

Chapter 9

Measuring Ambient Urbanities: Metrics, Standards, and Indices

ABSTRACT

The purpose of this chapter is to explore mechanisms and potentials for measuring ambient urbanities. This work advances the ambient metrics concept as a way of shedding light on the evolving nature of measures, standards, and indices required by more dynamic, adaptive, and aware environments, characteristic of smart and responsive cities. In the form of ambient metrics, measures are sought that support more informed city experiences, increased engagement and participation, and improved quality of urban life. The research literature for smart city metrics, standards, and indices is explored in this chapter enabling identification of issues, controversies, and problems. Using an exploratory case study approach, solutions and recommendations are advanced. This chapter makes a contribution to the research literature for smart city metrics, standards, and indices; the evolving of urban theory for 21st century cities; and urban theory in formulating a conceptual framework for rethinking measures for smarter urbanities.

1. INTRODUCTION

The purpose of this chapter is to explore mechanisms and potentials for measuring ambient urbanities. This work advances the ambient metrics concept as a way of shedding light on the evolving nature of measures, standards, and indices (ISO, 2018; ISO, 2017; ISO, 2016; ISO, 2014; BSI, 2014d) required

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by more dynamic, adaptive, and aware environments, characteristic of smart and responsive cities. In the form of ambient metrics, measures are sought that support more informed city experiences, increased engagement and participation, and improved quality of urban life. The research literature for smart city metrics (Cohen, 2014; BSI, 2014d), standards (Lea, 2016a; 2016b), and indices (PSD, 2016) is explored in this chapter enabling identification of issues, controversies, and problems. Using an exploratory case study approach, solutions and recommendations are advanced. This chapter makes a contribution to: a) the research literature for smart city metrics, standards, and indices; b) the evolving of urban theory for 21st century cities; and c) urban theory in formulating a conceptual framework for rethinking measures for smarter urbanities.

Objectives: The objective of this chapter is to explore metrics, standards, indices, and indicators in smart cities in the context of emerging aware technologies and more aware people for improved livability, more informed urban experiences, and more meaningful engagement and participation. As such, the key research question posed is – How and why are metrics important for ambient urbanities in smart cities?

2. BACKGROUND AND OVERVIEW

Marsal-Llacuna (2015) advanced the need for “measuring the standardized definition of smart city” while arguing for “global metrics” in relation to “urban smartness.” In view of the emergent and continually evolving nature of smart city development, Lea (2016a) identifies the need for “making sense” of the landscape for standardization while describing the range and interrelationships of standards developed to date. For example, this chapter draws on the research literature for smart city standards (ISO, 2018; ISO, 2017; ISO, 2016; ISO, 2014; BSI, 2014a-d), metrics (Lea, 2016a-b), indices (PSD, 2016), data (WCCD, 2014), indicators (GCI, 2011), and other emerging measures (Díaz-Díaz, Muñoz, and Pérez-González, 2017) for understanding the smartness of cities in terms of sustainability and a wide range of other elements. Challenges (Cohen, 2014; BSI, 2014) and opportunities (Lea, 2016a; 2016b) for smart city metrics are discussed and approaches are explored to generating more dynamic and adaptive measures of smartness and associated

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