Influence of IoT Policy on Quality of Life:
From Government and Citizens' Perspectives

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ABSTRACT

In this study, an attempt was taken to identify the issues concerning to regulations and governance which could substantially influence the citizens of India relating to adoption of the Internet of Things. The objective of this study is to highlight the importance of Internet of Things policymaking by the Government of India prescribing proper regulatory frameworks and good governance for effective and successful adoption of the Internet of Things by the citizens of India. An empirical approach has been taken for understanding the impact of IoT policy towards adoption of IoT enabled devices by the citizens of India. Structural equation modeling (SEM) has been used towards analysis of the data collected from three metro cities in India. The study finds out the impact of IoT policy towards adoption of the Internet of Things by the citizens in India and its importance towards improving the quality of life of the citizens of India.

KEYWORDS

1. INTRODUCTION

Technology in the digital space has undergone massive transformation during the last few years. It is opined by the experts (Uckelmann et al., 2011, pp. 1-24) of industries that such transformation in India would continue. With such technological transformation, the latest entry in the technology of digital space is Internet of Things (IoT). It may be defined as the technological connection among telecommunication, software and industries connected with electronic hardware. This new technology IoT is considered to bring many new opportunities beneficial to many industries (Gubbi et al., 2013, pp. 1645-1660). This IoT technology is associated with sensors whose number will be increasing to trillions in near future with involvement of IoT applications of multipurpose nature numbering as high as millions (Draft Policy on IoT, GOI, 2015; Chatterjee et al., 2018b). By such progress in this field of technology, the IoT will be able to explore new sections of consumers and would be able to create a completely different type of business behavior demanding increasingly industry solution and this would immensely improve the Information Technology Industry sector fetching trillions of dollars, especially for those industries which would take help of IoT. The use of IoT is increasing exponentially in the world (Acquity Group, 2014, pp. 8-9) and in 2011 it was noted that the IoT

devices had the number around 12.5 billion which surpassed total population of 7 billion of the world. Experts believe that by 2020, the IoT related devices would be between 26 billion to 50 billion in the world (ABI Research, 2013). India will also be able to enjoy the advantages of this new technology. It is pertinent to mention that Government of India (GOI) has proposed to create 100 Smart Cities in India in the first phase. In 2015 budget, a sum of rupees 7000 crores (approx..1.5 billion USD) has been allocated for this purpose. It is expected that this would help the use of IoT and the use would rapidly increase. Again, in this scenario, the Digital India program of GOI, which has an aim to make the Indian society digitally empowered, would help the IoT to flourish out of proportion in India in a very near future. In this connection, IoT policy of GOI would play a crucial role for realization of huge potential of IoT.

Anything which relates to new idea or innovation must be controlled and structured with appropriate policies which should be meaningful and effective, otherwise the idea or the innovation would result in not fetching expected result, neither the citizens concerned would be able to derive appropriate benefits from that innovation or new idea resulting in lower adoption of that innovative technology and consequently, there will be failure of that technology in respect to its adoption (Oh et al., 2003, pp. 267-280; Chatterjee et al., 2018d). IoT is also an innovation and a new idea requiring appropriate policy so that potential users may feel secured, protected and trustworthy to adopt IoT. Series of fruitful analysis on policy matters on different issues have been conducted for decades to address such issues to note that it may not result in failure of adoption (Pigou, 1938). IoT usage in India is in infancy stage and as such, scope of studies for framing policies covering strict regulations and governance are limited though the prospect of IoT technology for improvement of quality of life of citizens of India is perceived to be endless. The IoT technology being a new entrant in India, a comprehensive, effective and implementable policy for IoT is needed to be framed. Be it mentioned here that the issues of regulations and governance are the essential ingredients of IoT policy. Instances are not rare where authorities face much issues for framing rules and regulations regarding any entrance of new technology like IoT (Greenstone, 2002, pp. 1175-1219). In this article, we would begin with discussions on regulations and governance related to IoT policy of Government of India and then we would discuss issues of adoption of IoT in India from citizens' perspective. We would develop a conceptual model after formulation of hypotheses related to IoT policies. Thereafter, we will try to validate the conceptual model and hypotheses with the different standard statistical processes after collecting data with the help of convenience sampling fixing some respondents of some specified metropolitan cities of India. Finally, the article comes out with the final model which is expected to show the impact of regulation and governance of IoT in India from citizens' adoption perspective so far as IoT is concerned.

2. REGULATION AND GOVERNANCE RELATED TO IOT IN INDIA

We have already used the two terms regulation and governance here. Now, things will not be clear if we do not explain the meanings of regulation and governance. The definition of regulation is based on the context in which it is necessary. Having its contextual complexity, the definition of regulation is still a subject matter of discussions on the table. One of the scholars has opined that to clearly understand regulation, the following three definitions are required to be understood and to make a compromising average of the three. They are (i) "the promulgation of an authoritative set of rules accompanied by some mechanism […] for maintaining and promoting compliance with these rules," (ii) regulation means "all the efforts of state agencies to steer the economy" and (iii) regulation means as "all mechanisms of social control - including unintentional and non-state processes" (Baldwin et al., 1998, pp. 3-4, Chatterjee et al., 2018c). We marked that there exists variation of definitions of regulation. However, it is stated that the variations of definitions are contextual-centric. Economists, lawyers, political scientists and consumers relay on the first two definitions given above whereas socio-legal scholars are found to be aligned with third definition of regulation. Again, many authors

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