

The Challenges of Artificial Intelligence Adoption by Business Organizations

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Abstract: *Globally, there is a growing quest for the adoption of artificial intelligence (ai) by organizations. This study intends to investigate the benefits derivable from its adoption, as well as the possible challenges that organizations need to contend with while trying to adopt the technology. The methodology adopted by the author is the use of questionnaires which is administered on a total of sixty-four (64) workers drawn from organizations that have partially adopted the AI technology. The findings show the profound benefits to include job efficiency and massive production of goods and services. On the other hand, the challenges are seen to be mainly the high cost involved in the adoption; the workers' perception of AI technology implementation, and the reality that there are not enough AI skilled workers.*

Keywords: adoption, artificial intelligence, challenges, implementation

1. Introduction

Artificial Intelligence (AI) in recent times has been seen to be the game changer for organizations' viability and enhanced productivity. However, its rapid adoption in advanced and emerging economies comes with some challenges. This is due to certain factors that bother mainly on cost of migration from the traditional manual implementation of tasks by humans to the acquisition and installation of AI systems for the automation of several tasks.

Furthermore, adequate training and conduct of series of workshops to upskill existing workforce are required to make its adoption to be seamless for each organization that adopts it. This makes it seem more challenging for older organizations to migrate to it.

In this paper, the author critically examines the benefits, and challenges of AI technology adoption by organizations.

2. Problem Definition

AI is globally seen as the generation-next technology that must be embraced by organizations for better performances. This is because a lot of benefits are accruable by the adoption of the technology. However, its adoption by organizations is faced with a vast number of challenges, foremost of which is the cost of acquisition and implementation. This study is intended to investigate the benefits alongside the challenges that organizations face while trying to migrate to AI systems.

3. Objectives of the study

The objectives of this research are to –

- Find out the benefits every organization that adopts AI systems stands to get.
- Find out the challenges that organizations face while trying to adopt AI systems.

4. Research questions

For the purpose of this research, the following research questions are posed –

- What are the benefits every organization stands to get through the adoption of AI systems?
- What are the challenges that organizations face while trying to adopt AI systems?

5. Literature Survey

Globally, AI technology adoption is embraced by organizations as the way forward for a more prosperous workplace. Many organizations are either looking forward to its adoption or have already adopted it and are scaling up. However, in the United States of America, adoption of AI systems is often relative to the size and how long the organization had been established. That is to say, the large organizations with cloud computing capabilities are normally the first set of organizations that can easily adopt AI. On the other hand, old existing organizations are faced with greater challenges of migrating to AI systems unlike new organizations that are just being established. This is due to the fact that it is more expensive for them to do so. Today, setting up a new manufacturing organization entails installation of AI systems right from inception [1].

Several authors have held some views on the benefits of adopting AI technologies by organizations. Majority of organizations adopting AI do so mostly to help them maximize profit overtime through improved production outputs of their goods and services. The organization is made more profitable since lots of production output is realized within a short time frame [1]. The use of AI systems is seen to improve organization's supply chain, filling up the shortage in manpower, and help in the placing of definite attainable targets for the organization [2]. Also, the use of AI systems has been seen to be beneficial as it enhances efficiency of the jobs done, and creates new job roles for the workforce. Informed decision-making is easily actualized due to the availability

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of huge data leading to effective management of risks [3] [4] [5]. Using AI systems, organizations can easily create for each of its' teeming customers a personalised customer content [5].

The challenges that organizations face in the process of trying to adopt AI systems is enormous. Most of these challenges bother mainly on cost and the fears expressed by the workforce. It is cheaper for a new organization to mount AI system from inception compared to an already established organization that wants to migrate to the use of AI systems [1] [5].

Places like India and Bangladesh, which already have a lot of big organizations that are meant to produce goods massively with cheaper manpower, would incur very high cost in the course of migrating to AI systems [6] [7]. To reduce cost while migrating an older organization, AI solutions are to be introduced gradually starting from less customized ones over time [7]. Big organizations that existed in densely populated countries like India would be facing some form of resistance from the workforce because automation of the tasks would lead to massive job losses [5] [6] [7]. This resistance from the workforce may be coming due to the communication gap between workers and the management of the organization [7]. Moreover, the long-serving workforce may not be willing to spend their monies on re-training themselves with the workings of AI tools. The process may be perceived by existing workforce as a lowering of their self-esteem as they may not be prepared to subject themselves to the learning of new technological skills [7] [8] [9] [10].

Some AI systems have been seen to be bias in its selection and responses. This biasness results due to the fact that the data used to train it may not be a balanced one. For example, Amazon hiring tool discriminates against women because the data of applicants used to train it for a period of ten (10) years were predominantly male applicants [11] [12] [13] [14]. Issues bothering on privacy and protection should be enhanced to build more confidence on the use of AI systems [7] [10].

The scaling up of power consumption expenditure is imminent because steady supply of electricity is needed for the running of the systems [12]. Unlike humans, each AI system is designed to perform a specific task and that task alone. This means that each organization will be needing lots of these AI systems to take care of the different stages of its manufacturing chain. The reverse is the case on human labour as it can diversify from one task to another [12] [13]. A lot of technicalities are needed to be undertaken in building each AI system to suit a definite need. This means careful study of the organizational workings has to be conducted to ensure that the appropriate data is generated and used to train each of them appropriately [15].

The adoption of AI systems by any organizations means that there is a significant shift from humans to machine dominated job tasks. For the transition to be seamless, training and upskilling of the workforce becomes imperative. The workforce may feel reluctant to use their

personal resources to upskill themselves. The onus, therefore, lies on the organization to possibly bear the cost of retraining its workforce which could be challenging depending on the organization's financial capacity [5] [16]. Figure 1 shows the rating of AI adoption by different sectors in the categories of "high AI adoption", "medium AI adoption", and "low AI adoption" [15].

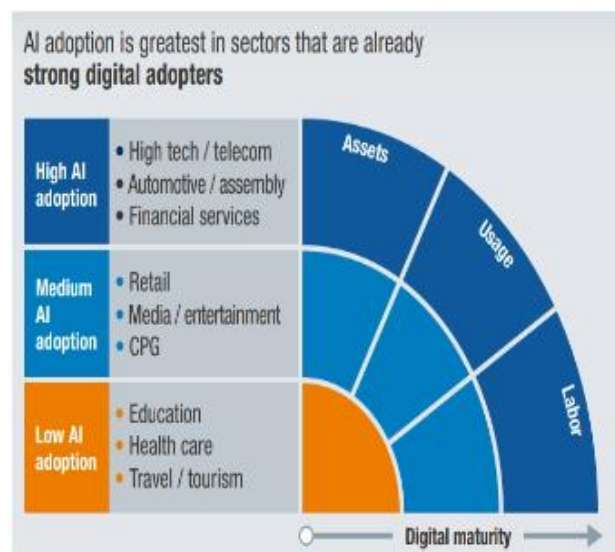


Figure 1: Rating of AI adoption by different sectors [15]

A survey conducted four (4) years ago shows that most respondents see the adoption of AI by their organization to be in the "evaluation stage". Depending on the sector investigated, some others see it to be at "mature practice" stage while some others are yet to implement any form of AI technology. Figure 2 shows the different stages of AI adoption by organizations sector by sector based on the survey [17].

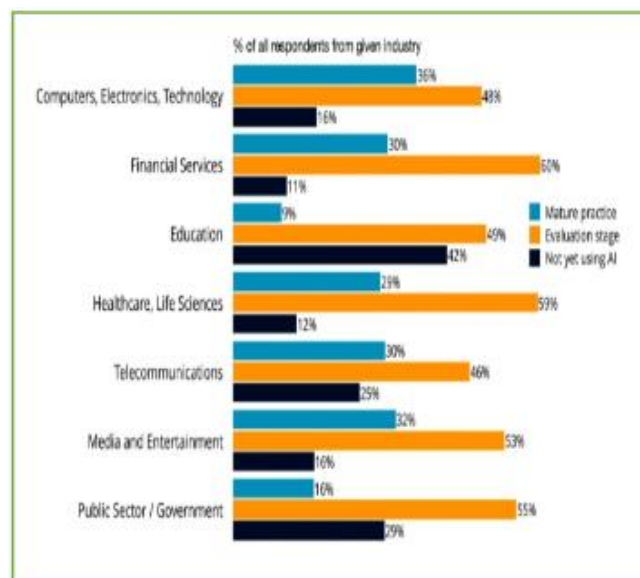


Figure 2: Stages of AI adoption in organizations

6. Methodology

The methodology used in this paper is inductive in nature. The author studies several current existing papers on the key subject of discussion – AI. Two (2) research questions

were framed to address the benefits and obstacles of adoption of AI systems. Research questions 1 and 2 comprise of a total 4 and 5 questions respectively. Sixty-four (64) respondents drawn from organizations that have

partially adopted AI systems were issued the questionnaires electronically. Tables I and II display the summary of the responses obtained from the respondents in respect of the two (2) research questions.

Table I: What are the benefits every organization stands to get through the adoption of AI systems?

Sn	Question	Yes	No
1.	Is job efficiency enhanced by the adoption of AI systems?	59 (92%)	5 (8%)
2.	Do the use of AI systems promote cordial company-customer relationship?	51 (79%)	13 (21%)
3.	Is your organization making more profits than before?	55 (86%)	9 (14%)
4.	Is the present production output of the organization more massive than before?	53 (83%)	11 (17%)

Table II: What are the challenges that organizations face while trying to adopt AI systems?

SN	Question	Yes	No
1.	Is the migration of organizations to AI systems capital intensive?	60 (94%)	4 (6%)
2.	Is there any possibility of some sections of the workforce resisting its adoption?	58 (91%)	6 (9%)
3.	Do you think some AI systems can be made to be bias?	57 (89%)	7 (14%)
4.	Is every AI system multi-functional in its mode of operation?	12 (19%)	52 (81%)
5.	Do you think there is enough AI systems skilled workers?	11 (17%)	53 (83%)

7.The benefits of AI systems adoption

The adoption of AI by organizations is on the rise, especially in advanced and emerging economies of the world, like the European nations, United States of America, and China. Several benefits abound with the adoption of AI systems by organizations. A total of four (4) questions were asked in order to authentic the outlined benefits.

Question 1 seeks to know the views of the respondents on whether the adoption of AI systems enhances job efficiency. In response, 59 representing 92% of the respondents said “yes”. This assertion is in accordance with the findings of [3], [4], and [5] when they say that informed decision-making is easily actualized due to the availability of huge data leading to effective management of risks.

Question 2 seeks to know whether the use of AI systems promote cordial company-customer relationship. A total of 51 representing 79% of the respondents said “yes” while only 21% responded otherwise. This assertion is in line

with the finding of [5] which says that organizations can easily create personalised customer content for each of its customers using AI systems. Question 3 seeks to verify whether the organization is now more profitable than before. Out of the 64 respondents, 55 representing 86% said “yes”. This assertion is in line with the finding of [1] which says that the organization becomes more profitable since lots of production outputs is reached within a short time frame.

Question 4 seeks to know whether the present output of the organization is now more massive than before. A total of 53 representing 83% of the respondents said “yes”. This assertion is in line with the finding of [1] that says that organizations achieve improved production output of goods and services. Similarly, the finding of [2] that says AI systems help organizations to improve their supply chain, fill up the shortage in manpower, and achieve attainable target is in line with the assertion of this research. Figure 3 is a bar chart that shows the responses to questions 1 to 4 which seek to answer the research question that bothers on the benefits of artificial intelligence to organizations that adopt it.

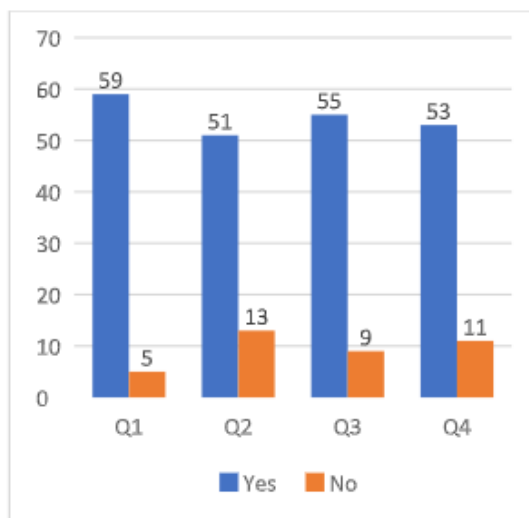


Figure 3: Responses to research question 1

8. The challenges of AI systems adoption

There are some of the challenges that can be faced by any organization that wishes to adopt AI technologies. To investigate these challenges, five (5) questions were posed to the respondents.

Question 1 seeks to ascertain whether the migration of any organization to AI systems is capital intensive. A total of 60 representing 94% of the respondents said “yes”. This assertion is in line with the findings of [6] and [7] when they say that very high cost is accruable while migrating an old organization to AI systems. [7] suggests that a gradual migration approach can be adopted to save some costs. Similarly, [1] and [5] findings say that mounting of AI systems from inception is cheaper compared to migrating an old organization to AI systems.

Question 2 seeks to ascertain whether there exists the possibility of some sections of the workforce resisting the adoption of AI systems by their organization. A total of 58 representing 91% of the respondents responded positively to the question. This assertion is in line with the findings of [5], [6], and [7] when they say that the workforce in densely populated areas may resist automation for fear of losing their jobs. Similarly, [7], [8], [9], and [10] findings point to the fact that resistance may arise when the long serving workers feel that they are not prepared to be subjected to the learning of new technological skills. Question 3 seeks to know whether they believe that some AI systems can be made to be bias. In response to this question, a total of 57 (89%) of the respondents said “yes”. This assertion is in line with the findings of [11], [12], [13], and [14] when they say that Amazon hiring tool discriminates against women because the male applicants dominated the data that was used to train it over a period of 10 years.

Question 4 seeks to know whether they see AI systems as a multi-functional tool in its mode of operation. Responding to the question, 12 (19%) and 52 (81%) said “yes” and “no” respectively. This implies that the majority do not see AI systems as being a multi-functional tool. This assertion is in line with the findings of [12] and [13]

when they say that every AI system is designed to perform a specific task unlike humans that can diversify roles.

Finally, question 5 seeks to know the view of the respondents on whether there are currently enough AI systems skilled workers. 11 (17%) and 53 (83%) of the respondents responded “yes” and “no” respectively. This implies that there is a lack in AI skilled workforce. This assertion is in line with the findings of [5] and [16] when they say that training and upskilling of the workforce is imperative in ensuring organization’s smooth transition to AI systems. Figure 4 displays a bar chart showing the responses of the respondents in respect to the research question 2 that seeks to ascertain what the challenges to the adoption of AI systems by organizations are.

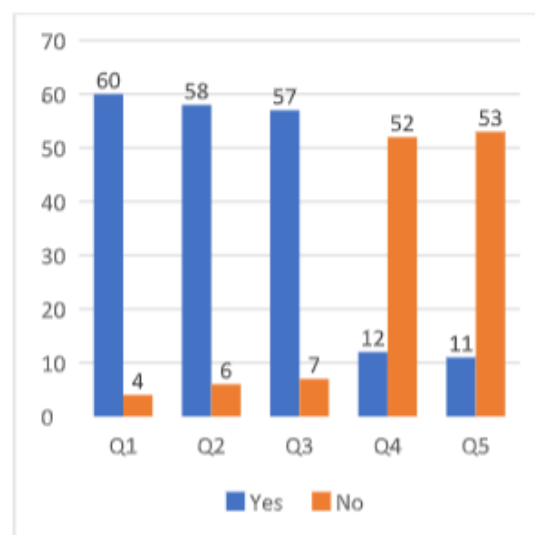


Figure 4: Responses to research question 2

9. Conclusion

AI adoption by organization has risen significantly over years due to the enormous benefits organizations stand to get by its adoption. This research has shown that a lot of benefits are accruable from the adoption of artificial intelligence; these include enhancing the job efficiency of the workforce, promoting cordial relationship between the

organization and its teeming customers, driving up the profitability of organizations, and enhancing production outputs are timely to meet demand. On the other hand, this research has identified certain challenges that impede the adoption of AI systems by organizations. The identified challenges are the cost intensiveness of migrating especially an old organization to AI systems implementation, certain perceived resistances from some sections of the workforce, the perceived biasness of some AI systems, the inability of each AI system to perform diverse tasks as each is tailored to perform a specific task, and lack of enough AI systems skilled workforce at the moment.

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