An investigation of the use of structured e-forum for enhancing e-participation in parliaments

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Abstract: The e-participation research has investigated and suggested some Information and Communication Technologies (ICTs) tools such as e-forum, e-petition and e-community tools. This paper investigates the use of an advanced and more structured ICT tool, the 'structured e-forum', for supporting and enhancing e-participation and e-consultation in the legislation formation process in Parliaments. For this purpose, we designed and implemented an e-consultation pilot on a law under formation in the Greek Parliament, using a structured e-forum tool based on the Issue-Based Information Systems (IBISs) framework. This pilot has been evaluated using multiple methods (analysis of discussion tree, quantitative evaluation and qualitative evaluation).

Keywords: e-participation; e-consultation; structured e-forum; legislation formation; parliament; IBISs; issue-based information systems; multiple methods evaluation.

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1 Introduction

The rapid development and diffusion of Information and Communication Technologies (ICTs), which offer new, cheap, inclusive and interactive channels and environments for public political communication, and at the same time the observed trend in many countries towards more participation and involvement of citizens in the processes of public decision-making and policy-making, have been the main drivers of the emergence and development of e-participation (Coleman and Gotze, 2002; Saebo et al., 2008; Organization for Economic Cooperation & Development – OECD, 2003, 2004). Electronic participation (or e-participation) is defined as the extension and transformation of participation in societal democratic and consultative processes mediated by ICT (Organization for Economic Cooperation & Development – OECD, 2003, 2004); its main objective is to exploit the continuously increasing capabilities of ICT to broaden and deepen political participation, increasing both its quantity and quality. Taking into account that many problems of public policy and legislation formulation are 'wicked' (Kunz and Rittel, 1979), being characterised by high complexity and several stakeholders with different and heterogeneous problem views, values, concerns and interests, the best approach for addressing them is through intensive consultation and exchange of argumentation among stakeholders (Rittel and Weber, 1973), so modern ICT can be of particular importance in this direction. As local, regional and national governments of many OECD member countries try to extend citizens' participation and consultation by providing additional effective channels of communication with civil society based on innovative usage of ICT, several different tools have been researched, deployed and tested for this purpose, such as e-forum, e-petition and e-community tools (Organization for Economic Cooperation & Development – OECD, 2003, 2004; Whyte and Macintosh, 2003; Macintosh et al., 2002; Macintosh, 2004).

However, limited research and use has been made of more structured ICT tools for this purpose, such as the 'structured e-forum'. The structured e-forum tool allows participants to enter in an electronic discussion semantically annotated postings, and also associate them to previous postings according to some rules, based on a predefined discussion ontology (Karacapilidis and Papadias, 2001; Karacapilidis et al., 2005). This paper investigates the use of structured e-forum for addressing wicked problems associated with the legislation formation process in Parliaments, by supporting enhanced e-participation and e-consultation of high quality among stakeholders in this process. For this purpose, a pilot e-consultation on a law under formation (regulating the 'Contracts of Voluntary Co-habitation') has been designed and implemented in the Greek Parliament, using a structured e-forum tool based on the IBISs framework

(Karacapilidis et al., 2005; Kunz and Rittel, 1979; Conklin and Begeman, 1989). This pilot has been evaluated using multiple methods (analysis of discussion tree, quantitative evaluation and qualitative evaluation), resulting in interesting conclusions concerning the advantages offered by the structured e-forum, and also its limitations. The research presented in this paper has been 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 (Loukis et al., 2007).

This paper consists of six sections. This introduction is followed by Section 2 briefly describing the background of this investigation, while in Section 3 the research methodology is presented. Then, in Section 4 is described the above-mentioned pilot we implemented, while in Section 5 the results of its multi-method evaluation are presented. Finally, in Section 6 are outlined the conclusions that have been drawn concerning the advantages offered by the structured e-forum, and also its limitations.

2   Background

Rittel and Weber (1973) proposed a classification of the problems that societies and organisations face into 'wicked' and 'tame' ones. The former category of 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, and also lack mathematically 'optimal' solutions and predefined algorithms for calculating them; they only have 'better' and 'worse' solutions, the former having more positive arguments in favour of them than the latter. Kunz and Rittel (1979) suggest that wicked problems cannot be addressed by the usual 'first-generation' design approaches, and require 'second-generation' design approaches, which are based on consultation and argumentation among stakeholders; also, they propose for this purpose the use of IBISs, which aim to

> "stimulate a more scrutinised style of reasoning which more explicitly reveals the arguments. It should help identify the proper questions, to develop the scope of positions in response to them, and assist in generating dispute."

They 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) (Kunz and Rittel, 1979; Conklin and Begeman, 1989; Conklin, 2003).

Problems of legislation formation usually belong to this category of wicked problems, since they are characterised by:

- high complexity, since in most laws under formation there are many interrelated issues to be regulated

- many stakeholders (groups affected by the law under formation), with quite different problem views and interests, very often in conflict with one another; it is very usual that one stakeholders' group proposes some settlements to be included in the law, while other stakeholders' groups have strong objections to these settlements.

For these reasons, the development of legislation, especially for difficult and complex social problems with high social impact, necessitates a high level of well-organised

participation of stakeholders and efficient consultation among them, but very often this cannot be achieved due to distance, time and budget limitations. Therefore, it is of critical importance to use appropriate ICT tools for supporting and facilitating the required wide participation, interaction, argumentative discourse, synthesis and, in general, collaboration among stakeholders, which are required for the formation of good, acceptable and applicable legislation.

On the basis of the above-mentioned relevant literature (Kunz and Rittel, 1979; Conklin and Begeman, 1989; Conklin, 2003; Rittel and Weber, 1973), the most appropriate kind of ICT tools for this purpose would be structured ones based on the IBIS framework. However, the tools, which have been researched and used so far for this purpose, such as e-forum, e-petition and e-community tools, are characterised by low structure. For instance, most of the political e-consultations on public policy or legislation are conducted in 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, discipline, focus and effectiveness of the e-consultations.

On the contrary, 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. The type of allowed semantic annotations are predefined, based on the adopted discussion ontology, e.g., in case of adopting IBIS each participant is allowed to enter a new 'issue', or 'alternative', or 'comment' or 'pro'/'contra' argument. The participants themselves have to annotate their postings with a semantic that properly represents the content of their text entries the e-forum. This is expected to increase the quality, discipline and focus of the discussion. Also, the participants have to associate their postings with previous ones (entered by the same or another participant) according to rules defined in the adopted discussion ontology, e.g., in case of adopting IBIS 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 should be associated with an 'alternative', etc. This is expected to increase further the quality, discipline and focus of the discussion. Moreover, such a sequence of semantically annotated and associated postings creates threads of in-depth discussions, which are more convenient to be tracked, analysed in a formal manner and subsequently evaluated to draw useful conclusions. The above-mentioned characteristics of the structured e-forum tool are expected to have a positive impact on the quality and effectiveness of the e-consultations. Therefore, it is important to investigate empirically, based on 'real-life' evidence, to what extent these expectations are realised, and examine the suitability, advantages and disadvantages of the structured e-forum as an e-participation tool for supporting e-consultations on wicked problems related to public policy or legislation formulation. However, to this date, there has been conducted very little research work in this area (Karacapilidis and Papadias, 2001; Karacapilidis et al., 2005). Our research aims to contribute to filling this research gap.

Furthermore, from a knowledge management perspective, such e-consultations in the legislation formation process offer to the Parliaments the opportunity to collect valuable knowledge from the participating stakeholders concerning the problem addressed by the particular law under discussion and the proposed settlements; also, in these e-consultations extensive and valuable 'tacit knowledge' possessed by the stakeholders is transformed to 'explicit (codified) knowledge' (knowledge externalisation) (Nonaka, 1994; Cohendet and Steinmueller, 2000), which can then be processed,

disseminated and combined with other relevant knowledge. The use of a structured ICT e-forum tool for conducting such e-consultations in Parliaments on the legislation under formation is expected to intensify and improve this knowledge externalisation and accumulation; also, the semantic annotation of participants' postings enables a much better processing, exploitation and dissemination of this valuable knowledge.

3   Research methodology

To investigate the use of the structured e-forum for supporting and enhancing e-consultations among stakeholders in the legislation formation process in Parliaments, we adopted the following methodology:

I   Initially, we analysed the process of legislation formation in the Parliament of Greece, which participated in the LEX-IS project.

II   On the basis of this analysis, we designed one pilot e-consultation on a law under formation in the Greek Parliament based on a structured e-forum; this included definition of the bill to be discussed, the participants, the discussion ontology, the timing of the discussion and also the informative material to be provided to the participants. Concerning the discussion ontology, it was decided to use the one of IBIS (issue-alternative (or comments)-pro/contra argument), since previous literature (Kunz and Rittel, 1979; Rittel and Weber, 1973) supports its suitability for discussing wicked problems.

III   Next, we proceeded to the implementation of the pilot e-consultation.

IV   Finally, we evaluated the pilot using multiple methods:

i   *Analysis of the discussion tree* formed by the postings of the participants. This analysis included the calculation of the following metrics:

- Number of postings entered by the participants in total

- Number of postings per type, for each of the allowed types (i.e., key issues, comments, alternatives, pro-arguments, contra-arguments)

- Number of postings per level of the discussion tree (for assessing the depth of the discussion)

- Percentage of the postings assigned a mistaken type (as an objective indicator of the ease of use of the structured e-forum).

ii   *Quantitative Evaluation*, based on the statistical processing of participants' responses to an evaluation questionnaire, we formulated and distributed electronically to them, which included questions asking participants to assess two basic aspects of the structured e-forum: a) the perceived ease of use, and b) the perceived usefulness, adopting a 'Technology Acceptance Model' (TAM) approach (Davis, 1989; Davis et al., 1989).

iii   *Qualitative Evaluation*, based on a semi-structured focus-group discussion with typical participants in the e-consultation and Officials of the Greek Parliament, aiming at a more deep understanding of the ease of use and usefulness

of the structured e-forum, and identifying its main strengths and weaknesses
is the above-mentioned two aspects (ease of use and usefulness). The discussion was
tape-recorded and transcribed. Then, coding of the transcript was performed
manually, in which each of the two authors using an open coding approach (Maylor
and Blackmon, 2005) processed separately the above-mentioned document, to
identify the main issues, strengths and weaknesses expressed
by the participants in the discussion concerning its ease of use and usefulness.
The results of the two authors were compared and differences were resolved.

4 Description of the pilot

The pilot, implemented as part of the LEX-IS project, involved an electronic discussion
on a bill regulating the 'Contract of Voluntary Cohabitation'. In short, the law formalised
an existing social situation in Greece for long time. Many couples, especially among the
younger age groups, are reluctant to proceed directly to marriage. As such, a considerable
percentage of these couples choose to live together under the same roof, sharing their
lives for long periods of time, and during that time have children, share living expenses
and buy property, just to mention some of their most important common actions.
However, these couples are not legally bonded through marriage, leaving the weaker
partner unprotected when such an informal co-habitation ends. To cover this legal gap,
the specific bill was proposed to regulate the formalisation of the voluntary
co-habitation of couples, and along with that to settle the issues arising when such unions
are dissolved. The importance of this bill was quite high mainly for two social groups: the
young couples and the homosexual couples. Finally, the homosexual couples were
excluded from the right to form a union under the scheme that this law regulated, and
these gave rise to much criticism. Additionally, the young couples were not satisfied with
some of the details that the law regulated, mainly with respect to inheritance and child
support. The big discussion was, however, on the matter of whether homosexual couples
were justly excluded or not.

The e-consultation on this bill concerning the 'Contract of Voluntary Cohabitation'
was held between 27 participants aged mainly between 18 and 35 years old, coming from
the University and the Parliament environment. Some of these people were actively
involved in the pilot from the beginning, but most were invited to join the pilot just for
the discussion stage.

The pilot was organised in stages. When the e-participation platform was ready to be
used, a workshop was held to demonstrate its capabilities to the Greek Parliament and the
participants. After that, the Parliament provided the complete documentation of this bill:

• The justification report of the bill

• The content of the bill (articles)

• The minutes of the discussion on this bill in the competent Parliamentary committee
  and in the plenary sessions.

On the basis of this documentation, we then proceeded to create visualisation maps
to facilitate the understanding of the above-mentioned documents. The visual maps
were created using the Compendium tool (http://compendium.open.ac.uk/institute/),
which allows the representation of a discussion or document as a map, consisting

of nodes of some predefined types (corresponding to the IBIS discussion ontology), which are connected through arrows. Both documentation and visual maps were provided to the participants in this pilot when entering the platform. The point was to sufficiently inform the participants on the bill content and justification, and also on the relevant discussions held and the positions raised by the different stakeholders, to initiate a productive high-quality discussion.

The electronic discussion itself lasted for a period of five weeks. Each participant, once logged in, could either join the discussion on an existing issue or introduce a new issue. In the former case, a participant could either comment on an existing issue, or suggest an alternative addressing it; also, he or she could support a pro-argument in favour of a co-participant's previous opinion, or on the contrary a con-argument against a co-participant's previous opinion. Any of the above-mentioned participants' entries had to be semantically annotated, and a title was needed to for each new entry, which was attached to the discussion tree; also, participants were provided a fill-in box to fully describe and explain their entries (issues, alternatives, comments, pro/contra arguments). The discussion was also moderated, which meant a delay of several hours between the time a new entry was made and the time it was approved by the moderator and became visible on the e-forum for the other participants to comment on.

The results of the discussion were provided to the Parliament officials who were involved in the organisation of the pilot, who showed great interest in the process that was followed and the postings entered by the participants, and examine how it could be used for prospective legislative formation.

5   Multi-method evaluation of the pilot

The pilot concerned the law on 'Contracts of Voluntary Cohabitation'; it reached a number of 79 registered users, who contributed 131 postings on this highly debated topic in Greece, and made 4192 visits in the platform. A partial view of the discussion tree that was formed in this pilot is provided hereafter in Figure 1 (translated in English), which shows some of the postings entered by the participants.

Figure 1   Partial view of the discussion tree formed in the structured e-forum (see online version for colours)
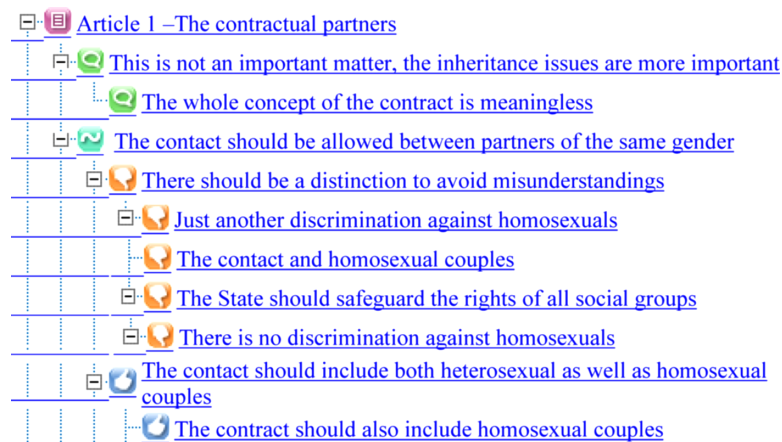
5.1 Analysis of the discussion tree

As mentioned earlier, in total 131 postings have been entered by the participants in the Greek pilot. Initially, we calculated the number of postings per type and found that we had:

- 8 'issues'
- 13 'comments'
- 15 suggested 'alternatives'
- 35 'pro-arguments'
- 60 'con-arguments'.

We remarked that 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 law on the 'Contract of Voluntary Co-habitation'), a higher number of alternatives (suggestions) (15) and a similar number of comments (13) on these issues, and also a much higher number of pro-arguments (35) and con-arguments (60). These results indicate that a structurally well-developed electronic discussion took place.

Next, we calculated the percentages of the simplistic postings (= postings not adding value/new information), and found only 8, which make a 6% of the total number of postings. As a next step, we calculated the number of postings with mistaken type (e.g., a posting is characterised as an issue, while from its content we can see that it is an alternative), and found 13 such postings, which makes a 10% of the total number of postings.

Finally, to assess the level of depth of this electronic discussion, we calculated the number of postings per level, and found:

- 8 first-level postings
- 24 second-level postings
- 38 third-level postings
- 27 fourth-level postings
- 20 postings of fifth level
- 13 sixth-level postings
- Finally, 1 seventh-level posting.

Therefore, it can be concluded that the electronic discussion of the pilot was characterised by considerable depth and interaction among the participants.

5.2 Quantitative analysis

A quantitative evaluation questionnaire was returned by 27 out of the 79 registered participants in this e-participation pilot (34% response rate). Out of a set of 41 questions included in this questionnaire, there were six directly relevant to the structured e-forum: the first 2 of them concern the perceived ease of use of the structured e-forum, while the

remaining 3 concern its perceived usefulness. The relative frequencies of the responses to these six questions are presented hereafter.
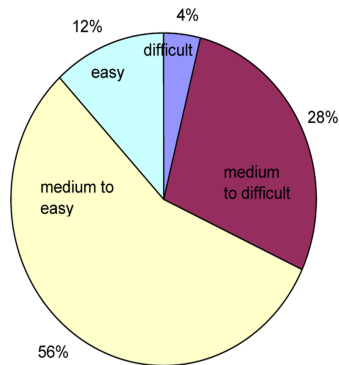
5.2.1   Ease of Use

How easy it was to use the structured forum, i.e., to correctly characterise your idea as an issue, an alternative, a pro-argument, a contra-argument, or a comment, and then correctly enter it in the structured forum? (see online version for colours)
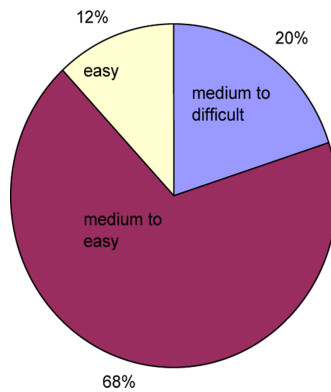

5.2.2   Level of understanding

How easy it was to access, read and understand the postings of the other participants (issues, alternatives, pro-arguments, contra-arguments, comments) and the connections among them in the structured forum? (see online version for colours)


5.2.3   Comparison to the normal forum tools

What is your general assessment of the structured forum as a tool for important e-consultations in comparison with the normal forum tools (where you do not have to characterise your posting as an issue, an alternative, a pro-argument, a contra-argument, or a comment, and then enter it correctly)? (see online version for colours)

8%

a little
worse

28% a little
better

much
better

64%
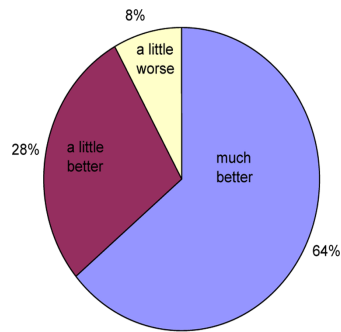
5.2.4 Level of engagement

Does the platform provide proper participation tools and structuring mechanisms to engage in the online discussion of the topics? (see online version for colours)

12%

no

yes

88%
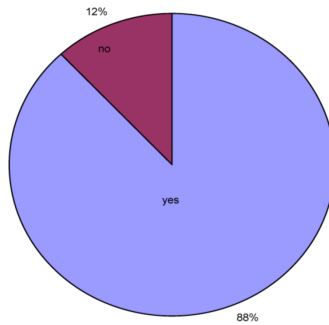
5.2.5 Quality of posting

How do you assess the quality of the contributions (postings) entered by the participants in this e-consultation? (see online version for colours)

8%

16%

high

medium
to low

medium to
high

76%
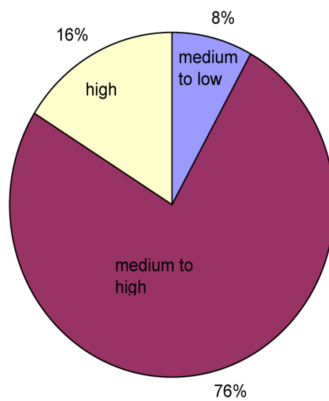
5.2.6 Learning through postings

To what extent did you learn new things and ideas from the contributions (postings) entered by the other participants in this e-consultation? (see online version for colours)
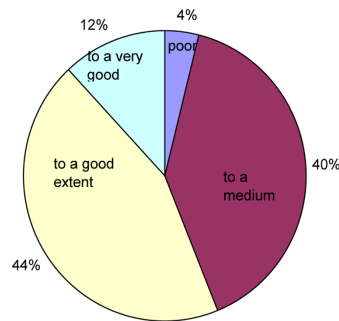
From the above-mentioned results, we conclude that most of the respondents found the structured e-forum as medium to easy to use (relative frequency 68%), and also found as medium to easy to access, read and understand the postings of other participants (relative frequency 56%). It should also be noted that in both these questions focusing on the perceived ease of use the response with the second highest relative frequency was 'medium to difficult' (20% and 28%, respectively). Therefore, the respondents do not find the structured e-forum easy, but believe that it requires some considerable mental effort (e.g., to correctly characterise an idea as issue, alternative, pro-argument, contra-argument, or comment, to correctly enter it in the structured forum, to access, read and understand the postings of the other participants, etc.), despite their high educational level (most of them are University graduates, or even postgraduate degrees holders). This conclusion is in agreement with the non-negligible percentage of entries assigned a mistaken type (10%) identified from the analysis of the discussion tree (see Section 5.1).

As to its usefulness, the structured e-forum proved is perceived by most of the respondents (68%) as much better than the normal forum tools, while a very big majority (86%) found that the platform provides proper participation tools and structuring mechanisms to engage in online discussions on such topics. Also, a big majority of the respondents (76%) assess the quality of contributions (postings) of other participants as medium to high (while another 16% assess them as high quality); most of the respondents (44%) believe that they learnt new things and ideas from the contributions (postings) entered by the other participants in this e-consultation to a good extent (while another 40% to a medium extent). Therefore, the respondents find the structured e-forum as useful, and superior to the normal forum, providing structuring mechanisms and resulting in high quality of discussion.

5.3   Qualitative analysis

In the semi-structured focus-group discussion, we conducted with participants and officials of the Greek Parliament one of the topics was whether it was easy to use the structured e-forum, and also its main advantages and disadvantages in this respect. One of the main difficulties mentioned was the correct assignment of type to the postings; this is confirmed by the findings of the quantitative evaluation (see Section 5.2) and the non-negligible percentage of mistakes in this pilot, which was about 10% as mentioned in the analysis of the discussion tree (Section 5.1), despite the relatively high educational level of the participants in the pilot. Another difficulty in using the structured e-forum was the appropriate wording of the title of each posting, which is directly shown in the discussion tree of the structured forum box (while the full description of the posting is

shown in another box only by clicking its title in the tree), so that it reflects the content of the posting. It was noted that in several postings the title was not representative of the more detailed description and explanation presented in this separate description box, so the other participants could not understand from the title the content of the posting.

Also, some additional weaknesses were mentioned during this discussion, which had more to do with the design and implementation of the particular platform and the structured e-forum tool used in this pilot, rather than the concept of the structured forum itself. Some participants said that the platform provides a very small space (box) for the structured e-forum, so the users have to use much scrolling up and down when trying to access previous participants' postings. Another design weakness mentioned is that the structured forum was placed four levels below the homepage of the platform, and this created difficulties for the users to access it. With respect to the moderation of the postings, all participants agreed that it caused a big problem: from the time one posting was entered by a user it usually took several 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 more postings associated with it.

Another topic in the semi-structured focus-group discussion was the usefulness of the structured e-forum. It was generally accepted that overall the use of the structured e-forum was considered a strength of the pilot, since it enables a more focused and effective e-discussion. Also, the semantic capability it offers allows users to quickly form an opinion as to the progress of the discussion on a particular key issue of interest. The postings were judged by the focus group to be well informed and of relatively good quality. Participants had many ways to get informed on the topic discussed, both on the platform (basic documentation of the bill under discussion and their visual maps), as well as on the broader web. However, one problem that some participants referred to as an obstacle to getting informed on this bill was the limited time they had. Also, it was remarked that one factor that had a positive impact on the quality of the postings was the adopted moderation processes; this was known to all participants beforehand, so they were careful anyway when making a posting. The above-mentioned findings are in agreement with the assessments of most of the respondents in the quantitative evaluation that the structured forum is a superior tool than the normal forum, providing proper structuring mechanisms, which resulted in a medium to high quality of postings (see Section 5.2); also, they are in agreement with the conclusions from the discussion tree analysis that there was an extensive and structurally well-developed discussion, characterised by considerable depth and interaction among the participants (see Section 5.1).

The Parliament Officials concluded that such tools can be useful to get the feel of public opinion on the issues discussed in the Parliament. The focus panel was generally positive towards the idea that the tool could prospectively offer a stand to the less powerful, excluded and non-participating in politics citizens; however, the higher mental effort it requires, in comparison with the formal (unstructured) forum tool, might prevent citizens with lower education from using it. Another point raised by the Parliament Officials was the anonymity of postings (opinions) entered in this tool, which has some advantages (freedom of expression), but at the same time does not allow them to be seriously considered by the Parliament (which traditionally takes more seriously into account opinions from persons representing some stakeholder groups). From the discussion on this issue, it was concluded that a good solution would be for each bill under discussion the Parliament to organise:

- one open and anonymous electronic discussion for the general public, using a normal (unstructured) forum tool

- another closed electronic discussion, in which will participate only invited representatives of stakeholder groups (i.e., those affected by the bill), who will be normally more sophisticated and knowledgeable on the bill under discussion, and experts, using a structured forum tool.

6   Conclusions

In the previous sections of this paper has been investigated the use of structured e-forum for e-consultations on 'wicked' problems associated with legislation formation. For this purpose, we designed and implemented an e-consultation pilot in the Greek Parliament on the bill for the 'Contracts of Voluntary Co-habitation'. From a multi-method evaluation of this pilot, which included analysis of discussion tree, quantitative evaluation and qualitative evaluation, encouraging conclusions have been drawn concerning the potential of using structured e-forum in the legislation process. Given the limitations of the research owing to the limited number of participants, we can conclude that the structured e-forum platform can be considered as easy to use; participants find it rather medium to easy to use, and believe that it requires considerable mental effort. Also, they mention some difficulties they had in using it, and some design weaknesses that have to be addressed. Concerning its usefulness, these highly educated participants find that the structured e-forum is better than the simple forum, enabling a more focused and effective electronic discussion. The majority of the participants were rather satisfied by their co-participants and their contributions.

Therefore, we can conclude that the structured e-forum is a good and suitable solution for e-consultations among more sophisticated and knowledgeable discussion groups. However, less sophisticated, knowledgeable and coherent groups might find it a less good and suitable solution, and might be served better by the traditional forum tools. Therefore, more empirical research is required concerning the suitability of structured e-forum for e-consultations on legislation formation problems among less educated and knowledgeable groups. So, a good solution would be for the Parliaments to organise e-consultations on the laws under discussion

- with the wider public in an anonymous mode using simple forum

- with the more sophisticated and knowledgeable representatives of stakeholders and with domain experts using a structured e-forum.

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