Original Article

Artificial Intelligence Enablement's Diffusion And Impact On Organizational Performance: A Case Study Of Digital Healthcare Service Providers

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Abstract

The study's purpose was to determine the spread and impact of Artificial Intelligence Enablement-based digital healthcare service providers. The level of artificial intelligence enablement was researched based on the collection of opinions on thirteen criteria from healthcare employees, and first-hand information from healthcare organisations. The data was collected with the help of a well-structured data collection instrument schedule around the region. The information gathered was organised in a tabular format, and statistical procedures such as descriptive and percentage analysis, mean, correlation analysis, chi-square test, ANOVA analysis, factor analysis, and structural equation modelling were utilised. On the basis of these observations and discussions, the key findings and conclusions were summarised as follows. Based on the findings, a few suggestions have been made.

Keywords: Artificial Intelligence, Digital Healthcare, Healthcare Employees

INTRODUCTION

Artificial intelligence (AI) and associated technologies are becoming more common in business and society, and they're starting to show up in healthcare. Many elements of patient care, as well as administrative operations inside providers, payers, and pharmaceutical companies, could be transformed by these technologies.

A number of studies have already shown that AI can perform as well as or better than humans at crucial healthcare activities like disease diagnosis. Algorithms are already surpassing radiologists in terms of detecting dangerous tumours and advising researchers on how to build cohorts for expensive clinical trials. However, we believe it will be several years before AI replaces humans in large medical process domains for a variety of reasons. In this article, we discuss the potential for AI to automate portions of treatment as well as some of the roadblocks to AI's quick adoption in healthcare.

MAJOR APPLICATIONS OF ARTIFICIAL INTELLIGENCE ENABLEMENT IN HEALTHCARE

➢ Artificial Intelligence Enablement in Clinical Operations

Clinical operations in healthcare organisations are used to improve the efficiency of existing solutions and the accountability of healthcare professionals on clinical decision making based on robust data sets available with the help of process automation, intelligent cloud solutions that are available around the clock with artificial intelligence driven precision, especially in drug discovery and clinical trials examination in the department of pharmacology **(Olga Kubassova et al. 2020)**.

➢ Artificial Intelligence Enablement in Medical Diagnosis

Since its inception as a facilitator of all the digital technologies that is revolutionising the diagnosis arena, artificial intelligence has advanced traditional technologies and systems that aid in diagnosis and therapy. The prototype solutions are in place in areas such as pathophysiologic reasoning for recognising disorders, identifying diseases, and assisting in the prescription of appropriate treatment. This is possible with the help of computer assisted artificial intelligence solutions that are developed with the help of medical informatics and electronic health records (EHR), where software applications are designed and developed with regard to consultation, clinical assis **(William B. Schwartz et al. 2020).**

➢ Artificial Intelligence Enablement in Healthcare Management Systems

Computer systems use intelligence to perform human tasks through large amounts of data training, model building, and thus react as solutions using algorithms that are programmed for identification, handling, and management of

electronic health records, medical records, and progress notes, clinical decision support system (CDSS) software for following procedures and tests, assisting healthcare professionals on patient medical history, and reminding devices for healthc As a result, artificial intelligence-enabled healthcare management systems are designed to assist healthcare professionals in collecting, retrieving, sorting, and storing healthcare data, lowering costs, increasing operational efficiency, increasing workforce productivity, and improving patient care **(Naser Hamdi et al. 2010).**

ARTIFICIAL INTELLIGENCE ENABLEMENT IN HEALTHCARE: GLOBAL PERSPECTIVE

Globalization is a hallmark of doing business beyond national borders, allowing healthcare firms to exchange resources, technologies, infrastructure, and skilled human resources in order to compete for excellence and deliver the best possible treatment to patients and the healthcare community. With worldwide players and globally enabled technologies, artificial intelligence makes the healthcare business more vibrant. The emergence of PAHO (Pan American Health Organizations), Care International, the Center for Disease Control and Prevention at the United Nations, and the International Red Cross Committee have brought most countries in the world together for the common cause of developing their healthcare ecosystems, economies, and skilled human resources. Healthcare organisations with a global strategy must accumulate a lot of experience on numerous functional areas in order to produce services efficiently and to achieve core competency and sustain their business in the competitive global healthcare market. As a result, the global significance of artificial intelligence enablement techniques in healthcare may be shown here. However, today's healthcare organisations face significant challenges in attracting and retaining skilled healthcare practitioners and health-tech professionals, as they compete for talent in a variety of roles and must be accountable for the innovations and technological advancements that are transforming the global medical sphere.

In order to attain and supply sustainable healthcare solutions, today's global healthcare business must focus on innovation techniques and manage their workforce efficiently. This has an impact on organisational and industrial growth **(Prashanth Reddy et al. 2018)**. The global healthcare workforce has been discovered to be mobile and versatile, with no cultural or regional limits, and projected shortages in the global healthcare workforce **(Jenny X. Liu et al. 2017)**. As a result, controlling them is difficult for businesses, and as a result of these difficulties, many academics and healthcare professionals are focusing on an important field known as "artificial intelligence enablement practises" **(Tim Fountaine and Briane McCarthy, 2019; Marc Helberg, et al. 2018; Scullion, et al. 2014)**.

NEED FOR THE STUDY

This study is critical for healthcare service providers in this transforming environment. The findings of this study will contribute to a better understanding of artificial intelligence enabling techniques in healthcare and how they contribute to increased workforce productivity and better performance by healthcare service providers. The study will advise officials in the healthcare sector on how to best incorporate artificial intelligence and manage day-to-day healthcare activities. The study can also be used to examine the various reasons and causes for shortages of healthcare professionals, poor quality, inefficient workforces, affordability, and accountability in healthcare activities, and, as a result, it can assist in making appropriate decisions about incorporating real-time artificial intelligence enabled solutions and thus improving organisational performance. It also assists healthcare businesses who have not yet integrated artificial intelligence into their business processes in developing long-term artificial intelligence enablement strategies and overcoming the problem of physician shortages.

SIGNIFICANCE OF THE STUDY

Artificial Intelligence (AI) is one of the most promising technologies in healthcare today. Based on this data and related facts, healthcare organisations can take the necessary steps to develop effective artificial intelligence enablement practises, which will enable them to consistently develop, design, deploy, and disseminate appropriate, effective, and long-term artificial intelligence enabled solutions.

As a result, the significance of this research is to provide some kind of guidance and benefits to policymakers and management of corporate healthcare organisations while incorporating artificial intelligence, assisting them in better planning and moving toward effective artificial intelligence enablement practises. This research is intended to provide useful information to organisations seeking to understand the potential for organisational performance after incorporating artificial intelligence, as well as to empower them to build artificial intelligence solutions that are agile, lean, and whose services are available at any time in order to meet the organization's concrete goals. The identification of various barriers to artificial intelligence adoption will aid in the development of remedial actions and the general enhancement of digital healthcare organisations.

STATEMENT OF THE PROBLEM

Artificial intelligence enablement has an impact on the healthcare industry's performance, since the adoption of effective artificial intelligence enablement strategies in healthcare organisations enables increased labour productivity and organizational performance. With the growing worldwide competitiveness in the healthcare business, the necessity for healthcare service providers to incorporate artificial intelligence-enabled tools and systems is growing by the day. Despite the importance of artificial intelligence in healthcare and its impact on healthcare companies' performance The number of studies on artificial intelligence in the healthcare and medical fields is small, and concepts are undertheorized

and rudimentary in nature, with outcomes that are hypothetical and prognosticated with little actual data. The purpose of this study is to look into the state of artificial intelligence enabling practises among digital healthcare service providers, as well as their impact on organisational performance. As a result, it's critical to comprehend the ecosystem of artificial intelligence enablement in healthcare, as well as its impact on organisational performance.

REVIEW OF LITERATURE

Jian-Fang Hu et al. (2019) study focused on challenges and happenings with reference to agent computing, linear computation, visual interpretation, and artificial intelligence enabled semantic web building indicators, and study defined intelligence in various forms such as based on brain science, artificial intelligence systems, and interdisciplinary sciences, as well as describing the parameters that will challenge in the future, such as learning factor, employment, and so on. The study concludes that improving human intelligence will lead to the long-term goal of artificial intelligence, and that, of all future challenging factors, the employment test indicator will be the most feasible criteria for evaluating intelligent behaviour, and that it will sync with and meet the goals of artificial intelligence enablement.

In their study, **Sahil Sharma and Deepak Sharma (2018)** discussed the difficulties in predicting and measuring how exactly companies will dominate their business environment by adapting artificial intelligence, resulting in a clear general principle stating that while most companies and executives will struggle to adapt to change, organisations can forecast the future in a rapid sense, foresee the benefits of artificial intelligence powered in chemoinform. 'The effective method is to be able to swiftly experiment and learn,' according to the study. Artificial intelligence will not replace individuals in the field of machine learning if people at work do not scale up experiments and do not fulfil their jobs over the next decade, but individuals who employ artificial intelligence will replace those who do not.

Erik Brynjolfsson and Andrew McCafee (2017) looked at the current status of artificial intelligence integration in business activities, focusing on the importance of machine learning technology. The study demonstrated how artificial intelligence-enabled solutions would have a long-term impact on business and the economy, not just as a direct contributor, but also in their ability to facilitate and promote more innovation. According to the study, machine learning enables new products and processes by improving visual systems, speech recognition, information issue resolution, and many other skills.

OBJECTIVES OF THE STUDY

- To analyze how artificial intelligence enablement helps in providing a coherent framework for the management to increase the workforce productivity of the digital healthcare services providers.
- To examine the relationship between artificial intelligence enablement and its impact on the organizational performance of digital healthcare services providers.

RESEARCH METHODOLOGY

The current study was primarily concerned with the survey approach. Primary data was collected by sending questionnaires to respondents who worked in artificial intelligence-enabled healthcare businesses. A questionnaire was also created and distributed to selected designations and levels in order to collect primary data.

Artificial Intelligence Enablement Strategy, Core Capabilities of Artificial Intelligence Enablement, Sources of Artificial Intelligence Proficiency and Talent, Artificial Intelligence Enablement in Healthcare Management Systems, Artificial Intelligence Enablement in Clinical Operations, Artificial Intelligence Enablement in Medical Diagnoses, Digital Healthcare Service Providers' Interest in Artificial Intelligence Enablement, Challenges Facing Artifical Intelligence Enablement, Artificial Intelligence Enablement in Medical Diagnoses These variables are organised into groups based on the number of different assertions. Personal observations, conversations with healthcare employees, hospital visits, and interviews with physicians, surgeons, healthcare administrators, and information technology managers have all contributed to a better understanding of the Diffusion of Artificial Intelligence Enablement and its Impact on Organizational Performance.

Secondary data for researching the profile of all organisations participating during the study period was acquired from various relevant institutions, websites, journals, newspapers, and reference books.

RESULT AND ANALYSIS

This section examines the data gathered from employees of digital healthcare firms. Using descriptive data and percentage analysis, the situation of artificial intelligence enablement practises among digital healthcare service providers is depicted and analysed.

TABLE-1.1: DEMOGRAPHIC VARIABLES DESCRIPTIVE STATISTICS

		Designation of the Respondent	Gender of the Respondent	Age of the Respondent	Years of Experience
	Valid	500	500	500	500
N					
	Missing	0	0	0	0
Mean		1.99	1.38	2.05	1.92
Median		2.00	1.00	2.00	2.00
Std. Deviation		.921	.482	.722	.642
Variance		.848	.232	.522	.412
Minimum		1	1	1	1
Maximum		4	2	4	4
Sum		979	678	1003	940
Percentiles	**100**	4.00	2.00	4.00	4.00

EFFECTIVE ARTIFICIAL INTELLIGENCE ENABLEMENT PRACTISES IN DIGITAL HEALTHCARE SERVICES

The selected dependent variables of Challenges Facing Artificial Intelligence Enablement and the independent variables of Core Capabilities of Artificial Intelligence Enablement were used to measure and depict the reasons for the Effective Artificial Intelligent Enablement Practices in Digital Healthcare Services. The replies were graded using the Likert five-point scale.

The distribution of sample responders based on the elements of Artificial Intelligence Enablement Challenges, such as making investments in AI enabled systems and software, Recruiting and retaining AI personnel with the right skill sets, IT infrastructure assistance to integrate AI-enabled technologies Using AI-enabled solutions to integrate with current systems and technological infrastructure Obtaining high-quality and relevant data in order to develop and design AI-based Intelligent Systems Capacity to manage concerns such as data privacy and the security of AI systems Capability of producing AI-enabled products that are market-ready and simple to use, as well as the aspects of Artificial Intelligence Enablement Core Capabilities such as Organization effectively uses data to support AI enablement goals; Organization has access to talent with the right skill sets to support The following are the results of the organization's effective and continuous process for producing valuable AI-enabled solutions. A hypothesis was formulated and examined with the assistance of ANOVA analysis in order to find out the significant difference between Challenges Facing Artificial Intelligence Enablement and Core Capabilities of Artificial Intelligence Enablement. The ANOVA test results are presented in the table below.

Null Hypotheses: There is no significant difference between the factors influencing challenges facing artificial intelligence enablement with the independent variable core capabilities of artificial intelligence enablement

Table-1.2: Descriptive Statistics

	Mean	Std. Deviation	N
Challenges facing AI Enablement	3.65	.493	500
Core Capabilities of AI Enablement	3.89	.329	500

Table-1.3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.077[a]	.006	.004	.490	.006	2.982	1	495	.085

Table-1.4: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.720	1	.720	2.984	.087[b]
1	**Residual**	118.801	498	.242		
	Total	119.517	499			

a. Dependent Variable: Challenges facing AI Enablement

b. Predictors: (Constant), Core Capabilities of AI Enablement

The independent variable key capabilities of artificial intelligence enablement and obstacles facing artificial intelligence enablement do not show a significant difference in the aforementioned study. As a result, all of the predictor variables, such as making investments in AI-enabled systems and software, are all significant. Recruiting and retaining AI personnel with relevant skill sets, IT infrastructure support for AI-enabled systems, integrating AI-enabled solutions with current systems and technology infrastructure Obtaining high-quality and relevant data in order to develop and

design AI-based Intelligent Systems Capability to manage risks such as data privacy and AI system security, as well as the ability to develop market-ready AI enabled solutions with ease of use, are all strongly linked to independent variable core capabilities of artificial intelligence enablement. This means that the challenges faced by healthcare service providers may vary depending on the situation and scenario, but this has no bearing on the core capabilities of artificial intelligence enablement. As a result, there is no significant difference between the selected independent and dependent variables, indicating that there is a constant link. As a result, the null hypothesis is accepted, as are the obstacles that artificial intelligence enablement faces and the key capabilities of artificial intelligence enablement.

CONCLUSION

The importance of artificial intelligence enablement variables has been underlined in this study, which provides a coherent framework for digital healthcare service providers to boost workforce efficiency in nine categories. Artificial intelligence-enabled solutions aid in improving hospital service levels; artificial intelligence-enabled tools can collect and analyse data ranging from genetic sequencing to image recognition, providing physicians with better insight into diagnosis and treatment; artificial intelligence-enabled intelligent systems are capable of solving complex problems in diagnosing disease; and artificial intelligence-enabled intelligent systems are highly correlated with each other. These statements show artificial intelligence's competency and promise in redefining healthcare demarcations; all of the aforementioned variables are closely correlated with competency, which leads to increased organisational workforce productivity. As a result, this segment is referred to as artificial intelligence as a competency aspect by the researcher. Since the aforementioned variables have been bundled as artificial intelligence capability in the digital healthcare domain, employee productivity has increased.

Artificial intelligence-enabled electronic health records and progress notes, as well as artificial intelligence-enabled systems that analyse medical data and provide doctors with a better understanding of patients' real-time needs, are all variables to consider These comments represent the different qualities of how artificial intelligence assists healthcare workers in enhancing their confidence, interest, and morale, as well as improving their long-term professional growth at work. As a result, the artificial intelligence alacrity factor was coined by the researcher, indicating that there is a high level of growth involved in carrying out their work in a planned manner.

SCOPE OF FUTURE RESEARCH

Future research could focus on other industries such as pharmaceuticals and medical systems, since the current analysis looked on the state of artificial intelligence enablement in digital healthcare businesses. The goal of this field study is to combine theoretical and practical perspectives. Further research could examine techniques for permitting artificial intelligence enablement practises across various industries, such as healthcare, pharmaceuticals, and medical systems.

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