

Internet of Things as a Transformation Agent for New Age Businesses: An Empirical Study Current Status and Future Challenges

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Abstract: Internet of Things is transforming the world in every aspect. Businesses are one of the biggest beneficiaries of IoT as they are adapting with the transformation swiftly. Not only the businesses but everything which is connect to these businesses are getting advantages be it a Consumer, Government or other organizations. Digitization and IoT has changed the working approach of the companies. They are shifting more towards a digital path rather staying on a traditional way. This shift has benefitted the companies in many ways like the reach to the potential customer has increased and only interested customer can be targeted. Though the IoT proved to be beneficial but it does posses many threats to the business and to the consumer in the form of security breach and data exploitation etc. This paper with will discuss the current status of IoT in business and also highlight the future challenges might face by them.

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Introduction

Internet of Things offers ample of opportunities to the business. The information system developed by IoT holds a great importance for the organizations. With the increase in transformation and transparency and decrease in operating cost of business, the IoT has helped in creation of million, billion and trillion dollars of industry. The development of smart devices and machines eased the living standards of people and working of organizations. Many devices have facilitated the intelligence interconnection between the consumer and businesses, between one organization and other and between government and businesses. This paved the way of intelligent interaction between the consumer, company and government. The connection is highly digital rather than physical and it is because of the increase in use of digital devices and new technologies. Through automation in most of the industries the cost of manufacturing and production has decreased on a larger level. The IoT has also heightened the use of automated machines and robots in many industries. This has resulted in the automation and also decreased the cost of production. The negative impact of this automation is that it has resulted in the loss of job opportunities and many labors that were working previously in place of those machines unemployed (Reuver, Sørensen, Basole, et al., 2017).

When we look at the old definition of IoT is implies that IoT is just a medium of communication between people via various means but the latest and technological advancement has changed the definition of IoT in this digital era. Now the IoT defines the interaction of people with of help various devices for communication, exchanging problems, solving problems, automation of living standards with the help of smart devices, buying and

selling of products and services, generating ample of opportunities like jobs, entertainment etc. The latest IoT has changed the living of people in every means and with these companies and business has also changed their way of working, producing and manufacturing or products and services. Even the companies also changed the way of selling their products and services. They have shifted their approach from tradition selling towards digital selling or what we call it as online selling. These are helped the companies to directly sell their products or services through their own platforms called applications or websites. This resulted in reduction of middlemen that were previously selling these products through shops. It should be noted that it has not completely eliminated the shopkeepers or middlemen but it has limited their reach to the customers (Kranenburg, Caprio, Anzelmo, Dodson, Bassi, Ratto, 2011).

Though IoT is helping many people and organization in various ways but the biggest threat from IoT is Privacy. The data stored on Internet has enabled the access to data to only friends, family or known members but also to the government, business, and other organizations of alike and to those people who can cause threats and risks. The information of what people eat, where do they leave or what they like is not only available on social media sites but this data is also stored in the new edge smart devices like smart watches and other similar devices. These devices store minute details like location of exercising and running, speed of running and rate of heartbeat. The smart devices have threats of privacy and security of data. The question here arises is who owns this data and at what level they control this data, is it a safe control or disrupting control? It is clear that the data is accessible to many but these should be limit to this accessibility. There should be clarity of understanding in people from where the data is collected and for what purpose it is used. Most importantly it should not harm anyone in any form. The future scope of IoT is vast and so are the challenges (McEwen and Cassimally 2014).

Literature Review

In today's era there are uncountable factors that affect the IoT. The reason behind this is the digital transformation of world and dependency of people on Internet and internet enabled devices. In a study it was found that all digital services have eased the living standards of people by creating conveniences, easy availability of services and most importantly dependency on the internet enabled and smart devices. Communication is one of the factors that paved the way of IoT in the world. The devices that are meant to stay connected have variety of uses like connection and exchange of information in the form of data between the devices and the people. These communicating devices also help to monitor the location of goods and the person handling them. Devices like trackers help the companies to track the real time location of items or parcels. The internet enabled communication devices have proved to be advantageous for the business. The increase in living standards of people demanded complete control and automation in their lives. To make life easy for the people in this engaging and busy world many companies invented such devices that can work on manual command. One such example is Alexa. This device can switch on and off the lights, fan, television and other smart internet enabled devices. This device has benefitted Amazon on large scale. As people are most cost efficient and want to save money in every aspect they

rely more on such devices or machines that are cost efficient and help in reducing electricity, time and resources. This expectation has created an opportunity for many companies to develop such devices that can help people in determining the cost, expenditure and saving (Angelova, Kiryakova, Yordanova, 2017).

The internet enabled world has eased up many things in everyone's life. The major issue this IoT has developed with its emergence is threat to privacy. Today everyone is connected via internet and this aspect of internet has helped many companies in identifying the interests, hobbies, likes and dislikes of people. In a study it was concluded that with the help of this data companies can find the particular consumer who might buy their product or service. The companies pay a lot of amount for this data. This data is used by the companies for their financial gain. But sometimes many fraudulent people can misuse this data. This can even cause problems for those people who don't want their data to be shared. The emergence and urgency of internet has also provided access to low cost of internet connectivity. This has resulted in unprotected sharing of data that can lead to cyber attack and other internet related threats. The technology driven world has also created complexity in devices. Many times faulty or unauthorized devices and scanner can prepare wrong or inaccurate data and can transfer it to wrong person. This can cause a serious problem to a concerned person as the scanners can confiscate their iris, finger prints or other biometric data (Albrecht, 2005).

In a study it was established that IoT has vast implication in business no matter what kind of business or work is carried out by a company. There are many companies that are concerned with different business like transportation, logistics, electronics, car manufacturing, manufacturing of goods, service providers like banks, insurance companies etc. All these companies today need IoT for their efficient working like Transportation and logistics companies need a real time tracker to track their goods or items. Likewise electronics or car manufacturers need smart machines that can eliminate defected products or items used for manufacturing. The manufacturing companies also need automation for the effective and efficient working. This will also reduce the cost of production and ensure zero error. Even the government and its related departments has shifted its goal towards building smart cities, smart e- waste management etc. All these needs have created the demand of software and applications that can monitor or implement all the functioning of businesses, industries and government. This has also created the demand for developing a platform where all these things can be compiled and stay connected. The emergence of IoT has also highlighted the point that the experience of end user should be smooth and free from any error (Atzori, Iera, A., Morabito, & Nitti, 2012).

Today many businesses, companies and even government have failed to protect the data of the customer and public. The future of IoT is far beyond our imagination. The emergence of digital world and aggressive use of internet has created a demand of safe and secure use of the same. To increase the safety and security and to protect the data and privacy of end user more complex approach and technology has been developed which is called Blockchain. This Blockchain technology will not only protect the data but will also enable the use of data monetization. This technology will help to identify the authorized person who has access to data. This will help in the maintaining data privacy which is a valuable resource. Though it is

very important to link the IoT with Blockchain it is also very important to create sun human resources that can build and develop the effective Blockchain technology. The future challenges of IoT are increasing with the increase in its use and development but it should also be noted that many technological advancement are also taking place to tackle these challenges. Blockchain technology is one of its solutions. To develop more such technologies it is very important to create a technological workforce that will help in the building safe, secure and user friendly IoT (Gawer, 2014 and Benlian, Hilkert, and Hess, 2015).

Objective

1. To explore the role of Internet of Things as a transformation agent for new age businesses
2. To identify the future challenges of Internet of Things as a transfer agent of new age business

Methodology

The researcher had considered people from IT business background to know the role of Internet of Things as a transformation agent for new age businesses. The primary data is collected with the help of a survey using structured questionnaire and random sampling method. The data was analyzed and evaluated using mean to get the results.

Findings Of the Study

Table 1 Benefits of IOT as Transformation agent for new age businesses

S. No.	Statements	Mean Value
1.	IOT devices help businesses optimize their workflows and lower operating cost by providing real time information	4.14
2.	IOT devices alert staff on changes on productivity or processes, thus helping them make smarter decisions about work	3.68
3.	IOT devices monitor and analyse consumer data which helps businesses to predict and shift trends in consumer behaviour	4.41
4.	IOT help companies to gather data so as to identify insights about their business	4.32
5.	IOT helps companies to manage their inventory by granting some automatic control options	3.43
6.	IOT increases the efficiency, accessibility, and productivity	3.86

Table 1 and presents the benefits of IOT. It is found that IOT devices monitor and analyses consumer data which helps businesses to predict and shift trends in consumer behavior with mean value 4.41, IOT help companies to gather data so as to identify insights about their business with mean value 4.32. The respondent says that IOT devices help businesses optimize their workflows and lower operating cost by providing real time information with mean value 4.14, IOT increases the efficiency, accessibility and productivity with mean value 3.86. The respondent shares that IOT devices alert staff on changes on productivity or processes, thus helping them make smarter decisions about work with mean value 3.68, and IOT helps companies to manage their inventory by granting some automatic control options with mean value 3.43. The mean score has been presented in the Figure 1.

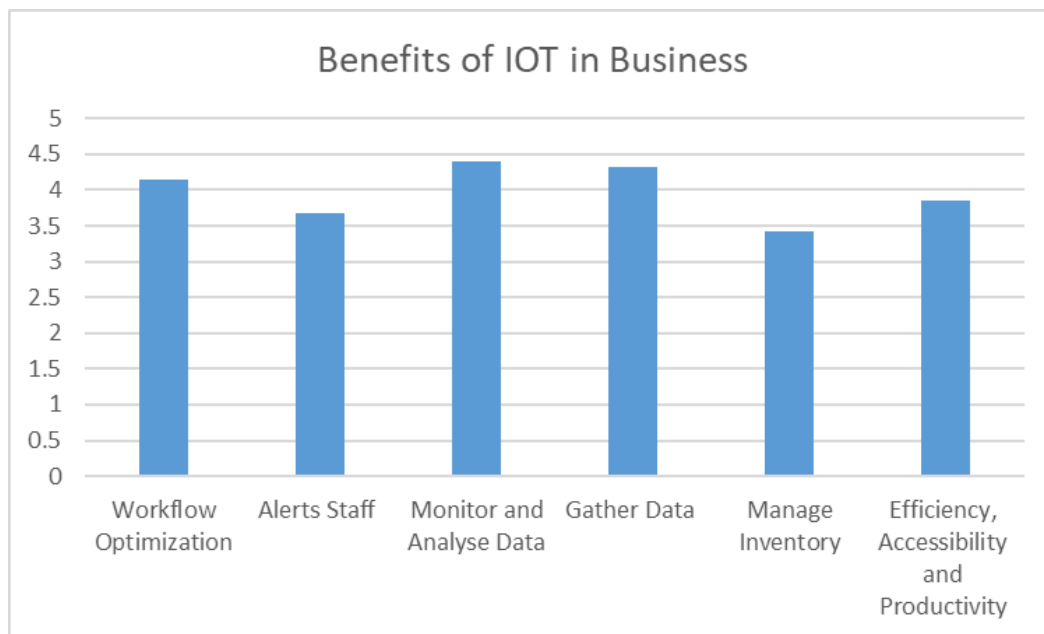


Figure 1 Benefits of IOT in Business

Table 2 Future Challenges of IOT

S. No.	Statements	Mean Value
1	Lack of proper integration leads to deformity in functions & efficiency to deliver	3.51
2	A strong internet connectivity is required for maintaining and running IOT devices	4.26
3	A large number of unstructured data is gathered which becomes difficult to handle on parameters of volume, velocity and variety	4.08
4	Maintaining data security of the consumer data is very difficult	3.75

Strong internet connectivity is required for maintaining and running IOT devices with mean value 4.26. many unstructured data is gathered which becomes difficult to handle on parameters of volume, velocity and variety with mean value 4.08 and maintaining data security of the consumer data is very difficult with mean value 3.75. lack of proper integration leads to deformity in functions & efficiency to deliver with mean value 3.51. Figure 2 presents the challenges at a glance.

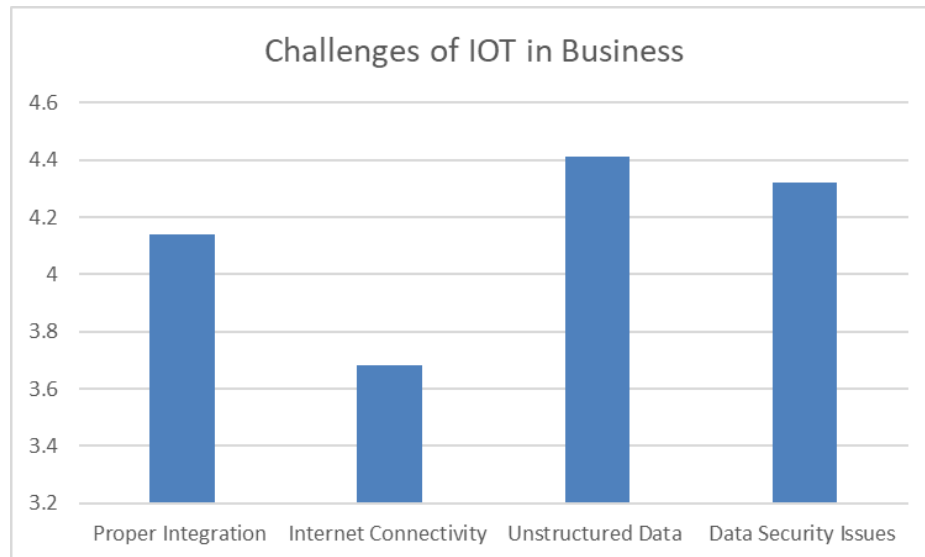


Figure 2 Challenges of IOT in Business

Conclusion

IoT is solution to many things in today's digital world. These solutions are going to more simple for the user but it will be more challenging for the developer. The IoT has become a revolution in today's world. The dependency for every minute thing on IoT made the life of people easier in every aspect but it has also created many problems that can be fatal for people. The problems include breach of privacy and security. Not only consumer is depended on IoT but the businesses, corporations, industries and government depends on digital technologies driven by IoT. There are many opportunities and scope in future for IoT but also there are numerous challenges that need to be solved on time. The biggest threat is data theft which is one of the valuable sources not just for companies but also for the person concerned with that data. To protect this data and solve the other issues related to cyber threats another big transformation took place in IoT which is called as Blockchain technology. This technology has proved to protect the data arranged in the form of block. The access of this data is concerned to authorized person. Though this technology is only on developing stage but it holds a lot of potential in future.

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