

An interaction model to enhance civic engagement with affordable technology

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ABSTRACT

Over last decades we have been witnessing how initiatives for promoting smart cities have been growing. Approaches focused data driven systems and information and communication technologies (ICT) have been used to propose solutions for complex problems such as energy efficiency, transports and civic engagement. Currently affordable technologies such as smartphones could be the foundation to enhance the interaction between citizens and urban environments in order to improve the civic engagement. However, there is still an open question: how could be a good approach to study the relationships between citizen and these applications?

This work presents the proposal of a conceptual model to study how pervasive technology and interfaces could enhance the interest and the participation of citizens in different contexts of civic engagement. The aim is to understand how to generate community awareness through user engagement. To carry it out, we have designed three study cases which will explain below.

The conceptual model (Figure 1) has three main components: user (citizen), technology (smartphone) and civic engagement. The arrows represent the relationships between citizens and the affordable technology in order to observe how to enhance the civic engagement. The first component defines the user of the system: citizen (Knowledge and Skills). These citizens are mobile urban nomads, civically aware but not civically active [5]. The second component of the model set the technology of use. The third component (civic engagement) is composed of three main components: motivation, action and learning. These concepts are related with three practical study cases. The first one aims at improving the citizens motivation, promoting the knowledge of some historical place. To achieve it, we developed a mobile AR pervasive game [4]. The evaluation of the game demonstrated that the game helped to create a tighter connection between participants and the explored environment. As next step, we propose two new case studies. One of them will center on empowering the participation in collecting information for some communities. The other one will promote learning about science knowledge.

To research the correlation between the different elements of the model, we apply the following concepts. To study the intention of use between citizens and technology, we propose the Mobile User Engagement Model (MoEn) [1] in order to examine the smartphones user's motivation in some

activities. It is based in mental and emotional components such cognition, affection and conation. Furthermore, we use the operational model of O'Brien and Toms [2], between the technology and civic engagement components. This model defends the engagement as a user experience characterized by challenge, aesthetic and sensory appeal, feedback, novelty, interactivity, perceived control and time, awareness, motivation inters and affect. Finally, we use the Motivational Affordances Theory [3] to relate citizens with civic engagement. This theory claims that the motivation is afforded when the relation between the features of an object (application) and the abilities of the subject allow the subject to experience the satisfaction of such need when interacting with the object affordances.

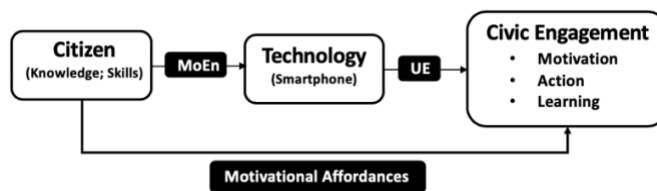


Figure 1: Interactive Model to enhance Civic Engagement

As a result, we will gather different concepts and models to propose an interaction model with the aim of enhance the civic engagement thought the evaluation of three case studies.

CCS CONCEPTS

• **Human Computer Interaction** → Civic Engagement; Affordable technologies; User Engagement

KEYWORDS

Civic Engagement, interaction model, affordable technologies.

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REFERENCES

- [1] Kim, Y.H. et al. 2013. A study of mobile user engagement (MoEn): Engagement motivations, perceived value, satisfaction, and continued engagement intention. *Decision Support Systems*. 56, 1 (2013), 361-370. DOI:https://doi.org/10.1016/j.dss.2013.07.002
- [2] O'Brien, H. L., & Toms, E.G. 2008. What is User Engagement? A Conceptual Framework for Defining User Engagement with Technology. *Journal of the Association for Information Science and Technology*. 59, 6 (2008), 938-955. DOI:https://doi.org/10.1002/asi.
- [3] Ping, Z. 2008. Motivational Affordances: Reasons for ICT Design and Use. *Communications of the ACM*. 51, 11 (2008), 145-147.
- [4] Sánchez-Francisco, M. et al. 2018. Improving Urban Environment Awareness Through Pervasive AR Games. *Proceedings of the 2018*

International Conference on Advanced Visual Interfaces. (2018), 82:1--82:3.
DOI:<https://doi.org/10.1145/3206505.3206586>.

- [5] The impacts of civic technology conference: 2017.
<https://tictec.mysociety.org/2017/presentation/interested-bystander-context>. Accessed: 2019-06-16.