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# Towards a Requirement Framework for Online Participation Platforms

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## ***Abstract***

Online participation platforms (OPPs) are frequently used by public institutions to involve citizens in political opinion forming and decision making. A literature review reveals different approaches to evaluate these OPPs. These approaches focus only on partial requirements of participation processes. In this research in progress, we develop and pretest an interdisciplinary literature-based requirement framework. It includes the categories usability, security, information, transparency, integration, and mobilisation. Our aim is to close the research gap of a context-specific analysis and evaluation of OPPs.

## **1 Introduction**

Modern parliamentary democracies can be described as interdependent systems of conventional and non-conventional, direct and indirect, constituted and non-constituted instruments and processes of political participation (Nanz & Fritsche, 2012). Information and communication technologies (ICTs) are thereby often used to support, complement or even replace common offline participation instruments. The possibilities for public institutions to include citizens in decision making are as diverse as developed technologies and software available (Kubicek et al., 2011).

However, the success of such technologies is evaluated differently by different researchers, suppliers and users (Escher, 2013), since it can be measured from a number of perspectives (Kubicek et al., 2011). It makes sense to question which requirements are fulfilled when talking about successful online participation and how can success be assured. Therefore, the aim of this work is to develop and design an interdisciplinary requirement framework that facilitates a holistic evaluation of OPPs. In our investigation we focus on platforms implemented for civic participation processes of public institutions.

For the development of the requirement framework we first review existing evaluation criteria and models in Chapter 2. In Chapter 3, existing criteria are extended and combined with a focus on context-specific characteristics of political OPPs. In Chapter 4, technical and context-related requirements as well as interactivity requirements are developed. Furthermore, subcategories for their evaluation are suggested. We conclude and give an outlook in Chapter 5.

## **2 Literature Review**

Published works on the impact, correlation and success of OPPs usually have a social or humanistic background and focus on individual cases (i.e., Große et al. 2012 for [enquetebeteiligung.de](http://enquetebeteiligung.de)). More comprehensive studies that allow for comparative statements rarely focus on the technical concept and realisation of OPPs. For example, The Alexander von Humboldt Institute for Internet and Society (HIIG, 2014) investigates user expectations and behaviour of 13 political and enterprise OPPs in the German-speaking area. Kubicek et al. (2011) compare twelve political OPPs worldwide and identify criteria for success (solution-relevant information, range, inclusivity, increase of acceptance of measures, democracy support, influence on result, efficiency) as well as factors for success (well-defined purpose, activity of decision makers in the process, mobilisation of participants, transparency, connectivity, resources and urgency of the topic). The authors do not focus on any technical aspects. However, the application of ICT offers additional requirements due to the OPPs' characteristics as websites. A number of research works suggests evaluation procedures and criteria for websites (Madan & Dubey 2012). Signore

(2005) for example differentiates between five dimensions of requirement: correctness, presentation, layout, navigation, and interaction. Furthermore, there are special approaches for the usability of websites. While Levi and Conrad (2001) suggest five categories for evaluation (attractiveness, controllability, efficiency, helpfulness, and learnability), Kirakowski and Corbett (1993) focus on user perception of software usability. In our requirement framework we include the suggested and validated dimensions by Signore (2005) and Levi and Conrad (2001) and adapt them to our civic approach.

### **3 Methodology**

In our requirement framework of OPPs we combine requirements of civic participation procedures and websites. For this purpose, we used different theoretical approaches to integrate six main requirement criteria of which each criterion contains different subcategories. Since this research focusses on political online participation we used theoretical models referring to the interaction between citizens, public institutions, and ICTs, to identify necessary criteria.

#### *3.1 Citizens & ICT*

For the description of citizens' behaviour on websites we refer to the validated Technology Acceptance Model (TAM, Davis et al., 1989) that deals with human-computer-interaction and describes user behaviour as perceived usefulness and perceived ease-of-use. TAM was been reviewed and extended several times. The advanced models, including TAM2 (Venkatesh & Davis, 2000), the Unified Theory of Acceptance and Use of Technology (UTAUT, Venkatesh et al., 2003) as well as UTAUT2 (Venkatesh et al., 2012), add aspects of social influence (job relevance, image, subjective norms, experience, and voluntariness), four constructs of behaviour acceptance (performance expectancy, effort expectancy, social influence, and facilitating conditions), and individual differences (gender, age, and experience). Aladwani (2006) and Aladwani & Prashant (2002) specify UTAUT for websites by integrating dimensions of website quality (Aladwani, 2006, Aladwani & Prashant, 2002). Website quality is defined as targeted content, content quality, image, and

technical adequacy. In our framework we integrate the presented categories in the criteria regarding technical and content-related requirements.

### 3.2 *Citizens & Institutions*

To describe the relationship between citizens and political institutions (in parliamentary democracies) we use the principal agent approach (Gilardi & Braun, 2002), that identifies delegation chains within representative systems between the citizens as the sovereign (principal) delegating tasks and responsibilities (e.g. the provision of public goods) to political institutions (agents). Due to a relation-dependent moral hazard and information monopoly there is a need for incentives and control mechanisms to combine interests of agents and principals. OPPs can hereby act as communication tools to express and underline the citizens' preferences on political topics (Roleff, 2012). To change the relationship between principal and agents, OPPs have to actively provide the topic-relevant information to users (Kubicek et al., 2011). Furthermore, the impact of OPPs on decision making processes can only be assured by a binding (or even mandatory) integration of the OPPs in existing work and decision structures of the involved institutions (Kubicek et al., 2011). Finally, discussion or voting results of OPPs can only be interpreted as a representative set of opinions, if sufficient citizens were mobilized (Große et al. 2012).

### 3.3 *Institutions & ICT*

For the interpretation of when, why, and under which circumstances political institutions use ICTs we use research approaches from the field of E-Government. Public authorities routinely have been using ICT systems in order to improve the access and more efficiently provide government information and public services (Yildiz, 2007, Mulgan, 2014). Analysing different implementation concepts of E-Government initiatives, a change in the perception of e-government towards a particularly security-oriented usage of ICT can be stated (Yildiz 2007). As a result, principles of e-government such as an improved information access, Open Government and a higher degree of responsiveness, are complemented by security aspects. That is why we also consider security as a necessary requirement criterion.

### 3.4 *First Evaluation*

We pretested all six identified criteria in a survey on civic online participation (to be published in 2016). A partly standardized questionnaire was developed and evaluated via experts reviewing wording, structure and order of the questions. We then sent the questionnaire to public officials and platform providers of 20 OPPs and received positive feedback from political officials and providers of 14 OPPs. We additionally conducted five guided interviews by telephone, which were strongly bound to the questionnaire, to clarify misunderstandings. A qualitative analysis of replies from 14 OPPs (nine national and five international ones) led to a revision of our requirement criteria.

## 4 **Requirement framework**

In the following chapter, the six literature-based and pretested criteria (usability, security, information, transparency, integration, and mobilisation) are presented including suggested subcategories. They are grouped in technical, content-related and interactivity requirements.

### 4.1 *Technical Requirements*

The entire participation process is based on technical functionalities of an OPP. Technical requirements can be divided into two subcategories (usability and security): *usability* (Levi & Conrad, 2001, Signore, 2005, Davis, 1989) includes (1) navigation (menu/ page structure, links), (2) design (text, picture/ page layout, presentation on mobile devices), (3) multimedia (videos, sounds), (4) efficiency (effort to find information; effort to actively participate at a voting or discussion, etc.), and (5) help system.

*Security* includes security of information (integrity, authenticity, commitment, availability, and confidentiality), as well as privacy aspects (pseudonymisation and anonymisation) (Yildiz, 2007, Mulgan, 2014).

#### 4.2 *Content-related Requirements*

Content-related requirements refer to content provided on the OPP. They are divided into two subcategories (information and transparency/traceability): *information* includes (1) correctness (of the information), (2) completeness, (3) actuality, and target-group orientation/ inclusivity (i.e., multilingualism, accessibility, gender neutrality) of the decision relevant information. *Transparency/ traceability* (Kubicek et al., 2011; Venkatesh und Davis, 2000, Signore, 2005) refers to (1) participation processes as such (disclosure of different user groups, FAQs, conditions of use) and (2) the provision of information and data (readability, information set-up) and information structure (number of headings and subheadings, paragraph length, etc.).

#### 4.3 *Interactivity Requirements*

Interactivity requirements include all requirements that relate to the interaction of institution, citizens, and website during the process. Two subcategories are defined (integration and mobilisation): *integration* (Venkatesh et al., 2003, Kubicek et al., 2011) involves (1) institutionalisation/automatisation of the OPP to assure the possibility of a continuation, as well as (2) commitment in dealing with results. *Mobilisation* (Große et al., 2014, Venkatesh et al., 2003, Kubicek et al., 2011) can be divided into (1) marketing / PR (online and offline), (2) media impact, (3) integration of online and offline steps and (4) topic relevance.

### **5 Conclusion & Limitations**

The proposed requirement framework includes evaluation approaches for website quality and interaction of citizens and institution to enhance a context-specific and practical evaluation of OPPs. Technical requirements are prerequisites for the acceptance of OPPs by participating citizens. Context-related requirements necessitate the political functionality. Interactivity criteria are ultimately responsible for the success of the process. To the best of our knowledge there is no other requirement framework that focuses on such instruments and comprises such a broad evaluation. All suggested criteria were pretested by experts from research

as well as public officials and providers of OPPs. The integration of different theoretical perspectives aims to enable a systematic and objective analysis of OPPs in the future. Furthermore, the comparability will be facilitated.

Our current research focusses on the concretisation of the requirement criteria. The questionnaire is modified to also include users in the evaluation process of the framework. As a next step we aim to find reliable instruments and tools to empirically test platforms referring the six requirement criteria.

In future research, we plan to expand the requirement framework by other non-political domains, e.g. in the context of enterprise participation. But also include more specific requirements such as the choice of mechanisms in participatory budgetings (Niemeyer et al. 2015). The main goal, however, is to create a utilisable and demand-oriented requirement framework for the evaluation of existing OPPs.

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