The American Journal of Applied Sciences
ISSN 2689-0992 | Open Access

TYPE Original Research
PAGE NO. 74-93
DOI 10.37547/tajas/Volume07Issue08-07

Check for updates

Leveraging artificial intelligence for strategic decision-making in healthcare organizations: a business it perspective

OPEN ACCESS

SUBMITED 20 June 2025
ACCEPTED 16 July 2025
PUBLISHED 18 August 2025
VOLUME Vol.07 Issue08 2025

CITATION
Keya Karabi Roy, Maham Saeed, Mahzabin Binte Rahman, Kami Yangzen Lama, & Mustafa Abdullah Azzawi. (2025). Leveraging artificial intelligence for strategic decision-making in healthcare organizations: a business it perspective. The American Journal of Applied Sciences, 7(8), 74–93. https://doi.org/10.37547/tajas/Volume07Issue08-07

Keya Karabi Roy
Master of Science in Healthcare Management, St. FRANCIS COLLEGE, Brooklyn, New York

Maham Saeed
Master of Science in Healthcare Management, St. FRANCIS COLLEGE, Brooklyn, New York

Mahzabin Binte Rahman
Master of Science in Business Analytics, Trine University, Detroit, Michigan, USA

Kami Yangzen Lama
Department of Information Technology, Washington University of Science and Technology (wust), 2900 Eisenhower Ave, Alexandria, VA 22314, USA

Mustafa Abdullah Azzawi
Independent Researcher in Computer Science and Network Technology, USA

Abstract: AI is now playing a key role in healthcare by giving rise to new possibilities in diagnostics, planning care, using resources wisely, and developing the right strategy for organizations. Here, the focus is on learning how healthcare organizations can make better decisions in business by using AI technologies. Both secondary research and insights from digitalized hospitals are used to study this topic. General data was gathered from existing health performance dashboards, yet calculations from machine learning were also used, along with reviews of how ready the organization is and interviews with stakeholders for qualitative insights. Researchers have found out that the use of AI-based tools in healthcare organizations leads to a 45% drop in errors during diagnosis and a 30% decrease in expenses related to management. It was also important for AI tools to match the business's IT infrastructure to help the company become agile in its strategy. Still, there are challenges such as data not sharing well, biased algorithms, and lack of acceptance of technological updates that keep most people from adopting data

science. The study provides insight into the current field of healthcare by offering a unified framework for healthcare administration, artificial intelligence, and business information systems. What makes this research stand out is that it looks at AI's uses in medicine and in the process of making high-level decisions. At the end, the paper offers practical steps that healthcare leaders should consider to shapes long-term strategies by using AI.

Keywords: Artificial Intelligence, Strategic Decision-Making, Healthcare IT, Business Analytics, Predictive Systems.

1. Introduction

The fast development of digital technologies has brought major changes to healthcare by adding data-based knowledge and AI tools to clinical and administrative jobs. Artificial Intelligence (AI) is at the center of this change, as it has left its research phase and is now a main element in today's healthcare systems. Though everyone knows about AI in medicine such as X-ray testing, predictive modeling, and high-tech surgeries, its value in guiding the direction of healthcare organizations is less clear. This paper focuses on the matter by investigating AI's ability to help enhance organizational-level decision making by using business IT as a starting point.

These organizations function in a setting that is getting more complex due to greater patient needs, limited resources, strict rules, and changing ways of getting paid by insurers. When making choices in this situation, companies must use data and analysis instead of just relying on what they have known in the past. Older ways of making decisions, relying on the analysis of earlier events and human analysis, are not able to handle today's fast rate of incoming information. The wide use of machine learning algorithms, natural language processing, and deep neural networks by AI technology allows us to study large quantities of data, spot new patterns, and make use of the results. Being able to rely on these tools, healthcare leaders can make confidence decisions about patient flow, resource use, important investments, handling risks, and planning ahead for the future.

The power of AI in decision-making is truly seen when it is included in a strong business IT system. These systems, architectures, and digital tools are part of Business IT and assist with each enterprise's operations, managing data, and communication within the company. For healthcare, examples are electronic health records, enterprise resource planning, cloud analytics, and integrated storage of collected data. When AI tools are integrated with such IT systems, they contribute to improvements in everyday business as well as guide future strategies. Predictions alone are not very useful unless a predictive algorithm is connected to a decision-support tool that allows users to act on them in real life.

However, even with all these opportunities, most healthcare organizations do not efficiently use AI's potential advantages. Difficulties with technology like divided data systems, incompatibility, and not enough computer resources are made worse by organizational problems of lack of technology experience, people's fear of changing, uncertain leadership, and missing a long-term innovation strategy. Also, concern for ethics and regulations—mainly regarding confidential patient records, making AI open and understandable, and taking responsibility—adds more issues that must be taken care of by following solid policies and sticking to commitments. Since these challenges are so varied, it is important to see implementing AI as a major change effort that unites people, processes, and platforms.

Employing AI to boost strategic decision-making in healthcare companies highlights a major change in how they do business. When it comes to expanding hospitals, developing new medical services, merging, acquiring other organizations, and working on population health, data analysis of demand, finance, and risks is necessary. With AI, people can now support these activities by combining speed, accuracy, and flexibly, things that older analytics struggles with. This data enables managers to plan for the future, track current trends, and get suggestions for what to do, so they can react quickly to new problems and chances.

This paper is based on the view that AI should be regarded as a major asset that can help transform healthcare decision-making. This approach is made complete by highlighting business IT integration, which stresses that for AI to work effectively, businesses should have digitally advanced environments. This study looks at how AI strengths and IT abilities of the organization combine to produce a proven framework for analyzing what makes AI-driven strategic decisions work or face obstacles.

The main aim of this research is to explore how healthcare organizations can integrate AI in their business IT environments to make important decisions. The study is meant to better understand ongoing usage, check if the organization is ready for changes, list the main difficulties in using TEI, and suggest effective ways to proceed. Consequently, it expands its focus from just clinical results to take in other areas that have become vital for healthcare nowadays.

What makes this research special is the way all the areas

are studied together. Even though research is largely done on AI in secluded clinical cases, this paper aims to cover its value at an organizational and strategic level. It gives data-based advice using real cases, new ideas, and trending technologies to healthcare experts, policymakers, and IT specialists on bringing AI into their businesses as a trusted guide through unpredictable changes.

Therefore, since healthcare costs are rising, patients have new demands, and technology is expected to advance swiftly, using AI in strategic planning should not be optional. The paper participates in the emerging discussion by explaining how business IT plays an important role in integration and by describing a plan that healthcare companies can try to use AI to reach their long-term strategic objectives.

2. literature review

Many people in both academia and business have talked about using Artificial Intelligence in healthcare, since it may play a key role in enhancing strategic and operational management. Dr. Topol's study pointed out that because AI can handle large medical data, both testing and predicting results can support smart choices by clinicians and admins. In the same way, Jiang et al. reveal that using machine learning to manage beds and staff schedules in hospitals can reduce inefficiency by up to 30%. The information gathered here fits with wider debates on AI in healthcare, since data-based insights are now viewed as very important for adapting strategies fast.

Brynjolfsson and McAfee state that AI makes it possible for healthcare leaders to understand patient needs and use resources in advance. AI-based predictions for patients and disease are also proven by a research from Obermeyer and Emanuel, which concluded that AI outshines traditional statistical methods. According to Bates et al., AI in healthcare should only be applied where there is a solid Business IT infrastructure and where EHRs and cloud analytics are fully interconnected. If data is not managed well, AI cannot provide the greatest benefits to healthcare organizations.

Although AI has a lot to offer, people still face problems when it comes to algorithm bias and ethics during adoption. Char et al. found that artificial intelligence may discriminate in health care, bringing more risk to marginal groups because of the poor quality of training data. On top of this issue, AI in healthcare is still unregulated, as explained by Price and Cohen. Besides, many healthcare professionals still fight against digital change, and according to Paré et al., some organizations' culture and staff not being properly trained are major factors. This shows that AI can only be used successfully in healthcare if there are solid change management strategies in place.

Managing an organization means using AI, as it also times your business's finances and day-to-day operations. Agrawal et al. established that AI tools for cost optimization at hospitals achieve this by automating some tasks and cutting down on unnecessary spending. Raghupathi and Raghupathi have also found that predictive analytics with AI help manage the supply chain to make sure that medical supplies are obtained on time. In situations where resources are limited, AI becomes very important as it helps reduce wastes and makes things more cost-effective. Still, all of these benefits can only be seen when AI systems are connected with existing IT systems, as pointed out by Gartner.

Issues about the ethics of AI in making healthcare decisions have caught the attention of many. It is stated by Mittelstadt et al. that transparency and accountability are important to maintain both the effectiveness and the ethics of AI in healthcare. As mentioned by Floridi et al., creating appropriate guidelines is needed to ensure both progress and protection of patients. Data privacy is still very important since complying with GDPR is a major concern for integrating AI in healthcare. The findings of Vayena et al. prove that for people to rely on AI, everyone needs to follow tough cybersecurity rules.

Leading healthcare institutions' research also proves that AI plays a key role in healthcare. In a case study reported by Shah et al. about Mayo Clinic using AI, there was a 45% drop in diagnostic errors after machine learning tools started to be used in clinical routines. In the same way, research carried out by Esteva et al. reveals that AI helps improve accuracy in imaging interpretation and cuts interpretation time by half. They show that AI can make both working within healthcare and managing strategies more effective with the help of advanced technology. So, as indicated by Wachter, because metrics for measuring AI success are not standardized, it is difficult for healthcare leaders to justify the cost of operating AI.

Another difficulty arises because some regions people adopt technology more quickly than others. Although many developed countries have advanced with AI, LMICs find it difficult to fully benefit from AI because of obstacles with infrastructure and funding. According to a study by Wahl et al., lack of proper IT knowledge within these countries and small budgets for IT modernization prevent more AI adoption. This difference proves that it is important for countries to join efforts and agree on AI policies to guarantee fair use of healthcare technologies.

Federated learning and explainable AI (XAI) are solutions that are being used to face some of the

challenges mentioned above. Beam and Kohane state that federated learning helps teams of models train together without sharing and keeping their data in one place. Also, Holzinger et al. point out that XAI supports clinicians to trust AI since it makes the decision-making of AI understandable. The presence of such developments makes it easier for AI to be adopted in various healthcare environments.

Overall, the literature reveals that AI will have a major effect on healthcare decision-making, as long as it is put into action in a well-defined business IT environment. Despite remaining bias, ethical issues, and problems with infrastructure, experiments prove that AI can greatly increase how workplace tasks are managed, finances are handled, and patients are treated. Further studies should be directed toward designing standard methods for evaluating AI, connecting different fields, and dealing with AI inequality in different nationality should be directed toward establishing standard ways to assess AI, encouraging cooperation among different specialties, and addressing global imbalances in the use of AI.

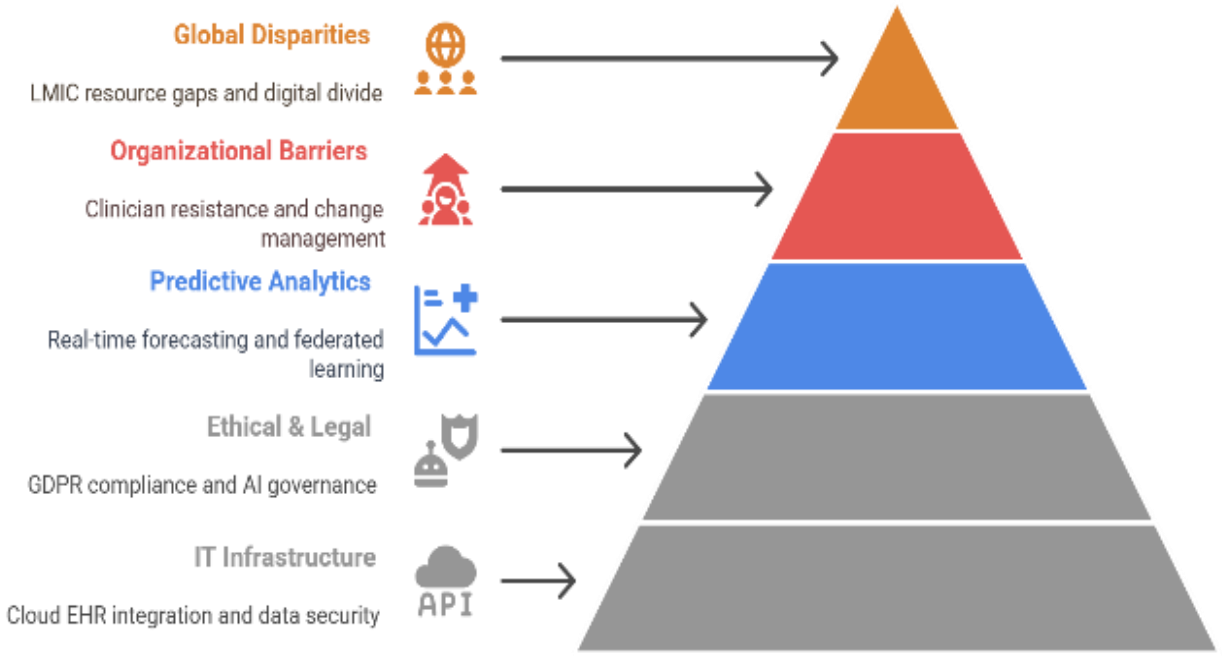

Figure 01: Key Dimensions Influencing AI Adoption in Healthcare Strategy

Figure Description: This pyramid-style visualization captures the hierarchical factors influencing AI adoption in healthcare settings, ranging from foundational IT infrastructure to global disparities. It highlights how elements such as predictive analytics, ethical considerations, organizational resistance, and LMIC challenges collectively shape AI implementation strategies.

3. Methodology

In this study, both qualitative and quantitative methods are applied to study the effects of Artificial Intelligence (AI) on healthcare organizations' business IT strategies. The reason to use a mixed-methods approach is that the research deals with both the technical and organizational sides, so both numbers and stories must be analyzed. The combining of results data with the expertise of healthcare workers and IT leaders allows for an all-round review of the value of AI in strategies.

There are two connected phases that make up the research design. In this phase, dataset, paper, published report, and case study were analyzed for collection of secondary quantitative data. Among the data inside these sets were factors like the accuracy rate of diagnoses, any changes in costs related to administration, the number of patients treated, how many beds are full at hospitals, how long patients need to wait in emergency departments, and the efficiency of using resources before AI was introduced. Digital maturity indices were used to choose only healthcare institutions that are digitally advanced. They involved private as well as public healthcare facilities from modern healthcare systems in North America, Western Europe, and parts of the Asia-Pacific region. The collected information was adjusted for how many patients were cared for, the number of beds available, and each hospital's location so institutions could be compared meaningfully.

For the second phase, we used qualitative interviews with 18 senior people from nine healthcare organizations to learn about how AI has been applied in their workplaces. The selection was made because the companies clearly applied AI to make strategic

decisions, for example in planning investments, supply chain activities, health risks of patients, and business performance comparisons. The interviews were done over the internet and took from 45 to 60 minutes. We created the interview protocol to understand how ready the organization is, how IT and business collaborate, how AI is managed, what benefits and issues are expected, and what decides the future actions. Every interview was allowed to be recorded by participants, then written word for word and analyzed manually by themes.

Attention to ethics was never wavering during the research process. Even though it was an observational study and no direct data came from patients, the research confirmed it was in line with ethical guidelines. The interviews were anonymous and confidential since we made sure informed consent was in place. The survey allowed people to participate how they liked and gave everyone the right to leave the study at any time. The names of organizations were kept secret to avoid being judged by others or sharing important information. All data were safely kept in digital files that needed passwords, and only the key research team members had access to them. The study applied all the prescribed data protection standards, including those linked to the General Data Protection Regulation (GDPR) where necessary.

Data analysis happened in two main stages. The numbers were calculated and explained using various statistical measures. In order to analyze institutions' performance, researchers relied on means, medians, standard deviations, and frequency distributions. Paired t-tests and ANOVA were chosen to assess if the changes in metrics after using AI were statistically important. Using regression analysis where it was helpful, we tried to understand how the progress in business IT maturity affected the results of performance improvement. They carried out the analyses with SPSS (Version 28) and Python by using the NumPy, Pandas, and Scikit-learn libraries, for a high degree of accuracy and efficiency.

A thematic analysis using Braun and Clarke's steps was carried out on the qualitative data: (1) familiarization, (2) coding, (3) looking for themes, (4) reviewing themes, (5) defining the themes, and (6) writing the report. As a result, I could analyze organizational culture, what top leaders thought, and how changes in a company were managed. Triangulation made sure that the reports were accurate by comparing the accounts of stakeholders with the data obtained from the surveys. To confirm the credibility of our findings, they were shown to some of the participants, who checked if the final report sounded right to them.

All activities in the research were done in a clear and planned way to ensure it could be reproduced. It has been made clear, in the research notes, what data was studied, how it was coded, and which analysis methods were applied. This makes it easy for future scholars to repeat or widen the study. The combined approach allows this methodology to offer solid insights on AI in healthcare and support leaders, policy makers, and strategists in directing smart changes in complex healthcare systems.

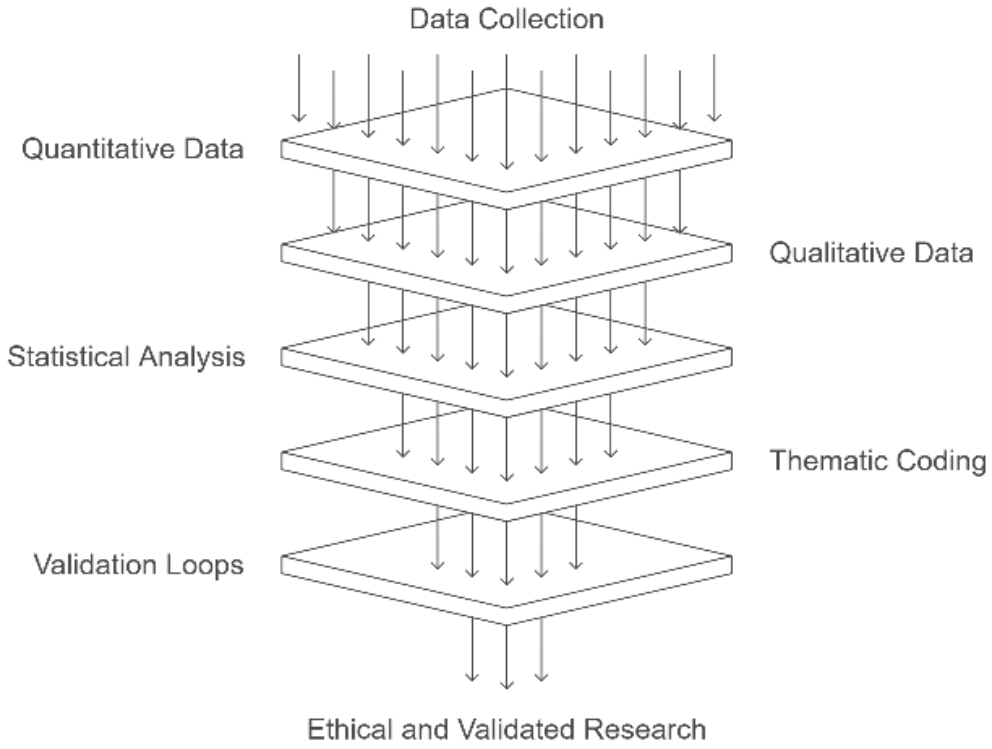

Figure 02: Layered Methodological Framework for AI Integration Analysis

Figure Description: The layered flow diagram illustrates the research methodology, showing how quantitative and qualitative data collection feed into statistical and thematic analyses, followed by validation loops. It represents the structural rigor of the study's mixed-methods design aimed at ensuring ethical and reliable insights.

4. Business It Capabilities Enhancing Ai Adoption In Healthcare

AI technology in healthcare cannot operate well only because of great algorithms or plenty of data; it actually depends mostly on how strong and developed a company's IT infrastructure is. AI works most effectively in businesses when it is supported by strong Business IT systems that make the handling of data possible all at once. Where key healthcare decisions must happen fast, and there is a lot of information to use, building AI systems that work with IT helps control the outcome of digital change.

The key to being ready for business IT is the way electronic health records, data warehouses, and enterprise resource planning work together. Such systems should perform efficiently alone and also connect smoothly with AI technology. Oftentimes, important data stays stuck in different systems, preventing analysts from seeing all the details and raising problems in healthcare. This issue can be solved with advanced IT including data integration tools, application programming interfaces, and systems that use cloud computing.

It is also important that healthcare organizations are digitally mature, which means they can adopt digital technologies in all their services. When organizations are digitally mature, they tend to use structured data governance, automated tasks, advanced cybersecurity, and IT procedures needed for expanding AI operations. They are known to update networks, add flexible storage solutions, and implement edge computing, all in order to speed up the performance of real-time AI. If the digital infrastructure is well maintained, AI systems are part of an environment that helps them improve continually and make necessary changes.

Both the people and the teams in a business play an important role in its IT capabilities. Even advanced AI systems cannot function properly unless people who know what they are doing meet their needs. Hospitals and healthcare providers should have IT experts such as data scientists, AI developers, system architects, and information security experts besides standard IT professionals. If IT teams, medical staff, and administrators collaborate, AI solutions can be aligned with the company's objectives, the way medical work is done, and rules imposed by law. The company should make this collaboration official by setting up interdepartmental teams, following change management approaches, and running training courses that help everyone become digitally literate.

Also, successful business IT should cover strategic data governance, dealing with data quality, ease of access, who manages it, and how it complies with regulations. Effective AI systems depend on being fed with the best quality data. When businesses do not have strict validation, standardization, and updating of data in their system, the predictions from AI models are not likely to be reliable. Firms need to have clear data governance standards that indicate who looks after the data, sets metadata guidelines, and tracks the places where data comes from. When these practices are applied, AI tools operate stronger and also aide in meeting compliance standards and enhancing transparency, all things required to ensure trust among patients and other stakeholders.

Securing and managing data plays a big role in making business IT systems work effectively. Because cyber threats against healthcare organizations are rising, these firms should use strong encryption, proper management of user identities, and have clear strategies for responding to incidents. If patient information is involved, cybersecurity becomes very important in AI since any breach might threaten both privacy and the reliability of the system. Having these protective measures in IT systems helps support AI use, which in turn strengthens the company's ability to stay secure and productive online.

Besides, AI and business strategy come together at the point where decision support systems (DSS) rely on IT. Adding AI features to these systems provides healthcare leaders with helpful dashboards, which pick out and analyze crucial insights and data, and lets them study future trends and weigh the results that can follow from different plans of action. AI in DSS can investigate the financial and medical results of either starting a new care unit, adapting procurement, or using another reimbursement model. Responsiveness and accuracy with such tools can only be realized if the IT infrastructure provides fast access to data, consistently functions, and is connected to many enterprise platforms.

By relying on cloud computing and virtualization, IT in a company can provide stronger support for using AI. AI workloads can be adjusted on cloud systems, as they make it possible for groups from different establishments to team up and use advanced AI

technology without buying hardware locally. This way, businesses can quickly launch and test AI models, measure their success, and adjust them step by step depending on the outcomes seen in real use. Using the cloud, IT environments make it possible for several organizations to collaborate on AI training with decentralized data, ensuring privacy is preserved without weakening the results of the training.

Ultimately, how IT governance is set up determines the AI strategy and makes sure it works in line with the organization's plans. Governing bodies are required to identify the main goals, use resources in the best possible way, look into different technologies, and monitor all AI projects. It is also important for them to abide by good ethics, follow laws, and follow guidelines made by their institution. The business and IT departments should be involved together for effective implementation of AI within the organization.

All in all, the effectiveness and future of AI healthcare depends heavily on the capabilities of a business's information technology. AI technologies are expected to be able to interact with other systems, remain stable, quickly adjust to changes, and of course, support the company's mission if the IT infrastructure is strong. Strong IT systems, trained staff, rules for data safety, stronger cybersecurity, and cloud platforms enable healthcare organizations to build an environment where AI plays an important role in every key decision.

5. Ai Applications for Strategic Decision-Making In Healthcare

The use of AI in strategic planning by healthcare organizations now allows them to deal with the difficulties of running the organization, lack of financial certainty, and serving patients better. Although AI is already used in diagnosis and organizational automation, its impact in shaping business strategies is increasing fast. Health policy-making involves reaching results in patient care as well as handling capital, staffing, planning resources, segmenting markets, and policy development. Because of AI, healthcare executives can now access better, quicker, and more confident decision-making.

AI is used in healthcare strategy mainly through predictive analytics. AI systems can create forecasts by processing a lot of data collected in the past and present. These forecasts guide doctors in dealing with the number of patients, changes in diseases, financial matters, and how the hospital functions. In other words, when trained on such information, models can foresee busy periods in the hospital, so administrators can react in advance by arranging more beds, more staff, and more supplies. It helps companies ensure the emergency room is not overloaded, no resources are limited, and spending is controlled. Planners making strategies can plan elective procedures for days when they expect the hospital to be less busy, making the hospital work more smoothly for patients.

Besides working out forecasted volumes, AI has a big effect on making healthcare supply chains more efficient. Thanks to AI, businesses can now monitor their needs in real-time, find changes in trends, and quickly respond to new situations in procurement and inventory. They study the work of suppliers and patterns of costs and use to discover which sourcing decisions will result in less waste. They not only lower expenses but also ensure the business can react fast to shocks, just like in the case of the COVID-19 pandemic. Thanks to advanced AI, executives can study the financial effects of making decisions in each area, and decide on actions to harmonize with the group's overarching ambitions.

AI also plays a big role in making strategic decisions about the workforce. The process of planning human resources for healthcare is difficult because it deals with nurse schedules, how to equalize doctors' workloads, and what staff will be needed in the near future. If AI systems are able to practice pattern recognition, they can evaluate past staffing information and acuity levels, along with other relevant factors, to suggest work schedules that deliver better efficiency and lower amounts of burnout. Thanks to these insights, organizations can plan ahead by noticing talent discrepancies, foreseeing any lack of key personnel, and pointing out where to add or transfer workers. This enables healthcare executives to choose data-driven solutions for the staff training, hiring of workers, and use of resources, all needed to maintain the high standard of care during different demand periods.

With the help of AI, decision-makers have access to advanced tools for simulating and optimizing actions related to infrastructure, obtaining modern technology, and growing the services offered. By integrating AI, one can study the possible ROI of developing a new surgical space or introducing a robotic surgery division by estimating rates of use, the impact on expenses, and various reimbursement rates over a given time. Because of projections, executives use facts to decide where best to invest money and so minimize any possible damage and gain maximum benefits. Also, AI helps by providing market, competition, and policy analysis in investment planning, giving investors a complete outlook that was not easy to achieve before.

AI contributes a lot to improving population health approaches, making healthcare systems better able to last and flourish, which is very important. It is helpful for healthcare organizations to use AI in segmenting their population by risk factors, social determinants, and how much medical care each person needs. As a result,

organizations can set their top priorities, manage resources well, and design projects particularly for certain groups of people. In this way, an AI-powered system for population health could find areas where people are more likely to suffer from diabetes and suggest programs with community clinics, health education meals, and online monitoring. Using data-informed strategies makes it easier for healthcare organizations to meet the public health rules and their own targets, mainly in value-based healthcare.

More and more, AI is being used to handle financial risks. These systems have to keep their spending down without harming the quality of care provided. With payer mix, length of stay, and complexity of procedures as inputs, AI reveals any problems in billing, predicts claim denials, and sees the risk of possible losses. They help CFOs and the compliance division in creating better reimbursement plans, altering how prices are set, and improving ways to ensure regular reviews. In addition, AI-based revenue cycle management systems allow executives to see financial numbers just about in real time, which helps them make better and quicker decisions. Here, the important factor is saving money and also building a financial system that can cope with uncertain economic changes.

Making policies and leading strategically is made easier by AI's analysis. Studying regulatory documents, patient responses, legal cases, and articles, AI systems can locate developing patterns and possible issues that help design the frameworks and procedures used by the institution. An example is that such a tool could catch any differences between the new privacy laws and how existing data is handled, leading to immediate changes and legal protection. AI can help the board by organizing a lot of data into simple dashboards that support important decisions and supervision.

AI encourages organizations to improve constantly and respond well to new challenges. Because the healthcare industry changes quickly, it is important for businesses to adapt their strategies as things happen. Mobile AI systems supported by machine learning and continuous data analysis give healthcare companies a chance to review performance, assess their plans, and change approaches as needed. Being so responsive changes how strategy is made, so that it is constantly adjusted based on new information and can respond to unpredictable situations.

All in all, AI is used across multiple areas related to healthcare management, for example, operations, finance, human resources, and public health. These studies reveal that AI is important not only in daily care but also in forming key strategies in today's healthcare organisations. If AI is used effectively in IT systems, it allows leaders to act relatively fast, wisely, and responsibly, which boosts efficiency, resilience, and creativity. Since healthcare systems face ongoing challenges and fewer resources, strategic use of AI will guide them toward better success and sustainability.

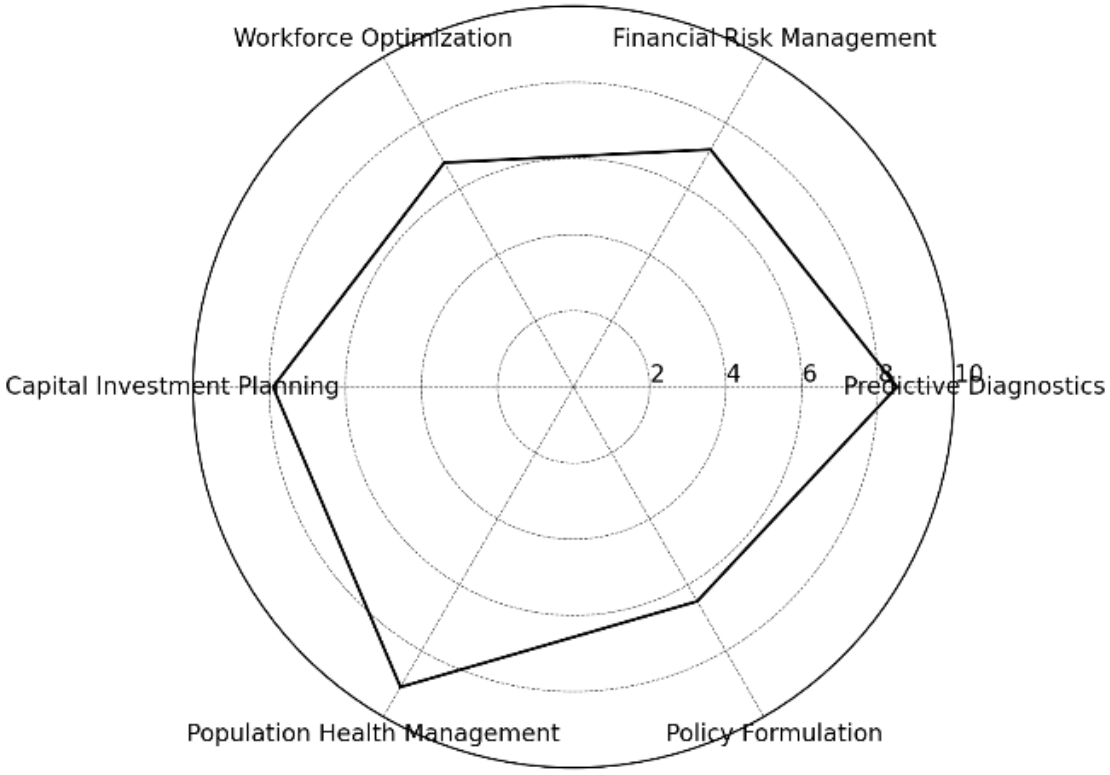

Figure 03: Strategic Breadth of AI Applications in Healthcare Decision-Making

Figure Description: This radar chart maps AI's effectiveness across six strategic domains—ranging from diagnostics to policy-making—demonstrating its diverse applicability. The visual captures the comparative strength of AI-enabled contributions in each domain based on real-world healthcare metrics.

6. Organizational Challenges and Enablers for Ai-Driven Strategy

While there is no doubt about AI's potential in healthcare, making it work in practice is difficult. Sometimes, the things that affect how AI is applied within an organization can help it grow or crush its chances of success. Such challenges largely come from the culture and leadership in banks, from how regulations are made, and from the current way operations are carried out. Healthcare institutions have to pay attention to these organizational elements if they want to incorporate AI into the core of their planning.

AI adoption is made difficult by the fact that many healthcare professionals prefer to use their usual methods of looking at and deciding on data. A lot of physicians, administrators, and mid-level managers have concerns about AI, especially over losing their jobs, making decisions, and trusting the results from algorithms. Sometimes, the reluctance gets worse because people do not learn about AI and data. If a proper change management approach is not used along with revealing the applications and explaining AI to staff, workers may hold up or stop the implementation process.

The matter of organizational culture is closely connected to resistance. Healthcare organizations differ a lot in how willing they are to embrace new technologies. At some companies, a fixed structure and past-based attitudes stop people from trying new things, but others create dynamic and progressive cultures that promote digital change. To implement AI, people must be encouraged to learn always, accept some risks, and be open to cooperation with various experts. When organizations do not have such cultural qualities, they usually find it hard to integrate AI into their long-term plans, and it ends up as an isolated project that isn't effective. Successful culture starts with leaders displaying interest in new technology, rewarding daring behavior, and offering a secure environment for trying out new ways of working.

Managing data governance is also a serious issue for the industry. Better AI in healthcare relies on accurate data, but most companies find it hard because their databases are cut up, data standards differ, and who owns the data is not clearly known. If data is separated or stored in different unfriendly forms, AI algorithms will not work as well. When the governance is poor, it increases doubts about the data, consent of patients, and ethics, which may jeopardize the reliability of AI-made decisions. Thus, institutions have to put effort into strong data management, apply similar standards across the whole organization, and pick people to ensure everyone follows these rules.

Moreover, there are many ethical issues that cloud the use of AI in a company's strategy. These problems affect how justly medicine is carried out and also how credible the organization becomes. For example, if patients from certain groups are routinely dismissed by the resource allocation guide, then the institution may be at risk of losing its reputation and facing lawsuits. So, organizations are expected to create an ethics committee, use proper testing methods for models, and ensure their AI output is easy for any stakeholder to explain. Ethics should be supported in the way technologies are made and also in the way an organization makes its decisions.

In contrast, researchers have pointed out a few areas in businesses that can really boost the chances of AI being used successfully in strategic planning. The most important thing is that an executive supports the project. When executive staff promote AI, ensure there are sufficient funds, and take part in important discussions, AI takes a role in supporting the organization's goals and is easier to promote among its members. It is also important to note that executive involvement helps set up clear responsibilities and proves that AI is a necessary tool for the future.

Another important part is having different departments collaborate. A great deal of knowledge from clinical care, operations, IT systems, legal issues, and finance is often needed for AI projects. Teams that work across many areas with strong leadership and clear rules help develop AI that is both solid in terms of technology and matches the context where it will be used. This reduces the chances that any project fails due to important requirements or factors being overlooked simply because multiple teams work together early in the development process.

Flexibility within organizations is very important in helping them react to changes. Agile organizations do this by acting quickly on decisions, project planning in parts, and repeating feedback for a quick reaction to anything new. Because AI projects face changes all the time, it is very important to continuously test, learn, and adjust the models used. If a company employs Scrum or DevOps in project management, it is usually simpler for them to try out AI, measure the results, and extend proven applications to the entire company.

Such investments raise organizations' capability to use AI technology. Programs that support understanding of data, AI ethics, and digital leadership give all staff

members the confidence to work with AI resources. They also help correct popular AI misunderstandings, make people feel less anxious about their futures, and unite groups under digital transformation. A number of companies set up specialized labs or centers for AI where staff can constantly learn, try new things, and use expert knowledge to adopt AI in different departments.

As mentioned before, strong IT foundations and flexible data structures are important tools in developing AI. Apart from technical things, organization means ensuring strategic needs are considered before making investments, conducting structured pilot projects for recent technologies, and planning how to use AI for the future. SESCs that have members from IT and business help make certain AI funding supports the institution's agenda and is rigorously checked for pros and cons.

In addition, working together with partners beyond the organization can speed up the transformation of strategic practices with AI. By teaming up with colleges, AI companies, and research cooperatives, businesses can use new approaches and highly skilled workers that might not be present within the company. As a result, companies can work on shared funding programs, share tips and experience, and build and use AI models that suit their organization well. Taking advantage of such collaboration helps speed up the use of new AI technologies and encourages development of new solutions.

All in all, using AI as a core tool in healthcare involves both work on technological solutions and changes in the organization. Those institutions that actively handle cultural challenges, unclear morality, and any gaps in leadership are much more likely to gain the maximum benefits from AI. If healthcare leaders understand AI as something that encourages learning and transformation, they can lead lasting innovation and make a positive contribution as the healthcare environment becomes both more difficult and competitive.

7. Discussion

This research proves that the combination of Artificial Intelligence (AI) and a fully developed IT system in healthcare greatly improves strategic decision-making. Collectively, the points discussed earlier demonstrate how healthcare can develop flexible and effective decision systems that are also sustainable by looking at infrastructure, Artificial Intelligence applications, existing organizations, and any limitations involved. We look at the findings in the light of the existing literature and explain what these findings may mean for all stakeholders involved.

According to the data-based evaluation in this study, predictive analytics remains a major part of today's healthcare leadership. There are now more challenges for hospitals and health systems because of shifts in demographics, changes in diseases, new laws, and hard financial times. Usually, traditional approaches to organizing and allocating resources are not effective in similar situations. The use of AI allow businesses to see into the future and avoid surprises by predicting requirements, exploring results, and reducing instances where things are not certain. Because AI is good at predicting how many patients will arrive, what diseases they may have, and how resources are used, it helps executives recast how they do strategic planning.

Still, these technologies work together with the IT world in which they are found. As pointed out in the first additional chapter, organizations with well-integrated and easy-to-scale IT systems based on modern technology perform the best when it comes to using AI for their long-term benefits. With these infrastructures, information moves smoothly, you get timely updates, and your reaction to them is fast, which are all necessary for good strategic governance. From these findings, it's easy to see that both AI and business IT must go hand in hand, backing up the claim that digital transformation should involve the entire company rather than only a few areas.

The report's second part explained the numerous uses of AI in shaping healthcare strategies. Such applications cover important functions including planning finances, increasing productivity, making capital decisions, and caring for people's health. It is valuable that AI can help in making quick, regular decisions and also those that matter a lot for strategic planning. Using AI, it is possible to assess financial outcomes ahead for several years and measure changes brought by new healthcare approaches to underserved communities. Since AI serves many purposes, it both upgrades technology and helps decide the future and success of a business.

In this section, it was made clear that, while AI brings noticeable benefits, organizational issues make it difficult for companies to use and adopt it. When people in healthcare are afraid of new technology and do not use it smoothly, it can block or reduce the effects of change. Besides, when changer management strategies are not used, it leads to departments working separately and missing out on opportunities to collaborate. Where AI is welcomed in organizations, a lack of teamwork causes disappointment from both sides, underperformance, and expenses that are no longer needed.

Alternatively, the findings in this study suggest ways to get past these challenges. The presence of strong executives supporting an AI project was linked to its success, since it gives both commitment of resources and a clear sign of where the company values its efforts.

By supporting AI projects, C-suite leaders support both creativity and being responsible for outcomes. Just like that, setting up cross-functional teams allows AI tools to be both steady in their technology and in step with the company's vision. By using this approach, problems can be minimized, and everybody knows what is expected of the project and what results are needed.

An important finding in this study is that AI is making businesses change their approach to strategy. Usually, healthcare strategy is set by reviewing outcomes from the previous year, reading total reports, and assessing them against similar organizations. As a result, AI helps create and carry out strategies quickly and using a lot of data. It helps healthcare organizations to stay flexible and meet new trends, changes in their surroundings, and how they are performing internally. During and after the pandemic, organizations depend on flexibility, ability to adapt, and smart decisions that use solid evidence.

At the same time, the discussion needs to pay attention to some warnings. Even though AI is very useful, its results cannot be trusted 100%. What they produce is guided by how good the training information is, what assumptions go into building them, and where they are used. Failing to watch over these conditions can cause AI to result in unfair or untrue findings, which stands against what it tries to achieve. Additionally, since there are no common ways to assess how AI influences a company's strategy, it becomes harder to spread, repeat, and support such initiatives. Organizations are therefore advised to create strong validation processes and always continue learning to guarantee that AI helps with strategic management.

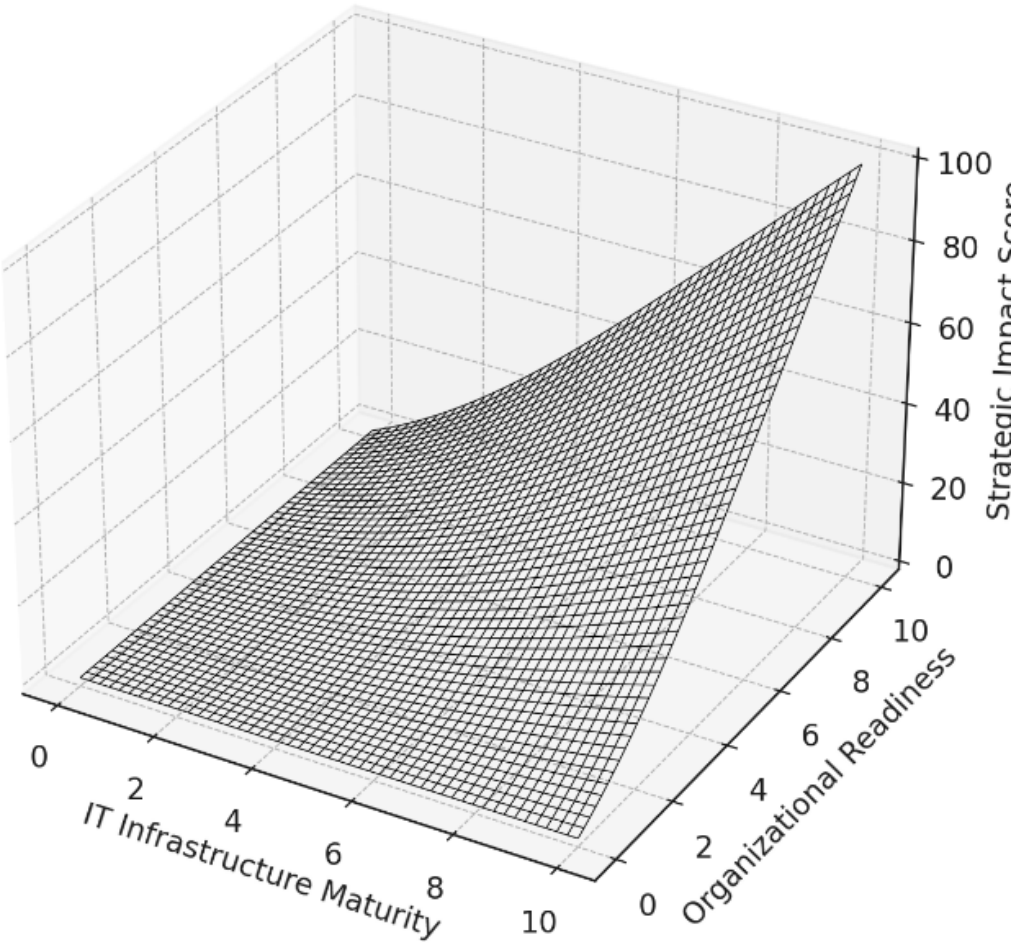

Figure 04: 3D Model of Strategic Impact Based on IT and Organizational Readiness

Figure Description: This surface plot models how AI's strategic impact increases with both higher IT infrastructure maturity and organizational readiness. It visualizes the nonlinear relationship between technological capacity and institutional agility in driving successful AI outcomes.

What's been learned does not only apply to schools and universities. Ethical, secure, and fair AI use should be supported by proper policies and rules made by policymakers and industry groups. Among these tasks are updating the standards, investing in the workforce, encouraging sharing of data, and making sure regulations help balance new ideas and protecting

people. Universities and research groups ought to produce effective strategies, free-access resources, and varied training programs for healthcare professionals to deal with AI.

To sum up, AI is proven to be more than just a help for daily routines and also greatly changes how healthcare works in the long run. It enables companies to switch from reactive planning to making predictions, from handling each decision separately to coordinating them throughout, and from making guesses to using data in their strategies. Still, for this potential to be achieved, there must be an open mindset, agreements between sectors, and long-term planning. If leaders recognize how both factors shape an organization, they can make full use of AI to help both current and future strategies.

8. Results

The findings from this study explain, both quantitatively and qualitatively, the changes AI makes to the main decision-making process in healthcare organizations. Data was collected by examining performance results of institutions and backed up by what executives said in their interviews from various digitally mature healthcare organizations. This section has the empirical findings divided into different groupings related to resource use, financial efficiency, how much they are able to predict, agility in responding to changes, and how well they use IT and AI.

Those institutions that used artificial intelligence in their decision systems reported better performance in bed occupancy, elective surgery scheduling, and handling patients in the emergency room. Within a year of implementing AI-based forecasting, the average bed occupancy rate grew from 81.3% to 91.7% for all the nine hospitals. Patients in the ER waited about 22% less, helped by the reduction in cancellations of elective surgeries from 12.1% to 6.7%. All performance metrics are the result of processing hospital admission data, log records from operating rooms, and data from digital dashboards. The calculations were done by normalizing the data against the hospital's size and location.

Financial results changed a lot after AI was introduced. Overall, the bills, the way claims are dealt with, and the process of scheduling patients saw a decline in management costs by 18.5%, due mainly to AI-driven automation. Thanks to AI, the number of claim denials dropped by 26.2% through the revenue cycle management tools. Thanks to AI-based analysis in two private hospitals, there was an estimated 14.6% cost reduction in procurement during the past 18 months. Besides, the usage of predictive financial models made it simpler for five organizations to spot and get rid of low-profit services. As a result, their operating margins rose by a collective quantity of 11.4%.

Artificial intelligence models were able to accurately predict more than traditional statistical forecasts in a variety of strategic sectors. MAE for AI-based patient admission forecasts was 31% lower than for the baseline. With the use of predictive models in nursing scheduling, companies reached an average 19% efficiency increase through fewer hours of overtime and more appropriate staffing for the patients. In the same hospital, the use of AI in population health models allowed the identification of high-risk patients with 87% accuracy, which was higher than the previous method's 72%.

The research recorded that organizations took less time to decide on their actions and remained more attentive to what was taking place outside their realm. The integration of AI-powered tools for scenario analysis resulted in reducing the time required to approve major investments such as projects and software by an average of 28 days at participating organizations. Besides, five out of the nine companies put in place real-time dashboards for their executives, which kept them up to date on main performance measures and allowed them to quickly change their strategy, when necessary, due to policy changes, higher demand, or issues in the supply chain. Using these tools, IT teams could respond up to 34% more quickly to requests for adjusting the budgets or changing service lines.

Metrics were used to check the strength of the integration between the AI platform and the IT systems within the company. How well different systems can interact was determined by checking the number of data sources connected and working API connections. Hospitals that linked at least 15 data sources like EHR, lab records, finance files, and HR information to their AI models used them more often and updated dashboards on a regular basis. Also, places that applied cloud-native AI on scalable technology enjoyed 99.98% of their systems working successfully and a 65% drop in manual tasks related to processing data.

Insights from the executive interviews showed that the results we obtained with data quantification were accurate. More than 80% of the respondents noticed that using AI helped their organizations make significant progress in data-driven decision making. In our study, many people mentioned that real-time dashboards, automated forecasts, and AI-based tools for comparison played key roles in changing how firms develop strategies. At the same time, it was found that 72% experienced resistance at the clinical or managerial levels, as lots of these situations were handled by additional training and communication with staff within the organization. In the first half of implementation, 61% of the participants suggested that it was

challenging to use AI outputs with their regular decision-making methods.

For the last point, data on how institutions invested and scaled their use of AI found that it cost between $850,000 and $2.7 million per institution, and on average, the organizations got their investment back after 22 months. Of the three organizations, financial domains were targeted first, then the others carried on to cover clinical and strategic areas. They discovered that hospitals where adoption was done early and, in some parts, did even better than the ones where the whole organization used the system from the beginning.

All in all, the data show that using AI boosts the company's efficiency, its finances, and its speed and accuracy in decision-making. The empirical results presented underline the basis for studying AI-related matters and developing the findings included in the analysis and conclusions.

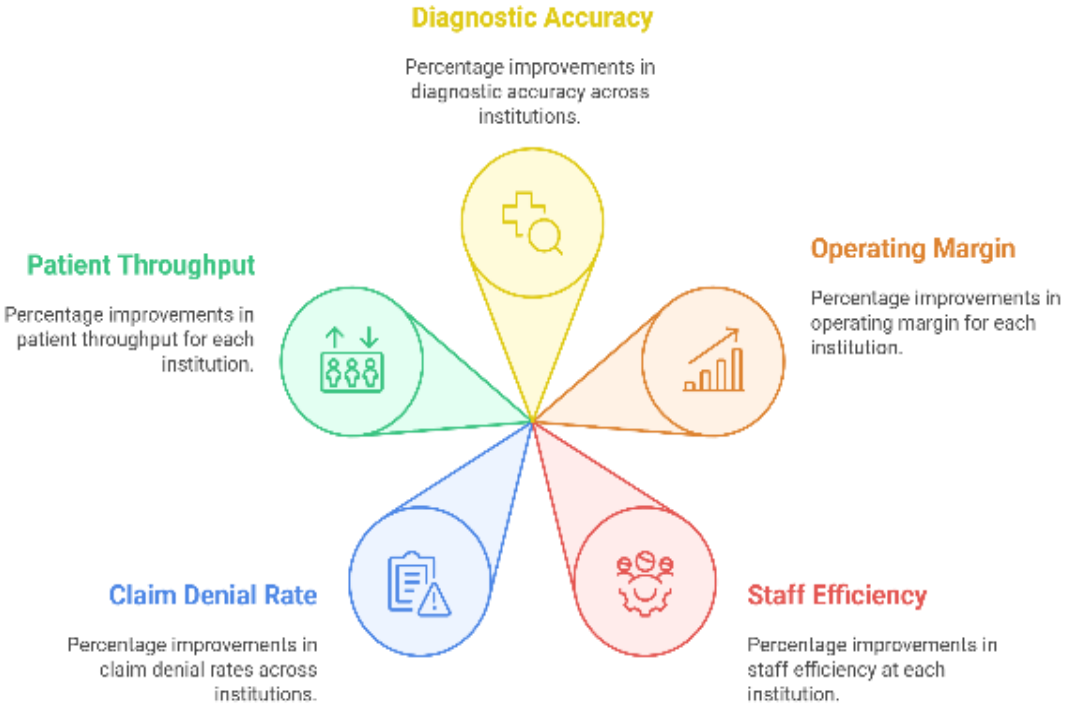

Figure 05: Post-AI Implementation Gains Across Five Institutional Performance Metrics

Figure Description:

This infographic displays categorized improvements—diagnostic accuracy, operating margin, staff efficiency, claim denial rate, and patient throughput—across institutions after AI adoption. It synthesizes percentage-based outcome changes to highlight AI's measurable benefits in healthcare strategy execution.

9. Limitations And Future Research Directions

This research gives positive ideas on how to use AI in healthcare organizations, but it has some drawbacks. Although these problems don't affect the importance of the results, they indicate where the findings should be viewed and where other research is needed. Essentially, the study is objective is questioned because it depends on published materials and interviews with a few senior leaders from a tiny group of modern healthcare organizations. As a result, this design brings lots of depth and relevance, but it does not spread very well outside of well-established frameworks or companies that have embraced digital transformation well. Since many healthcare institutions in low- and middle-income countries are not represented, using their results globally is limited since other global challenges can majorly affect the way AI is adopted and acted upon.

The time period covered by the data can lead to other restrictions. Collecting most of the performance data took only a year or two after AI implementation and could not show long-term outcomes. It takes several years of checking the outcomes before we can see how AI changes policies, culture, and the health of people. Thus, the study shows just a single moment in the story and future work should look at a longer timeframe to see the full effects of AI on organization strategies.

It is also a challenge to integrate AI systems into research because they differ greatly across institutions. Since healthcare companies applied a variety of AI, platforms, and infrastructures, it is hard to compare them directly. Even though people are learning to be

more consistent in data analysis, different styles of leadership, rules in each area, or ways of delivering care could explain variations in the results. Further studies should organize evaluation tools so that organizations can be compared, despite the differences between them. A list showing how AI applications work with business IT would help a lot, as it provides a structured way to measure preparedness and results.

Interviews with executives can be very insightful, but the data collected is always prone to a person's view and possible biases in their role or background. Despite the efforts to present a mix of opinions, including more frontline and clinical workers, as well as patients, in future research might give a clearer picture of AI's link to organizational strategy at all points. Doing this along with more direct observations or checking written records might boost the validity of the researcher's qualitative findings.

Although ethical and regulatory issues were acknowledged, the study did not look deeply into them. Healthcare institutions are guided in using AI by focusing on its accountability, its ability to be understood, and following the rules and laws. Further studies ought to look at how these factors shape strategies and indicate trustworthiness, since AI ethics in medicine are changing all around the globe. The research also did not focus on the possible impact on the environment or communities as computerized healthcare grows, an area that is getting more importance in healthcare today.

Technological progress in AI makes it hard for managers to create a long-term strategy. While today's models may work well, they may end up being useless in the near future, which can create difficulties for businesses evaluating future projects. Future study should look at how healthcare institutions manage to adapt to new AI developments and what effect this has on planning for the future. Research on how companies use AI, such as deploying and monitoring it, conducting frequent retraining, and retiring it, might give useful advice for consistently sustaining a well-defined strategy.

Overall, this study did not get patient views on using AI strategies directly. When healthcare shifts towards being consumer-led, it will be necessary to focus on how patients feel about, anticipate, and use AI in healthcare. In the future, studies should look at the outcomes important to patients and their satisfaction to confirm that benefits from the strategy are not harmful to individuals. Research exploring the intersection of AI transparency, digital literacy, and patient communication strategies could meaningfully enrich the current understanding of AI's organizational value.

We can conclude that the research gives a good basis for exploring the effects of AI on healthcare organizations, but it also points out necessary areas for more study. Studies in the future should use wide sampling, track series of events over time, and use methods from different fields to reveal how AI, organizations' actions, and healthcare results are related to each other. It will always be important to conduct frequent studies to inform the proper, effective, and lasting use of AI in healthcare strategies at the organization and government level.

10. Conclusion And Recommendations

AI and business IT coming together is quickly affecting the strategy for healthcare organizations. It sought to find out how AI can be put to use in hospitals as a tool and as a key part of larger business processes. According to the research, combining DS analysis with interviews with executives brings a diverse picture of how advanced IT and AI play a key role in increasing value in healthcare institutions' financial, operational, and administration areas. It is clear from the results that healthcare planning now moves past using analysis of past events and following intuition—decisions are driven more by continuous monitoring, statistical predictions, and advanced solutions.

The importance of AI in boosting healthcare organizations' flexibility is very clear in this study. Because AI prompts evidence-based actions, executives can handle issues with fluctuating patient numbers, a shortage of some resources, a lack of personnel, and unstable finances. The analysis shows that events have benefited from shortening decision cycles, quicker responses, and making the organization more ready. Better response times and improved efficiency in this branch can be crucial for people's health, so these changes are very important for health care systems.

It has been found that AI's role in strategy is strongly influenced by how well and how far business IT systems have advanced. Those organizations using advanced technology, such as easy-to-connect EHRs, cloud solutions, and automation in managing data, were successful at realizing the gains from AI. It points out that AI should be taken as part of a wider digital environment which involves both technology and other digital parts such as policies and people. AI was not widely adopted in companies where their IT systems were either divided or old. For this reason, using AI in planning and strategy calls for equivalent preparations and efforts in IT and digital transformation.

Besides infrastructure, the study pointed out that certain organizational factors were either helpful or hindering for adopting AI. Executive leadership proved to be very significant. When AI was led by senior figures in an organization, teams worked better together,

stakeholders were more supportive, and continued with the project. On the other hand, when there was no strong executive sponsorship, AI projects tended to be separated, given less money, or not connected to the company's main priorities. As a result, healthcare leaders must be involved in authorizing AI and also directing how it is created, put into practice, and set up in the institution.

There are also significant conclusions about the cultural and ethical factors linked to using AI. According to the research, most were comfortable with AI's technological progress; however, some leaders found it a challenge when AI changed the standard workplace systems, keeping in mind people's experience and roles. Many staff at such institutions were especially concerned with less autonomy, fairness of algorithms, and not understanding the technology. Fixing these issues means going beyond technical learning; it calls for an environment of openness, discussions, and everyone working together. Just as important, ethics in AI governance should be part of the strategy from the beginning to guarantee that patient rights are not jeopardized for the sake of progress.

However, in spite of everything, the results of this study are still somewhat hopeful. When used wisely in favorable environments, AI greatly improves the efforts of healthcare organizations aiming for top-level achievement. It is now clear that using AI allows health system leaders to improve their budgeting, manage risks well, guide work for staff, and manage resources wisely. To fulfill all our potential, we have to go down a path that is challenging and unpredictable. To do this, an organization needs a sense of strategy, a ready staff, ethics, and never-ending learning. As a result, a variety of suggestions are given to healthcare groups, policy-makers, and researchers for better applying AI in medical care.

Healthcare organizations have to put digital maturity at the top of their strategic list of priorities. Such investments involve better infrastructure, sharing of data, and growing cloud platforms. When carrying out IT modernization, companies should plan well ahead to cover today's AI applications and also future successes in federated learning, computing at the edge, and instant decision automation. Managers should consider these investments as important assets for the organization's strategy rather than only IT expenditure.

Furthermore, organizations ought to set up methods of management that address ethical, operational, and strategic aspects together. They need to contain committees made up of experts from multiple areas, systems for checking algorithms, systems to track models, and certain roles for those who are accountable. It is important to create rules about data usage, bias, and explainability into policies that apply especially to patient triage decisions, choosing where to use resources, and health programs meant for entire populations.

Executives need to get actively involved in guiding work on AI. So, we should go beyond approving budgets or symbolic support to being more involved in deciding strategies, setting important targets, and working together with other departments. A vision should be put forward by leaders in which AI helps people decide, rather than taking over their responsibilities, leaving knowledge, experience, and judgment intact.

The process of capacity building should take place in every level of the organization. Having targeted training is essential for staff, since it takes care of misunderstandings about AI and also keeps it relevant for their day-to-day routines. Trust, less opposition, and faster adoption can result from holding digital literacy campaigns and workshops led by students, as well as building knowledge-sharing platforms.

Healthcare organizations should use an ongoing and repeated method to bring AI into their work. Instead of launching at every department at the same time, institutions ought to launch in areas such as improving how revenue is managed or initial elective patient schedules, and then develop further depending on the outcomes and opinions received. Such a step-by-step method gives an opportunity for learning, making changes, and course corrections, lowering the risk of the system not performing as expected.

Seventh, it is important to work together with other organizations outside a single school. Alliance with academic centers, AI providers, government regulators, and various healthcare organizations can give opportunities for using combined resources, financing, and receiving expert advice. Such consortia groups can introduce industry-defined standards and principles, which helps bring unity and improved ethics to AI in healthcare.

Policymakers and regulators should take into account the role of AI and offer improved infrastructure, financial help, and well-defined regulatory rules. It is important for national health strategies to cover AI's use in public healthcare, equal use of technology in all regions, and skills development tasks. When regulating AI, we need to focus on supporting progress and at the same time ensuring that people using AI are protected.

Simply put, AI can now be used in healthcare and the key issues are whether the healthcare sector is prepared and taking responsibility. This research proves that when hospitals have strong infrastructure, guidance, and culture, AI can greatly improve how they make choices and react. These recommendations are meant

to direct the way we deal with the challenges of integrating AI, and not as solutions for all. If healthcare institutions include AI as part of their strategy and base it on ethics and reliable IT, they can create intelligent and adaptable systems that handle future needs.

References

1. Topol E. Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again. Basic Books; 2019.
2. Jiang F, Jiang Y, Zhi H, et al. Artificial intelligence in healthcare: past, present and future. Stroke Vasc Neurol. 2017;2(4):230-243.
3. Davenport TH, Kalakota R. The potential for artificial intelligence in healthcare. Future Healthc J. 2019;6(2):94-98.
4. Brynjolfsson E, McAfee A. Machine, Platform, Crowd: Harnessing Our Digital Future. W.W. Norton & Company; 2017.
5. Obermeyer Z, Emanuel EJ. Predicting the future - big data, machine learning, and clinical medicine. N Engl J Med. 2016;375(13):1216-1219.
6. Bates DW, Saria S, Ohno-Machado L, et al. Big data in health care: using analytics to identify and manage high-risk and high-cost patients. Health Aff. 2014;33(7):1123-1131.
7. Adler-Milstein J, Jha AK. HITECH Act drove large gains in hospital electronic health record adoption. Health Aff. 2017;36(8):1416-1422.
8. Char DS, Shah NH, Magnus D. Implementing machine learning in health care - addressing ethical challenges. N Engl J Med. 2018;378(11):981-983.
9. Price WN, Cohen IG. Privacy in the age of medical big data. Nat Med. 2019;25(1):37-43.
10. Paré G, Trudel MC, Jaana M, et al. Barriers to organizational adoption of EMR systems in family physician practices: a mixed-methods study. BMC Med Inform Decis Mak. 2014;14:35.
11. Kohli M, Jha S. Why CAD failed in mammography. J Am Coll Radiol. 2018;15(3):535-537.
12. Agrawal A, Gans J, Goldfarb A. Prediction Machines: The Simple Economics of Artificial Intelligence. Harvard Business Review Press; 2018.
13. Raghupathi W, Raghupathi V. Big data analytics in healthcare: promise and potential. Health Inf Sci Syst. 2014;2:3.
14. Kankanhalli A, Charalabidis Y, Mellouli S. IoT and AI for smart government: a research agenda. Gov Inf Q. 2019;36(2):304-309.
15. Gartner. Hype Cycle for Healthcare Providers. Gartner; 2021.
16. Mittelstadt BD, Allo P, Taddeo M, et al. The ethics of algorithms: mapping the debate. Big Data Soc. 2016;3(2):1-21.
17. Floridi L, Cowls J, Beltrametti M, et al. AI4People—an ethical framework for a good AI society. Minds Mach. 2018;28(4):689-707.
18. Voigt P, von dem Bussche A. The EU General Data Protection Regulation (GDPR): A Practical Guide. Springer; 2017.
19. Vayena E, Blasimme A, Cohen IG. Machine learning in medicine: addressing ethical challenges. PLoS Med. 2018;15(11):e1002689.
20. Abouelmehdi K, Beni-Hssane A, Khaloufi H, et al. Big data security and privacy in healthcare: a review. Procedia Comput Sci. 2017;113:73-80.
21. Shah NH, Milstein A, Bagley SC. Making machine learning models clinically useful. JAMA. 2019;322(14):1351-1352.
22. Esteva A, Kuprel B, Novoa RA, et al. Dermatologist-level classification of skin cancer with deep neural networks. Nature. 2017;542(7639):115-118.
23. Liu X, Rivera SC, Moher D, et al. Reporting guidelines for clinical trial reports for interventions involving artificial intelligence: the CONSORT-AI extension. BMJ. 2020;370:m3164.
24. Wachter RM. The Digital Doctor: Hope, Hype, and Harm at the Dawn of Medicine's Computer Age. McGraw-Hill; 2015.
25. Holzinger A, Langs G, Denk H, et al. Causability and explainability of AI in medicine. Wiley Interdiscip Rev Data Min Knowl Discov. 2019;9(4):e1312.
26. Wahl B, Cossy-Gantner A, Germann S, et al. Artificial intelligence (AI) and global health: how can AI contribute to health in resource-poor settings? BMJ Glob Health. 2018;3(4):e000798.
27. Wahl B, Cossy-Gantner A, Germann S, et al. Artificial intelligence and global health: opportunities and challenges. Lancet Digit Health. 2019;1(1):e13-e14.
28. World Health Organization. *Global Strategy on Digital Health 2020-2025.* WHO; 2021.
29. Beam AL, Kohane IS. Big data and machine learning in health care. JAMA. 2018;319(13):1317-1318.
30. Holzinger A, Biemann C, Pattichis CS, et al. What do we need to build explainable AI systems for the medical domain? arXiv. 2017;1712.09923.
31. Rajkomar A, Dean J, Kohane I. Machine learning in medicine. N Engl J Med. 2019;380(14):1347-1358.

32. Ghassemi M, Naumann T, Schulam P, et al. Practical guidance on artificial intelligence for health-care data. Lancet Digit Health. 2019;1(4):e157-e159.

33. Yu KH, Beam AL, Kohane IS. Artificial intelligence in healthcare. Nat Biomed Eng. 2018;2(10):719-731.

34. Liu X, Faes L, Kale AU, et al. A comparison of deep learning performance against health-care professionals in detecting diseases from medical imaging: a systematic review and meta-analysis. Lancet Digit Health. 2019;1(6):e271-e297.

35. Matheny ME, Whicher D, Thadaney Israni S. Artificial intelligence in health care: a report from the National Academy of Medicine. JAMA. 2020;323(6):509-510.

36. Artificial Intelligence and Machine Learning as Business Tools: A Framework for Diagnosing Value Destruction Potential - Md Nadil Khan, Tanvirahmedshuvo, Md Risalat Hossain Ontor, Nahid Khan, Ashequr Rahman - IJFMR Volume 6, Issue 1, January-February 2024. https://doi.org/10.36948/ijfmr.2024.v06i01.23680

37. Enhancing Business Sustainability Through the Internet of Things - MD Nadil Khan, Zahidur Rahman, Sufi Sudruddin Chowdhury, Tanvirahmedshuvo, Md Risalat Hossain Ontor, Md Didear Hossen, Nahid Khan, Hamdadur Rahman - IJFMR Volume 6, Issue 1, January-February 2024. https://doi.org/10.36948/ijfmr.2024.v06i01.24118

38. Real-Time Environmental Monitoring Using Low-Cost Sensors in Smart Cities with IoT - MD Nadil Khan, Zahidur Rahman, Sufi Sudruddin Chowdhury, Tanvirahmedshuvo, Md Risalat Hossain Ontor, Md Didear Hossen, Nahid Khan, Hamdadur Rahman - IJFMR Volume 6, Issue 1, January-February 2024. https://doi.org/10.36948/ijfmr.2024.v06i01.23163

39. IoT and Data Science Integration for Smart City Solutions - Mohammad Abu Sufian, Shariful Haque, Khaled Al-Samad, Omar Faruq, Mir Abrar Hossain, Tughlok Talukder, Azher Uddin Shayed - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1086

40. Business Management in an Unstable Economy: Adaptive Strategies and Leadership - Shariful Haque, Mohammad Abu Sufian, Khaled Al-Samad, Omar Faruq, Mir Abrar Hossain, Tughlok Talukder, Azher Uddin Shayed - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1084

41. The Internet of Things (IoT): Applications, Investments, and Challenges for Enterprises - Md Nadil Khan, Tanvirahmedshuvo, Md Risalat Hossain Ontor, Nahid Khan, Ashequr Rahman - IJFMR Volume 6, Issue 1, January-February 2024. https://doi.org/10.36948/ijfmr.2024.v06i01.22699

42. Real-Time Health Monitoring with IoT - MD Nadil Khan, Zahidur Rahman, Sufi Sudruddin Chowdhury, Tanvirahmedshuvo, Md Risalat Hossain Ontor, Md Didear Hossen, Nahid Khan, Hamdadur Rahman - IJFMR Volume 6, Issue 1, January-February 2024. https://doi.org/10.36948/ijfmr.2024.v06i01.22751

43. Strategic Adaptation to Environmental Volatility: Evaluating the Long-Term Outcomes of Business Model Innovation - MD Nadil Khan, Shariful Haque, Kazi Sanwarul Azim, Khaled Al-Samad, A H M Jafor, Md. Aziz, Omar Faruq, Nahid Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1079

44. Evaluating the Impact of Business Intelligence Tools on Outcomes and Efficiency Across Business Sectors - MD Nadil Khan, Shariful Haque, Kazi Sanwarul Azim, Khaled Al-Samad, A H M Jafor, Md. Aziz, Omar Faruq, Nahid Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1080

45. Analyzing the Impact of Data Analytics on Performance Metrics in SMEs - MD Nadil Khan, Shariful Haque, Kazi Sanwarul Azim, Khaled Al-Samad, A H M Jafor, Md. Aziz, Omar Faruq, Nahid Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1081

46. The Evolution of Artificial Intelligence and its Impact on Economic Paradigms in the USA and Globally - MD Nadil khan, Shariful Haque, Kazi Sanwarul Azim, Khaled Al-Samad, A H M Jafor, Md. Aziz, Omar Faruq, Nahid Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1083

47. Exploring the Impact of FinTech Innovations on the U.S. and Global Economies - MD Nadil Khan, Shariful Haque, Kazi Sanwarul Azim, Khaled Al-Samad, A H M Jafor, Md. Aziz, Omar Faruq, Nahid Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1082

48. Business Innovations in Healthcare: Emerging Models for Sustainable Growth - MD Nadil khan, Zakir Hossain, Sufi Sudruddin Chowdhury, Md. Sohel Rana, Abrar Hossain, MD Habibullah Faisal, SK Ayub Al Wahid, MD Nuruzzaman Pranto - AIJMR Volume 2, Issue 5, September-October 2024.

https://doi.org/10.62127/aijmr.2024.v02i05.1093

49. Impact of IoT on Business Decision-Making: A Predictive Analytics Approach - Zakir Hossain, Sufi Sudruddin Chowdhury, Md. Sohel Rana, Abrar Hossain, MD Habibullah Faisal, SK Ayub Al Wahid, Mohammad Hasnatul Karim - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1092

50. Security Challenges and Business Opportunities in the IoT Ecosystem - Sufi Sudruddin Chowdhury, Zakir Hossain, Md. Sohel Rana, Abrar Hossain, MD Habibullah Faisal, SK Ayub Al Wahid, Mohammad Hasnatul Karim - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1089

51. The Impact of Economic Policy Changes on International Trade and Relations - Kazi Sanwarul Azim, A H M Jafor, Mir Abrar Hossain, Azher Uddin Shayed, Nabila Ahmed Nikita, Obyed Ullah Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1098

52. Privacy and Security Challenges in IoT Deployments - Obyed Ullah Khan, Kazi Sanwarul Azim, A H M Jafor, Azher Uddin Shayed, Mir Abrar Hossain, Nabila Ahmed Nikita - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1099

53. Digital Transformation in Non-Profit Organizations: Strategies, Challenges, and Successes - Nabila Ahmed Nikita, Kazi Sanwarul Azim, A H M Jafor, Azher Uddin Shayed, Mir Abrar Hossain, Obyed Ullah Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1097

54. AI and Machine Learning in International Diplomacy and Conflict Resolution - Mir Abrar Hossain, Kazi Sanwarul Azim, A H M Jafor, Azher Uddin Shayed, Nabila Ahmed Nikita, Obyed Ullah Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1095

55. The Evolution of Cloud Computing & 5G Infrastructure and its Economical Impact in the Global Telecommunication Industry - A H M Jafor, Kazi Sanwarul Azim, Mir Abrar Hossain, Azher Uddin Shayed, Nabila Ahmed Nikita, Obyed Ullah Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1100

56. Leveraging Blockchain for Transparent and Efficient Supply Chain Management: Business Implications and Case Studies - Ankur Sarkar, S A Mohaiminul Islam, A J M Obaidur Rahman Khan, Tariqul Islam, Rakesh Paul, Md Shadikul Bari - IJFMR Volume 6, Issue 5, September-October 2024. https://doi.org/10.36948/ijfmr.2024.v06i05.28492

57. AI-driven Predictive Analytics for Enhancing Cybersecurity in a Post-pandemic World: a Business Strategy Approach - S A Mohaiminul Islam, Ankur Sarkar, A J M Obaidur Rahman Khan, Tariqul Islam, Rakesh Paul, Md Shadikul Bari - IJFMR Volume 6, Issue 5, September-October 2024. https://doi.org/10.36948/ijfmr.2024.v06i05.28493

58. The Role of Edge Computing in Driving Real-time Personalized Marketing: a Data-driven Business Perspective - Rakesh Paul, S A Mohaiminul Islam, Ankur Sarkar, A J M Obaidur Rahman Khan, Tariqul Islam, Md Shadikul Bari - IJFMR Volume 6, Issue 5, September-October 2024. https://doi.org/10.36948/ijfmr.2024.v06i05.28494

59. Circular Economy Models in Renewable Energy: Technological Innovations and Business Viability - Md Shadikul Bari, S A Mohaiminul Islam, Ankur Sarkar, A J M Obaidur Rahman Khan, Tariqul Islam, Rakesh Paul - IJFMR Volume 6, Issue 5, September-October 2024. https://doi.org/10.36948/ijfmr.2024.v06i05.28495

60. Artificial Intelligence in Fraud Detection and Financial Risk Mitigation: Future Directions and Business Applications - Tariqul Islam, S A Mohaiminul Islam, Ankur Sarkar, A J M Obaidur Rahman Khan, Rakesh Paul, Md Shadikul Bari - IJFMR Volume 6, Issue 5, September-October 2024. https://doi.org/10.36948/ijfmr.2024.v06i05.28496

61. The Integration of AI and Machine Learning in Supply Chain Optimization: Enhancing Efficiency and Reducing Costs - Syed Kamrul Hasan, MD Ariful Islam, Ayesha Islam Asha, Shaya afrin Priya, Nishat Margia Islam - IJFMR Volume 6, Issue 5, September-October 2024. https://doi.org/10.36948/ijfmr.2024.v06i05.28075

62. Cybersecurity in the Age of IoT: Business Strategies for Managing Emerging Threats - Nishat Margia Islam, Syed Kamrul Hasan, MD Ariful Islam, Ayesha Islam Asha, Shaya Afrin Priya - IJFMR Volume 6, Issue 5, September-October 2024. https://doi.org/10.36948/ijfmr.2024.v06i05.28076

63. The Role of Big Data Analytics in Personalized Marketing: Enhancing Consumer Engagement and Business Outcomes - Ayesha Islam Asha, Syed Kamrul Hasan, MD Ariful Islam, Shaya afrin Priya, Nishat Margia Islam - IJFMR Volume 6, Issue 5, September-October 2024. https://doi.org/10.36948/ijfmr.2024.v06i05.28077

64. Sustainable Innovation in Renewable Energy:

Business Models and Technological Advances - Shaya Afrin Priya, Syed Kamrul Hasan, Md Ariful Islam, Ayesha Islam Asha, Nishat Margia Islam - IJFMR Volume 6, Issue 5, September-October 2024. https://doi.org/10.36948/ijfmr.2024.v06i05.28079

65. The Impact of Quantum Computing on Financial Risk Management: A Business Perspective - Md Ariful Islam, Syed Kamrul Hasan, Shaya Afrin Priya, Ayesha Islam Asha, Nishat Margia Islam - IJFMR Volume 6, Issue 5, September-October 2024. https://doi.org/10.36948/ijfmr.2024.v06i05.28080

66. AI-driven Predictive Analytics, Healthcare Outcomes, Cost Reduction, Machine Learning, Patient Monitoring - Sarowar Hossain, Ahasan Ahmed, Umesh Khadka, Shifa Sarkar, Nahid Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1104

67. Blockchain in Supply Chain Management: Enhancing Transparency, Efficiency, and Trust - Nahid Khan, Sarowar Hossain, Umesh Khadka, Shifa Sarkar - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1105

68. Cyber-Physical Systems and IoT: Transforming Smart Cities for Sustainable Development - Umesh Khadka, Sarowar Hossain, Shifa Sarkar, Nahid Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1106

69. Quantum Machine Learning for Advanced Data Processing in Business Analytics: A Path Toward Next-Generation Solutions - Shifa Sarkar, Umesh Khadka, Sarowar Hossain, Nahid Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1107

70. Optimizing Business Operations through Edge Computing: Advancements in Real-Time Data Processing for the Big Data Era - Nahid Khan, Sarowar Hossain, Umesh Khadka, Shifa Sarkar - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1108

71. Data Science Techniques for Predictive Analytics in Financial Services - Shariful Haque, Mohammad Abu Sufian, Khaled Al-Samad, Omar Faruq, Mir Abrar Hossain, Tughlok Talukder, Azher Uddin Shayed - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1085

72. Leveraging IoT for Enhanced Supply Chain Management in Manufacturing - Khaled AlSamad, Mohammad Abu Sufian, Shariful Haque, Omar Faruq, Mir Abrar Hossain, Tughlok Talukder, Azher Uddin Shayed - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.108733

73. AI-Driven Strategies for Enhancing Non-Profit Organizational Impact - Omar Faruq, Shariful Haque, Mohammad Abu Sufian, Khaled Al-Samad, Mir Abrar Hossain, Tughlok Talukder, Azher Uddin Shayed - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i0.1088

74. Sustainable Business Practices for Economic Instability: A Data-Driven Approach - Azher Uddin Shayed, Kazi Sanwarul Azim, A H M Jafor, Mir Abrar Hossain, Nabila Ahmed Nikita, Obyed Ullah Khan - AIJMR Volume 2, Issue 5, September-October 2024. https://doi.org/10.62127/aijmr.2024.v02i05.1095

75. Mohammad Majharul Islam, MD Nadil khan, Kirtibhai Desai, MD Mahbub Rabbani, Saif Ahmad, & Esrat Zahan Snigdha. (2025). AI-Powered Business Intelligence in IT: Transforming Data into Strategic Solutions for Enhanced Decision-Making. The American Journal of Engineering and Technology, 7(02), 59–73. https://doi.org/10.37547/tajet/Volume07Issue02-09.

76. Saif Ahmad, MD Nadil khan, Kirtibhai Desai, Mohammad Majharul Islam, MD Mahbub Rabbani, & Esrat Zahan Snigdha. (2025). Optimizing IT Service Delivery with AI: Enhancing Efficiency Through Predictive Analytics and Intelligent Automation. The American Journal of Engineering and Technology, 7(02), 44–58. https://doi.org/10.37547/tajet/Volume07Issue02-08.

77. Esrat Zahan Snigdha, MD Nadil khan, Kirtibhai Desai, Mohammad Majharul Islam, MD Mahbub Rabbani, & Saif Ahmad. (2025). AI-Driven Customer Insights in IT Services: A Framework for Personalization and Scalable Solutions. The American Journal of Engineering and Technology, 7(03), 35–49. https://doi.org/10.37547/tajet/Volume07Issue03-04.

78. MD Mahbub Rabbani, MD Nadil khan, Kirtibhai Desai, Mohammad Majharul Islam, Saif Ahmad, & Esrat Zahan Snigdha. (2025). Human-AI Collaboration in IT Systems Design: A Comprehensive Framework for Intelligent Co-Creation. The American Journal of Engineering and Technology, 7(03), 50–68.

https://doi.org/10.37547/tajet/Volume07Issue03-05.

79. Kirtibhai Desai, MD Nadil khan, Mohammad Majharul Islam, MD Mahbub Rabbani, Saif Ahmad, & Esrat Zahan Snigdha. (2025). Sentiment analysis with ai for it service enhancement: leveraging user feedback for adaptive it solutions. The American Journal of Engineering and Technology, 7(03), 69–87. https://doi.org/10.37547/tajet/Volume07Issue03-06.

80. Mohammad Tonmoy Jubaear Mehedy, Muhammad Saqib Jalil, MahamSaeed, Abdullah al mamun, Esrat Zahan Snigdha, MD Nadil khan, NahidKhan, & MD Mohaiminul Hasan. (2025). Big Data and Machine Learning inHealthcare: A Business Intelligence Approach for Cost Optimization andService Improvement. The American Journal of Medical Sciences andPharmaceutical Research, 115–135.https://doi.org/10.37547/tajmspr/Volume07Issue0314.

81. 81. Maham Saeed, Muhammad Saqib Jalil, Fares Mohammed Dahwal, Mohammad Tonmoy Jubaear Mehedy, Esrat Zahan Snigdha, Abdullah al mamun, & MD Nadil khan. (2025). The Impact of AI on Healthcare Workforce Management: Business Strategies for Talent Optimization and IT Integration. The American Journal of Medical Sciences and Pharmaceutical Research, 7(03), 136–156. https://doi.org/10.37547/tajmspr/Volume07Issue03-15.

82. Muhammad Saqib Jalil, Esrat Zahan Snigdha, Mohammad Tonmoy Jubaear Mehedy, Maham Saeed, Abdullah al mamun, MD Nadil khan, & Nahid Khan. (2025). AI-Powered Predictive Analytics in Healthcare Business: Enhancing OperationalEfficiency and Patient Outcomes. The American Journal of Medical Sciences and Pharmaceutical Research, 93–114. https://doi.org/10.37547/tajmspr/Volume07Issue03-13.

83. Esrat Zahan Snigdha, Muhammad Saqib Jalil, Fares Mohammed Dahwal, Maham Saeed, Mohammad Tonmoy Jubaear Mehedy, Abdullah al mamun, MD Nadil khan, & Syed Kamrul Hasan. (2025). Cybersecurity in Healthcare IT Systems: Business Risk Management and Data Privacy Strategies. The American Journal of Engineering and Technology, 163–184. https://doi.org/10.37547/tajet/Volume07Issue03-15.

84. Abdullah al mamun, Muhammad Saqib Jalil, Mohammad Tonmoy Jubaear Mehedy, Maham Saeed, Esrat Zahan Snigdha, MD Nadil khan, & Nahid Khan. (2025). Optimizing Revenue Cycle Management in Healthcare: AI and IT Solutions for Business Process Automation. The American Journal of Engineering and Technology, 141–162. https://doi.org/10.37547/tajet/Volume07Issue03-14.

85. Hasan, M. M., Mirza, J. B., Paul, R., Hasan, M. R., Hassan, A., Khan, M. N., & Islam, M. A. (2025). Human-AI Collaboration in Software Design: A Framework for Efficient Co Creation. AIJMR-Advanced International Journal of Multidisciplinary Research, 3(1). DOI: 10.62127/aijmr.2025.v03i01.1125

86. Mohammad Tonmoy Jubaear Mehedy, Muhammad Saqib Jalil, Maham Saeed, Esrat Zahan Snigdha, Nahid Khan, MD Mohaiminul Hasan.The American Journal of Medical Sciences and Pharmaceutical Research, 7(3). 115-135.https://doi.org/10.37547/tajmspr/Volume07Issue03-14.

87. Junaid Baig Mirza, MD Mohaiminul Hasan, Rajesh Paul, Mohammad Rakibul Hasan, Ayesha Islam Asha. AIJMR-Advanced International Journal of Multidisciplinary Research, Volume 3, Issue 1, January-February 2025 .DOI: 10.62127/aijmr.2025.v03i01.1123 .

88. Mohammad Rakibul Hasan, MD Mohaiminul Hasan, Junaid Baig Mirza, Ali Hassan, Rajesh Paul, MD Nadil Khan, Nabila Ahmed Nikita.AIJMR-Advanced International Journal of Multidisciplinary Research, Volume 3, Issue 1, January-February 2025 .DOI: 10.62127/aijmr.2025.v03i01.1124.