ANALYSING THE IMPACT OF MACHINE LEARNING AND INTERNET OF THINGS ON EMPLOYEE PERFORMANCE IMPROVEMENT

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Abstract: Each business is now transforming into a technology-oriented firm in the fast changing business climate in order to successfully manage the overall operation of the company and allow in increasing the performance of their personnel. The competitive environment has compelled staff to improve their performance and aid in achieving the objectives of the organisation, thus managers urge personnel to utilize new technologies that will allow effective management of human resources. The IoT is regarded as the most important component of the organisation because it makes it possible to attract workers with potential, promote productivity increases, and carry out more activities in less time utilising automation and robotics processes that use ML and other modelling. The speedy flow of data and information required by today's business dynamics puts a greater reliance on technology. The most crucial elements are to comprehend how these technologies help people reach their full potential and help them perform better across diverse industries.

The organization's senior management and human resource specialists are analysing various ways to introduce these tools so that workers may perform better, which will ultimately help the company achieve its goals and objectives. This study is more concerned with analysing how ML and IoT might improve worker performance in the manufacturing sectors. In order to understand from the participants the significance of these tools in improving their quality performance in their current position, the researchers plan to use both primary and secondary data. Primary data will consist of closed-ended questions, and secondary data will come from published journals, business articles, magazines, and other sources.

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Introduction

The dynamism of business environment has compelled the organisations to implement new and innovative technologies like "***machine learning, artificial intelligence, robotics, Internet of things***" etc. for enhancing the performance, productivity and output. The management and human resources have to adapt to the changing requirements so as to perform better. The application of machine learning (ML), Internet of Things (IoT) has led to sea change in the performance improvement among the employees. Decades ago, the individuals tend to apply manual effort in performing the task, whereas the implementation of digital tools has provided the freedom to perform the task in an efficient manner and this increase the performance improvement among the employees (Bijmolt, 2019).

The term IoT is stated as the tool which connects various devices, gadgets, systems which are embedded through hardware and software for better connectivity using internet and thereby share more data and information for various purposes. The IoT is considered as the most critical aspect in the current era as it attracts many companies to adopt to the technology in the current times. (Andrea 2020). The implementation of ML and IoT has support in increasing the efficiency and productivity of the human resources as that can transfer data and information, use them for making analysis and make informed decision making. It has been observed that technology tends to possess a high impact on each area of the business domains and one of the major elements is in enhancing the performance of the employees (Qu 2018). Through ML and IoT tools, the individuals can perform their task better which will enhance productivity and efficiency for the organisation. The usage of these technologies support in completing the task with lesser time, enable the individuals to work from any part of the world and stay connected with the current happenings the project, track the movement of goods and services etc (McCall 2020).

The technology possesses higher impact on evert area of life, the usage of modern gadgets like smart phones, personal computers, tablet PC and other wearable devices has led to transfer of data and information, therefore using the advanced tools like ML and IoT supports the individuals to share information which are essential and to make quick decisions for achieving sustainable growth and development. In organisations, managers and employees always seek to identify better ways of performing their task so that they can contribute to achieving the goals of the organisation (A. Jain, 2019).

Researchers has mentioned that the implementation of ML and IoT technologies creates high and positive impact on the human resource management, furthermore managers are aiming to unleash the potential by applying in various areas of business and thereby increase performance improvement among the individuals (A. Jain, 2019). The industry 4.0 has supported not only in productivity of employees, but leads in adding more value to all the stakeholders, enhance their career development, be more engaged with the work and achieve the goals of the organisation in a sustainable manner (Lee 2018). IoT is more an evolving tool because represents in application in different areas of business, life and other areas for supporting innovation and sustainable development. The ML and IoT are now reshaping the investment and performance strategies through the digitisation of organisation, these paradigms have changed not only the association among the individuals and their daily work routines but also the process and methods which the organisation adopt for achieving growth and development (Gupta, 2019).

In order to enhance the performance improvement among the employees, business need to integrate the systems and process in the organisation so as to adopt to ML and IoT tools, this enables in addressing the needs of the organisation in an efficient manner (Dubey, 2019). The connectivity among the internet and devices employed in the organisation support in making the life easier for employees by understanding the needs and requirements of the stakeholders, perform the functions

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effectively and address the needs of the users and individuals for sustainable growth and development (De Mauro 2019).

The goal of the study is to analyse how machine learning and the internet of things affect the development of employees' performance. By using ML and IoT techniques, the researchers have made it possible for management to effectively manage performance of employees.

Literature review
Concept of Machine Learning and Internet of Things

The use of web objects in academia and industry is still in its infancy and can be seen in a nutshell as the fourth modern turbulence or an afterthought for the industry. IoT is essential in the global alliance and especially in the management of human resources to ensure efficiency, security, impartial objectivity and honesty. Therefore, surveys were conducted to determine the relevance and future application of the innovation. However, limited research has focused on human resources and the implementation of IoT. For obvious reasons for the birth of innovation, we look forward to the human resources associated with data innovation, not IoT (Koren 2018). The direct connection of a computer innovation application with human resources and innovation resources to improve business results. A comprehensive demonstration of information innovation to measure important organizational factors. An overview of the fusion of data innovation and administrative discrimination in measuring personnel management. Studies examining the relationship between HRM and IoT are a source of concern for the future prospects for workplace changes due to mechanized work environments, especially when the work itself needs to be updated with specific things that, for example, the HR data structure requires. reveal time and schedule, lack of capacity, interruptions in the use of productive time, staff, etc.

Organizational success is undoubtedly determined by the Prime Minister. therefore, it maintains communication in the company's management processes. Tata Steel is one of the largest companies in India that has been at the forefront of its business for several years. Motivating and retaining employees is an important approach to carrying out business processes as employees are considered to be the company's greatest value. Tata Steel has focused on the well-being of its employees in order to maintain consistency in business success (Frank 2019).

In this case, IoT connects heterogeneous equipment to support a variety of commercial processes. It has a significant impact on various industries, such as production, where it makes it easier for numerous instruments and machines to communicate and implement production patterns (Dekimpe 2019). As a result, businesses can create intelligent machine systems that produce big data for all stages of various business processes using real-time connectivity. IoT funding can radically transform key business operations in the healthcare industry. Telemedicine can be used to build healthcare services, and healthcare information management can be used to execute medical decision-making and evaluate patient health. With the aid of linked devices like sensors and monitoring systems, digital congestion, transport planning, and protection can all be improved in the service industries. IoT and big data analytics together can, in short, lead to a digital transformation that enhances corporate operations and procedures (Jain, Yadav & Shrivastava 2019).

The growth of IoT ensures the growth of "smart spaces," which are natural and digital settings where people and technological systems interact in a planned and networked manner (Jain, and Kumar, 2021). These components relate to areas, procedures, services, and objects that produce mechanized, collaborative, and engaging activities. Managers can discover present patterns and model future events using historical event data. Future studies should, for instance, concentrate on the introduction of cutting-edge technologies like machine learning and the ways in which the information they provide can automate production and financial reporting processes, validate suggested actions and strategies and facilitate predictive analytics and mechanisation tools.

Research methodology

The research is more focused in understanding the role of ML and IoT in enhancing the performance of the employees in the organisation. The researcher uses examination approach as it supports in understanding the overall responses of the respondents related to the usage of these tools in the organisation. The top management, managers and HR Professionals are contemplating in applying this technology in the business process for enhancing the performance of the individuals. The research intends to collect data from the employees in the manufacturing related organisation where ML and IoT based tools are used which supports in enhancing the performance improvement. Also, the researchers intend to collect data from the published journals, dissertations, Scopus indexed articles and other sources for understanding the previous work carried out in the field. Survey method issued for sourcing information from the respondents, these are then converted using quantitative metho for making frequency distribution analysis. The results and discussion are stated in the following sections.

Analysis and interpretation

The authors have collected information from nearly 85 respondents to understand the impact of "ML and IoT" in enhancing the performance of the employees in the organisation, the data is collected through survey method.

Survey questions

Q1. Can you provide your responses related to the impact of Machine Learning in enhancing the employee improvement in your organisation?

Table 1**:** Impact of Machine Learning

(Source: Created by the researchers)

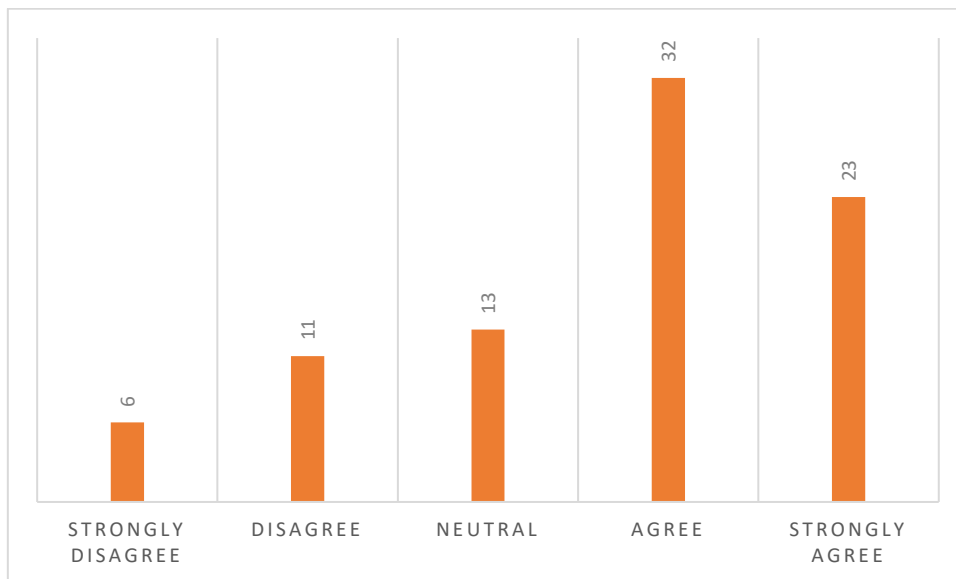| Responses	Frequency	Percentage
Strongly Disagree	6	7.06%
Disagree	11	12.94%
Neutral	13	15.29%
Agree	32	37.65%
Strongly Agree	23	27.06%
Total	**85**	**100.00%**


Figure 1: Impact of Machine Learning

(Source: self-developed)

The analysis is focused in understanding the impact of implementing ML tools for enhancing the performance improvements of the employees, the management are now looking to apply various tools like supervised and unsupervised learning tools which enable in analysing the data effectively for better decision making, support in automating the process so that the activities can be completed in an efficient manner at lower cost and time. This eventually will result in increasing the top line and bottom-line growth of the company. According to the study, roughly 27.06% of respondents strongly agreed with the statement that ML models help increase in performance. Additionally, 37.65% of respondents also agreed with the statement, showing that the majority of respondents are in favour of ML's effects.

Q2. Does application of IoT supports in completing the task quickly and efficiently such leads to enhancing your performance improvement?

Table 2: Influence of IoT in supporting performance improvement
(Source: Created by the researchers)

Responses	Frequency	Percentage
Strongly Disagree	7	8.24%
Disagree	6	7.06%
Neutral	10	11.76%
Agree	26	30.59%
Strongly Agree	36	42.35%
Total	**85**	**100.00%**
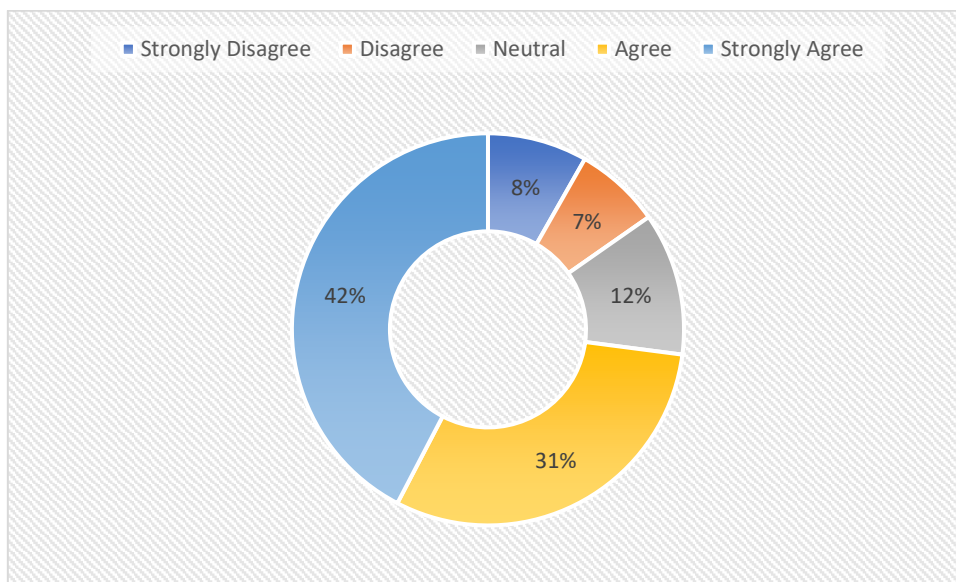
Figure 2: Influence of IoT in supporting performance improvement
(Source: self-developed)

The next aspect is to understand the influence of IoT in the organisation for supporting performance improvement, with the digital era impacting all business and industries, companies are using the technology tools which uses internet in transmitting data and information, delivering better services and track the movement of goods efficiently for achieving the goals of the organisation, these tools

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also enable in performing the task with utmost efficiency and increase productivity of the employees. The survey shows that 42.35% of the respondents strongly agree to the statement that IoT influences in supporting performance improvement in the organisation, moreover, 30.59% have agreed to the statement, hence it can be widely stated that IoT is considered as one of the effective tools in supporting employee performance.

Q3. Does your organisation focus in increasing their investments in future towards ML and IoT tools for enhancing performance improvement of the employees?

Table 3**:** Increasing investments in ML and IoT

(Source: Created by the researchers)

Responses	Frequency	Percentage
Yes	64	75.29%
No	12	14.12%
Can't Say	9	10.59%
Total	**85**	**100.00%**
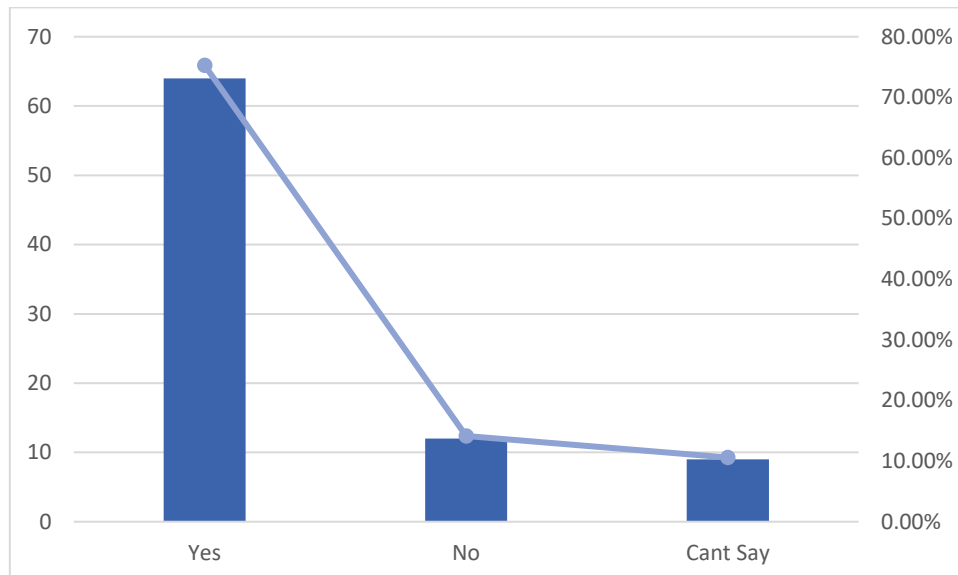
Figure 3: Increasing investments in ML and IoT

(Source: self-developed)

The authors also intend to understand whether the management involve in increasing the investments in such tools for supporting productivity and efficiency in the organisation, it has been noted that nearly 75.29% has said yes that the management are increasing their investments in ML and IoT tools, whereas 14.12% mentioned as no and the remaining has stated that they are not sure whether the investments are made in these digital technologies

Discussion and findings

The above analysis has revealed that the implementation fo these tools like ML and IoT support the employees to perform their activities efficiently, share more data and information which will lead to better analysis and informed decision making. In today's dynamic environment, every organization is becoming a technology-driven company to effectively manage its overall operations and improve the performance of its employees. Employee performance has improved as a result of the competitive environment, and managers are urged to implement new technologies that enable effective

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administration of human resources (Hoy 2018). IoT is the most important component of a business since it helps employees reach their full potential, increase their productivity, and do more jobs faster because of automation, robotic, and ML and other models. IoT is a device that connects different devices, modules and embedded systems through hardware and software for a better connection to the Internet and thus shares more data and information for different purposes. IoT is considered the most critical aspect of the current era as it attracts many companies to adopt the technology. The implementation of ML and IoT helps to increase the efficiency and productivity of human resources as they can transfer data, information, perform analyzes and make informed decisions. It was observed that technology has a major impact on all sectors of the business and one of the key elements is to improve employee performance. Thanks to ML and IoT tools, individuals can better get their jobs done, which improves the organization's productivity and efficiency. Using these techniques will help you get the job done in less time, allow people to work anywhere in the world and stay in touch with current project events, monitor the movement of goods and services and much more.

Conclusion

Fast data and information transfer technologies that are utilised to make more informed decisions are increasingly important to today's business dynamics. The goal is to comprehend how these technologies enable you to maximise the performance and capability of any staff across a range of sectors. The usage of contemporary technologies like smartphones, personal computers, tablets, and other mobile devices results in the flow of data and information, including the use of cutting-edge technology like ML. Technology has a stronger impact on all facets of life. and IoT helps individuals share important information and make quick decisions to achieve sustainable growth and development. In organizations, managers and employees are always looking for better ways to carry out their work so that they can contribute to achieving the organization's goals. On the contrary, IoT is an evolutionary tool that represents applications in business, in different areas of life and in other areas to support innovation and sustainable development. ML and IoT are now transforming their investment and return strategies through the digitization of the organization, and these examples have changed not only individuals' daily working relationships and routines, but also the processes and methods that the organization uses to achieve growth and growth. development.

Future scope

The future of industries is dependnt on the applicationof ritical and innovative digital tools which will support in performing the business operations in an effective manner at lower cost and less time. The implementation of ML and IoT is still in the nascent stage and is poised to grow exponentially in the coming years. Many research is being carrid out to undersand how these tools support in increasing the performance improvements of emplloyees in the organisation. The future scpe of the study can be focused in applying various statistical tools for enhancing the viability and validity of the article so as to support the research in an effective manner.

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