Analysing different models of structured electronic consultation on legislation under formation

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Abstract:
Electronic consultation through the Internet has become an important means of e-participation in order to enable interaction and discussion among government agencies and citizens on public policies and decisions. Tools that enhance the quality of electronic consultations need therefore to be designed in a way that better opinions and arguments are produced. Well designed ICT tools can contribute to better, more informed and socially rooted public policies and decisions. This paper analyses two different models of structured electronic consultation in the area of formation of legislation, a highly complex and controversial category of government decisions. The first model is a highly structured e-consultation model based on the Issue-Based Information Systems (IBIS) framework, having as basic elements issues, alternatives, pro-arguments, contra-arguments and comments. The second model is simpler and less structured, having as basic elements questions, answers and comments. Our analysis was based on two pilot cases concerning legislation under formation in Greece and Austria. Evaluation took place using discussion tree analysis and quantitative and qualitative methods.

1. Introduction

Over the last few years, governments of many OECD member countries have been trying to extend citizens' participation in the formulation of government policies and decisions by providing additional Internet-based channels of communication with civil society [1] – [2]. Different information and communication technologies (ICT) tools have been developed and deployed for this purpose, with most of them aiming to support various types of two-ways communication between government and citizens, such as consultations [1] - [5]. However, further research is required in order to develop better ICT-based tools and methods for supporting and facilitating more effective interactions between government organizations and citizens. Specific attention has to be put on enhancing the quality of electronic consultations, so that better opinions and arguments are produced, which can contribute to better, more informed and socially rooted public policies and decisions. An example of this kind is the 'structured e-forum' [6] - [7], which offers the capability to organize structured electronic discussions. In the 'structured e-forum', participants can enter semantically annotated postings and associate them to previous postings according to some predefined rules based on a 'discussion ontology'. This is expected to result in more effective electronic discussions, with more mentally processed, focused and therefore higher quality contributions of the participants. Such contributions are also much more associated with the contributions of other participants enabling a better communication and interaction among them, in comparison with the unstructured discussions taking place in the usual unstructured forum tools.

This paper analyses two different models of structured electronic consultation on the formation of legislation for addressing problems and needs of the society. The first is a highly structured consultation model based on the Issue-Based Information Systems (IBIS) framework [8] – [10]. It has as basic elements issues, alternatives, pro-arguments, contra-arguments and comments. The second is a simpler and less

structured model, having as basic elements questions, answers and comments. For analysing these two models of structured electronic consultation we designed, implemented and evaluated two pilot e-consultations on legislation under formation in the Parliaments of Austria and Greece. The pilots were performed as part of the LEX-IS project ('Enabling Participation of the Youth in the Public Debate of Legislation among Parliaments, Citizens and Businesses in the European Union') (www.lex-is.eu) of the 'eParticipation' Preparatory Action of the European Commission [11].
The paper is structured as follows: In section 2, the theoretical background is presented. Section 3 details the research methodology, which is based on discussion tree analysis, quantitative and qualitative methods. Sections 4 and 5 describe the evaluations of the two pilots. Finally, section 6 summarizes the conclusions.

2. Theoretical Background

According to Rittel & Weber, the problems that societies and organizations face can be classified into 'tame' and 'wicked' ones [12]. The wicked problems are the most difficult to address, since they are characterised by high complexity and many stakeholders with different and heterogeneous problem views, values and concerns. They also lack mathematically 'optimal' solutions and pre-defined algorithms for calculating them. Hence, wicked problems only have 'better' and 'worse' solutions, with the former having more positive arguments in favour them than the latter. These wicked problems cannot be addressed by the usual 'first generation' design approaches; they require 'second generation' design approaches, which are based on consultation and argumentation among stakeholders. A very useful means to address wicked problems can be the 'Issue Based Information Systems' (IBIS) [8]; these systems are based on a simple but powerful discussion ontology, whose main elements are 'questions' (issues-problems to be addressed), 'ideas' (possible answers-solutions to questions-problems) and 'arguments' (evidence or viewpoints that support or object to ideas) [8] - [10].
An area of such wicked problems governments frequently face is legislation formation. The phase of developing draft bills and refining them till the draft reaches the expected quality and consensus among different stakeholders is highly complex and includes several stages of development. During these stages, different stakeholders may participate, such as experts from ministries, independent experts, members of parliament, parliamentary committees, politicians, public servants, representatives of the affected socio-economic groups, non-governmental organizations, etc. Usually, individual citizens participate to a rather low extent.
In general, each of these stakeholder groups has a different piece of information, experience and knowledge about the problem or issue to be addressed by the legislation under formation. Hence, 'synthesis' of these pieces is required. Besides that, the stakeholder groups usually have different – often conflicting – needs, values, concerns, interests and expectations concerning the legislation under formation. It is therefore of critical importance for the quality and effectiveness of the legislation that the stakeholder groups can actively participate in the legislation formation process. Communication, interaction and negotiation among the stakeholders help that a mutual understanding is developed and, finally, consensus is achieved to the largest possible extent [13]. To sum up, the legislation formation process is an excellent example of a 'wicked' problem, which needs to be 'tamed' through the use of on-line deliberation.
The use of ICT tools based on the IBIS framework can effectively contribute to conducting structured electronic consultations among the stakeholders of new laws

under formation, therewith addressing the above inherent problems and complexities of legislation formation. However, the tools which have been researched and used so far for this purpose, such as e-forum, e-petition and e-community tools, do not adopt the structured discussion approach proposed by the IBIS framework. For instance, most of the political e-consultations on public policy or legislation are conducted in unstructured e-forum environments, which allow participants to enter postings, or postings on other participants' postings, without any semantic annotation or structure. This results in lower levels of quality, focus and effectiveness of these e-consultations.

The use of a structured e-forum tool based on the IBIS framework requires from the participants to make semantic annotations of their postings in an electronic discussion, according to the 'discussion ontology' proposed by this framework: each participant enters a new post by categorising it into 'issue', or 'alternative', or 'comment' or 'pro'/'contra' argument. This will guide the participants to think in a more structured way about the problem under discussion (i.e. which are the main problem issues, what are the solutions and main alternatives for addressing a problem, which are the main advantages and disadvantages of each alternative). Also, the participants have to associate their postings with previous ones entered by other participants, according to the rules defined in the IBIS discussion ontology. E.g. an 'alternative' can be associated only with an 'issue', but not with a 'pro' or a 'contra' argument, while a 'pro' or a 'contra' argument can be associated with an 'alternative', etc.

As participants make more mentally processed and focused contributions, the quality, focus and effectiveness of the discussion is expected to increase. Likewise, the communication and interaction among the participants improves, which further enhances the quality, focus and effectiveness of the discussion. Sequences of semantically annotated and associated postings create threads of in-depth discussions which are more convenient to be tracked, and can be processed by humans or/and computers in order to draw useful conclusions from them.

To evidence the validity and added value of such structured e-forums, empirical investigations are necessary to assess - based on 'real life' evidence -, to what extent these expectations are realized. Our analysis aims on one hand to examine the suitability, advantages and disadvantages of structured e-forum tools as e-participation tools based on the IBIS framework. We therewith assess how well such tools are suited for supporting structured e-consultations on wicked problems related to public policy or legislation formation. On the other hand, the added value of such structured e-forums must be seen in relation to the value of less structured e-consultation models. Hence, we will also investigate the use of simpler and less structured e-consultation models, which may be easier to handle but may constrain discussions to a smaller number of postings. We compare both e-consultation models and therewith fill a research gap as identified in [6], [7].

3. Research Methodology

The methodology adopted to investigate the use of and compare different models of structured e-consultation among stakeholders in the legislation formation process comprises the following steps:

Step I. Analysis of the processes and main documents of legislation formation in the Parliaments of Austria and Greece, which participated in the LEX-IS project.

Step II. Design of pilot electronic consultations on legislation under formation in the two Parliaments: For each of the pilots, the bill to be discussed, the participants, the

timing of the consultation and the informative material[1] to be provided to the participants were identified and agreed upon. Then we defined two different models of structured e-consultation to be used in these pilots. The first of them, termed as 'structured forum I', was based on the IBIS framework, so it allowed each participant to enter five types of postings: issues, alternatives, pro arguments, contra argument and comments. We also defined a number of possible associations between them according to IBIS: for each issue participants were allowed to enter alternatives or comments, for each alternative they could enter pro arguments, contra arguments or comments, for each argument (pro or contra) other arguments (pro or contra) and for each comment other comments. Furthermore, we also defined a second simpler model of structured e-consultation, termed as 'structured forum II', which allowed the participants to enter a smaller number of types of postings. It followed the Q-A (Questions-Answers) structure, which has been successfully used in informative pages of many websites. It allowed each participant to enter three types of postings: questions, answers and comments. We also defined a number of possible associations between them: for each question, participants were allowed to enter answers or comments, and for each comment to enter other comments. As stated above, this second structured e-consultation model is simpler than the first, as it allows only three types of postings instead of five allowed by the first model.

Step III. Two structured e-forum tools were developed based on the two e-consultation models. For each types of postings, a different icon was used, which appeared in the discussion tree at the beginning of each posting.

Step IV. The two pilot e-consultations were conducted using the tools.

Step V. Evaluation of the two pilots was performed using both quantitative and qualitative methods. The evaluation consisted of the following four stages:

i) Analysis of the discussion trees formed by the postings of the participants in the two pilots. Analysis included the calculation of the following metrics for each thread: a) number of postings entered by the participants, b) number of postings per type, for each of the allowed types (i.e. for 'structured forum I' e-consultations: number of issues, alternatives, pro-arguments, contra-arguments and comments; and for 'structured forum II' e-consultations: questions, answers and comments), c) percentage of the postings assigned a mistaken type, d) number of postings per level of the discussion tree (as an indicator of discussion depth).

ii) Quantitative Evaluation: An evaluation questionnaire was used to collect the perceived ease of use and usefulness of the structured e-forum from the participants, adopting the 'Technology Acceptance Model' (TAM) approach [14].

iii) Qualitative Evaluation: Semi-structured focus-group discussions with participants were used to gain a more in-depth understanding of the advantages and disadvantages of the structured e-forum concerning its ease of use and usefulness.

iv) Synthesis of the conclusions from the above three stages i, ii and iii, for drawing the final conclusions.

In the subsequent sections, we introduce the two pilots and some evaluation results.

4. The Austrian pilot

The Austrian e-consultation pilot was about a ministerial draft bill titled "Child and Youth Welfare Law" (Bundes-Kinder- und Jugendhilfegesetz 2009). The main objective of the pilot was to use advanced ICT tools in order a) to discuss the draft bill

[1] Including the bill under discussion, its justification report, relevant articles in newspapers or news websites, etc.

with young people, who are the main stakeholders affected by this bill, b) to identify positive and negative aspects of the draft bill and c) to make proposals for improvements of the draft bill. In order to reach young people, the Austrian Parliament implemented this pilot in cooperation with eight schools. Young students were asked to discuss in the course of specific classes the draft ministerial bill, both offline and online using the LEX-IS e-participation platform with the above two e-forum tools. In the final stage of the online discussion, each of the eight classes was asked to draft a statement summarizing the opinions provided throughout their discussions (with the help of their teachers). A consolidation round among the classes delivered the final statement that was handed in to the Austrian Parliament.

Overall, 120 young Austrian students of age 14 to 19 years were registered in the e-participation platform and entered 253 postings in total. These participants were provided informative material (prepared by the Austrian Parliament and the University of Koblenz as supportive partner).

To get discussion started, ten threads on the most pertinent topics dealt with in this bill were opened by the moderators (teachers). Subsequent discussions were moderated by teachers. Figure 1 is a screenshot of the Austrian pilot, showing the ten threads and some figures on activity in the corresponding discussion topics.

Figure 1: Initial page of the Austrian pilot showing the title of the titles of the threads

For each discussion thread the moderators initially tried to find the best applicable forum type. Four of these threads were created with the structure of 'forum type I' (issue, alternative, pro argument, contra argument, comment), while the remaining six threads were run with the simpler structure of 'forum type II' (question, answer, comment). Overall, 253 postings ("Beiträge") were entered in these threads and 12166 visits ("Angesehen") were counted. Table 1 shows for each discussion thread the number of postings per type and in total, e.g. thread "Verwandtenpflege §21" has 95 postings, most of which (40) are pro arguments or contra arguments (29).

	Forum type 1					Forum type 2			
forum/entry	Issue	Alternative	Pro argument	Contra argument	Comment	Question	Answer	Comment	Total
Verwandtenpflege §21	3	5	40	29	18	0	0	0	95
Recht auf Erziehung §1	1	3	3	2	28	0	0	0	37
Rechtsansprüche	0	0	0	0	0	2	1	13	16
Datenverwendung §40	0	0	0	0	0	2	2	8	12
Eingriff in die privaten Lebensbereiche	2	1	0	0	49	0	0	0	52
Junge Erwachsene §29	0	0	0	0	0	2	0	11	13
§35(2)4	0	0	0	0	0	2	2	4	8
Aufgaben der Kinder und- Jugendhilfe §3	0	0	0	0	0	1	0	1	2
Kündigung von Pflegeverhältnissen §19(6)	0	0	0	0	0	0	0	0	0
Stellungnahmen	7	3	1	0	7	0	0	0	18
Total	13	12	44	31	102	9	5	37	253
Total %	5%	5%	17%	12%	40%	4%	2%	15%	100%

Table 1: Postings per type for the ten forum threads

Table 1 shows that the forums of type I were used more intensely than the forums of type II, with the former having on average 50.5 postings per thread and the latter only 8.5. This indicates that the more structured e-consultation model of type I forum provides to the participants more stimulation and guidance than the model of type II forum.

From the 253 postings entered, 139 (55%) were comments. Foremost, in the threads "Eingriff in die privaten Lebensbereiche", "Junge Erwachsene §29", "Rechtsansprüche" and "Recht auf Erziehung §21" participants used almost only comments for expressing their opinions. This indicates that young students in many cases preferred to choose this more 'broad' comment type, instead of the other more 'specific' types, such as issue, alternative, pro- and contra-argument (in type I forum), or question and answer (in type II forum). Such behavior of young participants can be explained taking into account that young people are quite spontaneous and tend to write an opinion without much reflection at first hand (e.g. if it is a pro or contra statement, an alternative, an issue, an answer or a question). Also, participants seem to be afraid of writing more 'high-profile' types of postings, such as issues or alternatives in the type I forum (6.4% and 5.9% of postings respectively), or questions or answers in the type II forum (17.6% and 9.8% of postings respectively), because these types are deemed more 'visible', since other participants usually pay more attention to such arguments. Hence, such entries were expected to be grammatically correct and of very good quality. The conclusion of this pilot case is that young participants may find structured electronic consultations too demanding. Consequently, they tend to use more the broader and less specific types of postings, which require less mental processing and receive less attention, while avoiding the more specific and high profile types/annotations. In this way, the structured way of

thinking imposed by a structured e-forum was bypassed to some extent and reduced the high discussion structure that these structured e-forum tools attempt to provide.
To support above argumentation of synthesis, also the percentage of postings which were assigned a mistaken type was studied. Table 2 displays for each thread the percentage of total postings and user postings (i.e. entered by the students and not by the moderators) with mistaken type, which in some threads was quite high. This reflects again the difficulty or unwillingness or laziness of young people to properly participate in such structured discussions. In particular, most of these mistakes are in fact affiliated with the use of the type 'comment' instead of 'pro argument' or 'contra argument' (65 cases) or 'alternative' (7 cases) in type I forum, or instead of 'answer' (16 cases) in type II forum.

forum/entry	total entries	user entries	mistakenly chosen entry types	mistakenly chosen entry types out of total entries	mistakenly chosen entry types out of user entries
Verwandtenpflege §21	95	93	21	22,1%	22,6%
Recht auf Erziehung §1	37	36	22	59,5%	61,1%
Rechtsansprüche	16	14	5	31,3%	35,7%
Datenverwendung §40	12	9	2	16,7%	22,2%
Eingriff in die privaten Lebensbereiche	52	51	40	76,9%	78,4%
Junge Erwachsene §29	13	11	9	69,2%	81,8%
§35(2)4	8	6	1	12,5%	16,7%
Aufgaben der Kinder und- Jugendhilfe §3	2	1	0	0,0%	0,0%
Kündigung von Pflegeverhältnissen §19(6)	0	0	0	-	-
Stellungnahmen	18	9	2	11,1%	22,2%

Table 2: Percentage of postings with mistaken type

A comparison between the two e-consultation models shows that structured forum I threads were on average assigned a mistaken type of 46.1%, while in the structured forum II threads 31.8 % of the postings were assigned the wrong category. This shows again that the more structured e-consultation model of type I forum creates slightly more difficulties for the participants to semantically annotate their postings than the simpler model of type II forum.
Finally, the depths of the ten discussion threads were examined and compared. In general, an electronic discussion with higher depth (higher level) means higher interaction among the participants. Table 3 displays for all threads the number of postings per level.

forum/entry	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
Verwandtenpflege §21	3	13	25	14	17	13	7	3
Recht auf Erziehung §1	1	7	14	12	3	0	0	0
Rechtsansprüche	2	3	4	5	1	1	0	0
Datenverwendung §40	2	4	5	1	0	0	0	0
Eingriff in die privaten Lebensbereiche	1	4	14	22	8	3	0	0
Junge Erwachsene §29	2	9	2	0	0	0	0	0
§35(2)4	2	3	1	1	1	0	0	0
Aufgaben der Kinder und- Jugendhilfe §3	1	1	0	0	0	0	0	0
Kündigung von Pflegeverhältnissen §19(6)	0	0	0	0	0	0	0	0
Stellungnahmen	7	9	2	0	0	0	0	0

Table 3: Number of postings per level indicating the depth of discussions

The discussions in the forum type I threads reached a higher depth than in the forum type II threads: the average depth for the former was 5.5 levels, while the latter achieved an average of 4 levels. As Table 3 indicates, the first thread had postings down to level 8, the second one went into level 5 and the fifth one went into level 6. This allows the conclusion that the more structured e-consultation model of type I

forum, enabling more types of postings and associations among participants, facilitates discussions of more depth with a higher degree of interaction among the participants. The simpler structured e-consultation model of type II forum resulted in less depth. Especially the capability of responding to previous pro and contra arguments with new pro and contra arguments seems to facilitate highly interactive discussions among the participants, though it may result in some cases in simplistic postings, which just repeat opinions of previous postings or contain more or less only "I agree" or "I disagree". For instance, in the first thread "Verwandtenpflege §21" about 25 postings repeated just the same opinion or simply stated "agree" or "disagree" to the previous postings. In order to avoid such arguments confirming the opinion of others or disagreeing on others' opinions, we discovered that a polling mechanism would be a very useful feature besides the categorisation of postings. This would help reducing the risk of unnecessarily blurring a discussion tree, which results in more complexity and less readability thereof.

Table 4 shows the results of the quantitative evaluation of the structured e-forum.

Values for questions 1 and 2: Questions in the evaluation questionnaire:	difficult	medium to difficult	medium to easy	easy
How easy was it to use the structured forum?	11%	22%	54%	13%
How easy was it to access, read and understand the postings of the other participants and the connections among them in the structured forum?	6%	27%	54%	13%
Value for question 3:	much worse	slightly worse	slightly better	much better
What is your general assessment of the structured forum as a tool for important e-consultations in comparison to the normal forum tools?	8%	27%	54%	11%

Table 4: Results of the quantitative evaluation of the Austrian pilot

Most of the respondents found the use of the structured e-forum 'medium to easy' (54%) or 'medium to difficult' (22%) (question 1). This indicates that to some extent young participants perceived a difficulty in using the structured e-forum and semantically annotating their postings (only 13% found it 'easy'). Most of the respondents found accessing, reading and understanding the postings of the other participants and the connections among them in the structured e-forum 'medium to easy' (54%) or 'medium to difficult' (27%) (question 2). However, despite these difficulties, most of the respondents (54%) found that the structured e-forum is a 'slightly better' tool for important e-consultations in comparison to the normal forum tools.

A qualitative discussion conducted with a focus group of young students who participated in this pilot revealed a general agreement that assigning the correct type in each new posting was not easy, and for this reason the 'comment' type was mostly used as an 'easy solution'. Another issue raised was that readability decreases the more deep a discussion thread gets. A student summarized these reflections as follows: "Most time we assigned the entry type comment, because that was available everywhere. Otherwise we tried to find an entry type by testing. In general the usage of the structured forum was good but sometimes for me it was hard to follow a discussion through threads with a higher depth".

Generally, the young students reckoned that the structured e-forum provides significant advantages by allowing the 'assignment of meaning' in each posting. For instance one young student noted: "In my opinion an advantage was the better

overview about participant's meanings, which were symbolized with the icons in front of each posting". However, the use of structured e-forums requires certain structuring capabilities and knowledge as well as experience in using these mechanisms.

5. The Greek pilot

The Greek e-consultation pilot involved an electronic discussion about a bill concerning the 'Contracts of Voluntary Co-habitation', which regulates the matter of the formal voluntary co-habitation of two persons of different gender (excluding homosexuals) without being married; this is a highly controversial topic for the Greek society, since there are many strong supporters of it, while some others believe that it should be extended in order to include homosexuals' co-habitation as well, and on the contrary many citizens are strongly opposing to the institutionalization of co-habitation without being married, believing that it will further weaken family. This e-consultation, which was organized in cooperation with the Greek Parliament, had 79 participants; most of them were undergraduate or postgraduate students from the National Technical University of Athens and the University of the Aegean, aged mainly between 18 and 26 years. As the participants in the Greek e-consultation pilot were mostly from higher educational level, only one forum of the structured type I (issues - alternatives - arguments-comments) was set up. The moderators initiated discussion with only three important issues. Then the participants were motivated to enter more issues they regard important, or explore any of the inserted threads. This pilot was conducted in the same e-participation platform as the Austrian pilot. The Greek Parliament provided to the participants the draft bill as well as supportive materials.

The 79 registered users contributed in total 131 postings on this highly debated bill, and made 4192 visits in the platform. Figure 2 gives a view on a part of the discussion tree of this Greek pilot (translated into English).

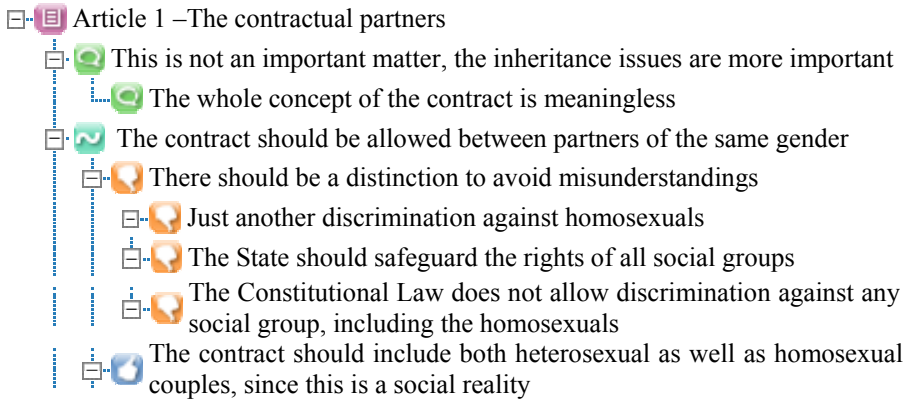

Figure 2. Greek Forum Overview

The number of postings per type revealed 8 'issues', 15 suggested 'alternatives', 13 'comments', 35 'pro-arguments', and 60 'con-arguments'. There was no excessive use of the comment type like in the Austrian pilot. On the contrary, a good and 'balanced' discussion tree was formed, with the expected structure from a well-developed electronic discussion: with several new issues (8) entered by the participants on the root topic (= the bill on the 'Contracts of Voluntary Co-habitation'), a higher number of alternatives (suggestions for improvements) (15), and also a similar number of comments (13) on these issues, and a much higher number of pro-arguments (35) and con-arguments (60).

The number of postings with mistaken type was 13, which results in 10% of the total number of postings. The percentage of simplistic postings (i.e. postings not adding

any value/new information) was 8, which results in 6% of the total number of postings. Finally, The level of depth of this electronic discussion was assessed with 7 levels, of which 8 postings were made on first level, 24 on second level, 38 on third level, 27 on fourth level, 20 on fifth level, 13 on sixth level and finally one posting was made on seventh level. The electronic discussion of the Greek pilot was characterized by considerable depth and interaction among the participants.

The results indicate that more sophisticated users (due to university-level education) better utilize the 'discussion structure' such a tool provides, i.e. use correctly and efficiently all the types of postings it allows. I.e. not only the broader categories of postings (such as the comment) were used, but also the more specific types such as issue, alternative, pro and contra argument. As the structured e-forum of type I requires a considerable mental effort in order to think in the structured way such a tool imposes (i.e. to think which are the main issues, what are the main alternatives for addressing each of them, which are the main advantages and disadvantages of each alternative, etc. already before formulating the posting) and to correctly annotate postings, users that are already well trained in structured argumentation and formulation of arguments are more capable and skilled to use structured e-forums. Sophisticated users are also expected to better exploit the full potential of the more complex e-consultation models for structuring discussion. On the other hand, the evaluations allow the assumption that structured e-forums of type one may be difficult for ordinary citizens to be used. This hypothesis has yet to be proven with another test and a larger and heterogeneous sample.

The results of the quantitative evaluation of structured e-forum by the participants in the Greek pilot are shown in Table 5. Most of the respondents found the use of the structured e-forum 'medium to easy' (68%) or 'medium to difficult' (20%), while a smaller number found it 'easy' (12%) and nobody founds it 'difficult'. As can be seen, even the older participants with higher education in this pilot perceived some level of difficulty in using the structured e-forum. The comparison with the Austrian case indicates that the perception of difficulties in the Greek pilot is to a lower extent than in the Austrian Pilot with the younger students (cf. Tables 4 and 5). This is also reflected in the lower percentage of postings assigned a mistaken type and the lower usage of the broad comment type. Similar conclusions can be drawn from the responses in the second question: most of the respondents found accessing, reading and understanding the postings of the other participants and the connections among them in the structured e-forum 'medium to easy' (56%) or 'medium to difficult' (27%), while a smaller number found it 'easy' (12%) or 'difficult' (4%).

Values for questions 1 and 2: Questions in the evaluation questionnaire:	difficult	medium to difficult	medium to easy	easy
How easy it was to use the structured forum?	0%	20%	68%	12%
How easy it was to access, read and understand the postings of the other participants and the connections among them in the structured forum?	4%	28%	56%	12%
Value for question 3:	much worse	slightly worse	slightly better	much better
What is your general assessment of the structured forum as a tool for important e-consultations in comparison to the normal forum tools?	0%	8%	28%	64%

Table 5: Results of the quantitative evaluation of the Greek pilot e-consultation

However, again the difficulty perceived by these more sophisticated participants is

slightly lower in comparison with the younger students in the Austrian pilot. Finally, most of the respondents (64%) assessed the structured forum as a 'much better' tool for important e-consultations in comparison to the normal forum tools.
A comparison with the Austrian pilot shows furthermore that the participants with higher education perceived a higher usefulness of the e-structured forum tool for conducting important consultations, since they can better exploit the potential of these tools for structuring discussion.
The qualitative discussion in the focus-group of students of the National Technical University of Athens and the University of the Aegean revealed that the use of the structured e-forum in this pilot was considered an advantage, since it enables a more focused and effective electronic discussion. It was also mentioned that the semantic annotation of postings allowed users to quickly form an opinion as to the progress of the discussion on a specific key issue. The main difficulties referred during this interview had more to do with the design of the particular e-forum tool rather than the concept of the structured e-consultation itself, e.g. it was mentioned that the platform should provide more space (i.e. a bigger box) for the structured e-forum, which should be only a few 'clicks' (levels) away from the homepage of the platform, so that the user can reach it easily and quickly. The difficulty of correctly annotating new postings was mentioned as well, but to a lower extent than in the Austrian pilot. Another difficulty was the appropriate wording of the title of each posting, which is directly shown in the discussion tree of the structured e-forum (while the full description of the posting is shown in another box by clicking its title in the tree), so that it reflects the content of the posting. In fact, by observing the discussion tree we identified several postings in which the title was not representative of the explanation of the full argument presented in this separate description box provided. Hence, it was not easy for the other participants to understand the content of the posting from the title. As in the Austrian pilot, the teachers started the threads, this problem was not observed there (the teachers mainly used the key phrases of the articles to indicate the topical threads). Another problem mentioned was associated with the moderation of the postings: from the time a posting was entered by a user it usually took 5-6 hours until the moderator approved it and the posting became visible; so it was not possible for this user to see it immediately, and possibly enter additional postings associated with it (e.g. after posting an alternative to add positive arguments for supporting it), while the other users could see it with such a long delay, with negative consequences for the progress of the discussion.

6. Conclusions

This paper investigated two models of structured e-consultation for the process of formation of legislation therewith enabling young citizens to participate. The first model is a highly structured e-consultation model based on the Issue-Based Information Systems (IBIS) framework. It structures discussions along issues, alternatives, pro-arguments, contra-arguments and comments. The second model is a simpler and less structured e-consultation model supporting questions, answers and comments. The main research question was whether the more structured e-consultation forum based on IBIS framework is more suitable for online discussion of draft legislations with young citizens. The investigations based on two pilot e-consultations, which have been conducted on legislation under formation in the Parliaments of Austria and Greece. The evaluation of the cases took place along discussion tree analysis as well as quantitative and qualitative methods.

The main conclusion of the two pilot cases is that young users with lower levels of education and less skills and experiences in structured discussions experienced the more structured e-forum based on IBIS more difficult and demanding than the group of users with higher education levels. Main difficulties result from mental efforts needed in thinking in the highly structured way that such tools impose, in annotating correctly the postings and in general using efficiently the 'discussion language'. The experience was that young users with lower level of education preferred uncategorized postings such as comments instead of pro- or contra-arguments. Also, this group of users tends to enter simple postings (repeating e.g. previous postings, or containing just "I agree" or "I disagree") – here, some polling mechanism along the argumentation trees would be of great help.

The suboptimal exploitation of the potential of the structured e-forum tools for structuring discussions indicates that highly structured e-consultations require adequate skills, capacities and training of the users. Hence, such highly structured tools may not be the best solution for wider citizen participation.

Parliaments are therefore recommended organize e-consultations with a wider public by using simple e-forums, while at the same time they may exploit structured e-forum tools to consult with expert groups relevant for the bills under discussion. Further research is required in this area for formulating additional models of structured e-consultation among government agencies and citizens, which are either generic or appropriate for particular discussion topics and user groups, and evaluating them extensively in 'real-life' pilots so that a higher maturity of them can be achieved.

References

1. Organization for Economic Co-operation & Development – OECD, (2003), 'Engaging Citizens Online for Better Policy-making', Policy Brief, Paris: OECD.
2. Organization for Economic Co-operation & Development – OECD, (2004), 'Promise and Problems of e-Democracy: Challenges of Online Citizen Engagement', Paris: OECD.
3. Whyte, A. and Macintosh, A., (2003), 'Analysis and Evaluation of E-Consultations', e-Service Journal, Vol. 2, No 1, pp. 9-34.
4. Macintosh, A., Malina, A. and Whyte, A., (2002), 'Designing E-Participation in Scotland', Communications, 27, pp. 261-278.
5. Macintosh, A. (2004), 'Characterizing E-Participation in Policy Making', Proceedings of the 37th Hawaii International Conference on System Sciences.
6. Karacapilidis, N. and Papadias, D. (2001), 'Computer Supported Argumentation and Collaborative Decision Making: The HERMES system', Information Systems, Vol. 26, No 4, pp. 259-277.
7. Karacapilidis, N., Loukis, E. and Dimopoulos, S. (2005), 'Computer-supported G2G collaboration for public policy and decision making', Journal of Enterprise Information Management, Vol. 18, No 5, 2005, pp. 602-624.
8. Kunz, W. and Rittel, H. (1979). 'Issues as Elements of Information Systems', Working Paper No. 131, California: Berkley.
9. Conklin, J. and Begeman, M. (1989), 'gIBIS: A tool for all reasons', Journal of the American Society for Information Science, 40(3), pp. 200 - 213.
10. Conklin, J. (2003), 'Dialog Mapping: Reflections on an Industrial Strength Case Study', in P. Kirschner, S. Buckingham Shum and C. Carr (Eds.) Visualizing Argumentation: Software Tools for Collaborative and Educational Sense-Making, Springer Verlag, London.
11. Loukis, E., Wimmer, M., Triantafillou, A., Gatautis, R. and Charalabidis, Y., (2007), 'Electronic support of participation in the development of legislation: the LEX-IS project', 5th Eastern European eGov Days 2007, 11-13 April, 2007, Prague, Czech Republic.
12. Rittel, H. W. J. and M. M. Weber (1973), 'Dilemmas in a general theory of planning', Policy Sciences, Vol. 4, pp. 155-169.
13. Coglianese, C., (1997), 'Assessing consensus: The promise and performance of negotiated rulemaking', Duke Law Journal, 46(6), pp. 1255-1349.
14. Davis, F. D. (1989), 'Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology", MIS Quarterly, Vol. 13(3), pp. 319-340.