


Antecedence of Attitude Towards IoT Usage: A Proposed Unified Model for IT Professionals and Its Validation

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ABSTRACT

There has been immense advancement of internet technology. Its latest contribution is internet of things (IoT). It has increasing influence on our daily lives. As a result, it has opened a new field of advantages for providing the citizens new services. The purpose of this study is to provide a comprehensive model of determinants influencing Indian users' attitudes as well as behavioral intention to use IoT. Based on a study of different literature as well as on a study of different theories of adoption, attempts have been made to develop a conceptual model along with prescription of some hypotheses. Those hypotheses subsequently have been tested by the help of different congenial tools after collecting data from 393 respondents through survey. After collection, those data have been analyzed by different relevant tools.

KEYWORDS

Adoption, Behavioral Intention, Cost, IoT, Statistical Analysis, Structural Equation Modelling, Trust, Unified Model

INTRODUCTION

Use of Internet of Things (IoT) has become a current emergent trend in enterprises and in industries. It has become a modern technology of home users. Radio Frequency Identification (RFID) technology is used in this modern IoT technology. For monitoring and control, this modern technology uses as to metering devices including use of actuators and sensors. It is a new technology which would be providing technique for essential integration of data and necessary services converted to information networking technology (Gubbi, et al., 2013). It has become a growing trend to fit internet in objects with an antenna. It would be a new device known as IoT (Miorandi, et al., 2012; Mital, et al., 2015). The IoT is expected to open a new area of business paradigm with huge opportunities. The IoT has aimed to cover more benefits of internets to the users. It can control the system in a remote way for sharing data to objects in physical World (Peoples, et al., 2013). With all these lucrative opportunities, IoT technology has become an important subject and issue by the Government of India (GoI) to utilize the services to be provided by IoT in business fields as well as in the field of use by the individual consumers. Survey conducted by Zebra Technologies in 2014 found that firms in India exhibit a considerable high rate of expected adoption of IoT technology. This rate of adoption has reached 83% and this would increase very shortly. (Monike, et al., 2015). In India, the potential consumers

DOI: 10.4018/IJHCITP.2021040102

have started thinking the use of IoT in homes. It is predicted that in India by 2022, a typical family home would contain almost 500 smart devices with use of IoT (Gartner Smart Home Report, 2015). Hence, the Internet of Things (IoT) will be transformed to Internet of People in India gradually. An object fitted with Internet can communicate with other objects with the help of antenna fitted with these objects constitutes IoT (Uckelmann, et al., 2011). The business of the developed countries has been able to relish the benefits of IoT and India is also not lagging. By 2015, it is noted that number of IoT devices has exceeded number of people of the World (Deutsche, 2012) and it is also expected that 30 billion devices would cover IoT by 2020 (ABI Research, 2013). This will produce huge business opportunities globally and at least 5-6% of this huge business involvement would be covered by India (Gartner Report, 2015). In this background, it is important to motivate the Indian consumers to adopt this new technology. For this, study is perceived relevant in India regarding realization of attitude and intention of Indian consumers to adopt IoT. Ironically, it appears that though some research works are found to have been conducted covering use and application of IoT, but very little studies are there which cover attitude and behavioral intention of the Indian consumers to adopt IoT (Li & Wang, 2013), especially, when use of IoT is gradually increasing in India. This study is necessary to be conducted especially for the Indian consumers since outcome of the study would provide meaningful guidelines for the concerned stakeholders to pull more consumers of India to be involved in adopting IoT. It would help ameliorate the business opportunities in India in near future with the help of IoT technology. Globally by 2015, number of IoT devices has been greater than the world population as was predicted by Deutsche, 2012. Gartner report says that, by 2022, a typical family home would use about 500 IoT enabled devices in their homes in India as already stated. Thus, globally and especially in India, the use of IoT is growing rapidly. This use is bringing in benefits (Chatterjee et al., 2018). Hence, it has become necessary to assess the factors that would impact on the attitude of the users of the IoT. As such, this study has tried to focus attention in identifying the antecedents impacting the attitude of the consumers to use and adopt this IoT technology. In this study, a holistic attempt has been taken to provide a model which would identify the different salient factors affecting attitude and behavioral intention of the consumers of India to use IoT. Here initially policy on IoT by GOI has been discussed. Then history of the growth of IoT globally has been explained. Thereafter studies on different literature along with studies of different adoption theories and models have been conducted scientifically. This will help to develop relevant hypotheses containing the factors affecting adoption by the Indian consumers to use IoT. For hypothesis testing, survey has been conducted to collect data for analysis through different tools and eventually a unified model has been provided. At the end, a précised conclusion has been drawn followed by discussions on limitations of this study.

Role of IT Professionals in Developing IoT Devices

It has been noted that the use of IoT technology is helping to improve the business scenario globally. India is also trying to be a part of this journey for ameliorating the business paradigm with the help of IoT. Taking help of IoT means use of IoT enabled devices for accomplishing various activities. It includes use of smart devices in homes which will be embedded with IoT technology. As already stated, that by 2022, an Indian family is expected to use 500 IoT embedded devices in the home (Gartner Smart Home Report, 2015). Such being the case of development of use of IoT enabled devices in India, the responsibilities of the designers and developers of these sophisticated devices have been increased out of proportion. This has naturally brought in the responsibilities of the IT professionals. IT professionals could be associated with designing and developing these devices (Burrell, 2019). They are needed to arrange to design and develop the devices in such a way that use of these devices should be compatible, simple and easy to use. The IT professionals should be cautious to see that the price of these IoT enabled devices are affordable, especially, in the context of the general economic reality of India (Tomar, 2017; Bhattacharya et al., 2019). To increase the popularity of its usage, these devices must derive many advantages to the users. The IoT enabled devices should be trustworthy, cost effective and so on. The IT professionals should focus their attention on these salient points

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