

THE INFLUENCE OF IOT ON THE BUSINESS SECTOR'S ECONOMIC LANDSCAPE**Siddikova Farangizkhon Ravshanjon qizi**

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ANNOTATION In this digitalized era, almost every work can be done with the help of technology, even in the last decades, it was an imaginary situation of seeing robots doing the work instead of people. However, thanks to the advancements in various scientific fields that the most hazardous jobs are now solved by robots, such as fighting against fire, or different laboratory stuff or even some surgeons. Since it's become handy at such scale, businessmen have also started implementing diversity of achievements of science in their entities. Take internet of things (IoT) as an example. IoT often helps to keep contact among such electronic things at anywhere comfortable, it can be your workplace, home, university, shop and so on.

Key words: IoT, sensors, actuators, internet, industry 4.0, real time data, data, AR.

Introduction

Special tools, sensors, technologies with various software and processing ability which are all connected within the internet are called the internet of things (IoT). IoT is considered to be one of the greatest achievements of 21st century and thanks to the developments in sensor productions, connectivity, cloud computing programs, artificial intelligence that is conversational and machine learning and analytics, internet of things have been evolved successfully [1].

The term "Internet of Things" first introduced in the speech by Peter Lewis and he defines it as integration of people, processes, technologies with connectable devices.

Definition of IoT differs from person to person. As for me, internet of things is a group of smart devices which are connected with each other by means of internet and special software programs to ease our life. And those technologies can gather and exchange data with each other during the process. In IoT architecture, there are two types of technologies: sensors and actuators or controllers in other words. Sensors are the devices that are connected together, whereas actuators are the ones that convert the electronic messages to physical actions. These orders made might be opening the door of your house, starting your



car or the vacuum cleaner, lowering the temperature of the room and so on. To be more precise IoT is equal to sensors plus controllers plus internet.

Currently, it is possible to have a communication between people and technologies, we just connect everyday objects - cameras, kitchen tools, cars, thermostats and other home appliances through the net and control from distance.

The internet of things is being consumed widely, today, in the field of home automation, to provide care facilities, in medicine and healthcare, transportation, in industries, manufacturing, agriculture, infrastructure, environmental monitoring, management of energy, military and so on [2].

Now, let us look at how IoT affects business.

One of the most significant effects of IoT can be seen in the spread of remote working. Not a secret that just some years earlier, the whole world suffered from the Covid-19, but after that pandemic period a new way of working boomed in the business field. According to statistics, companies increased the opportunities of distance work. It is noteworthy, there is a difference between working from home and distance work which means diversity of workers at the workplace. In 2018, the percentage of distance workers was around 7.9 %, globally, which means about 260 million people, but now it is around 1.87 billion.

It also effected the remoteness of education in terms. Especially, in higher education, particularly, college students are moving away from the ordinary teaching methods toward laptops, computers, smartphones. So, they have the chance of studying from home. While it can be convenient for them, it also benefits the quality of the lessons. Professors can only pay attention to their lectures rather than being snowed under tons of paperwork.

Methodology

This Trans disciplinary study examines the phenomenon of giving objects intelligence and its ramifications using a conceptual framework. A critical literature assessment on the Internet of Everything is difficult due to the topic's diversity, recentness, and transcendence. This difficulty is exacerbated by the dearth of pertinent publications that have been published in scientific management journals. Thus, in order to frame the phenomena of smart things and their impact on business models, we selected two theoretical lenses that are most pertinent to the scope of the challenge: technology-enabled networked business models and value-creating service ecosystems. We also take into account the technologies that comprise the Internet of Everything (IoE) and how they may facilitate intelligence. By



integrating these perspectives, we are able to present a new complete and multi-faceted exposition of how smart things effect on business models.

We blend an inductive and deductive method. On the one hand, we use the two theoretical lenses discussed above to frame our understanding of the consequences of rising levels of intelligence for business models. On the other hand, in order to both examine and build upon the theoretical underpinnings and deepen our comprehension of intelligent objects on the Internet of Everything, our research employs an inductive methodology through the vignette description of actual cases. We employ this latter method particularly when present theoretical understanding appear inadequate to describe the phenomenon at hand. We then create a new taxonomy to explicitly define the various degrees of intelligence of objects in the Internet of Everything (IoE) and the consequences for business models. Lastly, we generate research proposals for the future that address both theory testing and the creation of new theoretical ideas [3].

Research

The Internet of Things (IoT) has revolutionized the way businesses operate by connecting physical devices to the digital world. This network of interconnected devices has created a new wave of automation, data collection, and efficiency that is reshaping industries across the globe. In this section, we will delve into the core impacts of IoT on the economy of business entities, analyzing how IoT is transforming business models, productivity, cost-efficiency, and innovation¹.

1. IoT and Business Models

The introduction of IoT has led to the emergence of new business models, particularly in industries such as manufacturing, retail, logistics, and energy. IoT-enabled devices facilitate real-time data collection and monitoring, enabling businesses to develop models that are centered on predictive maintenance, subscription-based services, and data-driven decision-making. For example, in manufacturing, IoT sensors can monitor equipment performance and predict potential failures before they happen, minimizing downtime and reducing costs.

Furthermore, businesses can now offer "smart" products that are integrated with IoT capabilities. These products enable the creation of long-term value through after-sale services, software updates, and customer insights. Smart thermostats, for instance, allow customers to control home temperatures remotely while providing businesses with valuable usage data that can drive product improvements and customer engagement strategies.

¹ <https://link.springer.com/article/10.1007/s10639-021-10740-8>

IoT has also accelerated the shift towards outcome-based models. In this model, businesses focus on delivering specific outcomes to customers rather than just selling products. For instance, a manufacturer might offer uptime guarantees instead of simply selling machinery. This model creates a closer relationship between businesses and customers, as IoT allows continuous monitoring and optimization of services.

2. Increased Productivity and Efficiency

IoT has significantly improved productivity by automating repetitive tasks, enhancing resource management, and enabling remote monitoring. Businesses that adopt IoT solutions benefit from optimized processes, reduced human error, and faster production times. For instance, agriculture companies are leveraging IoT to monitor soil moisture levels, control irrigation systems, and optimize crop yields. By automating these processes, companies can improve output and reduce resource waste.

In addition, logistics companies are utilizing IoT to track shipments in real-time, ensuring accurate delivery times and reducing inefficiencies in the supply chain. With IoT, businesses can also monitor fleet operations, track fuel consumption, and optimize delivery routes, which lowers operational costs and enhances customer satisfaction.

IoT also plays a vital role in improving workforce efficiency. Wearable devices, such as smartwatches and augmented reality (AR) glasses, provide employees with real-time data and task instructions, allowing them to work more efficiently and safely. In manufacturing plants, for example, AR glasses can guide workers through complex assembly processes, reducing errors and training times.

3. Cost Reduction

One of the primary economic impacts of IoT is its ability to reduce operational costs for businesses. IoT devices help businesses cut costs through energy optimization, predictive maintenance, and better resource allocation. Smart energy management systems, for example, allow businesses to monitor energy consumption in real-time and identify areas where energy usage can be reduced. This can lead to significant cost savings, especially in energy-intensive industries such as manufacturing and data centers.

Predictive maintenance enabled by IoT sensors helps businesses avoid costly downtime and repairs. By continuously monitoring equipment performance, businesses can detect issues before they become critical, allowing them to perform maintenance during scheduled



downtimes rather than dealing with unexpected breakdowns. This not only reduces maintenance costs but also extends the lifespan of machinery.

Moreover, IoT facilitates improved inventory management. By tracking inventory in real-time, businesses can reduce the costs associated with overstocking or understocking. Retailers, for instance, can use IoT-enabled systems to monitor stock levels and automatically reorder products when they run low, reducing storage costs and preventing stockouts.

4. Data-Driven Innovation

IoT generates vast amounts of data, which businesses can use to drive innovation. By analyzing data collected from IoT devices, businesses can gain insights into customer behaviors, product performance, and operational inefficiencies. These insights enable businesses to innovate and develop new products and services that better meet customer needs.

For example, automotive companies are using IoT data from connected vehicles to enhance safety features, improve fuel efficiency, and develop autonomous driving technologies. Similarly, healthcare providers are leveraging data from wearable devices and IoT-enabled medical equipment to offer personalized treatments and improve patient outcomes.

Data from IoT devices also allows businesses to experiment with new business models and service offerings. For instance, a company might use IoT data to introduce a pay-per-use pricing model, where customers are charged based on their actual usage of a product or service. This flexibility helps businesses stay competitive in rapidly changing markets.

5. Challenges and Considerations

While the benefits of IoT for business entities are numerous, there are also challenges to consider. One of the main challenges is the issue of data security and privacy. As businesses collect more data through IoT devices, they become more vulnerable to cyberattacks and data breaches. Ensuring the security of IoT devices and the data they collect is crucial for businesses to maintain customer trust and comply with regulations.

Another challenge is the high initial cost of implementing IoT infrastructure. While IoT offers long-term cost savings, the upfront investment in IoT devices, software, and connectivity can be significant. Businesses need to carefully assess the return on investment and ensure they have the technical expertise to implement and manage IoT solutions effectively.



Lastly, businesses must navigate the complexity of integrating IoT with existing systems and processes. IoT adoption requires significant changes to business operations, and companies must ensure that their employees are trained to work with new technologies.

Conclusion

The Internet of Things has a profound impact on the economy of business entities, driving innovation, improving efficiency, and reducing costs. By adopting IoT technologies, businesses can transform their operations and business models, creating new opportunities for growth and competitive advantage. However, to fully realize the benefits of IoT, businesses must address the challenges of data security, integration, and investment. With the right strategies in place, IoT has the potential to reshape entire industries and redefine how businesses create value for their customers.

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