

## Towards Mapping Experience Design for the Internet of Things

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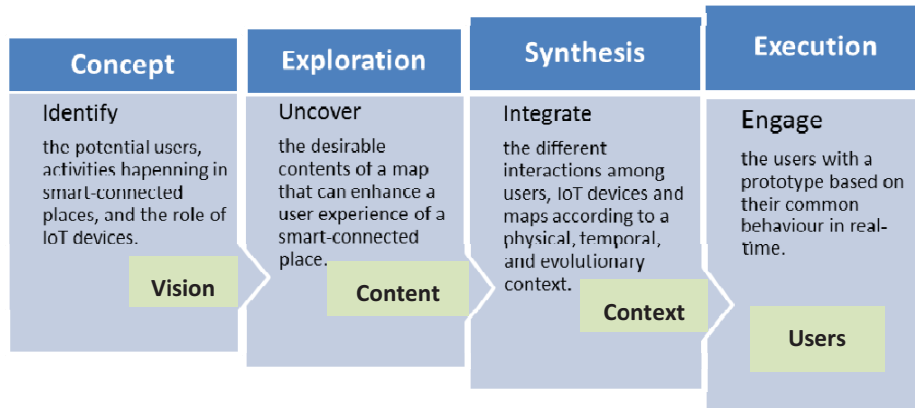
### Extended Abstract

We are witnessing a fundamental transformation in how Internet of Things (IoT) is having an impact on the experience users have with data-driven devices, smart appliances, and connected products. The experience of any place is commonly defined as the result of a series of user engagements with a surrounding place in order to carry out daily activities (Golledge, 2002). Knowing about users' experiences becomes vital to the process of designing a map. In the near future, a user will be able to interact directly with any IoT device placed in his surrounding place and very little is known on what kinds of interactions and experiences a map might offer (Roth, 2015). The main challenge is to develop an experience design process to devise maps capable of supporting different user experience dimensions such as cognitive, sensory-physical, affective, and social (Tussyadiah and Zach, 2012). For example, in a smart city of the future, the IoT devices allowing a multi-modal interaction with a map could help tourists in the assimilation of their knowledge about points of interest (cognitive experience), their association of sounds and smells to these places (sensory-physical experience), their emotional connection to them (affective experience) and their relationships with other nearby tourists (social experience).

This paper aims to describe a conceptual framework for developing a Mapping Experience Design (MXD) process for building maps for smart connected places of the future. Our MXD process is focussed on the cognitive dimension of an experience in which a person perceives a place as a "living entity" that uses and feeds through his experiences. We want to help people to undergo a meaningful experience of a place through mapping what is being communicated during their interactions with the IoT devices situated in this place. Our purpose is to understand how maps can support a person's experience in making better decisions in real-time.

Our design proposal is based on the premise of cognitive adequacy of a map as raised by Strube (1992) and Klippel et al. (2005) which takes into account a certain correspondence between perceptions or internal representations (i.e. cognitive maps) and external environment (i.e. smart-connected places) for a given experience. Therefore, the proposed MXD process

consists of four phases that support an iterative process where the outcomes of one phase are used as an input for the next phase (*Figure 1*).



**Figure 1.** Overview of the four phases of our mapping experience design process.

The proposed MXD process is currently being developed for enhancing a tourism experience in a city where the aim is to allow tourists improve their experience with smart-connected places and help them to make better decisions during their daily tourist activities. The preliminary results are promising towards making maps of the future that fulfill true user needs in an effective understandable way by enabling new experiences in an increasingly interconnected world. Our proposed MXD process is a new approach that has moved away from the origins of mapping design to communicate the cartographer's representation and interpretation.

## References

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