Studying The Impact Of Artificial Intelligence On The Management Of Projects And The Efficiency Of Staff

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Abstract

This thesis looked at how artificial intelligence (AI) can be used in project management, focussing on how it might affect workers. In the future, artificial intelligence (AI) could help people make better decisions, be more productive, and handle projects more easily. The main point of this thesis was to look into how AI impacts project managers and the people they hire. The point of this study is to look into the pros and cons of artificial intelligence (AI), as well as how it has changed the roles of project managers and team members and raised social concerns. The study looked at previous research and also talked to project managers from Greece and Sweden in a semi-structured way. To give a full picture, this was done. Based on the results, putting artificial intelligence into project management may greatly benefit workers by making their jobs easier, and more accurate, and giving them better insights. However social problems and training for employees need to be carefully thought through before AI is used.

Keywords: *AI implementation, Project management, Working personnel, Ethical considerations, Power shift, Training and support.*

Introduction

A lot of focus has been paid to artificial intelligence (AI) in project management lately (Wang et al., 2022). Since 1987, artificial intelligence (AI) has been used in project management software, but its use has only recently become more common. Artificial intelligence (AI) could make a big difference in some parts of project management, like planning, organising, managing risks, and making decisions. This is now possible thanks to progress in data mining and machine learning. However people still had different thoughts on how AI affected project managers. Artificial intelligence (AI) could make project management teams much more effective and productive by giving them access to more data that helps them make better decisions. If AI can sort through huge amounts of data to find trends and insights, it might be easier for project managers to make good decisions (Zhang et al., 2021). Because of this, project outcomes, efficiency, and the use of resources may all get better. On the other hand, some people worry that artificial intelligence (AI) could one day replace humans in some fields. If AI's automatic features change a worker's line of work, they might need to learn new skills or keep the ones they already have up to date. According to Liu et al. (2023), it is important to know how artificial intelligence might change career paths, job security, and the organisation of the project management workforce.

Background of the Study

The term "artificial intelligence" (AI) describes the first steps towards making robots think similarly to humans. Though it was more common in science fiction throughout the 1800s and 1900s, artificial intelligence has been becoming closer to reality in recent years. Artificial intelligence (AI) has emerged as a strong contender to replace people in many contemporary vocations; in fact, it may replace humans in more industries than current research indicates. The shift from human to AI job performance enhanced efficiency, but it also created a new, more important work-life scenario that the researcher needs to adjust to (Soomro et al., 2019). Change has never happened so quickly, and this shift may be one of the largest technological revolutions to which humanity has ever had to adjust. To minimise the amount of consequences, it was crucial to understand exactly which modifications were required and how to implement them. Leaders have undoubtedly existed in diverse forms since the dawn of human existence. Effective leadership ideas have evolved alongside our civilisations as a result of these modifications and adaptations. AI continues to have an impact on all firms, and it has already had a big impact on management. Artificial intelligence (AI) in the workplace necessitates new approaches to leadership and management decision-making. Artificial intelligence (AI) has the potential to greatly improve the efficacy of some professions, including management when used correctly. With the introduction of AI into the workplace, this thesis seeks to understand how managers of the future need to adapt to these technological innovations, with an emphasis on the inevitable shift in leadership positions that goes along with these advances (Brown et al., 2021).

Purpose of the Study

This study aims to investigate how intelligent technology has transformed project management and employee work performance. This study attempted to ascertain how artificial intelligence technologies influence worker productivity, job fulfilment, and overall efficiency in addition to evaluating the effects of these innovations on project management, monitoring, and planning. The study's primary objective was to make these consequences clear to urge companies to use AI more widely to increase employee performance and productivity.

Literature Review

AI is characterised in a variety of ways. The definitions of artificial intelligence (AI), as provided by the English Oxford Living Dictionaries and Merriam-Webster, range from "the theory and development of computer systems able to perform tasks that typically call for the human intellect" to "the capability of a machine to imitate smart human behaviour." The authors of this thesis have considered these definitions. Artificial intelligence, according to these ideas, was the process of teaching computers to mimic human thought and conduct. As a result, computers would be able to do jobs that were previously exclusive to people and even interact with and adjust to their physical surroundings. Keep in mind that the definition of artificial intelligence was always evolving along with technology. The term "AI" was abandoned by researchers once a product was easily accessible and extensively used. The justification for this is that AI was often seen as a technology of the far future. Artificial intelligence aims to improve learning, perception, and cognition. AI can behave and reason in a way that maximises the likelihood of success thanks to these skills. AI is a valuable tool for resolving complex problems since it has many promising features. When AI could mimic human thought and behaviour, it was able to solve issues that humans were unable to. Artificial intelligence (AI) has the potential to solve issues more quickly and error-free than human problem-solving techniques (Frankenfield, 2020).

Research Questions

i. How will the process of managerial decision-making change due to the implementation of AI in the workplace?

Research Methodology

China's many different organisations were responsible for carrying out the research. The researcher chose a quantitative technique because of the restricted resources and the short amount of time available. Using a random sampling process, every respondent was contacted for the survey. Following this, a sample size of 875 was determined using Rao Soft. Individuals confined to wheelchairs or who were unable to read and write would have the survey questions read aloud by a researcher, who would then record their answers word for word on the survey form. While participants waited to complete their surveys, the researcher would inform them about the project and field any questions they may have. On occasion, it was asked that people finish and send back questionnaires simultaneously.

Sampling: Research participants filled out questionnaires to provide information for the research. Using the Rao-soft programme, researchers determined that there were 875 people in the research population, so researchers sent out 962 questionnaires. The researchers got 945 back, and they excluded 27 due to incompleteness, so the researchers ended up with a sample size of 918.

Data and measurement: A questionnaire survey was used as the main source of information for the study (one-to-correspondence or Google-form survey). Two distinct sections of the questionnaire were administered: Both online and offline channels' (A) demographic information, and (B) replies to the factors on a 5-point Likert scale. Secondary data was gathered from a variety of sites, the majority of which were found online.

Statistical Software: SPSS 25 was used for statistical analysis.

Statistical tools: To get a feel for the data's foundational structure, a descriptive analysis was performed. A descriptive analysis was conducted to comprehend the fundamental characteristics of the data. Validity was tested through factor analysis and ANOVA.

Conceptual Framework

Result
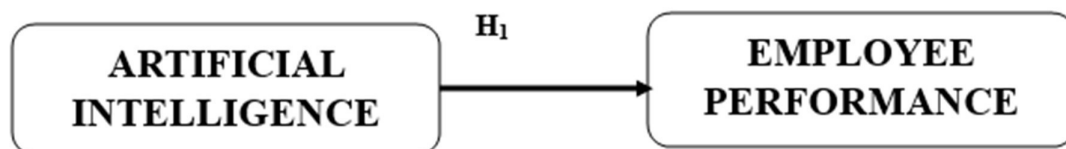
Factor Analysis

The process of verifying the underlying component structure of a set of measurement items was a widely used application of Factor Analysis (FA). The observed variables' scores were believed to be influenced by hidden factors that were not

directly visible. The accuracy analysis (FA) technique was a model-based approach. The primary emphasis of this study was on the construction of causal pathways that connect observable occurrences, latent causes, and measurement inaccuracies. The appropriateness of the data for factor analysis may be assessed by using the Kaiser-Meyer-Olkin (KMO) Method. The adequacy of the sampling for each model variable as well as the overall model was assessed. The statistics quantify the extent of possible common variation across many variables. Typically, data with lower percentages tends to be more suited for factor analysis.

KMO returns integers between zero and one. Sampling was deemed adequate if the KMO value falls within the range of 0.8 to 1.

It is necessary to take remedial action if the KMO is less than 0.6, which indicates that the sampling is inadequate. Use their best discretion; some authors use 0.5 as this, therefore the range is 0.5 to 0.6.

• If the KMO is close to 0, it means that the partial correlations were large compared to the overall correlations. Component analysis is severely hindered by large correlations, to restate.

Kaiser's cutoffs for acceptability are as follows:

A dismal 0.050 to 0.059.

• 0.60 - 0.69 below-average

Typical range for a middle grade: 0.70–0.79.

Having a quality point value between 0.80 and 0.89.

The range from 0.90 to 1.00 is stunning.

Table 1: KMO and Bartlett's

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.987
Bartlett's Test of Sphericity	Approx. Chi-Square	3252.968
	df	190
	Sig.	.000

The of the was by of of overall significance correlation matrices further confirmed using Bartlett's Test Sphericity. A value 0.987 was the Kaiser-Meyer-Olkin sampling adequacy. By using Bartlett's sphericity test, researchers found a p-value of 0.00. A significant test result from Bartlett's sphericity test demonstrated that the correlation matrix was not a correlation matrix.

Test for Hypothesis
Dependent Variable
Employee Management:

This research aims to explore several aspects of employee performance, such as performance assessment and enhancement, and the influence that performance has on an organization's prosperity. Research was being done on how to accurately evaluate employee performance via feedback systems and measures, as well as how to improve performance through goal-setting, training, and incentives. The productivity of employees, their level of satisfaction in their jobs, and the overall performance of the business were some of the organisational outcomes that were investigated in this research. In addition to this, it takes into consideration how management practices and the culture of the workplace contribute to the creation and maintenance of successful performance. Through an examination of both practices that were already in place and theoretical frameworks, the study endeavours to give a comprehensive understanding of how to maximise the performance of employees to achieve the objectives of the company (Holzmann, 2022).

Independent Variable
Artificial Intelligence's Impact:

Artificial intelligence (AI) has unquestionably had a significant impact on numerous sectors, revolutionising job performance, process management, and decision-making. The business world, the healthcare system, and everyday technologies were most impacted by this. Artificial Intelligence significantly boosts productivity and efficiency by automating both simple and complex business processes. Artificial intelligence (AI)-powered systems might handle even more complicated jobs including supply chain optimisation, as well as data entry and chatbot customer support (Wang, 2021). Workers may focus on higher-level, more creative endeavours since automation reduces human error and increases productivity. More effective long-term planning and decision-making were possible because of the artificial intelligence

system's ability to sort through massive amounts of data in search of patterns and insights that humans would miss. In the field of medicine, artificial intelligence has revolutionised treatment and diagnosis. Radiologists can more reliably and early identify conditions like tumours or fractures in medical images by using machine learning algorithms. AI technology and patient data may be used to personalise treatment plans, improving outcomes and increasing efficiency. AI-driven technologies were also being used increasingly in medication research, which was accelerating the discovery of innovative therapies and cutting expenses. Furthermore, AI has transformed commonplace technology. Natural language processing enables voice assistants, like Google Assistant, Alexa, and Siri, to understand and respond to user questions, making technological interactions more effortless and organic. Recommendation systems largely reliant on artificial intelligence (AI) were used by platforms such as Netflix and Amazon to provide content or products that were tailored to the individual user's tastes and past behaviours (Musa, 2020).

A Relationship between Employee Management and Artificial Intelligence's Impact.

Project management procedures were increasingly using AI technology, and there was a rising correlation between project management and AI's impact. AI improves decision-making, automates tasks, and provides insightful information, all of which contribute to better project management. Artificial Intelligence (AI) can assist automate routine project management tasks like scheduling and resource allocation. This effectiveness frees project managers to concentrate on the big picture by reducing the amount of paperwork they have to do. To make things run more smoothly, AI can do things like automatically update project deadlines and reallocate resources based on real-time data. The data-driven insights and predictive analytics made possible by AI also greatly enhance decision-making. Artificial intelligence systems can foresee problems and provide solutions by looking at past project data. With this feature, project managers may foresee potential problems and take preventative measures before they become major setbacks. Artificial intelligence (AI) was useful in risk management because sophisticated algorithms can analyse project data for trends and possible dangers. The project manager's capacity to handle and manage risks efficiently was enhanced by predictive models, which can foresee hazards and provide mitigation solutions. By comparing project needs with available resources, AI helps with resource optimisation. Productivity was increased and resources were better aligned with project goals when AI solutions made sure the correct people were working on the appropriate things and that resources were being used effectively (Kakuta, 2021).

Based on the above discussion, the researcher formulated the following hypothesis, which was to analyse the relationship between Project Management and Artificial Intelligence's Impact.

"H_{01}: There is no significant relationship between Project Management and Artificial Intelligence's Impact."
"H_1: There is a significant relationship between Project Management and Artificial Intelligence's Impact."

ANOVA					
Sum Table 2: H_1 ANOVA Test					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	39488.620	533	5655.517	965.479	.000
Within Groups	592.770	384	5.356		
Total	40081.390	917			

In this study, the result is significant. The value of F is 965.479, which reaches significance with a p-value of .000 (which is less than the .05 alpha level). This means "*H_1: There is a significant relationship between Project Management and Artificial Intelligence's Impact*" is accepted and the null hypothesis is rejected.

Discussion

Some project management domains might be revolutionised by artificial intelligence (AI), including manufacturing, delivery, and production, as stated in the research. The widespread use and revolutionary potential of artificial intelligence (AI) were shown by the fact that it was already having an impact on many different industries, from manufacturing to banking. Project planning, risk management, and resource allocation were emphasised by the respondents as crucial to the effective completion of a project, in addition to the previously mentioned duties and obligations of a project manager. The literature also discussed the concept that research in the future should focus on more effective methods of project management. When asked about the extent to which project managers were familiar with artificial intelligence (AI), some examples were given, such as the automation of routine tasks, the analysis of client data, and the detection of possibilities and hazards (Hayek and Hajj, 2022).

Artificial into revolutions: I) had great potential for project management, as had previous technological revolutions; nonetheless, key problems remained unresolved. AI may revolutionise project management, according to the research. Before project managers can confidently oversee a future that is AI-integrated, AI-automated, and AI-predictive, a few hurdles must be overcome. Geraldi et al. address the concerns raised by project managers on data security, job security, and reliability during the interviews conducted for this thesis.

Conclusion

The application of neural networks in project management may significantly increase the project's efficacy as well as its outcomes. Nonetheless, it was imperative to address any possible ethical concerns and consider how artificial intelligence influenced the job economy. The impact of artificial intelligence on workers has been shown in this thesis research because ethical considerations had to be addressed. A review of the literature and semi-structured interviews with project managers in Sweden and Greece made it abundantly evident that project managers must get training and develop new skill sets to use AI. The results of the interviews showed that various project managers had various viewpoints towards AI. Many expressed concerns about the effect on job security and the need for new hires to get training. It was noteworthy to note that these second thoughts highlight the need for effective staff support and transition management throughout the shift. It also became abundantly evident that employing AI to manage projects required careful consideration of ethical considerations. The most crucial elements from an ethical standpoint were transparency, human oversight, privacy, fairness, and accountability. Organisations need to encourage the ethical and responsible use of AI, emphasising the protection of individuals' right to privacy and the advancement of equality in the decision-making process.

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