# Internet of Everything: Unlock the Potential Fear of Sri Lankan Government Sectors

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*Abstract— The internet has evolved in ways that we could never have imagined. The internet now provides the facilities connecting things and making our lives easier than ever before. The Internet of everything (IoE) is an immense concept of CISCO systems and this phase connect people, process, data, and things turning information into actions that create new capabilities, richer experiences, and unprecedented opportunities. There is a huge gap between private sector and public sector when adopting of information technology and information system (ITIS) in to their businesses. Most commonly private sector is having more aggressive to adopt the new technologies, though public sector will be realized it as technological anxiety. The methodology for the research, a mix of quantitative and qualitative was used within an overall action research paradigm. The survey was successfully completed by more than 50 personals who are working on local public sector organizations. This study aims to find out the ways for unlock the fear attached with the government sector organizations when adopting the IoE concepts intention of achieving broader economic and social goals. Therefore, in conclusion, the majority of people were having fear of migrating to IoE owing to security, privacy and lack of trust of advancement of the Information technology.*

*Keywords— Internet of everything, Internet technologies, Government organizations and IT risk management*

## I. INTRODUCTION

According to the Leiner et al., (n.d) the first discussion of concept of the internet placed in year 1962 by J.C.R. Licklider of MIT. The initial concept called "Galactic Network" and licklider's envision was to connect global computers together which everyone could quickly access data and programs from any site. Before reached five years his dreams came to true with the invention of packet Communication concept and Advanced Research Projects Agency Network (ARPANET) design. Invention of Fast communication protocols such as TCP/IP, software applications and other web developments can highlighted among others.

Initially internet related facilities were expensive and limited to government sector and selected people only. As an early example The Defense Advanced Research Projects Agency can named. Then after thousands of researches came in to this arena which the intention of making the concept of global village. In fact, after the introduction of World Wide Web (WWW) the internet relates advancement technologies wrapped up human life dramatically. People were embraced the internet for their daily life by integrating of other facilities like Mobile devices, GPS, communication and etc…

These kind of technologies and other technologies like wireless communication, radio frequency identification (RFID), sensors which makes the Internet of things (IoT) reality. Means the IoT consist of only the things which use to connect with networks. Meanwhile the CISCO introduced the giant, IoE concept adding most important three other elements called main people, Process, data in to the list. Figure 1 shows network connection of IoE.



Figure 1. Network connection of IoE
Source: Mawandia 2014, S.6

So it is reflect the coverage of the IoE. Most of Private IT organization adopts the IoE and its concepts seeing the future of requirement.  On the other hand public sector organization still doubt the adoption of IT advancements. This research is an attempt to find out the ways of fear out the public sector when adopting the IoE and its concepts for their organizations.

II. RELATED WORKS BEHIND THE ANALYSIS

During past decade the internet revolution has redefined business-to-consumer (B2C) industries such as retail, media and banking sector with the advent ecommerce. Considering the Recent advancement in the internet industry it is very difficult to predict the future. The IoE revolution will dramatically alter all sectors such as energy, agriculture, transportation, health, education, etc…

*A. IoT and its involvement*

The world economy forum (2015) highlighted, within the next ten years the internet of things revolution will fundamentally transform how people will work through new interactions between humans and machines. According to their findings vast majority of organizations are still struggling to understand the implications of the Industrial Internet on their businesses and industries. Moreover they have highlighted following opportunities and benefits which IoT adopted companies which enjoying.

- Vastly improved operational efficiency
- Emergence of an outcome economy
- Connected ecosystems
- Collaboration between humans and machines

Also they have pointed out the importance of having unique security framework for face the key challengers, such as security and data privacy.

*B. IoE in public sector*

According to the Bardley et al., (2013) just a broadband has been improved government sector services ever before. Also IoE will help to organizations achieve many public-policy goals, including increased economic growth and improvements in environmental sustainability, public safety and security, delivery of government services, and productivity. These benefits, of course, don't come without costs and public-policy concerns. Their analysis found five primary drivers of IoE Value at Stake for the public sector are,

- Employee productivity
- Connected militarized defense
- Cost reduction
- Citizen experience
- Increased revenue

Authors Bardley et al., listed real world examples which IoE happening public sectors and delivered values.

*i. IoE happening public sectors*
- South Korea - Intention of people to deliver a better quality of living
- United Kingdom – Economy development and smart cities for environment safety
- United Kingdom's Smart Metering program - reduce energy consumption through better awareness of usage
- Spain (Barcelona) - Economy development and smart cities for environment safety

*ii. Delivered values*
U.K - 7 percent crime reduction based on smart lighting
- U.S - 15 percent travel savings due to immersive video
- U.S - 30 percent reduction in waste-collection costs driven by usage of sensors
- U.S - $950 savings per court appearance through use of video technology

According to the Bardley, adoption of IoE in governments will generate two third percent of benefits for civilians. By comparison state and federal 22% and 15% percent of the remaining benefits, respectively. Figure 2 shows the IoE and its benefits.



Figure 2: IoE & Benefits
Source: Bardley 2013, P.9

The governments are having 100% authority of their countries economy. They are main responsibility is to protect their citizens and giving them best quality, affordable, rapid services. So any government need to play major role on maximizing the benefits of IoE and minimize attached negative impacts. According to the CISCO global public sector economy analysis (2013) there are main three key areas any government should focus. Those are,

- Policy and regulation
- Economy development
- Efficiency service delivery

*iii. Steps governments can take*

Thinking country as a whole must need to take strategic approach that involves (CISCO global public sector economy analysis, 2013)

- Investing in high-quality technology infrastructure and tools
- Adopting and following inclusive practices
- Developing effective information-management practices

According to the Digital Vortex business journal by Bardley et al., (2015) provide powerful lesson to adoption of innovation and technology which help to reach top. Figure 3 shows the how one app disrupted an industry.
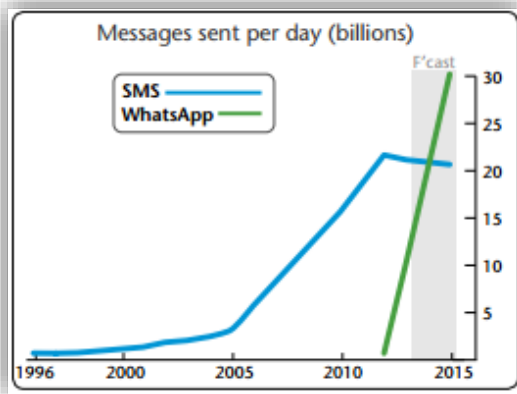


Figure 3. One app disrupted an industry
Source: Bardley 2015, P.1

### III. Methodology

As the chosen methodology for the research, a mix of quantitative and qualitative was used within an overall action research paradigm. The main strategy used to collect information for this research was desk research based survey targeted to CISCO network systems. Both qualitative and quantitative methods were used in favour of getting answers from local government sector. The questionnaire consist of general IT and IoE related factors.

The questionnaire survey was successfully conducted on five local government sector organizations (Out of six) and total 57 personals joined with genuine response. Distribution of questionnaire and getting the feedback was conducted by via email. The selection of government sector organizations was random.

### IV. DATA ANALYSIS

Based on the survey done for local authorities following results obtained. Figure 4 shows the selected sectors and their participation percentage. . The highest response percentage is indicated by the heath care sector and which is 30%. The second highest response percentage is indicated by the education sector (University) and which is 28%. The other sectors such as Municipal, Water and Electricity responses were correspondingly 18%, 14% and 10%. Questioner were distributed to Defence sector but did not received the response on time.
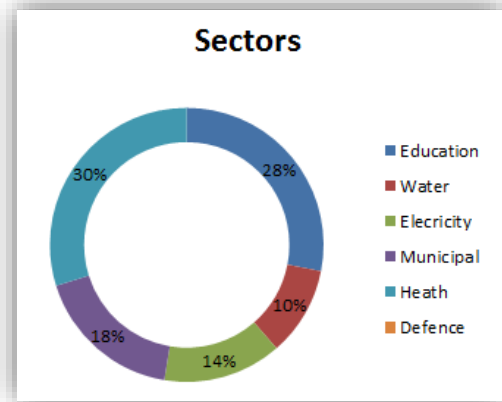


Figure 4. Selected sectors and their participation
Source: Author

Almost all feedbacks were received from departments like IT, Accounts and administration divisions. Total participation results can summarized as figure 5 Feedback among departments.
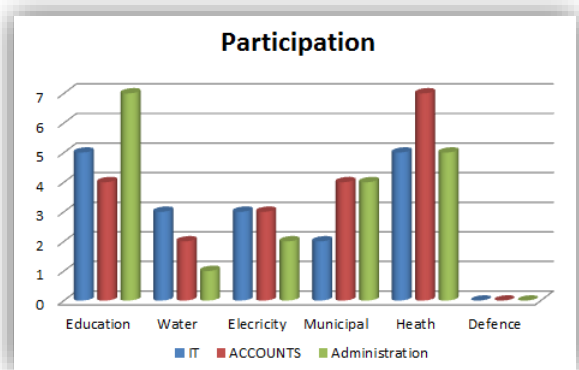


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Figure 5. Feedback among departments
Source: Author

Align the research in correct path the developed questionnaire played tremendous role. Questionnaire consists of 30 MCQs and all participants did not miss one single question. Questionnaire made in both English and Sinhala languages considering target audience. Following figure (Figure 6 shows the Summary of answers received for key questions) is made based on key 10 questions out of 30. (Answers are given based on their knowledge and department in which they are working.)
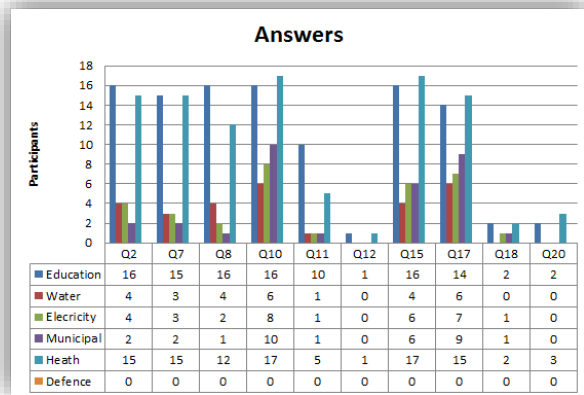


Figure 6. Summary of answers received for key questions
Source: Author

## V. DISCUSSION

The results of this research have shown there are several benefits attached with adoption of IoE concepts in to their businesses. The examples which mentioned in section II are provide live evidences. Analyzing Questionnaire feedback it is clear still Sri Lankan government sectors are far much more behind comparing to the global sector. Any country government sector is the key stakeholder which having 100% authority to bring country forward. It is not easy task to bring the country forward without use of new technology. Results are showing clearly most of government sector organizations are using email and Skype kind of technologies saving money. Almost all organizations do not happy about their IT infrastructure and they wish to adopt in the intention of increase the productivity. Also few of them faced internet related attacks / hackings. As an immediate and timely requirement most of them are agree get good IT trainings under reputed institutions to minimize the human errors and increase the security.

According to the final results most of organizations raised hands to fear of security and privacy issues. Moreover they have highlighted important to have IT policies and security countermeasures which is unique for their sectors.

## VI. CONCLUSION

The IoE concepts are now getting populating among world of business. The rich countries like UK and US always trying to adopt IT in most money draining sectors and environmental affective sectors. As a country we can see lots of role models and how they embrace the IoE concepts to their countries. Considering all facts, priority must be given to improve Security and protect privacy. Also assigning IT trainings which leads to minimize the human errors and to developed self-mitigation plans. Moreover Investment on IT, recruitment of IT professionals and introduction of IT policies will help to fear out the government sector when adopting IoE into their businesses. Furthermore, research can be improved by selecting more government sector organizations (Especially production sector and Defence).

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