# Chapter 28
# Social Media Data Analysis in Urban E-Planning

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## ABSTRACT

*Computational social media data analysis (SMDA) is opening up new possibilities for participatory urban planning. The aim of this study is to analyse what kind of computational methods can be used to analyse social media data to inform urban planning. A descriptive literature review of recent case study articles reveal that in this context SMDA has been applied mainly to location based social media data, such as geo-tagged Tweets, photographs and check-in data. There were only a few studies concerning the use of non-place-based data. Based on this review SMDA can provide planners with local knowledge about people's opinions, experiences, feelings, behaviour, and about the city structure. However, integration of this knowledge in planning and decision-making has not been completely successful in any of the cases. By way of a conclusion, a planning-led categorization of the SMDA method's tools and analysis results is suggested.*

## INTRODUCTION

The growth of Internet and social media use is providing new opportunities for communicating with and understanding local communities and people. Increasing mobile use and location based social media services are providing a huge social data source that contains data about people's behaviour, mobility and feelings about places. Social media data analysis methods have been widely developed and studied in other research areas, such as political science and commercial fields like marketing. For example, some location based data analysis methods have been developed for understanding business related issues like tourist travel behaviour and mobility patterns (Zheng, Zha, & Chua, 2012). In recent years, interest in these methods has also been increasing in urban planning practice. For example, in Turku, Finland, a case study was carried out that aimed at providing information about user mobility and place based experiences (Cerrone, Pau, & Lehtovuori, 2015) with geo-tagged social media data.

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In this article, recent academic social media case studies are reviewed and analysed in order to gain an overall picture of the use of SMDA in urban e-planning. This review will bridge the gap between urban planning and urban computing, which has its theoretical background in the computational sciences. Understanding the computational methods in detail is not the focus of this article. Instead, this study concentrates on the applicability of the data analysis methods and their end-results with respect to urban planning. In general, it is argued that data analysis does provide information that can be used in planning, but that there is an evident gap between SMDA and urban planning practices.

In this introduction, I will present the theoretical background for this study, participatory urban planning, and define the concept of social media in this study and related works. The rest of the article is organized as follows. Section 2 presents the research method, a descriptive literature review and the limitations of the study. The results (section 3) comprise a summary of the reviewed articles, such as the data and methods used. Section 4 elaborates the results and presents the classification of the methods of analysis from the viewpoint of participatory urban planning practices. Finally, section 5 discusses the findings and section 6 concludes the article.

## Contemporary Participatory Urban Planning

Urban planning is a multidisciplinary and communicative practice that aims to create and foster liveable, sustainable, functioning and successful cities and areas. Planning is inseparably linked to decision-making and public policy making. For example, Eräranta and Staffans (2015) point out that rapidly changing conditions challenge urban planning practices striving to achieve more effective planning processes. They point out that issues like urbanization, climate change, globalization and societal differentiation are challenges that increase the need for better insight into the city and its users and the need for a holistic understanding of the planning ecosystem. The need for better informed planning and decision-making has been emphasized by other scholars in the urban planning field, too (Campagna, 2014; Campagna, Floris, Massa, Girsheva, & Ivanov, 2015; Evans-Cowley & Griffin, 2011).

The focus of planning is in most cases to change, create or to make it possible to create a place or area that can better serve the needs of people – economically, culturally and socially. An urban planner must have insight into the current situation of the place and the desired change in that place. Participatory urban planning is a user-centred approach that requires knowledge about how people use and experience places, and why they do so (Eräranta & Staffans, 2015). Digitalization is providing new possibilities for acquiring better knowledge, based on various data sources. Planning and decision support systems are information management systems that enable all stakeholders to get access to planning information (Eräranta & Staffans, 2015). User generated social media data can be seen as a valuable data source for planning as well.

The participatory planning approach is connected to deliberative democracy and the so-called communicative turn in urban planning. Pluralistic public discussion and argumentation are means to legitimate problem-solving in the deliberative model (Bäcklund & Mäntysalo, 2010). Communicative planning theory emphasizes the role of different stakeholders in the practice underlining the process and the content of planning (Healey, 1999). Building on the Habermasian idea of communicative action, communicative theory aims to reach a consensus between stakeholders. The ideal of a consensus-oriented process has been strongly criticized by theorists, because in planning, conflicting viewpoints and values always exist. However, communicative planning theory "defines an important role for the citizens as actors contributing to planning argumentation" (Bäcklund & Mäntysalo, 2010, p. 341).