

## Chapter 5

# Framework and Structure of Smart Cities

**Xinwen Gao**

*School of Mechatronic Engineering and Automation, Shanghai University, Shanghai, China*

**Lining Gan**

*SILC Business School, Shanghai University, China*

### ABSTRACT

*This chapter introduces the core part of the smart cities technology reference model. From the perspective of the overall construction of urban informatization, this chapter puts forward five levels of elements and three support systems. The upper layer of horizontal level elements has a dependency on its lower layer, and the lower layer serves the upper layer. Each layer completes its own functions, and the layers cooperate with each other to improve the overall efficiency; the vertical support system has constraints on the five horizontal level elements, standardizing the information interaction between layers and promoting the overall development of the model.*

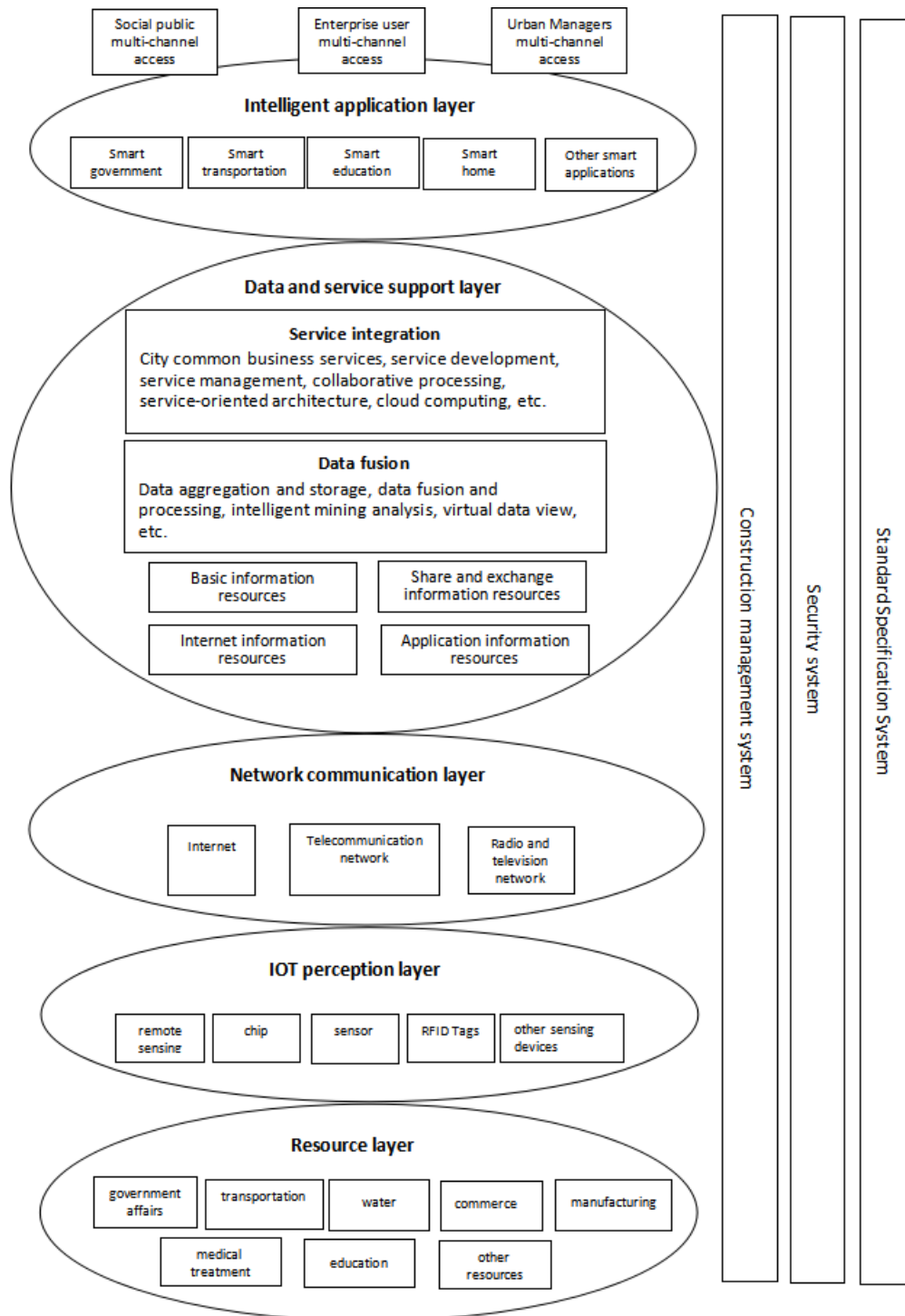
A smart city, originated in the field of media, refers to a municipality using various information technologies or innovative concepts to open up and integrate urban systems and services, so as to improve the efficiency of resource utilization, optimize urban management and services, and improve the quality of life of citizens (Abdoullaev, 2011). A smart city fully uses a new generation of information technology in all walks of life in the city. Based on the next generation of innovation (Innovation 2.0) in the knowledge society, it is an advanced form of urban informatization. To deepen the integration of informatization, industrialization and urbanization is helpful to alleviate the “big city disease”, improve the quality of urbanization, realize fine and dynamic management, and improve the effectiveness of urban management and people’s livelihood quality (Caragliu, Del Bo, & Nijkamp, 2011).

The hierarchical structure of smart cities is based on the Internet of things (Zang, Li, & Wei, 2018), which is divided into five layers: resource layer, perception layer, network layer, platform layer, and application layer. The frame structure (China Urban Science Research Association, 2013) is shown in the figure below.

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Figure 1. Framework and structure of smart cities



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