Applied E-Democracy

The need for a information framework to support development

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Abstract: This article identifies a growing urgency for the digital facilitation of existing democratic processes. In order to develop successful solutions it argues that designers, developers and policy-makers need a formal framework describing the requirements of democratic processes. It notes the disappointing results of current e-democracy projects and focuses on the digital support of existing democratic processes, instead of just looking at the new possibilities of social media and their contribution to a transformation of democracy. To distinguish this approach it uses the term “applied e-democracy”. Its research concluded that (for a city of 500.000 inhabitants in The Netherlands) the annual number of existing democratic processes is between 200-300. The article further describes that a framework connecting democracy to technology, needed to create effective solutions, is missing. It gives examples and a proposal of possible frameworks and argues that these need to be developed and researched.

Keywords: e-government, e-democracy, strategy, practice, theory

The future of e-democracy research related to better systems design is a sensible and urgent subject for several reasons – in society the political, social and economical urgency for good e-democracy solutions is growing while the actual results of e-democracy projects lag behind some of the expectations. Following the general development of ICT we have to assume that in the coming decade digital support of democratic processes will become more widespread and will see more large scale and structural uptake of digital support into both existing democratic processes and procedures as well as the integration of new e-democratic processes into mainstream democratic practice (Mulder, 1999a; Mulder, 1999b; Scientific Council of Government Policy, 2011). Such a structural and strategic uptake needs much more than simple web information or e-petition solutions used today (Mulder, 2011). Some researchers indicate that better and more specific tools need to be developed that are better suited to the specific context of democratic processes (e.g. Finger, 2009; Shahin & Finger, 2008; Snellen, 2001), while others have noted the need for better theoretical and conceptual work is needed in the current research of e-democracy research (e.g. Mantilla, 2009; Nchise, 2012).
This article is more of an essay than a usual overview of research, partly because it looks to the future more than to the past. It is urging for a change in research to support the coming structural adoption of e-democratic practice. It describes the need for more cross-disciplinary research, refers to experiences from other domains (game-theory, corporate blogs, information architecture and value chain) to be able to realize practical solutions for e-democracy.

1. Introduction

The urgency to stimulate the uptake of e-democracy is growing for several reasons: the adoption of new technology by the government and the public, the need to engage in dialogue with citizens and the felt need for greater transparency from the public. For European countries there exists the less obvious but possibly more urgent demographic factor. A scenario study from the Dutch Ministry of the Interior and Kingdom Relations (2010) reports that due to demographic development (the number of older civil servants retiring and fewer young professionals becoming available) in 10 years time local and central government will have to do with 30% of the workforce they have today. The study estimates that 30% of that decline results from civil servants retiring and the other 40% from young professionals finding more interesting work outside the government sector, due to the structural shortage on the labour markets. If this scenario (in Dutch publications sometimes referred to as “empty government”) holds true it creates a new and urgent reason to deeply transform government. This makes the creation of working tools and applications to support existing democratic practices more urgent. But beyond the individual applications “empty government” should make us think about the large-scale and structural implementation of e-democratic tools, going beyond the current often small and incidental projects. We think that, to answer to this new urgency, create more successful new digital tools and speed up adoption a shared conceptual framework is essential. Looking at policymaking and e-democracy research, such a suitable framework connecting democracy to the possibilities of digital world seems to be missing.

Policy bodies aiming to stimulate the uptake of e-democracy express the sense of urgency. An interesting attempt to drive development is the 2009 recommendation on e-democracy by the Council of Europe (2009), the first legal document on e-democracy containing practices and methods for implementation of e-democracy. They indicate that e-democracy is one of several strategies to support democracy, complementary with the traditional democratic process, that it opens to the possibility of civic participation, reinvigorates representative democracy and reviews its traditional concepts. The extensive appendix the document provides 80 principles and more than 100 guidelines for civil servants and government organizations, focussing to embed e-democracy in the political and democratic processes. They note that current implementation focuses too much on technology, and state that now marketing and the integration with policymaking and impact will have to become more important.

But its recommendation will fail to be effective. The detailed advice is too complex and in the end leaves users empty handed, because it only slightly addresses technology. On the assumption that “technology is facilitative” it outlines extensively the defining of democratic requirements but then assumes that technology could fill that in. And that is not the case: there is little existing technology that is successful and there is little or no experience in creating new systems. In their urge for implementation they make the mistake many policymakers make: they assume that the field is professional and that good solutions exist. Taking up such a professional attitude at too
early a moment is what creates the relatively poor quality of the field: too little attention for the quality of digital solutions.

Such policy advice is an indication of the current status of the e-democracy field: the extensive research on democratic theory and recommendations from politicians provide little or nothing to advance the quality of digital solutions supporting democratic processes. They do not address the needs of designers and developers and fail to stimulate the creation of better e-democracy solutions. Grönlund observes that:

"...theory generation and theory testing are not frequent, while case stories (no theory, no structured data collection) and product descriptions (no analysis or test) are. Also, claims beyond what is reasonable, given the method used, are frequent" (Grönlund, 2005, p. 1).

Furthermore several authors note the disappointing results in the field (e.g. Baskoy, Behrouzi, Dai & Norton, Hercheui, Insua, Hirst, van Mill, Warren & Pearse in Sharma, 2011 or Dunne, 2008; Milner, 2002; Ostling, 2010; Peña-López, 2011). Dunne (2008) concludes the results mean that political online forums will not reverse political disengagement, they do not fail due to an inherent design fault but because political disengagement is tied to the dislikes of citizens if a liberally thin democracy. Peña-López (2011) points to possible adverse effects of digital support of democracy, sharpening the distinction between the active and the inactive, effectively leading to a new digital divide. Ostling (2010), focusing on e-participation, provides an overview of results and describes ICT as an amplifier of existing political trends, possibly converging “active citizens in a detached and lonely room”. She concludes that e-participation may follow Gartners’ hype cycle, and currently be positioned between the “peak of inflated expectations” and the “trough of disillusionment”. It would indicate that in the following years the development would move through the “slope of enlightenment” to the “plateau of productivity”. This development is unnerving, because currently there is little knowledge on the required quality of practical solutions, and little work done to make the situation better.

This dilemma, between the perceived urgency for e-democracy and the disappointing practical results, will be sustained because individual e-democracy projects carry inherent political risks, the technological possibilities are complex and relatively new, tested solutions may be unavailable and politicians may prefer short-term projects. There is little thinking on the broad and structural adoption of e-democratic solutions. The digital solutions that more or less structurally support democracy may be governments informing citizens and e-petitions. Their success may be attributed to the fact that they form part of the general web activities of governance bodies (informing citizens on policy process) or are relatively simple to design, develop en implement as they consist of their own, clearly demarcated process in e-democracy (as for e-petitions).


Here we look at the requirements for the large-scale structural adoption of e-democracy. For larger cities that would mean providing thousands or millions of inhabitants with the possibilities to engage in the active democratic issues at any moment. Citizens would use a variety of tools to be able to inform themselves, deliberate, prioritize or vote in relation to the hundreds or thousands or issues annually. And in the course of using this variety of tools, in the different phases of e-democratic participation on many issues, the experienced sense of democracy should be maintained. In this article we address this development as “applied e-democracy” — it focuses on
supporting the existing democratic processes with digital tools (as opposed to new developments like social media) and on the challenges surrounding the actual development and implementation of tools.

Even if we would like to develop such broader and structural digital support for democratic processes, we lack the conceptual framework to develop it. That is why research into the practical requirements might contribute to the resolution of this impasse: it should identify challenges and opportunities for better solutions, identify design criteria and provide designers and developers with design requirements more suited to their needs (Mulder, 2011).

Our first research was aimed to determine “the size of the existing democracy”. To be able to establish to workload of supporting existing democratic processes we researched how many democratic dialogues the governance of a city actually takes. This was done by counting the number of democratic issues on the agendas of the different committees and the city council of one of the larger cities of The Netherlands. The result of our exploratory research (Mulder & Hartog, 2012) showed that for a city of 500.000 in The Netherlands there are roughly between 200 - 300 different democratic issues on its different agendas during a one-year period. Phrased differently, one might say that governance of a city of about 500.000 inhabitants requires about 200-300 issues annually to be decided upon. Many of these issues were small and inconsequential (important to an individual or small group of citizens or organizations) and only a few were large and of consequence to a sizable part of the population.

The underlying assumption is that the number and character of democratic issues is related to the size of the democratic challenge. Since a city would not increase in size unexpectedly, the number of democratic issues would not increase dramatically either, although our dialogue might; with the introduction of new digital means such as social media (Fischer et al, 2011). This estimate allows cities to create an estimate of required effort required for the broad adoption of e-democracy. Large democratic issues might require special web environments and special editorial staff, whereas small issues would use the standard available infrastructure and get their data from administrative systems. Follow-up research will determine “the size of democracy” for smaller and small cities, to create a model in which a constant ratio between the size of cities and their required democratic dialogues may be used to determine the workload for the broad implementation of e-democracy.

3. Current ResearchDisconnected from Application

The creation of successful e-democracy systems depends on clear requirements and specifications how democratic processes should be supported, but few exist. Chambers (2003) notes that the deliberative democratic theory has moved beyond the “theoretical statement” stage into the “working theory” stage. The extensive research on the different qualities of deliberation may be political (Chambers, 2003; Fearon, 1998, Kadlec & Friedman, 2007;), or practical (Dryzek, 2004; Price, 2009), or more structural (Grönlund, 2003; Landa & Meirowitz, 2006). But though each contains valid conclusions few of them would help designers to design better e-democracy solutions. In his research review Karlsson (2010) describes a few general notions on the design of systems, showing the importance of relating the amount and quality of deliberation to the design of online environments and instruments for deliberation. He also mentions that one specific design-related issue that has been depicted as a crucial feature for online deliberation is the level and style of moderation of online discussion forums. In line with Gutmann & Thompson (1997)
Chambers (2003) describes that scholars mention four possible goals in the design of deliberative forums:

“…augment legitimacy through accountability and participation; to encourage a public-spirited perspective on policy issues through cooperation; to promote mutual respect between parties through inclusion and civility; and to enhance the quality of decisions (and opinions) through informed and substantive debate” (Chambers, 2003, p. 316).

Such descriptions form the first step of a functional breakdown of the deliberation in deliberative democracy into required qualities such as accountability, participation, cooperation, inclusion, civility and informed and substantive debate. But for the design of real systems even these qualities are far too broad and general to be effective guidelines. To be useful in the creation of better e-democracy solutions notions like “accountability”, “civility” and “cooperation” need to be further operationalized as to how they may be realized by web-based systems. This shows that the concept of deliberation is complex and current research does provide little to nothing to support a better design of systems. Research on e-democracy may develop our understanding but seems to be disconnected from the better realization of actual practical e-democracy systems.

This disconnect between e-democracy research and the practice of developing digital solutions is not the only one. Landa & Meirowitz (2009) analyse a similar disconnect between deliberative democracy theory and game theory. They note that there is an emerging body of game-theoretic literature that focuses on policymaking in deliberative institutions. But they conclude that the results are not connected with the extensive research on deliberative democratic theory or the research on deliberation from social psychology and experimental traditions. They offer three reasons: the analytical/structural relationship between game theory and deliberative democratic theory is unclear; the communication analysed by game-theorists is of a fundamentally different epistemic type; the game-theoretic approach omits key social and philosophical determinants of deliberation which makes its conclusions irrelevant to normative deliberative democratic theory.

They also describe the fundamental distinction between normative deliberative democratic theory and the game-theoretic approach. The latter treats deliberative democracy as an environment more than a process. The analysis of the properties of that environment, and how it contributes to the study of deliberation insofar as that environment captures the essential institutional features of deliberative democracy. The normative focus is on the behaviour without inducing it from the environment:

"Whereas the game-theoretic/deliberation-as-environment approach has an agreed upon ‘machine’ (or, more accurately, a small set of ‘machines’) for relating descriptions of the environment to descriptions of behaviour and so for generating comparisons about how different descriptions of the environment might influence the nature of discourse and policymaking, the deliberation-as-behaviour approach lacks such a device” (Landa & Meirowitz, 2009, p. 430).

This analysis may make the disconnect more understandable, but not easier to solve. In their treatment Landa & Meirowitz (2009) see the disconnect between the normative and game-theoretic approaches as inappropriate because democratic theory has practical aspirations. The inability of normative theory to include the environment as a determinant in deliberative democracy cannot be ignored. They propose a more balanced deliberative democratic theory by thinking in terms of three steps: formulating axioms about the political environment, ascertaining axiomatic consistency within a game-theoretic model, creating a conversation between research traditions.
According to Landa & Meirowitz (2009) this conversation creates a creative relationship, as game-theoretic analysis becomes an essential tool of institutionally prescriptive normative theory.

Step one would be the domain of normative theorists while the other two must involve other approaches. The deeper significance is that it outlines the essential functional relationship between theory and practice and between different disciplines. In line with the analysis of Landa & Meirowitz this article identifies the missing connection between e-democracy research and the design of practical digital solutions. Their proposal for the inevitable integration between normative theory and game-theoretic approaches may be extended to the integration between theory and the realization of practical democratic systems as figure 1 displays.

![Figure 1: Integrating normative theory and game-theoretic approach](image)

4. An integrative conceptual framework for e-democracy

To solve the disconnect between research and application we identify the need for a conceptual framework shared by all stakeholders, that allows for the meaningful translation of democratic qualities into design requirements for digital solutions. Creating successful digital solutions for democracy rests necessarily on a conceptual framework that integrates democracy and technology (figure 2) and meaningfully translates between the requirements of the stakeholders in the democratic process and the designers and developers of solutions.

![Figure 2: Conceptual framework](image)

Such an integrated conceptual framework between democracy and information technology is lacking today. Current research on e-democracy uses a different epistemic and rhetoric than that of designers: both the questions asked and answers generated do not translate to better software solutions very well.

An example is the identified need to “inspire citizens to participate in the agenda setting phase of the policy development cycle”. To be useful in the creation of new system such statements have
to be more operational and specific. “Agenda setting” may mean different things. Long-term democratic issues may need building general awareness as opposed to immediate and pressing short-term issues that might need direct action. A deliberation that enlists a whole population is very different from one that supports a small well-organized group. To facilitate such goals each digital solution has a different quality, a different audience, a different level of information and a different style of communication. Although these may all take place in the agenda-setting phase they may require different tools and processes.

An integrative conceptual framework would be able to identify and describe such differences and create clarity empowering researchers, civil servants, citizens, designers and developers. It would allow stakeholders to specify democratic ambitions more precisely and in a way so that meaningful technical choices may be made. Its aim is not to understand democracy, but to allow the better design of systems. Developing such a framework is not trivial: it would contain a set of democratic processes described in terms of their informational functionality. It is too early to propose specific suggestions for a framework, but some examples from other fields give an idea of the challenges and possibilities. Here we mention two possible directions for such a conceptual framework and propose a first attempt at fulfilling that challenge.

A relatively easy example connecting digital tools to a domain is the classification of corporate blogs that Zerfass & Boelter (2005) developed in their research on business communication. It connects the different functionalities of corporate PR to meaningful functionalities of blogs, as shown in figure 3. This mapping is developed from the observed use of digital tools in communication.

![Figure 3: Classification of corporate blogs (Zerfass & Boelter, 2005:127)](image)

Although there is research on the possible effect of blogs in democratic matters (Drezner, 2004; Coleman & Wright, 2008; Maria, 2009; Siapera, 2008; Touri, 2009) that doesn’t mean in reverse that we might “just” use blogs to design better democratic systems. Blogs may be used in different ways for different purposes. Identifying these purposes and relating them to democratic processes in a framework means that citizens or civil servants may express their needs in a structured way, and that designers may infer sufficient information to create good applications. Without a framework successful e-democracy systems depend on the personal interest and quality of designers that personally to combine democratic quality and technology. But creating systems on the basis of the skills of individual people does not scale up easily.

Another example is the more formal frameworks that are extensively described in the world of information architecture. Muller (2011) describes “Architectural Thinking” which creates a connection between the customer and the proposed new system in a series of five different views:
customer objectives view, application view, functional view, conceptual view and realization view (figure 4).

Figure 4: Different views of information architecture (Muller, 2011)

Muller (2011) describes it as an architecting method, supporting the architect in the process to go from a vague notion of the problem and potential solutions to a well articulat ed and well structured architecture description. This approach further developed into the framework of Shames & Skipper (2006) and forms part of the more generic IEEE 1471 and more recently ISO/IEC-42010 standards for architectural description. But such an approach can only be successful when both democratic stakeholders and designers and developers together have a shared understanding of the quality of the intended democratic processes so that they create systems that facilitate democratic processes without degrading them.

5. Proposed Formal Decomposition of E-Democracy as a Value Chain

Both examples above require a functional decomposition of democracy and its processes such that a meaningful translation into the digital domain becomes possible. To create such a functional decomposition for democracy we propose to use the concept of a “Value chain”. Introduced in general by Michael Porter (1985:36; 1996), a value chain describes a series of activities that together uphold the value of a service or product. Each phase may be realized by different systems of applications, but functionally each one is a necessary requirement. An e-commerce chain is upheld by functionality as different as identification of products or services, being able to compose an order, to place an order, to pay for the order, to be informed by it progress and, in the case of digital products, online delivery. Each of these steps is necessary and adds a specific value to the process but may be provided by completely different software solutions. The concept of a value chain is one of the ways to create a more abstract and functional description that may then be filled in by different forms of technology.

In that context a value chain for e-democracy would identify the necessary constituting information processes that together uphold the value of the “democratic process”, and might possibly (as a suggestion) contain five different information processes:

1. Being informed is an essential requirement that allows citizens to know what is going on and communicate their opinion
2. Deliberating provides the ability to engage in structured dialogue and reflection leading to insight and conclusions
3. Valuing the results of the dialogue would allow for identifying and prioritization the issues that need attention
4. Decision making is a distinct process allowing the development of structured argumentation and solution formulation.

5. Voting allows participants to finally converge on a single political outcome.

![Figure 5: Value chain for e-democracy](image)

Such a stepwise identification of functional steps rephrases democratic activity in underlying information processes that may then be realized by many different software solutions. Each of these has its own characteristics and will require extensive research and development. Looking at the seemingly simple first step “informing” it becomes clear that currently there is no simple and consistent way to inform citizens on any democratic subject. There is no “digital democratic dossier” on an issue. And, should it exist, it would show that we currently lack a uniform and consistent way to inform citizens of the financial consequences of democratic issues. This is assuming that with the large-scale and structural adoption of e-democracy a uniform and consistent approach would be a requirement.

Although very different in character, each of these three examples is a possible way to connect the process of democracy to the digital domain through an intermediate mapping onto functionalities. Such more structured mapping could greatly contribute to the development of e-democracy solutions.

6. Conclusion and Discussion

This article addresses the practical challenges of creating e-democracy solutions. We see the urgency of supporting democracy with digital solutions as (at least in Europe) the number of civil servants may seriously decline in the coming decade. We expect that digital support of democracy will become large-scale and structural supporting both existing democracy and new forms. To stimulate development and adoption of new solutions a clear and concise conceptual framework is needed to be able to successfully translate requirements of democratic processes into requirements for digital solutions. Today such a framework is missing. We propose a functional decomposition of democratic processes as a value chain but realize that research needs to be done to make that solution a practical reality. More interdisciplinary and integrated research is needed to assess the value of deliberation-, collaboration- and participation systems. We need quicker modelling and more practical translations for designers and developers in order to create the possibilities for governments and citizens to interact on a new level of intensity.

A more formal integrative framework for e-democracy would empower all stakeholders to create better systems and might speed up new developments. The consistent set of formal descriptors would also allow for new developments such as automatic processing of democratic systems in the semantic web. This requires the formal description of democratic functions and processes to be developed into an ontology and thesaurus. The current work on e-government ontology (Bettahar et al, 2009) creating semantic service descriptions and services registries mainly contains basic administrative processes and services and doesn’t refer to democratic aspects. Extending the descriptive framework with appropriate design patterns that developers might use...
it could not only allow better communication between democratic systems but might also support collaborative problem solving in new ways (Jermann, 2004). All these possible aspects of a framework will require thorough research to be able to cater to the diversity and complexity of democratic processes.

Since digital support of democratic processes is recent, there are no right solutions. But to create better quality solutions software development needs to be based on more formal models of democratic processes, so that they may be developed faster, better and better integrated with each other.

References


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