



Chapter 70

E-Totem, Digital Locative Media to Support E-Participation in Cities


Vasco Furtado

 <https://orcid.org/0000-0001-8721-4308>
Universidade de Fortaleza, Brazil

Lanna Lima

 <https://orcid.org/0000-0002-3834-9748>
Universidade de Fortaleza, Brazil

Daniel Almeida Chagas

 <https://orcid.org/0000-0002-0481-7259>
Universidade de Fortaleza, Brazil


Vladia Pinheiro

Universidade de Fortaleza, Brazil


Carlos Caminha

Universidade de Fortaleza, Brazil

Elizabeth Furtado

 <https://orcid.org/0000-0002-1584-3161>
Universidade de Fortaleza, Brazil

Matheus Mafra

 <https://orcid.org/0000-0002-5099-2111>
Universidade de Fortaleza, Brazil

ABSTRACT

The relationship between governments and their citizens has changed with the rise of ICTs. Even if these changes can strengthen the active role of society in the control and participation of public administration, there is a risk that this process can increase exclusion especially in developing countries, mainly because a large part of the population does not have access at all times to the facilities and services provided by ICTs. This article describes e-Totem, a software and hardware platform produced to support inclusive e-participation in large cities. It is also described three popular participation initiatives implemented using the platform, from which hundreds of thousands of citizen interactions were obtained from the platform. e-Totem is customized to be inclusive and suitable for use in such a wide variety of scenarios as well as being used by such a significant volume of people.

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INTRODUCTION

Information and Communication Technologies (ICT), especially mobile technologies and the Internet, open up possibilities when rethinking the relationship between governments and their citizens, which can strengthen the active role of society in the control and participation of public administration.

A natural consequence of this context is the emergence of the concept of e-Participation, which can be defined as the process of involving citizens through ICTs in politics, decision-making, and the design and delivery of services in order to make them participatory, inclusive and deliberative (UN, 2016).

Although many cases of e-participation have emerged in the world (United Nations Department of Economic and Social Affairs, 2016), it is important to emphasize that, particularly in developing countries, there is a risk that this process will increase the exclusion of certain sectors of society.

This is mainly because a large part of the population does not have access at all times to the facilities and services provided by ICTs. In Brazil, for example, despite the fact that more than 90% of people have a cell phone, in 2016, only 46% of Internet users had individual access to mobile Internet (data internet access). For the most disadvantaged classes (classes D and E¹), this number is reduced to 31%. For people receiving up to a minimum wage, which represents 25.17% of the active population, this percentage drops to 27% (CGIBR, 2017). For the section of the population who are illiterate, this figure is 20% (CGI, 2017). Let us imagine, for example, the amount of data that the municipal administration would be losing, if at a certain moment when a user, who is looking for a public service and is not served, did not have access to the technology to express their opinion and dissatisfaction?

E-participation must consider the difficulties of the less well-off population in having access to digital communication channels with the government. Considering the need for an inclusive e-participation process,

we have designed and implemented a methodology, supported by a hardware and software platform, to be implemented in pre-defined public spaces. The complete solution was developed in close partnership with the municipal government staff of a large Brazilian city, with the application of participatory design techniques (interviews, product design, prototypes and tests) that provide the specification of the following requirements already highlighted by the scientific literature:

1. There should be alternative ways to provide inexpensive e-participation for the large part of the population who do not have ready access to digital services as close as possible to the context of the public service provided (Ergazakis, Metaxiotis and Tsitsanis, 2011);
2. The solution must have its own mechanisms that facilitate the interaction of citizens, a citizen-centric application (Furtado, Caminha, Ayres, & Santos, 2012), providing trustable, friendly interfaces and with the possibility of anonymous and reliable participation (Mensah I.K., 2018);
3. There should be alternative and complementary solutions to analyze the data collected from the devices, in order to evaluate the public policies implemented as well as the level of social participation (Santos, Tonelli and Bermejo, 2014).

In this article we describe the innovative way we proposed to attend the aforementioned requirements via a platform with its software and hardware modules, called e-Totem. The innovations come from the fact that e-Totem is an inclusive-based methodology that uses a low-cost customized digital locative media in which digital devices capture and/or convey information directly connected to a physical space (Santaella, 2008). Moreover, we also proposed a software platform for issuing and receiving informa-

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