Impact of Artificial Intelligence and Internet of Things on Performance Management: A Systematic Review

Dr. K. Suresh Kumar[1]

[1]Associate Professor, MBA Department, Panimalar Engineering College, Varadarajapuram, Poonamallee, Chennai - 600123

pecmba19@gmail.com

http://www.orcid.org/0000-0002-3912-3687

Ananda Ravuri[2]

[2]Senior Software Engineer, Intel Corporation Hillsboro, Oregon 97124 USA

ananda.ravuri@intel.com

Sameer[3]

[3]Lecturer, Computer Science, De Montfort University, Almaty, Kazakhstan

sameerroushan@gmail.com

Orcid - 0000-0001-8275-0339

Dr. Gangu Naidu Mandala[4]

[4]Department of Business Management, Central Tribal University of Andhra Pradesh, Vizianagaram, India

Samreen Rizvi[5]

[5]Department of IT, Tata Consultancy Services (TCS), UP, India

Dr. Satyajee Srivastava[6]

[6]Professor, Department of CSE, M.M. Engineering College, Maharishi Markandeshwar (Deemed To Be University), Mullana, Ambala, Haryana, India

drsatyajee@gmail.com

Abstract

In general, the role of AI and IoT for increasing the performance level of businesses have been discussed here with the aim of establishing understandable data on such with several objectives regarding future potentials, business growth and relevant challenges. Therefore, how different industrial businesses are using these two variables in their workplace cultures have been prioritized in the entire study. Secondary qualitative research method has been followed throughout the research review work by aligning the systematic review and thematic analysis to get a clear overview about the topic. All the data have been collected in between the published year- 2017- 2021 based on several inclusion criteria for numerous relevant measures to conduct this one. The researcher has counted on all the essential methodological tools such as positivism philosophy, descriptive design and deductive approach to make the study reliable and well-visible. Furthermore, it has been proved that the selection of topics has been beneficial to get expected findings by using various journals in the similar regard. Hence, the conclusion section has illustrated how efficiently the researcher achieved the knowledge over the topic by focusing on its various relatable factors to improve the performances in businesses. Researching on such a topic based on current global scenario is found advantageous to move with the interest for further studies.

Keywords: Performance management, AI, IoT, Industrial growth, Technologies,

Introduction
1.1 Introduction
Intelligent communication across the global networks have become possible with the help of IoT and the performance management of Human Resources have become efficient as well. Process automation works with high efficiency as it can

work in a repetitive manner with a similar level of consistency by maintaining the standard that is not possible for humans [1] With the help of computer software, the implementation of robotic process automation has made the performances faster and errorless such as secured bank transactions, data transfer from one to another cloud and others that play crucial roles in business performance betterment.

In comparison to the other traditional technologies, AI is making the machine learning procedures 20x faster. By promoting a safer connectivity among devices through internet and AI, pattern identification and fault detection during data collection stimulated enough through advanced sensors. With the growing performance, the business market revenue is also increasing as $9.51 billion has reached $34.87 billion in 2021 and it is predicted that in 2025 it will cross $110 billion [3]. Hence, it can be said that AI and IoT have a great impact over the performance management of corporate firms.

Corporate performance management is adopting changes with the new technologies, especially to advance the data analytics through Artificial Intelligence (AI). In previous times, it was not possible to create a correlation between the information and achieve a deeper insight that created challenges so many times to take effective decisions in regard to potential development. This Industry 4.0 era has been found dependent on the networks for being connected with one another that has been possible due to the Internet of Things (IoT).
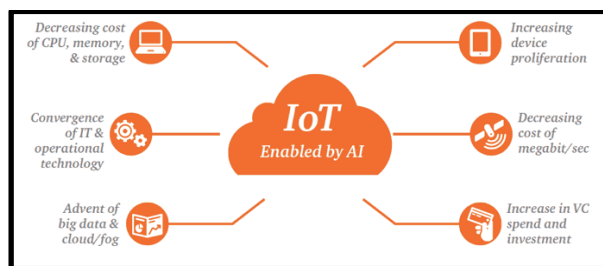

Figure 1: IoT drivers to influence the performance management
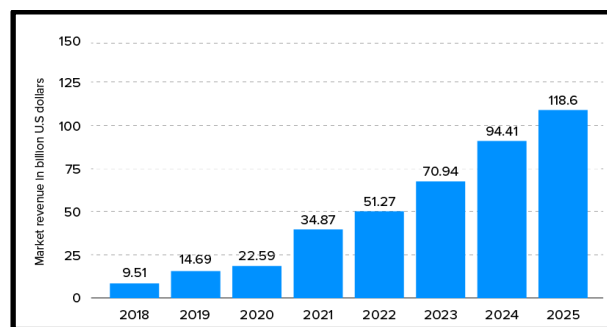Source: [2]

Figure 2: Market revenue after adopting AI and IoT
Source: [3]

1.2 Aim and objectives
The main aim of this study is to establish a clear understanding over the impacts of AI and IoT in business performance management that has been followed with objectives as follows;
- To define the role of AI and IoT in corporate business growth
- To explore the uses of AI and IoT in identification of fault and achieving advantages
- To address the future potential of business growth through AI and IoT

Section 2: Literature review
2.1 Industry 4.0 revolution through AI and IoT
Complications and competition in the global industries are rising so fast that almost every industry alongside the IT industry are adopting AI and IoT in their business practices. It has been noted that business performance and their

management styles are dependent on numerous variables that enforces those to use these automation sensors for different reasons by focusing on the business goals and market scenario [5]. Therefore, the sector wise division and performance management variables have been noted in below-mentioned table:

Table 1: Industrial sector-wise use of AI and IoT for performance management

Industries	Automation usage
● Healthcare ● Manufacturing ● Retail	Regular tracking and monitoring the essential equipment for ensuring better and quality performances to serve the population with the help of remote sensors.
● Transportation ● Logistics	As per [6], robotics and drone services are helping in hindering the performance of supply chain management that plays a crucial role in such industries for serving populations with on-time delivery and higher degree of safety.
● Oil and gas ● Construction ● Manufacturing ● Cities	As the complications are huge in these sectorial works, automation helps in finding issues and taking initiative in a repetitive manner.
● Telecoms ● Other machining environment	By using Augmented reality, it helps in providing remote support of specialists and technicians.

Source: Influenced by [5]

2.2 AI intersects with IoT

Business performance management must be entertained from two different aspects such as predictive analytics and perspective analytics where the management team decides about the activities regarding future doings based on its future consequences. In that case, AI helps in defining the modern and advanced technologies for adaptation by working as a sensor to predict the flaws and take initiatives towards the effective actions [4]. IoT in this instinct is found internally connected with AI as IoT defines the way data uses and forwards it to AI through sensors for making decisions regarding efficient performances.

2.3 Future potential growth of performance management through AI and IoT

The below mentioned diagram is giving a clear idea that the number of organizations are increasing with the passing time for reducing the insecurities and any risks in workplace environmental measures. By taking into account this measurement, it is predicted that by 2025 the scenario might involve around 19% of the global market with AI performance. Furthermore, the financial services and achieving expected revenue margin would be easier in the next 5 to 10 years in every industry such as manufacturing, healthcare, retail and others that would be recorded as a big shift of technologies in today's business platform [7]. Machine learning in that condition is indicating an effective move towards the high-end technological edge devices for serving the people with AI algorithm computing data and rallying on powerful servers and central data storage.
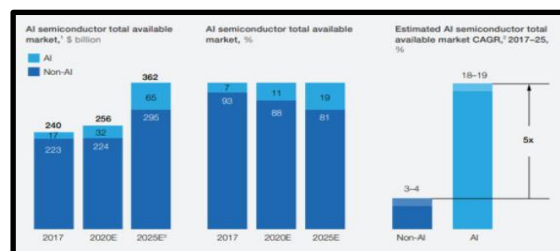

Figure 3: Market estimate and machine learning estimation through AI and IoT (2017-2025)
Source: [7]

2.4 Theoretical underpinning

For making effective decisions regarding the business performance, it is important to calculate to those in a mathematical and logical segment so that a secured and sustained strategy can be developed. The ***Game theory*** is the most favorable theory, chosen by economists for reducing technological complexities by making general differentiation [8]. It helps in understanding the situation of business performance and potential hazards that seek for a winning game by following the rules adhesively. In that AI has developed an appropriate algorithm rules for protecting the game and making the player win that has performed with proper guidelines. The digital development of game theory and AI have been found with several applications such as machine learning algorithms, multi-agent AI systems, manipulation-resistant systems and reinforcement learning. In the meantime, with the help of Nash equilibrium, AI helps the industries to address numerous dynamic problems and solve them with effective solutions by taking into account the rules of Game theory.
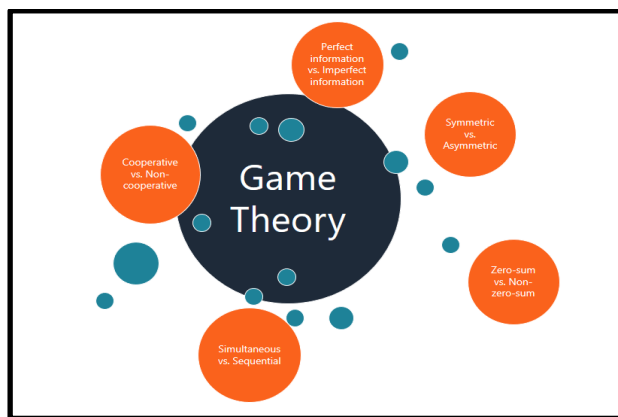

Figure 4: The Game theory with AI
Source: [8]

Section 3: Research methods

A secondary qualitativeresearch method has been followed to conduct this research work as the topic selection has been done on a global basis in which secondary phenomena would be easier to collect and get vast knowledge. In between, positivism philosophy has been used to align researcher's own concept over the topic along with collected data sources with the help of deductive approach for selecting the most appropriate journals for better deployment [10]. Systematic research review is a useful methodological tool that helps in selecting data resources based on several inclusion and exclusion criteria to collect the data with critical appraises [9]. In this research work, alongside systemic review, a thematic analysis has been done based on which descriptive design has been aligned to interpret the information. Online resources that are published after 2017 in English on the same or nearly same topics, have been integrated in this paper to maintain the reliability and validitywith high visibility criterion.

Section 4: Result and discussion

4.1 Systematic review

Table 2: Systematic review

Resources	Findings	Significance
[11]	This article found the negative growth of social and environmental sustainability due to high death rate and unemployment	The article consumed the data based on the most recent worldwide activities while the working

	that has raised the concern of AI and IoT in real-time datasets with a stable pandemic performance management in businesses.	culture is changing and workers are seeking a higher degree of security.
[12]	Digitized workplace environment has been prioritized to showcase the performance of the Human Resource department by using AI technologies that transformed the traditional business SHRM to digital SHRM.	Big data analytics while found with major concern in this high-end technological edge, this article found important to represent the transformation with clarity.
[13]	Future potentials with the AI performance through 5G networks have been found beneficial to explore the opportunities with better solutions.	As this article focused on addressing the challenges as well as opportunities, an entire overview has been gained.

(Source: Learner)

4.2 Thematic review

Theme 1: Industrial growth through AI in emerging Human Resource practices are found with effective strategies to enhance the business processes and performances is directly controlled by the HRM members with a larger operational activity that would be performed with Big Data analytics, IoT through AI sensors. Therefore, the research has revealed that the business growth is continuously rising after adaptation of IoT automation technologies in worldwide businesses from different sectors that the error statistic graph is lowering down and the performances are flourishing [14]. It has helped in decreasing the workload of employees that has resulted in high employee retention as they only need to know the operative system of IoT and thereafter, it is the duty of the software to address the errors and solve problems in repetition whenever needed.

Theme 2: Security enhancing by IoT security technologies has become easier in organization, especially during money transactions as confidentiality and data hacking related challenges are filled with comparatively higher numbers of cases in the last decade. With the help of IoT technologies, business management team members have become able to use the software according to their needs and personalize with required security measures. [15] stated in the research work that through data storage in Cloud Computing, data transfer and data maintenance have become efficient so that employees do not get accused by the seniors for their shortcomings in addressing the safety failings that can result in customer loss along with decreased revenue margins.

4.3 Discussion

Both the systematic review and the thematic analysis have been performed based on the secondary data resources that have been collected from authentic online resources based on the research requirements. As the main purpose of this work is to prove the significance of AI and IoT for business performance management, chosen articles in the systematic review section found similar findings that are making the concept clear against the topic. As far the chosen articles have been found based on current global business situations in which one specific has controlled the impact of Covid-19. Besides, the thematic review has been performed based on predefined objectives to meet the goal of research aim. Hence, it is clearly showing the impact of AI and IoT in enhancing the potential business performances.

Conclusion

The study is making it clear that technological advancement is essential in this era to be compatible with the current needs of businesses and enhancing their performance level to ensure positive growth in near future. From the analysis, the view has emphasized that the global business analytics are concerned about the performance management with AI and IoT that is not only reducing the time and errors but also helping in maintaining consistency in any field of work. Furthermore, it is easy to conclude the concept of AI and IoT roles over the industrial growth and business performances have become crucial and necessary to be used with automation.

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