COVER SHEET

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Title: *Modern development of a Law* for Proceedings of the International Conference on ICT LAW 2013 (Information and Communication Technology and Law - Protection and Access Rights)

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(FIRST PAGE OF ARTICLE)

ABSTRACT

In 2008 the recently created Spanish Ministry of Science and Innovation received the assignment of elaborating the proposal of a new law for regulating Science, Technology and Innovation that would replace the law in force since 1986. Besides many goals related to the governance of the R&D system, the formulation of a scientific career, the creation of an agency for R&D funding and, in general, the modernization and simplification of all the R&D agents and procedures, there was an additional aim: to count on the opinion of the R&D community in its elaboration. As a consequence of this objective, an intensive use of ICT along the process was arranged. A wide range of tools, especially Collaborative Development Environments (CDE), were used, all of them available as open source software.

This paper is devoted to give a summary of the main actions related to the use of ICT that were taken during the elaboration of the Spanish Law 14/2011, also known as the new Spanish Law for Science, Technology and Innovation.

INTRODUCTION AND MOTIVATION

The Spanish legislature starting in 2008 had some novelties, especially for science and innovation. For the first time a single ministry, the Ministry of Science and Innovation, congregated all the responsibilities related to R&D, with the objective of implementing a strongly coordinated design, strategy and action both at national and international levels. During the electoral campaign science received a lot of attention and part of the commitments included significant funding increase as well as the development of an entire new law, replacing the existing one dated 1986, for regulating, reorganizing and modernizing the complete Spanish R&D system.

The initial staff of the Ministry of Science and Innovation was composed of some relevant researchers that, for the first time in many cases, assumed

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responsibilities related to R&D policy. Many new ideas arose, and the elaboration of the proposal of the law cannot be an exception in finding non crossed paths.

In this context, the use of ICT technology for developing the law appeared as an immediate opportunity. However, it is important to mention that the use of ICT for developing the law goes beyond an online public consultation ([1], [2]).

Public consultation has a long tradition in Anglo-Saxon countries; especially in those adhered to the Commonwealth (UK[1], Canada[2], New Zealand[3] or Australia[4]) as well as in USA[5] (where it is called "public notice and comment"). It is also common in the European Commission[6]. In Spain public consultation was becoming more frequent and many public bodies used this method to get feedback and contributions at the initial steps of the development of laws and regulations.

But the goal was to go beyond these experiences and to use pervasively ICT across (almost) the whole process, from the starting point to the submission of the draft of the proposal to the Cabinet Council, helping in all the tasks related to the development. There was also an additional condition: to have an almost continuous consultation to the R&D community, ensuring reports, contributions, comments and suggestions from all potential significant actors. The paper describes this experience giving some details about the initial goals (section 1), different steps and phases (sections 2 to 5), a description of the tools used (in the different phases along the paper) and some indicators on the resulting degree of participation. Finally, we conclude with some additional remarks and comments.

THE CHALLENGE: A NEW LAW FOR SCIENCE, TECHNOLOGY AND INNOVATION

As we already mentioned, the new law needed to regulate new aspects and also to adapt old regulations coming from the previous law dated 1986. The novel aspects included:

- Planning: long, medium, short term strategies
- Coordination with regional governments
- Reorganization of Public Research Bodies
- Research-based public contracts
- Third country researchers
- Intellectual and industrial PRs
- Ethics; Scientific culture
- Open access

[1] http://www.gov.uk/government/publications?publication_type=consultations
[2] http://www.consultingcanadians.gc.ca
[3] http://newzealand.govt.nz/participate/have-your-say
[4] http://australia.gov.au/news-and-media/public-consultations
[5] http://regulations.gov
[6] http://ec.europe.eu/yourvoice/consultations

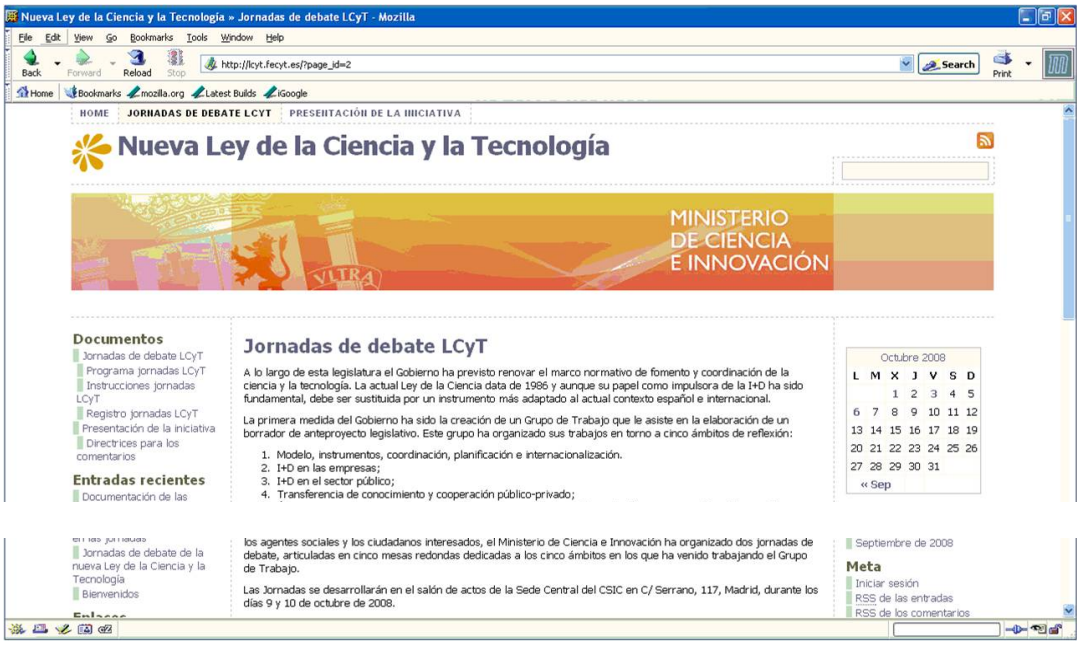

Figure 1: Web page for the development of the law

The method to elaborate the initial text of the proposal of the law combined the work of committees (part of their members coming from outside Spain), staff of the Ministry and the opinion of the R&D community. In order to allow this wide range of participation, ICT tools and Internet played a key role.

The process included the four phases that are described (according with the used tools) in the next sections. It is worthy to mention that the number of online contributions, comments and suggestions that were included to some extent in the text was very high.

It is also important to mention an additional strict requirement which was introduced: the use of open source software tools, formats and editors along the whole process and in any step and procedure.

As a preliminary step we developed a web page (www.lcyt.es, see Error: Reference source not found for a snapshot - the site is currently disabled) that served as the main portal for all actors, providing continuous updates of the developments, news and information. The web page was used to collect public opinion as well as to enable the collaboration of experts in certain steps of the development.

PHASE 1: FIXING THE MAIN ELEMENTS OF THE LAW

The first phase was dedicated to produce a series of documents containing the main elements (and the corresponding analysis and justification) of the law. The focus was not on the actual text of the future regulation, but on a number of topics and issues to be potentially addressed in the future law.

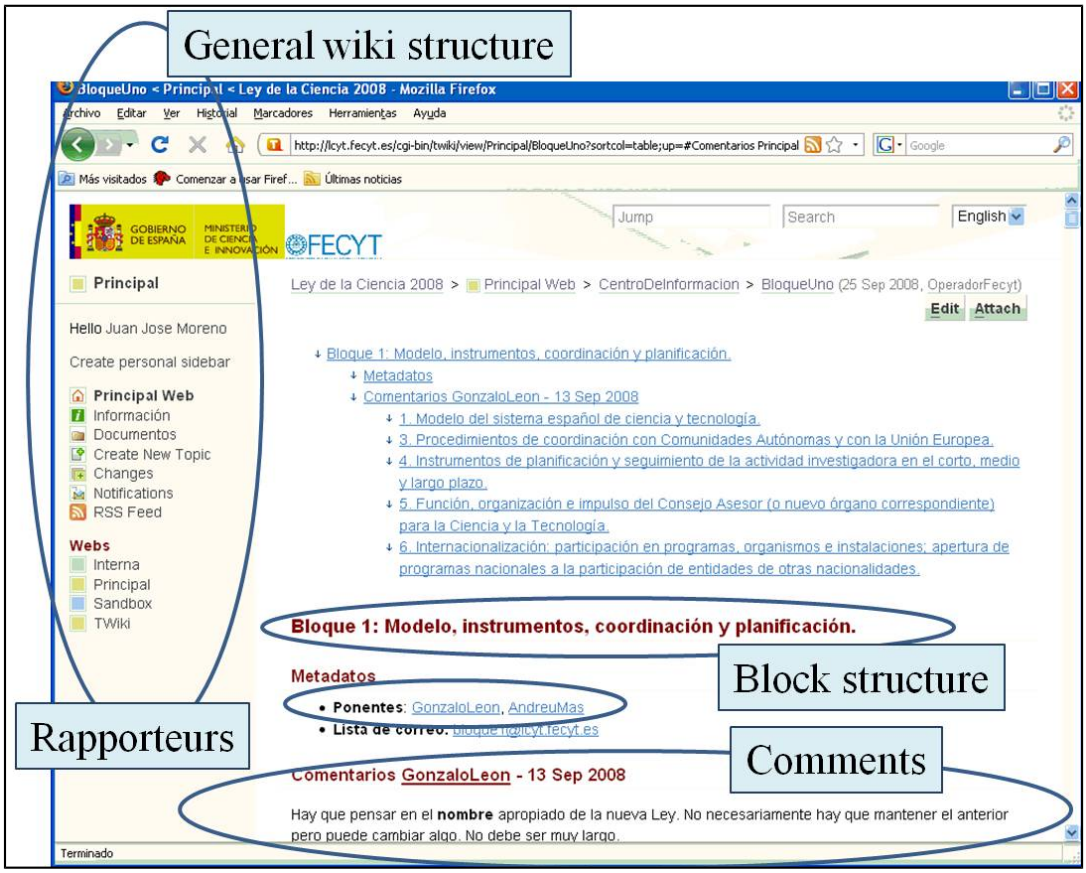

Figure 2: Wiki for the development of position documents

In order to produce these documents the Minister officially appointed a "wise people" committee. The committee was interdisciplinary and international, and composed of 25 experts on different fields. Its immediate goal was to produce the first set of working documents for discussion.

The committee was set to work in a distributed fashion by means of a custom wiki. The wiki enabled the collaborative development of documents (see Figure 2) and discussions of topics between meetings. The documents were organized in five different blocks (including a number of similar thematic topics, see below) with a couple of rapporteurs and a discussion list. Permission and distribution lists were created accordingly. The wiki kept track of comments and messages posted that allowed the rapporteurs to produce the final documents and the committee to accept their final version.

Blocks		Main elements
1	*Model, instruments, coordination, planning, internationalization*	*Law objectives*
		R&D system governance
		Civil society participation
		Planning: National strategy and R&D National Plan
		Management architecture: Agencies for evaluation and development
		Ecology of execution
		International dimension
2	*R&D in the public sector*	*Human resources for research*
		Careers in the public research sector

		Public research centers and their organization structure
		Other actors: hospitals, technology centers, research infrastructures,
3	*Private R&D*	*Adequate environment for R&D in enterprises: financial and human resources elements*
		Adequate environment for R&D in enterprises: regulation
		Technology and new products and services market
		Access to public R&D and public domain information
		Bridges to innovation, modernization and internationalization
4	*Technology transfer and public-private collaboration*	*Protection and transfer of R&D results: attribution, management, development*
		Development of R&D activities with potential industrial or commercial exploitation
		Development of public technology based companies
		Incentives for researchers
5	*Ethics, expert advice, open publication, scientific culture, cooperation for development*	*R&D ethics criteria, codes of conduct and best practices*
		Open Access publication
		Strategy for the development of scientific culture
		Scientific and technology cooperation for development

PHASE 2: PUBLIC ONLINE DISCUSION

In the second phase a public consultation of the documents of the previous phase was arranged. At a first step the documents were made public and a blog-based application was available for receiving comments, suggestions and contributions. A dedicated team with lawyers (trained on the used tool) evaluated the contributions, answered all of them and decided which ones deserved to be included in the documents. An RSS for interested users was activated. More than 600 contributions were received and at least 20% were taken into account for the final documents. In parallel with the blog, a workshop on October 2008 was organized with 6 round tables (one for each block, and an additional one for the summary and the overall analysis). The experts of the round tables came from several sectors: parliament and political party members, R&D institution representatives, department heads of R&D companies, R&D policy makers, researchers, etc. A total of 10000 invitations were sent. The workshop was disseminated by on-line streaming, with a performance of accepting up to 3000 users and 100 requests per second. The internet audience had the opportunity to pose questions to the round tables in similar conditions to the audience in the room, by using a tool inspired on the website Digg that allowed the participants to rank the most interesting questions and comments.

The workshop received around 500 physical attendees and more than 1500 users were online at some moment (see Error: Reference source not found). 150 questions or comments were received and, after some filtering and compacting, shared with the round tables. Videos of the full workshop were also provided both live an offline. As a result of this phase, the position documents were modified and completed, and, again, made available to the community.

Figure 3: Picture for the workshop

PHASE 3: DEVELOPING ARTICLES FOR THE LAW

The third phase had the goal of developing the proper text for the law, extracting the regulatory intention of the. Generally speaking, a law has the intention of allowing something, forbidding something and, in a few cases, recommending something by imposing some obligations to the public administration. This task was the duty of a group of lawyers, but checked by the committee in order to ensure i) each article implements some recommendation of the position document, and ii) all recommendations of the position document are reflected in an article or are discarded because no real regulation is needed.

To help in this task, Collaborative Development environment tools were used. In particular an open source collaborative text development and annotation tool was selected ([3Error: Reference source not found]).

Our main inspiration was the process lead by Eben Moglen in the development of the GNU GPL 3 license. In their approach, they pioneered a web application where anyone could select a piece of text of the actual license and provide feedback on it. This model allows to "break the model of printed page" in the sense that people can collaborate from different locations on writing text and projects created on a central archive for all versions of a text and all its comments.

In our setting, that new text could be posted online and marginal comments by a group could be included and viewed in one document in real time, i.e. avoiding multiple circulated email drafts, which is a must when editing/reader tools comment features are used (like Microsoft Word or Adobe Acrobat).

The concrete tool was **co-ment**[7], a successor of the **Stet** tool inheriting its annotation interface. **Co-ment** is a web service annotating, discussing and writing text online. Some of the especial features of co-ment are:

- Symmetry: the service allows all the users to submit text for comments and treating comments.

[7] www.co-ment.com

- Definition of roles: for a given text, different roles can be assigned: observer, commentator, moderator, editor or manager.
- Distinction between states of the workflow and the semantic treatment for the comments. Alert tool: by using RSS feed, email, etc.
- Activity meter, to measure the activity of each group member.
- Secure communications by using SSL-encrypted communications.
- Free version available for working a limited period of time, although commercialization for private, permanent and advanced uses is offered.

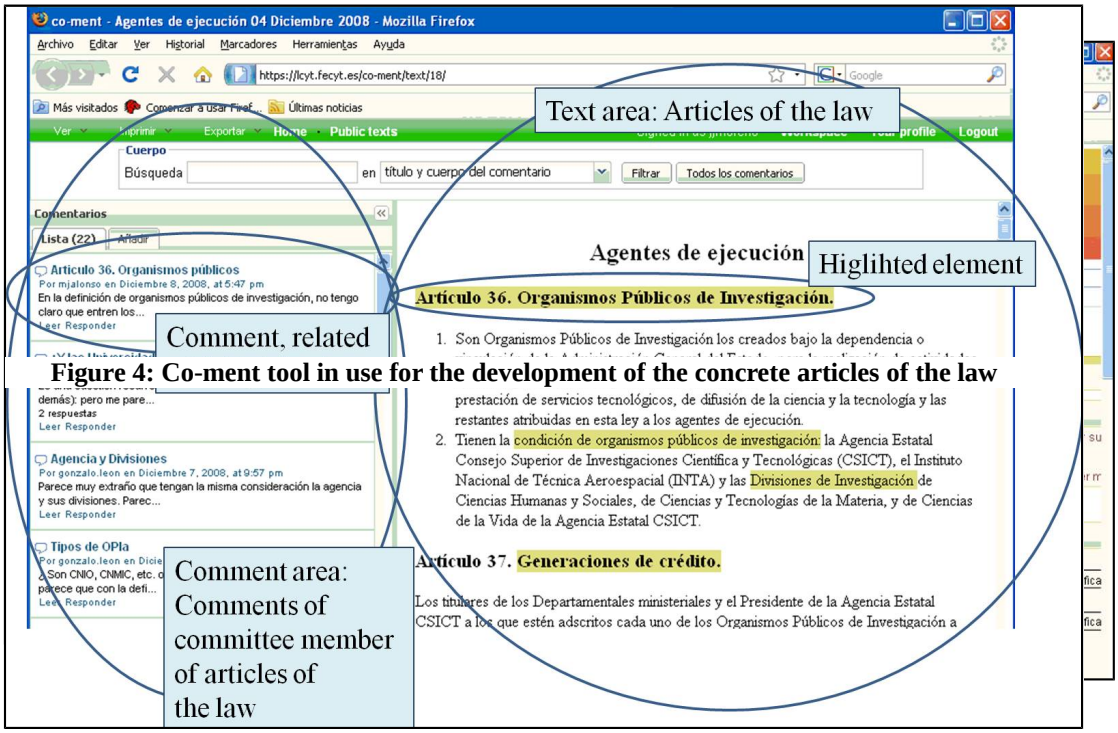

Figure 4: Co-ment tool in use for the development of the concrete articles of the law

Co-ment lies on the **COMT** software that powers a **co-ment** workspace. **COMT** is distributed under the GNU Alfero GPL license. A community[8] has been created, where the source code, modifications and best practices examples can be found. **Co-ment** is implemented using Django/Phyton and various AJAX libraries. A snapshot of the use for **co-ment** for our development can be found in Error: Reference source not found.

PHASE 4: FINAL PUBLIC CONSULTATION

As a final step, the articles were made available for a final online public consultation. Again a blog-based application for receiving comments was set up. In this case we added a voting system (see Error: Reference source not found) for comments, in such a way that the user could select to open a new contribution or vote in favor of a previous one. In the last case, some additional remarks can be added by the user. For this purpose we used an open source digg code, Meneame[9], installing the wiki and the comments in our own frameworks.

As before, the dedicated team of lawyers evaluated the contributions, answering all of them. A selection of the most focused suggestions was given to the developer team. Many articles were modified according to these comments. Although in this phase less contributions were received (around 250), the ratio of acceptance (to some extent) was much higher (around a 40%).

ANALISYS OF THE BENEFITS OF PUBLIC PARTICIPATION

[8] www.co-ment.org

[9] www.meneame.net, source code in http://meneame.wikispaces.com/Source+code licensed by GNU Alfero GPL.

Figure 5: Final consultation

It should be noted that in Spain, citizens can participate directly in law-making exercising so called *people legislative initiative* ruled by Article 87.3 of the Constitution, certainly in very restrictive terms. Basically in Spain, as in all around us, the legislative initiative is exercised primarily the government by sending to Parliament law proposals.

The preparation of the draft of a law is regulated in Article 22, Law 50/1997 -November 27th. The procedure starts with the action of the competent Ministry through the development of the corresponding draft of the law. This initial draft is elevated to Cabinet, deciding the procedures to be followed, in particular queries, reports and relevant reports. In this period it is possible that the text of the draft was subject to public consultation, if so decided by the Ministry Council. Once these formalities are covered, the Ministry submits the draft text (with added modifications and changes) to the Ministry Council for approval as a bill.

In this sense, what is worth highlighting is that the scientific community and, all citizens in general, could take part in the preparation of the initial proposal by the Ministry, through the procedures and tools that have been described. And it should be noted that participation extended significantly beyond what is usual. The tradition practice is to submit a text articulated and developed from the Ministry for public consultation. The historic record in other cases shows that there is not too much room for adding entire parts, reformulating complete elements, and, especially, checking how much support a decision receives from a whole community. The novelties in our case were, among others:

- The scientific community had the opportunity to participate even before the drafting of the text articulated.
- The scientific community was consulted as a whole and not just towards its representatives (trade unions, scientific societies, research institution, …)
- Citizens and scientific community had the opportunity to participate almost at any phase, from the initial steps to the final text.

But it is important to say that the underlying objective is to ensure that the law can really change the way science in organized in Spain and the adequate mechanisms to promote it, by having a wide support, confidence and implication to the law.

CONCLUSION

Once the previous phases were completed, the draft of the proposal of the law was ready for inter-ministerial consultation. After this consultation was completed the final text was submitted to the Cabinet Council, which approved it. The proposal of the law was then submitted for deliberation to the Spanish Parliament on May 20, 2010. After additional modifications and amendments it was finally approved by the Spanish Parliament on May 12, 2011, and published in the Spanish Official Bulletin on June 1, 2011. The text received positive votes from all the parliamentary groups of different political signs, with a single exception, the abstention of the United Left Group.

Parliament discussions, deliberations, and negotiations were not open to the public opinion. However, some other organizations continued managing fori for discussion even in the parliamentary process [4].

In general, the law has been very well received by the scientific community that really appreciated its participation during its development and some papers have been devoted to study its contributions (e.g. [5], [6]). Of course, the comments include some criticism, focused mostly from the amendments introduced during the parliamentary process (see [5]).

We were not able to find any document showing a similar experience linked to the development of a law like the one implemented for the elaboration of the Spanish Law for Science, Technology and Innovation. We were able to find some partial uses by members of parliaments or political parties which focused on the interaction with the public in France, Brazil or by members of the European parliament. In particular, the tool **co-ment** has been used for this purpose as indicated in its community webpage. An interesting example is the initiative of the French representative C. Paul who received more than 200 comments to a draft of the proposal of French law for network neutrality, and prepared an alternative text with them. We claim that reporting this experience could be interesting and useful for policy makers and computer scientist interested in law.

Several lessons have been learned from this experience. The first is that an interdisciplinary and coordinated team of lawyers, computer scientists and policy makers is needed for developing a law in this way. This is the case of the authors of this paper that were some of the main responsible for developing the initial drafts of the law and preparing the whole system. Parts of the scientific community were surprised by the initiative and reacted very positively.

The second lesson, or better said, reflection, is related to the opportunities of ICT for e-democracy ([7], [8], [9]). In current times were in many places there are protests against governments becoming both isolated and unresponsive to its citizens, ICT offers valuable techniques for a closer contact with citizens, enhancing their participation and making laws better understood and accepted [10], [11]. The R&D community is one of the most accessible and well prepared, as well as motivated, for participating in a legislative experience that heavily affect then, and, at the same time, perhaps the most prompted to use ICT for this purpose.

The third (and modest) lesson, is how widely available tools and open source code are quite suitable for experiences like this, as many tools have their motivation precisely in developing social products for online massive participation.

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