



# Continuous usage of e-participation: The role of the sense of virtual community

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## ABSTRACT

Local governments around the world are increasingly implementing e-participation platforms to involve citizens in consultation and decision-making processes. E-participation platforms usually succeed and produce positive effects in the community when adopted in the long-term scenario. The adoption of those platforms is still a challenge for local governments. The understanding of the factors that influence the continuous intention to use e-participation over time is critical for the design of diffusion and promotion strategies that motivate the citizens to keep using e-participation. This article explores the drivers that predict the post-adoption of e-participation platforms from the perspective of the sense of virtual community theory, that is the degree of affective attachment to a given community mediated by information technology. Specifically, our research model evaluates the association between the sense of virtual community with use behaviour and the continuous intention to use e-participation. Structural equation modelling was used to evaluate the data collected from 370 citizens who experienced an e-participation platform hosted by a European capital city. We found out that the direct association between the sense of virtual community and use was significant. Even though the direct association between the sense of virtual community and the continuous intention was non-significant, the indirect association sense of virtual community to use to continuous intention was statistically significant. This finding may indicate that the use behaviour is triggered by the influence of other members of the community for a short period of time, but it does not persist to influence the continuous intention over time.

## 1. Introduction

In recent years local governments around the globe have made considerable endeavours to implement different forms of online public participation, the so-called e-participation, which is considered a branch of e-government oriented for consultation and decision-making (Welch, 2012). For instance, tools to provide public opinion for deliberation, such as online discussion forums (Lee & Kim, 2012; Mou, Atkin, Fu, Lin, & Lau, 2013) were found in 32 countries by 2010 (United Nations, 2010) and increased to 72 countries by 2012 (United Nations, 2012). Active and continuous use of e-participation over time can facilitate the engagement of citizens in consultation and decision-making processes along with governments. E-participation can produce positive effects in the community only if the members of that community use the systems in the long-term scenario, this is, at least for a few years. Since e-participation is oriented to the general public, its adoption and

diffusion process is still a challenge that may lead to the risk of discontinuity (Sun, 2013). Understanding these drivers is crucial for local governments at city level (Sivarajah, Irani, & Weerakkody, 2015) to implement strategies for the diffusion, active use, and engagement of citizens with e-participation.

Most local governments at city level, specifically the city councils (Sivarajah & Irani, 2018), have already integrated the use of online social networks in their e-government platforms as a means of improving two-way communication with citizens (Mossberger, Wu, & Crawford, 2013) and increasing public trustworthiness (Porumbescu, 2016). Nonetheless, only a small number of that implementation had an impact at policy-making or decision-making level (United Nations, 2016). A growing body of literature has devoted efforts to understand the factors that influence online citizen participation (Naranjo Zolotov, Oliveira, & Casteleyn, 2018; Rana, Dwivedi, Williams, & Weerakkody, 2016; Schmidhuber, Hilgers, & Gegenhuber, 2017), and how the usage

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of e-participation can lead to a full partnership with the government (Abu-Shanab, 2015). However, the continuous active involvement of members of small or medium-sized communities, such as neighbourhoods, parishes, or cities, in online consultation and decision-making processes over time is still a challenge.

The sense of community (McMillan & Chavis, 1986) is considered a key factor for the active involvement of citizens in public participation. The sense of virtual community (SOVC) is the degree of affective attachment to a given community mediated by information technology (Koh & Kim, 2003), in this case, e-participation technologies. Little is known about the factors that drive the intention to continue using e-participation in the post-adoption stage from a perspective of SOVC. This article makes two contributions to fill the existing gap. First, the article explores the association of sense of virtual community on the use and on the continuous intention to use e-participation. Second, we propose a research model that evaluates the association of habit and facilitating conditions with the use and continuous intention to use e-participation. Habit and facilitating conditions are part of the extended unified theory of acceptance and use of technology (UTAUT) (Venkatesh, Thong, & Xu, 2012).

The research model is tested using partial least squares structural equation modelling (PLS-SEM) (Hair, Hult, Ringle, & Sarstedt, 2017) with the data collected from 370 respondents through an electronic questionnaire that was applied to the users of the participatory budgeting, an e-participation platform managed by the municipality of a Portuguese city from 2008. According to The World Bank (2007), “through participatory budgeting, citizens have the opportunity to gain first-hand knowledge of government operations, influence government policies, and hold government to account”.

The rest of the paper is organised as follows: Section 2 presents a literature review of the role of e-government as a facilitator of public participation. Section 3 provides an introduction of the electronic participation systems in the post-adoption stage. Section 4 provides a theoretical background of the sense of virtual community theory and its dimensions. Section 5 introduces the research model development and hypotheses. Section 6 describes the methodology, including the description of the research context, measurements, and data collection. Section 7 presents the results of measurement and structural model evaluations. Section 8 provides a discussion of results, and finally, conclusions and directions for future research are presented in Sections 9 and 10, respectively.

## 2. E-government as a facilitator for public participation

Electronic government (e-government) has evolved significantly in the last years. Initially, the primary purpose of e-government was to provide a set of online transactional services, such as utility payments or submission of income tax, and information for citizens. Governments are increasingly adopting the use of technologies, for example, Geographic Information Systems (GIS), e-participation for public decision-making, or open data are commonly available in most government web portals (United Nations, 2018). The new generation of e-government is widening its scope to increase the interaction with citizens and addressing new challenges in society. E-government improves citizen engagement, transparency and accountability of local authorities (United Nations, 2018). According to the United Nations (2018) report, the increasing number of citizens engaging in e-government for decision-making will assist in making cities more inclusive, sustainable, safe, and resilient.

E-government allows a multiple-way interaction between the citizens and the government (Welch, Hinnant, & Moon, 2005). For instance, online social networks like Facebook or Twitter have been adopted by governments to promote transparency and citizen engagement through voluntary reporting (Bonsón, Royo, & Ratkai, 2015). The implementation of policies that promote open government and e-participation, especially from local governments at city level (Sivarajah

et al., 2016), may lead to a number of benefits for the community (Mirchandani, Johnson Jr, & Kailash, 2008). As for instance, increasing trust in government (Bélanger & Carter, 2008), citizen satisfaction (Jun, Wang, & Wang, 2014), or even engaging citizens in public e-service development (Holgersson & Karlsson, 2014).

Engaging citizens to contribute through public participation is considered a voluntary action from the citizens perspective that aims to produce an impact in the community. E-participation for decision-making and policy-making implies that citizens will share and discuss their ideas and views on e-participation platforms. Therefore, the drivers for e-participation are probably different to the drivers of traditional e-government services adoption. We approach citizen participation through e-government taking into consideration that the sense of community is a critical driver for the successful adoption (Bonsón, Torres, Royo, & Flores, 2012; Mirchandani et al., 2008).

## 3. An overview of e-participation in the post-adoption stage

E-participation is the use of Information and Communication Technologies (ICTs) to support “top-down” engagement and empower citizens and civil society organisations (Macintosh & Whyte, 2008). E-participation is seen as a type of e-government service (Lee & Kim, 2014) with a special focus on citizen engagement for deliberation and decision orientation (Welch, 2012). In this study, e-participation is considered to be of a citizen-initiated nature, which implies that although the e-platform can be sponsored by the government, the initiatives, namely proposals, petitions, online voting, or suggestions, originate from the citizens toward the government. The continuous use of e-participation may promote citizen engagement in collaborative governance (Pereira, Cunha, Lampoltshammer, Parycek, & Testa, 2017).

Rodríguez Bolívar, Alcaide Muñoz, and López Hernández (2016) suggest that e-participation is a leading research topic in e-government literature for both developing and developed countries, although studies in developed countries focus more on the latter stages of e-government initiatives, whereas the developing-country focus is more on the early stages. The implementation of e-participation platforms like online participatory budgeting (Allegretti & Antunes, 2014) in some cities in Portugal already crossed the barrier of acceptance a number of years ago. Nevertheless, acceptance is not the ultimate indicator of success in e-participation implementations. The challenge after acceptance is to assure its diffusion and continuous usage.

Jaspersen, Carter, and Zmud (2005) define post-adoption behaviour as “the myriad feature adoption decisions, feature use behaviours, and feature extension behaviours” performed by an individual after the use of a system. In our case, the system is e-participation. Most of the earlier studies that contributed to the understanding of the factors that affect post-adoption behaviour in different contexts of technology adoption focus primarily on the analysis of satisfaction (Cho, 2016; Li & Liu, 2014; Liao, Palvia, & Chen, 2009; Tojib & Tsarenko, 2012). However, more recent studies have found out the existence of other factors with stronger predictive power for specific contexts of technology adoption. For instance, Ong and Lin (2016) found out that well-being was the strongest predictor of continuance intention in the context of online social networks. They suggest that exploring new constructs may contribute to the understanding of the continuous intention to use the technology. Sun (2013) found out that technology adoption motivated mainly by herd behaviour leads to not meeting the initial expectations in the post-adoption stage, thereby increasing the risk of discontinuation or abandonment of the previously adopted e-participation.

## 4. Sense of virtual community (SOVC)

SOVC is defined as the individual perception of belonging, identity, and attachment to a given community with a communication mediated by ICT (Cheng, Tsai, Cheng, & Chen, 2012). When this perception is

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