

# Chapter 4

## Technological Advancements and Distortion of Notion of Place: Ontology of Place and Opportunities for Applications

**Homer Papadopoulos**  
*NCSR Demokritos, Greece*

### ABSTRACT

*Technological advancements now extend to mobility, place, and memory adding new complexity to the notion of place and space. Place now considered as an important concept in the context of technology adoption and the usage of data services. There is need to understand the ontology in both the digital and physical space. The aim of this paper is to propose a new extended model to analyse the ontological determinants of physical and digital space and to gain insight into the new experiences and the usage behaviour of data services. An extended model of place was generated, adopting the humanistic geographical perspective as represented by Tuan's theory, which can be served as a sensitizing device in order to interpret and analyse the collected data. The proposed extended model can assist designers, developers and researchers to understand users' experiences when interacting with their surrounding environment (physical and virtual) when adopting new technologies and using data services.*

### 1. INTRODUCTION

Recent technological advancements such as the smart-phones, cloud computing and mobile Web 2.0 services Yoo et al. (2008), mobile platforms such as IOs<sup>1</sup> and Android<sup>2</sup>, social-networking apps for smart mobiles, are constantly release information to the mobile phone users as they travel through the environment realizing the idea of ubiquitous computing environments (Lyytinen & Yoo, 2002). In parallel as digital storage became cheaper we began archiving many aspects of our lives, including personal videos and photographs on web platforms like Instagram, Twitter, Facebook, Google+, Fog of World<sup>3</sup> and Yelp allowing on real time others to have access to this information. Through Foursquare<sup>4</sup> and

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Facebook Places<sup>5</sup>, individuals can share their location information to their peers showing others their “social status” in terms of what kind of places they “check-in”. Gane and Beer (2008) refer to this as assemblage of practices that are restructuring and remediating our memories and identities. These applications and their maps become a mnemonic presentation of one’s movement through space, helping turn those spaces into practiced places and meaningful encounters. Mobile users are beginning to live through the digital archive since route tracking and checking in help them create personal digital network memory” (Hoskins, 2009) and can refocus on the experiences of places and play with the rich connections between memory, mobility and place. Memory is undergoing a process of becoming embedded in digital media technologies changing social practices.

These technologies that provide this always-on connectivity, data connectivity, access to information, but also a lot of rich sensing alter both the dimensions of the spaces within we operate, are transforming our consciousness about the space and the place. For example, mobile technologies contribute to a disassociation of place, allowing individuals to personalize space in public settings (Morley, 2003) and are diluting our sense of place since we are less aware of our environment because GPS are distracting us from keeping that positive feeling of sense of place.

All these new advancements have generated an ever-increasing interest in how we interact with the physical environment emphasizing on the importance of understanding the connections between places and the use of technology (Moran & Dourish, 2002).

In parallel, virtual reality and augmented reality technologies which provide the ability to augment real-world spaces with virtual objects or even layered spaces lead to the distortion of the traditional sense of space and place. Bits co-exist with atoms allowing the physical space to be replaced or co-exist with virtual space. The place now is being transformed into a hybrid medium of physical and digital co-present context (Ito, 2003) generating among the others a fluid social topology (Kakihara & Sorensen, 2002).

The release of Augmented Reality browsers<sup>6</sup> and Augmented Reality development platforms<sup>7</sup> has enabled other people to develop uses for AR on smart phones and tablets. Using GPS co-ordinates and the built-in digital compass applications like the Tweepers Around<sup>8</sup> (3D) have been released, allowing users to see location-based tweets from Twitter in their area, augmenting place experience and changing individual relationship with the spaces around them.

A number of general frameworks and models for the study of applications and their adoption have been proposed often including variables such as location awareness (Chang et al., 2007; De Vos et al., 2006). Research on location-based mobile games for example has shown that people using such applications change their paths through the city to achieve gaming goals (Frith, 2013; Licoppe & Inada, 2006), turning the physical world into an “entertainment” space and turning movement into a game (De Souza e Silva & Hjorth, 2009). Apparently mobile technologies affect the ways users engage with the places through which they move (De Souza e Silva & Frith, 2010; Frith, 2015; Wilken, 2010).

The study of space is quite complex and “fuzzy” and therefore the design of applications like mobile applications cannot be completed without understanding how the new artefact of place may fit in a number of possible use case scenarios (Pedersen, 2001; Petrova, 2007). Therefore, there is a need for a better understanding and more detailed study of how new technologies distorted the notion of place and which are the opportunities for applications exploiting these new hybrid/blurred places.

This paper aims to offer a new framework to study, as well as to give some insight into the interaction of the environment, namely the notion of place, with the usage behaviour of individuals who access advanced technological services. The paper investigates how the “materials” of place, as defined by Tuan (1977), are augmented by new technologies and proposes a model that can be used as a sensitizing device to study and interpret physical and digital space and place.

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