

## Chapter 43

# Information Security and Ecosystems in Smart Cities: The Case of Dubai

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### **ABSTRACT**

*The purpose of this article is to evaluate the impact of ecosystems on Information Security in Smart Cities using Dubai as a case study. Innovative interconnected systems can affect the integrity of the information used by residents and citizens if not properly secured. The case study research method was used to examine the impact of the Internet of Everything on secure information exchanges. Data collected from the case study was used to assess the smartness of the urban development in managing its communication processes and information assets in a secure and confidential manner. The limitations of the study are found in its focus on one single city. By evaluating processes used to obtain information from interconnected systems, steps can be taken that would help to reduce threats in thriving innovative urban environments. The findings support the theory and perceptions held by management practitioners and information security specialists.*

### **INTRODUCTION**

“Creating happiness is the result of the Smart Cities agenda. ... It is vital because if people are not happy, they don't stick around in the city, they leave ... We need to be innovative ... [and] have to make sure that we attract the right talent and investment” (Ahmed Bin Byat, 2016) quoted in, a report by Keenan, J. March 16, 2016 in the Guardian Newspaper:

*Some people want to fine tune a city like you do a race car but they are leaving citizens out of the process ... Government doesn't make decisions like businesses do. Citizens are not consumers. (Townsend, 2015)*

DOI: 10.4018/978-1-5225-7030-1.ch043

## **Information Security and Ecosystems in Smart Cities**

*The Internet of Everything [IoE] is built on the connections among people, processes, data, and things. However, it is not about these four dimensions in isolation. Each amplifies the capabilities of the other three. It is in the intersection of these elements that the true power of IoE is realized. (Dave Evans, 2013)*

*The Internet of Everything [IoE] brings together people, process, data, and things to make networked connections more relevant and valuable than ever before—turning information into actions that create new capabilities, richer experiences, and unprecedented economic opportunity for businesses, individuals, and countries. (Dave Evans, 2012)*

Analysis and discussions about rapidly evolving Smart Cities processes often detach theoretical, methodological, and technical aspects from the cities themselves. This research explores Dubai's endeavor to become a smarter city, and its desire to join the ranks of the smartest.

Dubai ranks as one of the leading Smart Cities using strategic technology, innovation and management (Efthymiopoulos, 2016). Excessive urbanization in Smart Cities can exert enormous pressure on its traditional infrastructures, and information and communication technologies (Lee et al., 2016).

With its legendary infrastructure, technical advancement and the quality of human resources, Singapore's smart services are expected to be highly advanced (Hwang & Choe, 2013). Privacy protecting systems that gather data and trigger emergency response when needed are technological challenges that go together with the continuous security challenges. Their implementation is essential for a Smart Cities in which we would wish to live (Elmaghraby & Losavio, 2014).

In his 2013 description of how the future already contains the hallmark of Smart Cities technologies, Cisco Systems Futurist Dave Evans presents the Internet of Things (IoT) as a larger integrated system, the Internet of Everything (IoE), which has become a buzzword for Cisco's Smart Cities management package. But the four interdependent elements people, processes, data, and things, represent the nexus for smart processes that will transform urban life in this century, and thus the global capitalist system (GCS), there being no immediate alternative to the GCS. With over 50% of the global population already urbanized, and expectations of its rise to 75% before the end of the century, cities must either take a smart path or collapse into dysfunctional chaos. But what has not been promoted in the discussion is cost.

To become smart takes a combination of financial and knowledge capital, a process many cities are being priced out of. In the U.S., Detroit teeters on the brink of being a failed city, just as Somalia represents a failed state. Many experts argue that, like in the ancient world, cities are emerging as global forces more important than the nation states they inhabit, and thus urban governance must evolve a high degree of autonomous political economy.

While globalization has not yet peaked like petroleum reserves, cities continually increase their presence and power as players in an interconnected world system of trade, supply chains, labor mobility, and capital flows. In today's multipolar world, nation-state systems face internal and external challenges from powerful private sector forces as much as from inter-state rivalries and internal devolution, a scenario within which large cities gain power.

As with all evolutionary changes in technologies and energy systems, the IoT / IoE / Smart Cities amalgam represents an irresistible dynamic force of history. But like all such forces, there are winners and losers, it is always somewhat of a zero-sum game. The bottom line for Smart Cities play remains, first and foremost, the financial capital to buy into a costly and technological heavy infrastructure. As we assess Dubai, we will see that its demographics of 90% foreign expatriates pose a problem for the

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