Chapter 43
Critical Success Factors to Create 5G Networks in the Smart Cities of India From the Security and Privacy Perspectives

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ABSTRACT

Development of cities brings in overall economic growth of the country. As a result, cities are taking new shape with modern facilities to ensure development. In this perspective, Government of India (GOI) has announced to create 100 Smart Cities across different locations in India. In these Smart Cities, modern infrastructure would be created with introduction of modern 5G network systems. This network system is expected to bring in considerable improvements in the Smart Cities if the security and privacy issues involved in this system can be addressed. This chapter has taken an attempt to identify the critical success factors (CSFs) instrumental to improve this network system within the acceptable level of security and privacy vulnerabilities in Smart Cities of India. To identify the CSFs, different standard methods including questionnaire-oriented survey, brainstorming have been adopted. Interpretive structural modelling (ISM) methodology has been used to find out inter-relationships among the CSFs along with identification of driving forces.

INTRODUCTION

Urban setting has undergone radical change due to considerable development of Information and Communication Technology (ICT). As a result, cities are gradually assuming new shape with all modern and updated facilities including facilities of modern networking systems. These cities may be called

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Smart Cities where digitalized services are expected to be readily available. Naturally, in these cities, availabilities of strong and updated networking systems are to be ensured. India is also not lagging in this race of development. For this, Government of India (GOI) has already taken attempts to create 100 Smart Cities across different locations of India. However, complete creation of Smart Cities is in initial stage in India. For such creation, availabilities of all modern facilities including facilities concerning to networking systems are to be ensured (Lovehagen and Bondesson, 2013). The citizens of Smart Cities of India (SCI) would expect to enjoy robust, flawless, updated, quick networking facilities in this digitalized environment. Thus, to achieve this, the factors critical for improving the networking grid systems are to be identified and they are to be nursed properly. This work requires applications of modern techniques. Attempts are being taken to identify these Critical Success Factors (CSFs) instrumental to improve the networking systems with a focus on the security and privacy issues. It is pertinent to mention here that without ensuring proper protection to the security and privacy issues, desired results towards improvement of networking systems can hardly be achieved (Brown and Brudney, 2003). To identify the success factors critical to improve modern networking grid systems within the acceptable level of security and privacy issues, initially, attempts would be taken to detect relevant success factors (Nfuka and Rusu, 2010). To achieve this, several standard processes like questionnaire-based survey, brainstorming method and so on would be taken focusing due attention on security and privacy vulnerabilities within acceptable range. The procedural architecture for identifying CSFs in this context includes detection of success factors and then to filter those to detect CSFs. Once those are (CSFs) identified within the acceptable level of security and privacy issues, the inter-relations among those CSFs are to be identified for better understanding. After that the driving factors from these CSFs are to be identified so that additional attention may be devoted to nurse and nurture the driving forces for betterment of the latest networking systems expected to be used in SCI.

The success factors are identified through different standard methods as mentioned above and those are set into a Systematic Model (Warfield, 1974). To establish interrelationships among those so-identified SCFs and to identify the driving forces, Interpretative Structural Modelling methodology (Singh et al., 2003; Ravi et al., 2005; Raj et al., 2007) has been adopted. This ISM methodology is known to have brought in successful results in many places like Career Planning, Process Designing, E-Commerce issues, Barrier Identifications and so on (Banwet and Arora, 1999; Rajesh et al., 2007).

In this background, this article has taken a holistic attempt to identify the CSFs for successfully establishing the latest 5G grid systems for the SCI with a focus on the security and privacy issues.

SMART CITIES AND SAFE DIGITAL SERVICES

It is expected that in the proposed SCI, the concerned authorities would continuously try to improve the modern digital systems by developing the smart grid networks. The authorities are scheduled to take sincere attempts to plug up any type of unexpected pilferage by tightening the security and privacy issues (Bartol et al., 2011). Digitalization of SCI mainly lies on the updated applications of modern networking systems like 5G. The authorities of SCI are to take sagacious as well as sincere attempts so that the citizens of SCI do not unnecessarily face any unwanted impediment to use new networking systems due to ominous threat of security and privacy issues (Tripathy and Mishra, 2000). In the proposed SCI, the citizens are expected to use online systems for purchasing items with the help of modern digital grid systems. In this process, naturally, some personal data of the purchasers would be disclosed to the