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Artificial Intelligence and Its Impacts on Project
Management

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Artificial Intelligence and Its Impacts on Project Management

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1. Chapter 1: Introduction

Overview

systems that allow face recognition. AI proponents believe that intelligent computers are the only way to ensure the long-term survival of the human race, while opponents of the technology, sometimes known as skeptics, are concerned ab Technology is being used across various sectors to enhance efficiency and effectiveness while making it possible for management to be trustworthy, secure, and acquiescent. Integrating human skills and technology systems has resulted in improved performance and driven culture, with everyone participating, ensuring continual progress (Munir, 2019). Project management is another field that has found applications for integrating technological and human skills (Edkins, 2017). Project management is distinguished by three pillars, which are as follows: • The presence of project managers who are competent and powerful. • Providing project managers with an atmosphere that is favorable to the completion of their work. • Ensuring that everyone across the company is held accountable. AI is increasing the capacities of humans. This dissertation investigated the advantages of incorporating artificial intelligence into project management while studying the function that artificial intelligence plays in project management, including how it may be used in project management. In addition, it investigated how AI might improve performance in project management. Project managers have access to various AI-based solutions, such as Chatbots, Stratejos, ZiveBox, Rescoper, Click Up, Clarizen, and PolyOne, to aid them in managing a variety of activities (Lahmann et al., 2018). For example, they assisted the manager in putting together the team working on the project and delegating tasks and duties to each team member (Butt, 2018). AI technologies are important in ensuring project managers efficiently manage and stick to AI AND ITS IMPACTS ON PROJECT MANAGEMENT 12 deadlines, which is another benefit of using these tools. The use of artificial intelligence provides project managers with a variety of advantages. To begin, AI is helpful to project managers because machines lighten the load and relieve some of

the strain associated with project management. AI is also beneficial in supplying project managers with correct results since the jobs conducted using AI do not include mistakes or errors due to the absence of human intervention (McCarthy, 2007). Additionally, the use of AI assists project managers with gaining insights and developing strategies. For instance, software that uses AI suggests alternate or extra procedures for project managers working on challenging projects. In addition to assisting project managers in carrying out the activities mentioned above, it improved both effectiveness and efficiency, increasing their productivity. This is accomplished by fostering the managers' creative potential while boosting their emotional intelligence (Abduh & Soemardi, 2002). The fourth industrial revolution, more often known as Industry 4.0, is causing substantial shifts within the human race. Advances in technology are bringing about these shifts. The introduction of coal-powered steam engines marked the first industrial revolution, while the widespread adoption of electrification and automation characterized the second. Subsequently, the third industrial revolution emerged with digitization, closely tied to the rise of the internet (Brettel et al., 2014). According to Rüßmann et al. (2015), the critical aspects upon which Industry 4.0 is being nurtured and developed include technical developments in digitalization, artificial intelligence, augmented reality, big data analytics, and the internet of things, to name a few others. In this new age, there have already been successful tests of self-driving automobiles and robots that mimic human behavior in the real world. As a result of the ongoing digital volution, human-machine contact inside businesses is becoming an unavoidable reality for the future. Consequently, there has been a rapid shift in the requirements placed on the future workforce in light of the real prospect that people and robots may collaborate on specific projects. For businesses to maintain their competitiveness in a market often shaken up by the introduction of novel products and services, they need to re-evaluate their business methods. According to Albach et al. (2015), managers must adjust their firms under perpetual change, and they state that late arrivals struggle to keep up with the quick speed of changes in the industry. Therefore, the solution is to keep ahead of the curve by studying the possibilities of integrating new solutions, such as those brought on by

artificial intelligence, into day-to-day company operations. This artificial intelligence is the key to success.

1.1. Research Background

Within computer science, the subfield known as artificial intelligence is a field in which researchers aim to generate higher levels of intelligence inside computer systems (Nilsson, 2010). AI was defined by Russel and Norvig (1995) as the art of developing computers that execute activities that need intelligence when performed by humans. One possible interpretation of this definition is that it has unparalleled potential for the future of human-machine collaboration; there has been a huge increase in the amount of money invested in research and development within this sector in the last several years. In the first half of 2016, the market was responsible for funding 200 AI-related businesses for USD 1.5 billion (Pan, 2016). Artificial intelligence's practical applications are quite diverse and may range anywhere from clever personal assistants to intelligent out the unanticipated and uncontrolled adverse effects of AI (Gurkaynak et al., 2016). According to Gurkaynak et al. (2016), the three known categories (rule-based, learning-based, cognitive) are used in the scientific classification of artificial intelligence systems. Rule-based systems use a set of predetermined rules to make decisions. Learning-based systems use machine learning algorithms to learn from data and improve their performance over time. Cognitive systems aim to replicate human-like intelligence and perception, including the ability to reason, understand language, and recognize objects.

1.2. Research Problem

The primary reason for doing this research was due to the fast-paced nature of the technology sector and the significant progress that has been made in project management. Because project managers' work is so vital, this work must be carried out as effectively and efficiently as possible (Vesma, 2009). As a result of technological advances, several technical improvements explicitly aimed at assisting project managers in this area have been produced (Anastasi et al., 2011). As a result, this research aimed to investigate how AI benefits managers.

1.2.1. Theoretical Gaps

Within computer science, the subfield known as artificial intelligence is a field in which researchers aim to generate higher levels of intelligence inside computer systems (Nilsson, 2010). AI was defined by Russel and Norvig (1995) as the art of developing computers that execute activities that need intelligence when performed by humans. One possible interpretation of this definition is that it has unparalleled potential for the future of human-machine collaboration.

1.2.2. Practical Gaps

In the first half of 2016, the market was responsible for funding 200 AI-related businesses for USD 1.5 billion (Pan, 2016). Artificial intelligence's practical applications are quite diverse and may range anywhere from clever personal assistants to intelligent systems that allow face recognition. AI proponents believe that intelligent computers are the only way to ensure the long-term survival of the human race, while opponents of the technology, sometimes known as skeptics, are concerned about the unanticipated and uncontrolled adverse effects of AI (Gurkaynak et al., 2016). According to Gurkaynak et al. (2016), the three known

categories (rule-based, learning-based, cognitive) are used in the scientific classification of artificial intelligence systems. Rule-based systems use a set of predetermined rules to make decisions. Learning-based systems use machine learning algorithms to learn from data and improve their performance over time. Cognitive systems aim to replicate human-like intelligence and perception, including the ability to reason, understand language, and recognize objects.

How is AI impacting project management?

1.3. Research Significance

Various applications of artificial intelligence have been created to make the job of project managers easier.

1.3.1 At the theoretical level

It is anticipated that the use of a variety of AI technologies by project managers would render project management simpler than it has ever been before. According to McCarthy (2007), the idea that the limitations and assumptions presented to the project team at the beginning of the project do not alter during the project's lifetime has traditionally been accepted as a given. Since then, this is not the case, and now tracking of all constraints and assumptions must occur for the whole of a project's lifespan; this is where AI finds greater utility (Abduh & Soemardi, 2002). For example, executives seldom know when exactly they will be able to step in and help throughout the process of putting a project into action.

1.3.2 At the practical level

Most firms nowadays use AI technologies such as crisis dashboards which are among those tools. Figure E1 shows the percentage of AI systems used within the organizations (see Appendix E). By monitoring the crisis dashboards on the computer, executives can determine which projects are experiencing various problems, which of the project's limitations do not meet the acceptable level, and which projects might be considered at a critical level (Tonchia, 2018). Therefore, executives can identify projects that require immediate action by utilizing AI. They can also identify the specific actions that project managers need to take and the stage of the project implementation at which the action ought to be taken according to the AI's recommendations (Hennings & Munter, 1985). This is crucial to drastically reduce the time needed to respond to concerns with the project that have been detected as falling outside of an acceptable range. Without labor limits, it may be difficult for executives to assess the quantity of work that must be done or schedule it. In most cases, additional work is completed on time without respect to technology restrictions, talent requirements, resource limits, and AI (Edkins, 2017). AI helps develop the project portfolio, which increases the possibility that the project will increase the business's value. Additionally, AI assists in the identification of methods that are successful in resource management. It is important to note that several algorithmic software programs have been built specifically for this objective (Salini et al., 2015). Despite this, project scheduling and optimization techniques rely on manual processes and tactics involving trial and error.

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