static legal resources. The hierarchical structure of the normative system is vaguely estimated - it has a well-developed referencing system, but does not form a systematic and well-structured connected graph.



The normative system is also a collection of norms. Legal and linguistic aspects of a norm are tightly linked: the norm can be understood as “thought (i.e. meaning) content expressed through language”.<sup>31</sup> The norms can be found or targeted with the help of linguistic or grammatical constructions. The clause is a minimal grammatical construction able to deliver the thought content of the norm, containing at least a subject (noun) and a predicate (verb). The clause is also acting as a natural language container, binding together specific nouns and verbs. Such interpretation allows forming a visual backbone of the specific norm, containing by rough estimations 60...80% of the norm content.<sup>32</sup>



**Figure 2.** Sub-graph of the Estonian Constitution norm “Everyone has the right to liberty and security of person.”

Such a representation has many useful features, but most importantly this provides a good formal comparison basis between legal acts. A graph-view allows us to check graph-structural similarity. All legal acts can be compared with the help of graph research methods and their similarity can be measured. This forms a basis also for possible restructuring of legislation:

<sup>31</sup> Aulis Aarnio, *The Rational as Reasonable. A Treatise on Legal Justification*. s.l. (Blackwell Publishing Ltd, 1988)

<sup>32</sup> Ermo Täks, Leo Vohandu, Ahti Lohk, and Innar Liiv, *An Experiment to Find a Deep Structure of Estonian Legislation. Legal Knowledge and Information Systems - JURIX 2011: The Twenty-Fourth Annual Conference* (IOS Press, Amsterdam 2011) 93 - 102

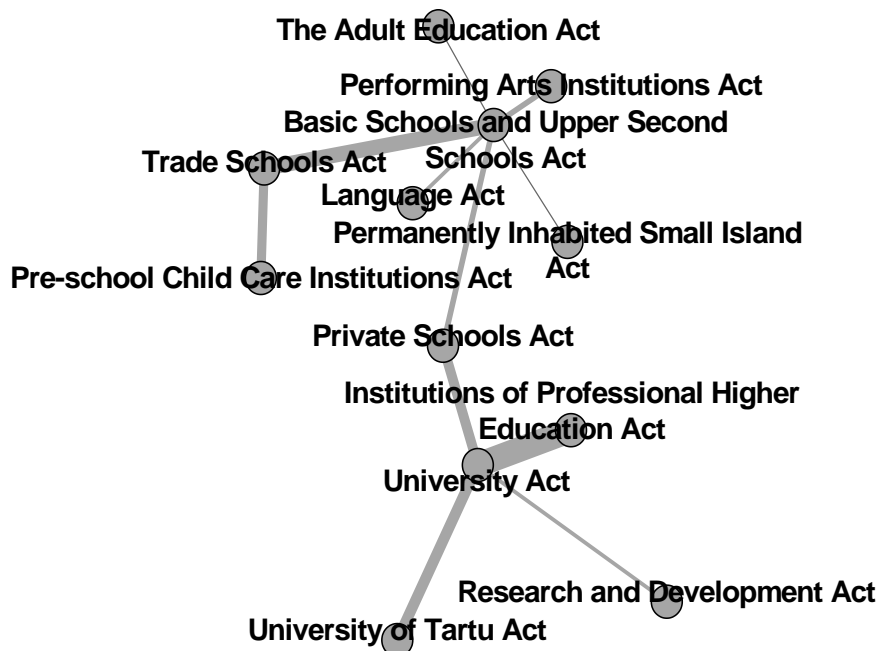


Figure 3. Extracted part example of similarity structure of the Estonian legislation, where each legal act is connected to the most similar one and the thickness of lines is referring to the similarity strength

The presented approach offers a method to create a systematic alternative structure to any naturally evolved normative system. The proposed method allows creating an easily readable and compressed visual picture (a graph) of the legal act, specifying concordance of verbs and nouns within clauses. By using these graphs to measure the similarities of different legal acts it is possible to analyse the whole normative system (the maximal connection graph). Qualitatively different new applications can be derived from presented graphs to perform a normative system analysis. A systematic visualized picture of legal documentation at different levels is capable of guiding the user through the sources of law without lengthy training. It provides a quick overview and a basis for more detailed study. Such visualization of the legal language presents many benefits and areas of use.<sup>33</sup>

This leads us to describe the possible positive aspects of this research little bit deeper, linked to the simplification procedures outlined above:

- **Impact assessment:** A visualized layout of the legal act presents a suitable tool for problem estimation, description, decomposition and negotiations between parties. This helps in the process of consultation with stakeholders, creating a good basis for comparison with which to measure the achieved transparency.

<sup>33</sup> *Ibid.*

- **Consultation:** A visualized layout of the legal act presents a suitable tool for problem spotting, description, decomposition and negotiations between parties. Visual layout is good support for creating a common understanding about the issue and the ways to analyse the influence of decisions.
- **Expertise:** Visual layout gives a bird-view of the legal domain, offering an overview of relations and locations affecting the legal question.
- **Administrative costs:** The structure of legal acts and connections of different legal acts form a good starting point for a cross-nation area comparisons and making savings in data handling processes.
- **Choice of regulatory instruments:** The location and role of the proposed legal act can be tested in visual layouts to estimate the potential effect of different legal acts and for the legislation as whole.
- **Simplification:** Different viewing and representing options based on different connections between legal acts allows broadening or narrowing the scope of comparison, to represent a collection of connected documents and parts of it, to merge or decompose parts of existing legislation and so on, to provide an overview of the legislation based on which simplification can be decided.
- **Accessibility/presentation of EU law:** Visualized and compressed layout of the legal text helps to access and present the legal content more efficiently and it can be read quicker.
- **Inter-institutional coordination:** Visualized and compressed layout of the legal text helps to get a quick overview of the content and applied changes.

#### 4.3 Legislation related complexity and ways to measure it (short name: Complexity)

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Moving on to other on-going research activities, we start with the research of Bourcier and Mazzega from 2007.<sup>34</sup> This is based on the assumption that there is a constant and accelerating growth of the national and international legal corpus and together with the rapidity of changes the result is that it becomes more and more complex for anyone applying law to manage this process. The complexity has an impact on the intricacy of both legal hierarchies and legal contents and may have other unwanted by-effects on the intelligibility of laws for citizens, as mentioned above.

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<sup>34</sup> Bourcier and Mazzega, fn 3

In their work Bourcier and Massega have analysed the French environmental code to understand how the drafters have organized the previous laws scattered in various fields of law into the structure of a hierarchical table of contents. Relying on graph representation, they have observed this architecture through the various levels of its organization and connections with other legal corpuses. They were also able to find some invariant distributions that shape various statistical distributions of the vertices and edges of the legal graph.<sup>35</sup>

#### 4.4 Electronic presentation of law in METALex (short name: METALex)

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XML is a next generation documentation standard created mainly for better computer processing. Information on a network that connects many different types of computers has to be usable on all of them. Public information in particular cannot be restricted to one make or model or to give the control over its data format to one private body. Furthermore, public information must be possible to reuse in many different ways, which must be supported by the encoding system. This rules out proprietary data formats and this is what has led to XML use. The efficiency of managing and processing information in legal documents can be dramatically improved by applying XML techniques. As a part of the more general idea of an integrated semantic web, documents are enriched with metadata to enable smart applications such as (intelligent) retrieval and reasoning. Various national initiatives have established XML standards for describing legal sources and documents, which have grown into projects aiming at integration and interoperability across all legal domains.

A necessary precondition for effective legal document management is the electronic availability of legal sources in a structured and standard format. Boer, Hoekstra and Winkels explain how the standard intends to provide a generic and easily extensible framework for the XML encoding of the structure and contents of legal and paralegal documents.<sup>36</sup>

METALex is a generic open standard for legislative documents specifically designed to facilitate the maintenance of decision support software used by public bodies. In addition, it offers provisions for more or less traditional functionalities offered by publishers and search engines. The METALex XML schema aims to be a standard interchange format for legal documents for the purposes of

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<sup>35</sup> *Ibid.*

<sup>36</sup> Boer, Hoekstra and Winkels fn 3 (at 2)

presentation, description of the relations between legislative documents, search and filtering on meaningful levels of detail, and version management and file exchange.

As Boer, Hoekstra and Winkels say,<sup>37</sup> the classification level presupposes that the user of the classification system can read the document to find out why the classification was attached. They find that such domain classification schemas, mainly predating the use of computers for storing legal information, are not necessarily adequate for electronic use. In such classification the attributes used tend to be fairly traditional like author, creation, modification and promulgation dates, jurisdiction, legal status and language. Boer, Hoekstra and Winkels find such attributes rather crude in meaning, without a lot of relevant detail and the usefulness for automated reasoning thus is questionable. Some issues they point to are that identification of documents by jurisdiction assumes that the user of a search service knows what jurisdictions he is in and the specific XML standard of that country. This standard comes from the legislative style and language of the country, although in the EU there should be a common standard. It can be explained so that the EU provides the frame that can be filled by each country.<sup>38</sup>

Boer, Hoekstra and Winkels as an alternative to rigid domain classification, suggest that statements can be directly identified in the contents of a document. Documents can make statements about other documents and (fragments) of the document itself: the metadata on one document is distributed over different locations. For this, there is the Resource Description Framework5 (RDF).<sup>39</sup> RDF is used to store a description of the events that lead to the resource with the attached metadata. In this way RDF and related technologies helps the computer to make generalisations: it can understand that if the object is a girl it is also a woman, a human being and so on. Thus a wider range of norms can be applied.

#### *4.5 Syntactic analysis*

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<sup>37</sup> *Ibid.*

<sup>38</sup> *Ibid.*

<sup>39</sup> *Ibid.* (at 3)

Brighi, Lesmo, Mazzei, Palmirani and Radicioni stress<sup>40</sup> that hand-made annotations in law or other texts are time-consuming and error-prone, alternative tools for modelling and representing the structure and content of norms are needed and in the view of these authors such tools could greatly benefit from automatic approaches to extract both structural and semantic data from legal texts, conceivably generating XML output.

They concentrate on the annotation of modificatory provisions. In any legal system one norm refers to other norms, either for completing its own content or to change these other norms in some way through a modificatory provision. Even if legal language is stricter, or as Brighi and others put it, more controlled than ordinary language, tracking modifications requires considering the deep syntactic structure of sentences and encoding prior knowledge on possible modifications (content and how they practically may occur).<sup>41</sup> For the automatic approach before any semantic annotations are added, the text is marked up with structural data as well as with normative references and “quotation mark” elements, i.e. pieces of text referring to a passive norm (such as any additional or replacement text, along with a string indicating where this text belongs in the passive norm). Semantic annotation enriches a text with the <mod> element, which delimits a modificatory clause and with the metadata that fully qualifies the modification and its attributes according to one of the following classes identified by the authors referred to:

“Type 1. A change made to the actual text or form of the norm (an integration, replacement, deletion, relocation) or to the meaning of the norm (an interpretation or variation of meaning or a modification of clauses);

Type 2. A change made to the range of a norm (an extension of its subject matter or range of application or a provision stating a derogation to it);

Type 3. A change made to the temporal parameters of the norm (the time of its entry into force, and the time when it becomes applicable or effective);

Type 4. A change made to the status of the norm within the legal system (a decree-law that is made into law, an international treaty that is transposed into domestic law)

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<sup>40</sup> R. Brighi, L. Lesmo, A. Mazzei, M. Palmirani, and D. P. Radicioni, *Towards Semantic Interpretation of Legal Modifications through Deep Syntactic Analysis. Proceedings of the 2008 conference on Legal Knowledge and Information Systems: JURIX 2008: The Twenty-First Annual Conference* (IOS Press, Amsterdam 2008) 202-206 at 203-204

<sup>41</sup> *Ibid.*

Type 5. A change made to the powers conferred under a norm within the legal system (e.g. a EU directive transposed into domestic law”<sup>42</sup>

This system thus identifies what the content of a modification is, if it is a substantive modification of a specific provision or a modification in relation to the system of norms. To facilitate the classification of modifications, the language and its deep meaning is used as modifications use certain language.

#### 4.5 Multilingual drafting

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The aim of multilingual drafting initiatives is to improve the quality of the legislative production, to enhance accessibility of legislation at European level and to promote awareness and democratic participation of citizens to the legislative process through providing special tools for such drafting. This is essential in a legal system such as that of the EU with a large number of different languages but where still the law has to apply in the same way in all Member States.

This is the background to the project “Drafting Legislation with Ontology-based Support (DALOS)”<sup>43</sup>, which aims at ensuring that legal drafters and decision-makers have control over the legal language at national and European level. What the project does is to provide law-makers with linguistic and knowledge management tools to be used in the legislative processes, more specifically in legislative drafting. The tools make sure the terminology is properly understood to its deep legal meaning. DALOS uses an ontological characterisation of legal language, giving conceptual meaning to the lexical units and providing connection with other terms. The combinations provided make the legal language easier to work with.

In legal language every collection of terms emanating from a specific language and a specific legal system is an autonomous vocabulary resource that can be mapped through relationships of equivalence with other systems. Words are the main tools for lawyers and the use of the correct terms as well as the correct combinations of them are of paramount importance. The best approach to map terms and term collections consists of developing parallel alignment with the same methodology and the same conceptual model.

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<sup>42</sup> *Ibid.*

<sup>43</sup> G. Peruginelli and F. Bargellini, *Drafting Legislation with Ontology-based Support Project* from Drafting Legislation with Ontology-based Support: <http://www.dalosproject.eu/> (accessed 10 August 2012)

DALOS shows how different methods may be applied, depending on the characteristic of the domain, the data structure and on the results sought. The project highlights how among structured data different degrees of formalization can be distinguished: controlled vocabularies (such as thesauri, classification trees, directories, keyword lists), semantic lexicons as well as foundational, core, and domain ontologies. Agnoloni and others<sup>44</sup> show that the integration of lexical resources (heterogeneous because belonging to different law systems, or expressed in different languages, or pertaining to different domains) can lead to different solutions depending on the desired results:

- generate a single resource covering both (merging);
- compare and define correspondences and differences (mapping);
- combining different levels of knowledge representation, basically interfacing lexical resources and ontologies.

It is shown that the methodological approach chosen in the DALOS project is the third one: it requires the definition of mapping procedures between semantic lexicons. This is driven by the reference to an ontological level where the basic entities, which populate the legal domain, are described. Such an approach has been followed to obtain correspondence between terms of different languages as well to align corresponding terms towards a common conceptualization at a higher knowledge level.<sup>45</sup>

#### *4.6 Legislative Meta-Drafting (short name: Meta Drafting)*

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The semantic mark-up of legal texts calls, first of all, for the development of suitable sets of meta-data, supposed to capture the formal structure of the legal text, as opposed to its content, as stressed by Biagioli and Grossi.<sup>46</sup> Such meta-data need then to be systematically interconnected, to reveal the semantic structure underlying the mark-up.

Biagioli and Grossi start from the presumption that legal orders are perceived as accumulated sets of laws, created through a dynamic process. Legislative archives reflect the historical organisation of the legal order and the law is the documentary unit on which the archive is created. The lack of an

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<sup>44</sup> Agnoloni and others, fn 2

<sup>45</sup> *Ibid.*

<sup>46</sup> C. Biagioli and D. Grossi, *Formal Aspects of Legislative Meta-Drafting. Proceedings of the 2008 conference on Legal Knowledge and Information Systems: JURIX 2008: The Twenty-First Annual Conference* (IOS Press, Amsterdam 2008) 192-201 at 200.



analytical/systematic vision of the whole is an obstacle to obtaining information about and exercising control over the contents as a whole.<sup>47</sup>

For Biagioli and Grossi the meta-data needed for legislative meta-drafting can be obtained from suitable theories of provisions. Such theories according to these authors make explicit the functional structure of the legal text. They divide provisions in the model into two main families: rules and rules on rules. They call the rules on rules “a peculiar category that includes the provisions related to the dynamics of a legal system”. Further, the main family of rules is divided into a further two major classes, which are the subject of normative theories - constitutive rules and regulatory rules. Biagioli has developed this approach, which has become popular. The text is not divided into paragraphs and sections but into so called provisions: small pieces of text, without a strict structure.<sup>48</sup>

#### 4.6 Content management.

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Boer, Winkels, van Engers and de Maat have developed a content management system. Their starting premise is that governments as well as legal publishers usually make legislation available in some special purpose XML format or XHTML annotated with metadata describing what version of which legislation it is. According to the authors, the electronic documents containing the legislation are taken from largely autonomous and heterogeneously organized repositories. Versioning metadata is closely tied to the organization of the repository it came from.<sup>49</sup>

To understand the relationship among multiple metadata descriptions it is first necessary to understand the resources they purport to describe. Understanding the resource in turn requires a comprehension of its lifecycle including events and corresponding transformations of the resource that constitute this lifecycle. This leads to the conclusion that an electronic document and its metadata description represent a certain time point in this lifecycle. It also means that values of metadata attributes may change over the lifetime of a legal document, even if the document itself

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<sup>47</sup> *Ibid.*

<sup>48</sup> C. Biagioli, *Towards a legal rules functional microontology* Istituto di Teoria e Tecniche dell'Informazione Giuridica, [www.ittig.cnr.it/Ricerca/Testi/Biagioli97Legont.pdf](http://www.ittig.cnr.it/Ricerca/Testi/Biagioli97Legont.pdf) (accessed 10 August 2012)

<sup>49</sup> A. Boer, R. Winkels, T. Engers, and E. Maat, *A Content Management System based on an Event-based Model of Version Management Information in Legislation. Legal Knowledge and Information Systems. Jurix 2004: The Seventeenth Annual Conference* (IOS Press, Amsterdam 2004) 19-28 at 19

does not change. Metadata most often concerns information included in the document itself, or in another document that refers to it, so it is not added extra information.<sup>50</sup>

One main interest in proper content management systems is that commentaries from different sources should be available in internal applications for civil servants or others who need them in their work, but this is complicated because they are all organized in a different way and frequently updated, and sometimes even reorganized, by the publishers. Versioning, structuring, and naming practices are different between different publishers, but not because the content requires this. This makes it difficult to establish the exact identity of the legal sources contained in a product without continuous human intervention.

Among shared content elements of legislation in different jurisdictions in regard to which improved handling of metadata can be useful is that what Boer et. al. call 'timepoints'. This is a simple date, but one can distinguish three kinds of timestamps used in legislation as outlined by Boer and others<sup>51</sup>:

**Version management** timestamps define the validity of the document for reference as well as the validity for application - the document can be applied by a competent decision-maker in the time-interval in which it is active.

**Legislative Drafting** timestamps relate to the procedures that have to be followed by the legislator including timestamps for certain events (e.g. signing) or minimum time intervals that must elapse before some consequence follows.

**Application to cases:** These timestamps define objects in the outside world that the legislation refers to, which can be immediate events that take negligible time (like traffic events); persistent 'objects' (mortgages, pension arrangements); or delayed payoffs of choices (financial products exempt from certain kinds of taxation). Transitory regimes are needed to minimize any damage caused by changes in legislation and legal principles like limits on retroactive application belong in this category.

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<sup>50</sup> *Ibid.*

<sup>51</sup> *Ibid.* 20-21

Another important component of the structures developed by Boer et. al. is the lifecycle of legislation, which they divide into four phases:<sup>52</sup>

**Fixed:** This indicates the point in time when a design of legislation becomes an official proposal that cannot any longer be modified by the drafters in the regular way (by opening the document in an editor, changing it, and saving it). In the legislative process this will be an event linked to formal signing or confirmation, after which a new formal decision would be needed to change the text of the proposal. The authors (Boer and others) quote the example of the Netherlands, where this point is the date of signing of legislation by the monarch and where this point is furthermore characterised by auxiliary provisions like date of publication, date of enactment, official name of the legislation, official acronym of the legislation, and delegate legislative competence, becoming valid law.

**Knowable:** The date of publication is also the date from which the legislation is (presumed to be) publicly known. This date is usually prescribed by law either so that the legislation sets a date (specific or a general one – how many days after some event) or so that publication is relative to some other event (like the publication of another closely related law. This is an alternative date at which any such auxiliary provisions as those mentioned above may become valid law. From the date of publication, legislation may be applied and only to events happening after this point in time (with some few exceptions for retroactive or delayed application).

**Repealed:** An end-point in the lifecycle of legislation is when legislation is repealed. This date is usually announced by law as a specific date or relative to some other event or after some fixed time interval. If legislation is repealed, for document management purposes it does not ‘disappear’: it can still be referenced by its official name and acronym.

Not all jurisdictions distinguish between the ‘Fixed’ and ‘Knowable’ dates, and this distinction is therefore not part of METALex XML. Events have input and/or output, and if they are actions they have an actor in a certain role (e.g. legislator) and optionally instruments (e.g. a legislative competence). Boer and others divide into five types of events that can cause a transition, which leads to a new version of (a part of) a legislative text :<sup>53</sup>

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<sup>52</sup> *Ibid.* 22-22

<sup>53</sup> *Ibid.*

**Fix:** Initiated by the legislator, based on legislation attributing legislative competence, having as its output fixed legislation.

**Publish:** Initiated by the same legislator, using a publication channel as an instrument and possibly legislation requiring the publication. Here one can see input (fixed legislation) as well as output (published legislation).

**Enact:** Initiated by the legislator, using as instrument legislation (or in all cases, a part of legislation) requiring enactment. Input - published legislation; output - enacted legislation.

**Repeal:** Initiated by the legislator, the instrument is legislation requiring cancellation of the legislation. Input is enacted legislation and output is repealed legislation.

**Modify:** Initiated by the legislator, the instrument is legislation requiring modification by replacing its text with text quoted in modifying (or possibly external, legislation). It is most common that parts of a legal act are modified, but it may be done also by inserting or removing an article. Input is legislation and output is amended legislation.

Boer, Winkels, Engers and Maat propose a novel use of such an event-based framework with legislation in an instrumental role. All relevant dates are attached to the event (if there is a corresponding source that contains the specific date, it is in external legislation in the instrumental role and not the legislation to which the date is usually attached as metadata).<sup>54</sup>

#### 4.6 STIA

In research linked to semantic annotation in jurisprudence, the starting point is the spread of norms and laws containing explicit cross references or overlapping concerning the same or similar topics. This has entailed various actions for legislative simplification, not so much to reduce the amount of sources, but rather as a necessity in order to achieve the correct application of existing normative principles. These should be pronounced, discussed and dealt with as monolithic utterances instead of being spread across several distinct codes as stated by Pazienza, Scarpato and Stellato.<sup>55</sup>

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<sup>54</sup> *Ibid.*

<sup>55</sup> M. T. Pazienza, N. Scarpato and A. Stellato, *STIA: Experience of Semantic Annotation in Jurisprudence Domain. Proceedings of the 2009 conference on Legal Knowledge and Information Systems: JURIX 2009: The Twenty-Second Annual Conference* (IOS Press, Amsterdam 2009) 156-161

These authors take as their example Italian legislation that is composed of more than 100 000 different acts. Such amount of legal acts is not unique in any way for Italy but in any document collections in jurisprudence the cross referencing assumes huge proportions. The biggest problem in this case is to retrieve useful information in such enormous collections in relatively short time.

What Pazienza, Scarpato and Stellato suggest as a first step on the way to legal simplification is to identify relations of pertinence between distinct laws. Such identification allows for these laws to be unified and reproduced in new synthetic codes. Information Retrieval is typically used to retrieve relevant information from document collections. Matching queries and documents is generally term-based: words within documents are used to describe the documents and to determine their relevance for a given query. This is the simple way of doing it, but this does however not show up other links than the simple correspondence between words. For a legal practitioner the real correlation between acts may not be shown in this manner.<sup>56</sup>

To introduce more information about the meaning of a document, semantic annotations can be added, containing additional information about the text or part of it, that are important to improve retrieval processes. In recent years, collaborative tagging systems have become very popular among users as a means for organizing their resources. These systems use semantic annotations taken by users to improve retrieval by using the information held into them.

The knowledge model of the framework extended by STIA offers two concept layers, consisting of the application layer, containing ontologies from the project called Semantic Turkey and its extensions, which are necessary to drive the application, and the user layer, containing specific domain ontologies and allowing the user to add instance data.<sup>57</sup>

#### *4.7 Legal Change Management*

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The final area of research to be described is what can be called legal change management. Palmirani and Cervone have pointed out that not only are there many national and international XML standards for modelling and representing legal resources but furthermore for modelling norms by

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<sup>56</sup> *Ibid.*

<sup>57</sup> *Ibid.*

way of rules, there are very many different standards. They find a need to collectively manage heterogeneous legal resources that use different XML formats.<sup>58</sup>

There are good ways to answer this need (Metalex etc). Unfortunately they are not sufficient for managing a common query layer between heterogeneous collections of XML legal resources and providing the semantics with which to manage change over time. Therefore there is a need for developing a repository architecture, which is capable of managing heterogeneous documents through common document ontology and metadata mapping, while managing document change over time. A native XML document database of mixed resources has to be developed, which is able to maintain the flexibility and the expressiveness of the original local standard while also providing and interchanging a solution between several XML standards – all the while also building a solid common basis for making meta-queries between mixed documents.<sup>59</sup>

## 5. Conclusion

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There are many initiatives to achieve “better regulation” in different contexts, not least in the EU. The above review of the various EU measures designed to reach better regulation shows how this question is one of great importance, as the volume and complexity of EU law keeps growing and as its correct implementation is essential if the objectives set at EU level are not to be lost. In many of the contexts mentioned in the better regulation review, ICT could be of great use but until now, only rather limited use of the potential of ICT has been made. The paper suggests ways to improve such use. These suggestions are partly built on the efforts made in recent years on ICT support for the analysis of legal texts, most specifically on how to automatically identify structural portions of legal documents through their mutual references and how to grasp semantic information of the legal text. In addition, increasing accessibility of legislation through structural analysis and new visualisation techniques show how ICT can play an important role. The use of correlation tables for the implementation of directives is just one concrete example of where the use of systematisation with the help of ICT can have a great practical impact. As it is important to identify actual correlation, the use of systematisation based on the legal language using the help of ICT can be

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<sup>58</sup> M. Palmirani and L. Cervone, “Legal Change Management with a Native XML Repository” in G. Governatori (Ed.), *Frontiers in Artificial Intelligence and Applications. Legal Knowledge and Information Systems - JURIX 2009: The Twenty-Second Annual Conference* (IOS Press, Amsterdam 2009) 146-155

<sup>59</sup> *Ibid.*

instrumental. Simplification of legislation is another example and accessibility and presentation could be supported by more extensive and imaginative ICT use.

The approach designed by the authors and presented in this paper offers a method to create a systematic alternative structure to any naturally evolved normative system. It does this through an easily readable and compressed visual picture (a graph) of the legal act and words used in it. The graphs can provide a background for comparisons between selected laws as well as to analyse the entire normative system (the maximal connection graph). This is why such a systematic visualized picture of legal documentation can be very useful also for non-specialists as it gives a quick overview and a basis for more detailed study. The ways to use the visualization inked to the simplification procedures identified for the EU have been outlined above.

Table 1 gives a general picture about specific research activities and how these can contribute to increasing the quality of EU regulation in the broad sense. The table represents the indicative potential of chosen researches to add value to the problem solution. The ability is described by three different values, where meanings of the digits are:

0 –no or very little value

1 –ability to support problem solution process in some way

2 – ability to deal directly with problem through the use of novel solutions and ICT support.

This table sums up the different research activities described in that it places these in the context of the needs identified to improve EU law making. It thus provides an assessment of these system including the system suggested by the authors in a table format – extracting the usefulness of the various theories and projecting these onto the issues to be addressed.

A column called “Computerizable?” is summarizing the potential of all the researches going on and uses the same indications to describe the extent and ability potential of ICT support for problem solution in the close future. As it appears, all the above mentioned issues are under development and have a potential to pay back the expected results to the society during next 10 years. Some are highly “computerizable” and it would be possible to achieve gains from ICT use immediately, provided the technical solutions are at hand and properly adjusted to the issues. A very large number of matters can in some way benefit from ICT.





Table 1. A cross table reflecting the ongoing research in the field of subject and

EC Better Regulation activity		Legal informatics research field									Computeriz- able?
		Metal ex	Compl exity	Visuali sation	Syntac- tic analysi s	Multi- lingu- al draf- ting	Meta draf- ting	Cont- ent mana- geme- nt	STIA	Chan- ge mana- geme- nt	
Impact assessment	Impact coherency analysis	1	0	1	0	0	0	0	0	1	1
	Consideration of various policies	0	0	1	0	0	0	0	0	0	1
	Consultation of stakeholders	0	1	1	1	0	0	0	0	1	1
	Achieved transparency	1	1	1	1	1	0	0	0	1	1
Consultation		0	1	1	0	0	1	0	1	1	1
Expertise		0	1	1	1	1	0	1	0	0	1
Administrative costs	Cross-country area comparisons	1	2	1	0	1	1	1	0	1	2
	Procedural differences	1	0	0	0	1	0	1	0	1	2
	Offered economies	2	1	2	0	1	1	1	0	1	2
Choice of regulatory instruments	Regulations and directives usage	1	1	1	1	0	0	0	0	0	1
	Reviewing/sun-setting clauses	1	1	1	1	1	1	0	0	0	1
	Alternative instruments usage	1	1	1	1	1	1	0	0	0	1
Transposition/application of EU law		2	0	1	0	2	1	2	0	2	2
Simplification	Repeal	1	1	1	1	1	1	0	1	1	1
	Codification	2	1	2	1	2	1	0	1	1	2
	Recasting	2	1	2	1	1	1	0	0	1	2
	Co-regulation	1	1	2	1	1	1	0	0	1	1
Accessibility/present ation of EU law	EUR-Lex website	2	1	2	2	2	1	2	2	1	2
	Pre-Lex daatabase	2	1	2	2	2	1	2	2	1	2
Evaluation		1	0	1	0	0	1	1	0	0	1
Inter-institutional coordination	Impact assessment	0	0	1	1	0	0	0	0	0	1
	Co-ordination and transparency	2	1	1	0	1	1	2	1	1	2
	Alternative regulatory instruments	1	1	1	1	1	0	1	0	1	1
	Adoption of proposals to simplify EU law	1	1	1	0	0	0	0	0	0	1

0 No support  
1 Work process support  
2 Content handling support

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