DESIGN PRINCIPLES FOR PUBLIC DELIBERATION SYSTEMS

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ABSTRACT

In this report, various categories of e-deliberation systems are researched and the most widely used e-deliberation systems developed worldwide are analyzed. Some types of degree of participation are described as they are supported during the process of a discussion. A questionnaire is presented, from which certain results were extracted in order to design a system based on user preferences.

KEYWORDS

E-Deliberation, E-Democracy, Participation, Transparency, Informed

1. INTRODUCTION

The expectation that information technology will enrich democracy is one that has been on the surface for many years, as discussed in broader terms through the democratizing power of concepts such as the «WorldBrain» (Wells, 1937) or the «MemexMachine» (Bush, 1945), (Barnet, 2013).

In our time this is no longer just theoretical but also empirical and realistic. There is a widespread concern about the removal of citizens from the government. Democratic citizens need reasons for solitary reflection, ways of thinking cut off from political strife (Talisse, 2021). Democracy is a system of government governed by certain constituent conditions and guiding principles, where citizens exercise power through a voting process (Tangian, 2020).

E-democracy is a well-known term that describes a wide range of practices, including the online engagement of the public in political decision-making and opinion-making. (Kneuer, 2016) But as far as the theoretical concepts of democracy are concerned, e-democracy is based primarily on models of participatory and deliberative democracy. (Päivärinta & Sæbø, 2006)

Public deliberation expresses views on any scope, priorities for new initiatives or evaluation of existing policies and legislation. (Solomon & Abelson, 2012)

The introduction of deliberative elements can delay decision making, but it can also create smart solutions and creative moves beyond the impasse. (Dryzek, et al., 2019)

There are many deliberative systems, but most of them do not follow the basic principles of democracy.

In the present work we mapping the area of e-deliberation as well as to export some functional requirements that such systems should have, based on the needs of users.

The research contribution of this work is that, at least from our experience, there is no other corresponding axis comparison of systems as well as there are no recent studies looking at the needs of users for such systems. The aim is to create a system that can combine as many basic principles as possible in order to create a successful e-deliberation.

In section 2 we present and describe the different categories of e-deliberation systems as we analyze the types and degrees of participations of some e-deliberation systems, while in section 3 we present the design of the questionnaire in four pillars. In section 4 we talk about the results and functional specifications that resulted from the processing of the questionnaire. Finally, we see discussion and future work.

2. STATE OF THE ART

There are different categories of e-deliberation systems that can be used, depending on the subject of the discussion, the goals, the profile and the experience of the participants and the coordinators in the relevant processes, but also the general characteristics of the environment in which all these take place.

The main formats of such systems include the following categories.

- **Online forums.** Their main use is for large-scale public discussions and consultations, especially when several people can participate in a discussion at the same time. They can also be used for information, for debate on an issue as well as for decision making by voting. The technology they use includes e-voting, text messaging, e-polls, etc. (Holtz, Kronberger, & Wagner, 2012)
- **Deliberative poll.** The deliberative poll is used specifically to form an opinion. The selection of samples is random but representative of the citizens. There is a discussion, where there is a thorough presentation of views and the community also participates through the transmission of the media. But it does not create the feeling of wide participation but requires a lot of time from those involved.
- **Votes.** E-deliberations voting is usually part of deliberations where the combination of voting and deliberation is achieved. In most deliberations, the impact on public policy is indirect and difficult to exploit. The aim is to influence public opinion and to include them in policy-making beyond those who show interest in such issues and processes.
- **Discussion.** The goal of deliberative discussion is to create a means of attracting people and communities for dialogue with each other. Essentially, a deliberative discussion asks participants to discuss and evaluate the impact of a variety of solution options on a public problem. (Cavalier, Kim, & Sam Zais, 2009)
- **Questionnaires (e-surveys).** By creating structured questionnaires, it is possible for everyone to participate, anonymously or by name. The mass participation is positive of the electronic surveys and the analysis of the results is easy and immediate as it can give long-term results. Questions should be asked with great care and the answers should be relatively simple.

To conduct this structured research review, an analysis of the most widely used e-deliberation systems developed worldwide to find the most relevant and important studies in the field was applied. Based on (Tsakanikas, Rokkou, & Triantafyllou, 2022) the main systems that are involved in deliberative processes are e-dialogos, Mi Senado, Parlement et Citoyens, E-Democracia, Liquid Feedback, DebateHub, Online Consultation Platform (GR0059) and DESIDIM.

Table 1. Types of e-deliberation services. Analyzes what different categories of deliberation systems the systems follow

Systems / Types	e-dialogos	Mi Senac	Parlement et Citoyens	E-Democracia	Liquid Feed back	Debate Hub	Online Consultation Platform (GR0059)	DESIDIM
Questionnaires	✓							
Forum	✓			✓		✓		✓
DeliberativePoll	✓	✓			✓	✓		
Discussion	✓	✓	✓	✓	✓		✓	✓
Vote							✓	✓

E-dialogos and DESIDIM systems seem to be the systems that include most types of e-deliberation services. As it seems to a very large extent most systems follow the service of discussion.

The process of a deliberation is followed by some types of degree of participation in which in each of them the participants and the result between the different systems change.

Some of the types of degree participation of such systems are the following.

- **Issue.** The issue that is open to deliberation can be submitted by different users, depending on the system.
- **Proposal.** The proposals that will be submitted are addressed to open issues, in order to display the views of users.
- **Survey.** The survey of the process in such a system.
- **Output.** The output of each system.
- **Scope.** The way each system will utilize the results of such a deliberation.

Table 2. Degree of participations

System / Types	e-dialogos	Mi Senado	Parlement et Citoyens	E-Democracia	Liquid Feed back	Debate Hub	Online Consultation Platform (GR0059)	DESIDIM
Issue	Authority	Authority	Authority	Coordinator	All	Citizen	Authority	Authority
Proposal	Citizen	Authority	Citizen	Citizen	Citizen	Citizen	Citizen	Citizen
Survey	Citizen	Citizen	Citizen	Citizen	Citizen	Citizen	Citizen	Citizen
Output	Final council decision	Poll of authority proposals	Collection of proposals	Suggested amendments	Opinion formation	Poll of proposals	Collection of proposals	Collection of proposals
Scope	Collect opinions of established proposals	Collect opinions of established proposals	-	Formula teproposals	Decision making	Collective ideation deliberation and democratic decision making.	Collect comments, results and statistics.	Result decision from the proposals

The systems in the process of an e-deliberation follow different degrees of participation in each type. The production of the issue is developed mainly by the authority while in the proposals and surveys the citizens have a greater participation. However, the output and scope are different in each system.

3. MATERIALS AND METHODS

Some results have already been verified by previous research such as LiquidFeedback (https://liquidfeedback.com/en/), which provides users the possibility of either creating or supporting initiatives. The new results after the procedure followed will help to design a system based on user preferences.

A questionnaire with 49 questions was created for the proper operation of the project, with the aim of involving citizens in the design of the system that will allow to include all those features that will ensure the completeness and usefulness of the system.

The questioner was designed in four pillars.

- In the first pillar, we tried to determine the public commitment and the way of the citizens' intervention. The questions that existed had to do with the participation of citizens in an e-deliberation system but also with the means of distribution of power between citizens and the state.
- In the second pillar we tried to identify characteristics of the technical system. These are mainly for the identification of users in an e-deliberation system, for the possible influence of such a system in terms of political principles in the decision-making process, but also for the final results that will result from this system and the way their utilization. Other things also had to do with users' access to the system and how they think it is optimal, given that there are also vulnerable groups (digitally illiterate, technophobic, elderly, etc.). Of course, there are questions about collective entities and how they could participate.
- In the third pillar we tried to determine the quality of deliberation as it is another part that concerns, asking questions about the coordination of public deliberation and how it will be managed as well as the usability of the system and the time of e-deliberation. Questions about the administrative levels and the solutions that such a system could bring could not be omitted. A major issue is also the voting process in an e-deliberation system and the method of gathering citizens' preferences in it.
- In the fourth and last pillar we tried to determine the demographics of the participants in terms of level of education, their status as participants, profession and much more.

The information that was extracted from the above questions will be utilized in such a way that the system manages to approach, as much as possible, the desired characteristics of the citizens regarding an e-deliberation system.

It was passed on to people who play a key role in their involvement with the public and politics, as the authorities can use the proposed technology as a social and political tool to listen to the opinion of the people

in a structured way. There were 160 participants who submitted their opinions, of which there were many with a remarkable educational level of 68.4% and quite good familiarity with social media, with the percentage reaching 82.7%.

4. RESULTS

The following elements were obtained from the processing of the questionnaire.

4.1 Types of Participation

There are 3 types of citizen participation that should be included in an e-deliberation system.

- Passive participation through public communication with a preference rate of 2.2%
- Almost active participation in public deliberation with a preference rate of 23.3% and
- Active participation achieved through public participation with a preference rate of 74.5%.

4.2 Process of Identification and Self-Determination

The process of identification and self-determination is in the direct wishes of the citizens for an e-deliberation system.

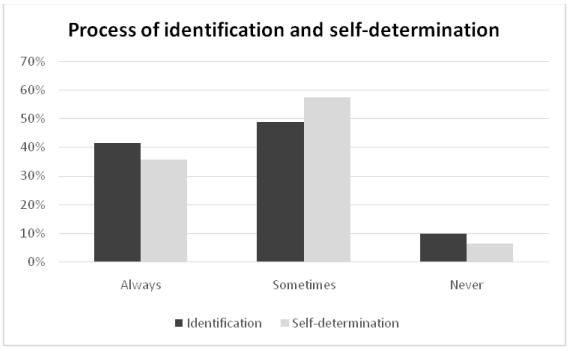

Figure 1. Extent to which citizens must identify and self-identify as users of an e-deliberation system

4.3 Raise the Issues

Citizens believe that it is the right of the public authority to raise the issues, but the majority wants to shape the outcome.

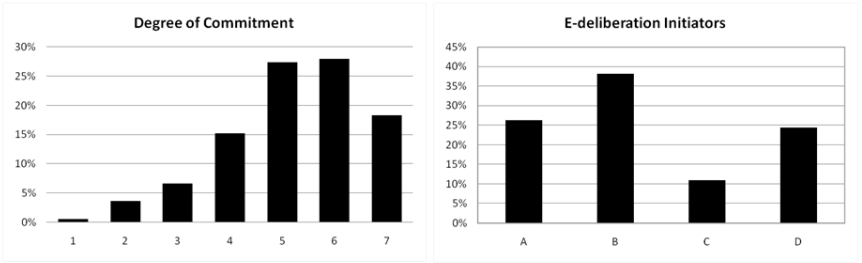

Figure 2. In Graph A is the degree of commitment of public authorities to the results of a public e-deliberation (1. Not at all 2. Very Low 3. Low 4. Neutral 5. Moderate 6. High 7. Extremely High). Graph B is the measures needed so that laws / decisions can be formulated with the result of public e-deliberation. Relevant social issues should: A. To be proposed by the citizens and to be voted by the public authorities B. To be proposed by the public authorities and to be voted by the citizens C. To be proposed and voted by the public authorities D. To be proposed and voted by the citizens

4.4 Cases of Users to Be Informed

It is obvious that the majority of citizens, over 80%, consider their information on matters of public interest as the basis for such a system.

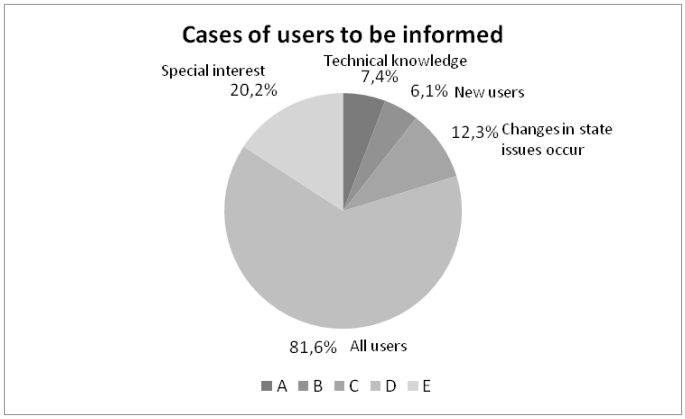

Figure 3. Cases when the system should be available to be used to inform citizens on matters of public interest A. Only for those who have some technical knowledge about a specific topic. B. Only for new users C. Only when changes in state issues occur D. For all users every time they use the system E. For those who have a special interest

4.5 Time for the Deliberation Process

More than 50% of the participants would suggest that the deliberation process continue until at least 2 completed proposals emerge or until the majority decides that the process should be closed.

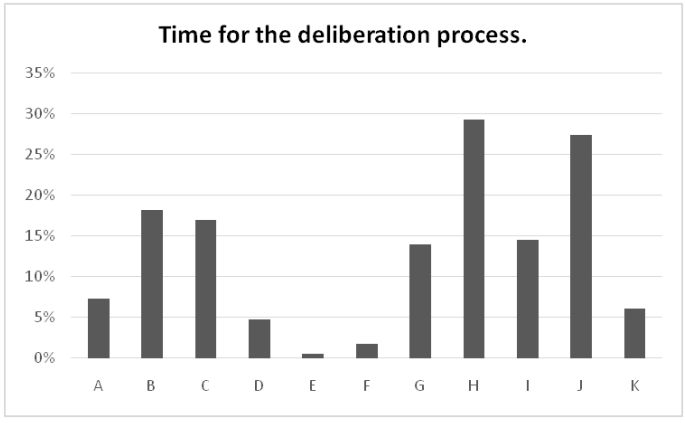

Figure 4. Time that the deliberation process should take A. A week B. A month C. Three months D. Six months E. A year F. More than a year G. Until a consensus is reached between all parties H. Until more than two solutions are created for each problem I. Until the majority of citizens choose to close the discussion J. Until the maximum agreed number of citizens chooses to close the discussion K. Until the citizens choose to close the discussion

4.6 Deliberation Process

One of the things that end users want is for each proposal to be able to be substantiated by relevant supporting material.

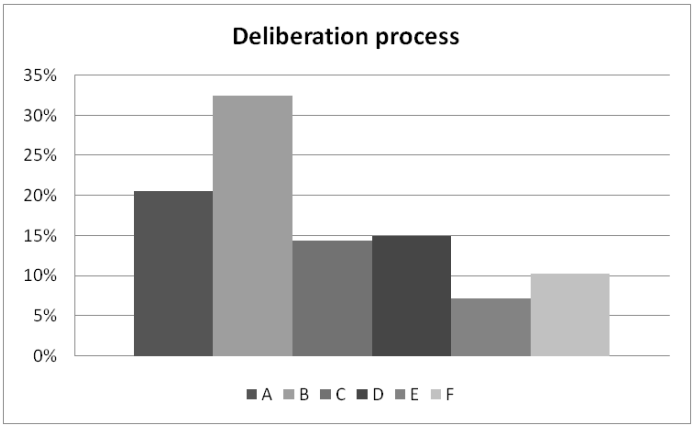

Figure 5. Deliberation process that should be included in a system A. Dialogue for each proposal B. Creating a publicly visible list of pros and cons for each proposal C. Monitoring changes in proposals D. Working in small groups defined by users (family, friends, neighbors, etc.) to create the pros and cons of arguments and solutions, followed by community contributions to proposals E. Submit personalized pros and cons lists for arguments and solutions to a facilitator F. Citizens create solutions and use communication tools to win votes

4.7 Collective Entities

The choice of citizens to be the represented collective entities is evident, with a percentage of 73.5%, nevertheless there is a strong argument in the participation of collective entities in such a system, as while they believe that a large percentage should participate, 43.8 %, believe that it should be done under specific conditions.

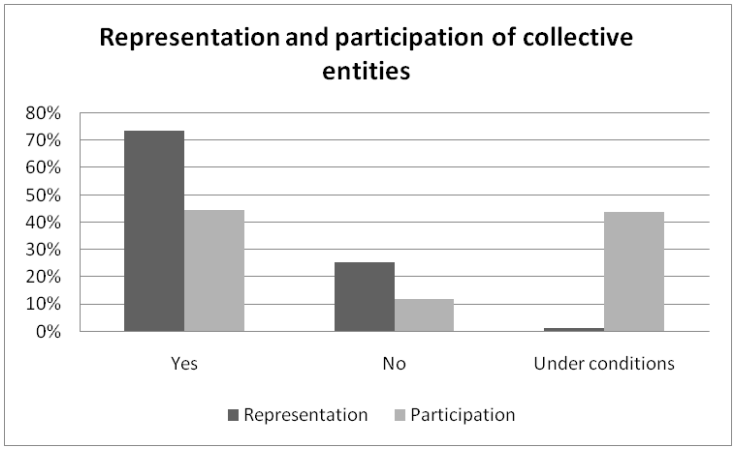

Figure 6. A. Organized collective entities such as organizations, private companies, trade unions and other stakeholders should be represented within this system of public deliberation B. Collective entities must be able to participate

4.8 Design Principles

Bases on the user requirements recording from the analysis of the questionnaire, the function specifications of an e-deliberation system can be written.

4.8.1 Citizen Participation

When configuring the system:

- the issue should be raised by the respective decision-makers, but there should be the possibility for citizens to state their proposals on it.

- it should be possible for users to comment on the proposals submitted in each topic, but also to adapt those comments to the proposals.
- users should be informed about matters of public interest.
- representatives from certain entities should be able to participate, enabling them to contribute to the process in the same way as users.

4.8.2 Authentication

Upon entering the e-deliberation system, should be a service for identification process with the possibility of self-identification.

4.8.3 Integrity

E-deliberation should be ensured, with proper coordination, which is achieved with the participation of an administrator/coordinator.

4.8.4 Electronic Folder

The system should support an electronic folder where the supporting material can be located.

5. DISCUSSION AND FUTURE WORK

A large part of society is made up of digitally literate people, who usually make up the highest participation rates in e-participation initiatives. However, no citizen should put aside of e-deliberation platforms. E-democracy requires smart cities to give all citizens equal and just access to policy and decision-making processes, in such a way that no individual is disadvantaged. A society that is informed and participative becomes stronger and is closer to achieving a true democracy. With the electronic participation and support of citizens, public authorities and governments can perform their tasks in a more efficient way and as a result create a stronger state of which we can encounter smart cities. E-deliberation, especially through a "consensus-driven" platform, is a remarkable mean for enhancing participation of citizens in management and micro-management of a smart-city.

The proposed e-deliberation system has some unique features that make it stand out from other similar solutions. By conducting a questionnaire survey and comparing our system to others, we were able to gather valuable feedback and insights that allowed us to identify areas where our system excels. This is a great way to improve the user experience and ensure that our system is meeting the needs of its users.

According to the analysis we did in the existing systems, we found some blanks concerning specific pillars for an e-deliberation system. These blanks included citizen participation issues, authentication issues and integrity issues.

Based on the results from the questionnaire we developed for 160 participants with 49 questions, we found that citizens are active and want to participate in these deliberation systems if a system contains the following design principles:

- Authentication is important for an e-deliberation system because it helps to ensure the security and integrity of the platform. By requiring users to authenticate their identity, the system can verify that they are who they claim to be and prevent unauthorized access. This can help to prevent malicious actors from infiltrating the platform and disrupting the discussion or manipulating the decision-making process. Additionally, authentication can help to prevent spam and other forms of abuse, such as trolling or harassment, by allowing the system to identify and block suspicious or malicious accounts. Overall, authentication is an important safeguard that helps to ensure the smooth and secure operation of an e-deliberation system.
- Supporting material is important for an e-deliberation system because it provides context and background information that can help participants to better understand the topic or issue being discussed. This can include things like data, statistics, research studies, and other relevant documents that can help to inform the discussion and provide a basis for more informed decision-making. By providing supporting material, an e-deliberation system can help to ensure that participants are able to engage with the topic at hand in a meaningful and productive way, and can ultimately lead to more informed and fair decision-making.

- Having a main authority and allowing for user participation without barriers are both important for an e-deliberation system for several reasons. First, a main authority can help to ensure that the discussions and decision-making processes on the platform are fair and unbiased. This can help to build trust among users and encourage more people to participate in the discussions. Additionally, allowing for user participation without barriers is important because it allows for a more diverse range of perspectives and opinions to be heard. This can help to ensure that the discussions are inclusive and representative of the wider community. It can also help to foster a sense of ownership and involvement among users, which can help to drive engagement and participation on the platform. Overall, having a main authority and allowing for user participation without barriers can help to create a more transparent and inclusive e-deliberation system.

In summary, this paper leads to some basic conclusions. Initially, we suggest that the opinions of experts can be collected to inform the design and development of e-deliberation tools based on the evaluation of some variables such as: i) Democracy Type, ii) Makes a difference, iii) Quality of discussion, iv) Integrity, v) Type of deliberation, vi) Anonymity, vii) Efficacy, viii) Type of deliberative system, ix) Transparency, x) Tailored to circumstances, xi) Is the system part of a larger participatory process?, xii) Scope, xiii) The right number and types of people, xiv) Treats participants with respect, xv) Type of interactions facilitated by the system, xvi) Kept informed, xvii) Access limitations, and xviii) Preference aggregation method (Triantafyllou, Tsakanikas, Asimakopoulos, & Christodoulopoulos, 2019). Then, based on the reviewed literature on the revitalization of public spaces, e-deliberation tools can be envisioned to provide power for change on issues of public interest. And finally we suggest that scaling is facilitated by adding data from multiple small-scale forums, organizing large-scale discussion only on the common links suggested by citizens and citizen groups, and allowing a fine-grained structure for qualitative analysis and database-based abstraction.

To confirm the above these principles should be implemented and a test should be done to have a more thorough opinion on the evaluation of these principles and we should move to the next stage of implementation and creation. In the next phase, this evaluation should be carried out in a large-scale analysis.

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