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Leveraging Artificial Intelligence and Strategic Management for Success in Inter/National Projects in US and Beyond

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The place of artificial intelligence (AI) and strategic management (SM) in the success of any projects cannot be overemphasized. This study critically explores the place of AI and SM in the attainment of success in national and international projects in the US and beyond, drawing evidence from previous studies. Relying on secondary data, drawn from the internet and subjected to a

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critical analytic exposition and thematic systematic review, the study shows that AI and SM play multifaceted functions that guarantee the success of projects. The paper concludes that once deployed judiciously, AI and SM have the potentials of fostering the success of different national and international projects. The implication of the findings is that AI and SM can be used in combination for more results, as in to attain significant successes in managing national and international projects as well as business and other activities/affairs. It recommends judicious adoption and application of the two in project management for the attainment of any desired results and successes in inter/national projects in the US and beyond.

Keywords: Leverage; artificial intelligence; strategic management; success; projects in US.

1. INTRODUCTION

The application of artificial intelligence methods and techniques in different fields, which this paper joins other studies to advocate sustained practice, rests on their proven efficiency, performance, solutions to different problems, and huge contributions to different spheres of life [1,2,3,4]. The paper argues that AI can be leveraged for effective strategic management of different national and international projects in US and beyond, with huge positive results being attained in the end. Studies, such as Arrieta et al. [1], affirm the applicability and result-oriented capacities of AI.Its affirmed capacities and huge impacts are why AI techniques are being put in place and used widely, with a growing strong advocacy for the adoption of AI in various spheres of life. Bidhendi and Azizi [5] prove that AI technologies and techniques are tools for effective management of projects. Their proof justifies the position of this paper that SM can play a critical role in matters involving AI and inter/national projects in US and beyond.

Obviously, nations, companies, groups and individuals have been benefiting from AI in various ways. Thus, governments and organizations across the globe consistently make concerted efforts to develop, advance and use AI techniques maximally and accordingly in order to accelerate operations, functionality, and attain innovative feats in all endeavours [6,7]. As regards management, AI techniques are affirmed to be impacting on employee and organizational performance and productivity, and bringing in place efficiency among employees of organizations [8]. These are within the confine of management proper. Being in the management implies that strategic management, a mechanism for effective management, can be profitably combined with AI (technologies and techniques) to manage national and international projects in US and beyond.

AI techniques are also known to eliminate repetitive roles and redundancy, and handle tedious tasks effectively. Considering the range of challenges that confront projects at both national and international levels, studies have held that strategic management can be used to surmount them [9,10,11,12]. This present study uniquely contributes to the extant studies by making a critical exposition of how AI and SM can be deployed to attain successes in national and international projects in the US and beyond. The study seeks to demonstrate that by virtue of the functions, which constitute their benefits, AI and SM are viable mechanisms for successes in all kinds of projects in various human endeavors.

2. MAJOR AREAS OF AI

There are different areas or subfields of AI. Among them are:

- Machine Learning (ML)
- Deep Learning (DL),
- Natural Language Processing (NLP)
- Internet of Things
- Robotics
- Robotic Process Automation
- Reinforcement Learning
- Computer Vision
- Digital Image Analysis
- Building Automation Systems,
- Renewable Energy Systems
- Smart Water Management Systems
- Canny Edge Detector

The above list is not exhaustive. It only captures some of the major or popular AI technologies or subfields. In the same vein, only several of them would be given a brief hereafter. Accordingly, Machine Learning (ML) involves statistical models and algorithms that allow for learning from computer-based data and becoming more effective in carrying out certain activities. NLP is concerned with the interaction between human language and computers so as to let robots

recognize, produce and interpret a language similar to human language. Robotics refers to the AI involved in building, managing and using robots for varied purposes in different fields of life. Examples of such fields include engineering, data and library sciences, information technology, media and communication, healthcare and medicine, business and e-commerce, construction, project management, and security operations and intelligence.

Despite not dwelling on many of them, the 'take-home message' emphasized by this present study is that all AI technologies and techniques are capable of innovations, multifaceted tasks, solving different problems and making huge impact on different spheres of life. Studies affirm AI technologies like ML and DL, among others, to be cost-effective [13,14,5,15]. Being cost-effective implies that AI has the potentials for strategic management of costs in different transactions. Also, Digital Image Analysis and Canny Edge Detector are reputed for cost-effectiveness and the monitoring of safety [16,17,18].

3. PROSPECTS OF ARTIFICIAL INTELLIGENCE

For this study, the prospects of artificial intelligence rest on its functions. This is because in the course of playing different functions, AI artificial technologies and methods showcase their benefits. Some of the major functions, which constitute the prospects, of AI are tabulated hereunder, with some citations:

The above Table 1 shows that there are extant literatures affirming the place of AI in management, since it plays essential managerial functions. The Table 1 does not imply that the listed points are all the managerial functions of AI. They are pointers to and suffice for others. It should be noted that the functions, which constitute the benefits of AI, are applicable to fields other than management. Given the above, it is quite clear that AI can be a catalyst of the successes of national and international projects of any kind in the US and beyond.

Table 1. Managerial functions of AI

Functions	Citations
Compliance management	Obiuto et al. (2024) [19]
Efficient planning	Singh (2024) [20]
Prediction of project activities and success	George et al. (2022) [13], Yigitcanlar et al. (2020) [8]
Effectiveness	
Increase Improved performance	
Effective project planning	Kamble and Gaikwad (2024) [21]
Reduction of costs	Obiuto et al. (2024) [19]
	Regona et al. (2023) [22]
Effective safety management	Kamble and Gaikwad (2024) [21]
Effective business & project risks management	George et al. (2022) [13]
	Srivastava (2021) [23]
	Yigitcanlar et al. (2020) [8]
	Jarrahi, 2018 [24]
Help in prediction, detection and ensuring site safety	Bidhendi and Azizi's (2021) [5]
	Juhrich (2023) [25]

Source: Authors' Compilation, 2024

Table 2. Safety functions of AI

Functions	Citations
Efficient mitigation of environmental degradation	Adefemi et al. (2023) [26]
	George et al. (2022) [13]
Facilitating detection and prediction of safety threats	Juhrich (2023) [25]
Ensuring workplace safety	
Proactive mitigation of risks	Bulama and Shirivastata (2022) [27]
Guaranteeing improved safety	George et al. (2022) [13]
Real-time hazard detection	Thakkar and Lohiya (2021) [28]
Enhanced incident reporting & response	Baker et al. (2020) [29]

Source: Authors' Compilation, 2024

Table 3. Other beneficial functions of AI

Functions	Citations
Stimulation of learning and teaching, decision-making processes and rationality in the human mind Costs reduction, Saving time and resources Forecasting accurately High performance More profits Accountability	Kamble and Gaikwad (2024) [21] Regona et al. (2023) [22] Regona et al. (2022) [30] Wang (2019) [31]
Data-driven decision-making	Singh (2024) [20]
Effective modernized and digitalized health systems and practices Safe public health	Adefemi et al. (2023) [26], Chen and Decary, 2020 [32]
Innovations Discoveries Invention Growth & development	Bidhendi and Azizi (2021) [5]
Allowing for use of massive data sets in engineering, IT & the like fields	Yigitcanlar et al.(2020) [8]

Source: Authors' Computation, 2024

From the Table 2, it is understoodthat AI plays crucial functions in ensuring safety in various areas of human endeavors. That is, AI technologies and techniques can be used variously, including for purposes of pursuing and attaining safety in and outside the workplace. This means that AI is beneficial because it has the capacity to facilitate safety of lives and property. It follows that AI technologies and techniques are tools for effective security operations and safety measures for the attainment of safety from different risks, including threats to strategic national interests, national peace, safety of lives and property, and so on. It also follows from the foregoing that with AI, different risks to inter/national projects of any kind can be predicted, detected and tackled proactively. By so doing, the successful execution of projects is guaranteed.

The above Table 3 contains some uncategorized or 'miscellaneous' functions of AI, highlighting the diverse and pluralistic nature of AI. By virtue of the above functions, it is quite clear that AI plays different functions in various spheres of life. Thus, it can be leveraged for various purposes. Its judicious application in any sphere leads to the successful attainment of any targeted goals. As such, the place of AI in both national and international projects cannot be underestimated. This study argues here that the capacities of AI in projects can be massive and more guaranteed when AI and SM are combined for pursuing the successful attainment of inter/national projects.

4. CHALLENGES TO ADOPTION OF AI FOR DIFFERENT TASKS

Although the potentials of AI are known to many, most of who would want to adopt its technologies and techniques for solutions to problems and better alternatives for other conventional ways of carrying out tasks and doing things, the adoption is constrained by some challenges. Some of the challenges are conventional or non-technological, while others are unconventional (technological). For example, Regona et al. [22] agree that carrying out construction through computer-based means is constrained by conventional and technological constraints. The Table 4 contains the core challenges of the two categories:

This paper observes that among the conventional factors or challenges, socio-political, economic and environmental factors are the severest of the challenges or constraints to the adoption of AI in different spheres. In fact, in many cases, individuals' attitude towards innovations, such as AI, is influenced or determined by socio-economic factors. These include perception, orientation, commonly shared misleading or unhelpful thoughts or views, falsehoods or misconceptions about innovations, and economic situations like (abject) poverty, unemployment, underemployment, and the burdens of dependents, to mention but a few. The cultural factors include unfavorable practices, beliefs,

Table 4. Un/conventional challenges of adopting AI

Unconventional or Technological Constraints	Conventional Constraints (Challenges)
High costs of technologies	Socio-political, economic and environmental factors
Lack of (and poor) technical-know-how	Fear Lack of interest, Negative attitude towards technologies and the adoption of technological innovations
Shortage and/or lack of resources and technological devices for operations and computer-based activities	Preferring traditional to modern digital modes of operations and service delivery
Technical faults like network errors, poor network, and cyber security threats, among others	Cultural factors

Source: Authors' Computation, 2024

worldviews, myths, tales, culture-based ethical considerations, moral perspectives, and issues of clashing values and the erosion of established codes and standards concerning or about AI alongside its usage for various purposes in different settings.

More so, the adoption of AI is also constrained by legislations, obnoxious policies, and actions and inactions of government and leaders of both public and private sectors.For the present study, these factors are theseverest of the conventional challenges. They contribute significantly to other conventional factors and the non-conventional factors. For instance, where favourable socio-political, economic and environmental factors obtain, there is the possibility of easily and willingly adoptingAI, smart technologies and other innovative technologies. Where most of them are provided free or affordably, many people make use of them without considering cost as a serious challenge. The maintenance of these innovations in ways that encourage the masses to adopt and use them sustainably can be done better where there arefavorablesocio-political, economic and environmental factors. It is more like those working in favorablework environment doing better and achieving higher rates of results than their counterparts in the opposite work environment.

Therefore, the need for favorable policies and leadership deeds to facilitate the adoption of AI for various tasks of national and international public interests, concerns and wellbeing cannot be overemphasized. The dire need for doing so, towards increased success rates in national and international projects in the US and beyond, informed this research.In that regard, the study argues that the challenges posed by stakeholders to projects can be managed effectively using AI alongside SM. Such challenges include corruption, personality clash, cultural differences, high expectations, poor monitoring, indecisiveness, lack of or insufficient support by leaders, obnoxious policies, unfavourable laws, political instability, conflict, and frustrating conditions of living [9,33,34]. Poor or inappropriate communication with stakeholders also poses serious challenges to project [35,36,37]. Salam et al. [9] is of the view that stakeholders pose several challenges to the management of projects and resources.

The need to mitigate the challenges cannot be overemphasized. For this study, AI and strategic management are viable measures for mitigating different challenges to the successes of national and international projects in the US and beyond as well as for addressing the challenges in other spheres. The novelty of the present study rests on its foregoing viewpoint and arguments. In what lends credence to the current study, Stead [12] states that stakeholders in construction industry pose challenges like budgetary restrictions and delays to projects. This study considers AI and SM as viable mechanisms for addressing the noted challenges in the construction industry, where different national and international projects are being handled.

In the same industry, Mashwama et al. [10], Aigbavboa and Thwala [38] and Emuze and Smallwood [39] point out that shortage of resources, poor performance, inadequate constriction programs, poor leadership, ineffective management of resources, delays and stoppage of projects all have traces to stakeholder challenges to projects. It follows that stakeholders either make or mar projects depending on the kind of role they play and how they do so [36,40,41,42,43]. It is in view of the

foregoing that this study proposes the judicious deployment and application of AI and SM to national and international projects of all kinds for the attainment of successes at appreciable magnitude. Most importantly, ethical issues are the other complex multifaceted challenges to the adoption of AI. This study argues that strategic management can be used to surmount these challenges, among others.

Some people, organizations, groups, countries and even individuals are sceptical about using AI because of the associated ethical concerns. These include violations of ethics, morality and laws or legislations, privacy invasion, the question of the moral justification of using AI, cyber threats, and subjectivity and bias associated with using algorithms of AI [44]. In addition to the aforementioned, Wamba-Taguimdje et al. [45] note that the use of AI for decision-making processes, data analytics and consumer interactions raises questions about openness, responsibility and justice. This study argues that regardless of the above identified challenges, among others, AI can be used strategically to manage different projects at both national and international levels, whether as in group or team, an individual, a nation, or an organization. Such usage entails a combination of AI and SM for better results, whereby the two functionally correlate to achieve targeted goals. It is imperative to strike a balance between technologies cum technological innovations and ethics, norms, values, laws, and socio-political, economic and environmental factors. Doing so would significantly resolve the ethical issues.

5. STRATEGIC MANAGEMENT AND AI IN MANAGING PROJECTS

Management is defined as an effective process that is problem-solving and makes it possible to achieve organisational objectives, while strategy is a technique for solving problems and realising organisational goals [46]. According to Esmaeili [46], management deeply concerns controlling and combining different resources for the well-being of an organisation. This point justifies the advocacy of the current study for the combination of AI and SM for the attainment of appreciable successes in national and international projects in US and beyond. Omalaja [47] defines strategic management (SM) as what refers to “the process and approach of specifying an organisation’s objectives, developing policies, programmes, paradigms and plans to achieve these objectives, and allocating resources so as to implement the policies, programmes, paradigms and plans” (p. 61).

The above definition of SM offers valuable insights to why it is a viable mechanism for tackling problems of projects to attain successes. It also highlights why SM has to be combined with AI for better results in projects management and execution in US and beyond. Thus, it is needless presenting many definitions of SM, as that of Omalaja [47] suffices here for the many others in the literature. There are five major types of strategic management process. These are:

- Evaluation of the current strategic direction of organisations or nations
- Discovering and appraising internal and external strengths and weaknesses of organizations and nations
- Formulating action plans
- Implementing the action plans
- Examining the extent to which the plans and successes are being realized, so as to determine whether or not the recorded successes are favourable or not [41,48].

Strategic management ensures and facilitates the realization of operational efficiency, appreciable performance and productivity, profitability and market share [48]. It is a valuable tool for effective leadership, management of different facets, planning, monitoring, development, and validation of the activities of organisations and nations [49]. It is of great financial and non-financial benefits to organizations and nations. According to Esmaeili [46], strategic management paves way for profit maximization. The noted benefits of SM, among others, are why SM is imperatively needed for successes in managing national and international projects in US and other nations of the world. Making a critical exposition of this reality highlights the novelty of this research work.

More so, Daft [50] points out that strategic management guarantees systematised and rational planning and decision-making.These are needed for successful management and execution of projects and for the judicious application of AI in various spheres, including project management. As different literatures (examples: [49,48,51,52,46,53,54] affirm, other benefits of strategic management include:

- Effective co-ordination of all categories of resources
- Proffering solutions to problems
- Facilitating the achievement of organisational and national goals
- Tackling the environmental constraints to businesses, programmes and projects
- Mitigating socio-economic and political factors affecting projects
- Making organisations become more proactive
- SM increases communication, creativity, decisiveness and orderliness
- Creation ofawareness about competition and what to do against it
- It serves as a mechanism for identifying and pursuing organisational objectives
- SM allows for strategic thinking and the application of critical thinking skills
- It offers avenues for putting the skills of digital, critical, media and other categories into use or practice
- SM makes employees and managers to be motivated and more committed to tasks.

Different nations, especially USA and several other advanced nations, spend hugely on projects every year. The spending can be reduced by the application of cost-effective AI techniques and effective SM. Also, AI techniques can be leveraged for effective management of the different projects that huge expenses are being made on yearly. It is noted that three-quarters of the responsibilities of project management shall be handled by ML, NLP and big data by 2030, as many entrepreneurs have created (and are still creating more) algorithms for a better management of different projects [55,56]. This scholarly prediction followed the results obtained about the efficacy of AI technologies, techniques and methods in different areas of life, including in management.

This paper considers the deployment of AI for organizational management as the application as well as disposition of strategic management. It argues that it is because AI techniques have been successfully deployed to attain different positive results in various areas of management that their usage is being advocated by many persons, groups and nations. Given such realities, it is quite logical to consider SM as a viable mechanism for the application of AI in different spheres, including in managing national and international projects by both government and private sector organizations, for the attainment of successes in the projects. It follows that SM facilitates as well as supplement the role of AI in effective project management. AI holds a lot of prospects for organizations, groups, countries and individuals that apply them accordingly. Consider the following graph adapted from Butt [57]:

From the above Fig. 1, it is understood that AI plays a critical role in different fields involving projects project management and the deployment of strategic management. These are budgeting, change management, conflict management, documentation, office and information management, scheduling, knowledge management, leadership development and efficient performance, project planning, people and other resources management, quality management and assurance, risk management, task management, and team management. The graph has the variable ‘others’ in it, which suggests that the fields are many. Being so, they cannot be captured all in the graph. The implication is that this study or any other cannot claim exhaustiveness of all that AI can undertake. That is also the case with SM in different contexts or spheres. As shown in the chart above, AI has unreserved place in information management, project planning, budgeting, change management, knowledge management, resource management, documentation, quality management and risk management. The chart shows that AI plays a critical role in different fields of human endeavours, and produces appreciable results. Wherein such results obtained erstwhile, AI adoption and application therein have caused significant increase.

Since AI is affirmed to aptly situate in the above mentioned areas of management and others, it is logical and more result-oriented to deploy SM in using AI for management (managerial) purposes. It is in view of the above that Khan et al. [58] enjoin business organizations to duly key into using AI for trade and commerce. For this study, it takes strategic management to make such decisions and effectively manage the various aspects of businesses using AI technologies and techniques for betterment. That is why this article advocates the use of AI and strategic management (SM) techniques for project management in both public and private sectors, hoping that all the benefits of AI and SM can be harnessedfor better results in project management in US and other nations of the world. Thus, the novelty of this study rests on the

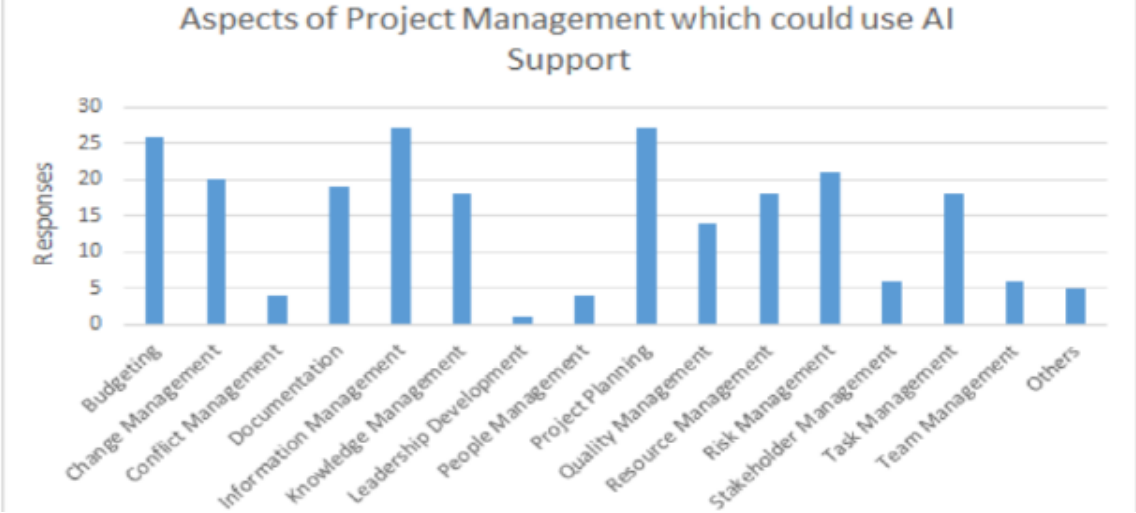

Fig. 1. Aspects of AI support for project management

foregoing. The study is of national and international relevance by virtue of its unique scope and scholarly contributions.

6. CONCLUSION

From the critical exposition and review made so far, it is quite evident that AI and SM are capable of addressing issues in managing national and international projects in the US and other nations of the globe. They are proven to be viable mechanisms for effective project management. Beyond projects, the study evidently shows that AI and SM play a range of functions in various endeavors. Their huge benefits rest on the critical multifaceted functions they play in different fields, among which are engineering, data and information sciences, communication, and management. Based on the scholarly evidence, this study concludes that AI and SM have the potentials to meet all that is needed for the significant success of national and international projects in US and beyond. Once they are deployed judiciously, their potentials for successes are bound to be harnessed and made manifest accordingly. It recommends judicious adoption and application of the two in project management for the attainment of any desired results and successes in inter/national projects in the US and other nations alike. It also calls on stakeholders to help tackle the identified challenges to strategic management of projects and to the adoption of AI in (project) management and other fieldsso as to attain successes of national and international interests and benefits.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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