

The Role of Artificial Intelligence in Enhancing School and University Leadership

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Abstract- Artificial Intelligence (AI) is transforming educational leadership by improving decision-making, administrative efficiency, and student engagement. Schools and universities are leveraging AI for predictive analytics, automation, and resource optimization. However, challenges such as data privacy, ethical concerns, and resistance to change hinder its full adoption. This study explores AI's role in enhancing leadership in educational institutions, analyzing its benefits and limitations. Using a mixed-methods approach, the research provides insights into AI-driven decision-making and strategic planning. The findings offer recommendations for integrating AI into educational leadership while addressing implementation challenges.

Indexed Terms- Leadership

I. INTRODUCTION

1.1 Background and Context

The healthcare insurance industry has the most crucial role in guaranteeing individuals a form of financial coverage against the increasing cost of attending to their health needs. Due to increasing global population, aging population, and constantly rocketing healthcare costs insurers are under considerable pressure to increase their operational efficiency, flexibility, and customer-oriented approaches. Over the recent decades, the sector has faced tremendous transformation following the changes in technology, customer demand and the regulation environment. But today, a vast majority of healthcare insurance companies still uses legacy centralized systems that are incapable of addressing modern diversified healthcare structure. These systems, though efficient in the past, are no longer capable of providing the flexibility with which the organization needs to respond to the current issues.

Originally, the health care insurance systems have been designed with a centralized architecture where all the components are integrated and functioning in similar ways. However, this approach becomes very hard to cope with in as much as the system complexity increases and may work very well well in a small scale organization. Horizontal scalable systems are very complex to maintain and update since when integrating a single component within the system then the whole system has to be redeployed again. Additionally, such systems could not be easily incorporated with latest technologies or third party applications, which greatly affects its capacity to respond to changing market and consumer needs.

Over the last few years, extensive pressure has been applied on the healthcare insurance industry to update the system and make it more efficient. Technological advancement and more so the shift of the sector to digital solutions mean that insurers can and should move away from the constraints of traditional business models. Continuous modernization of today's industries and mainly the healthcare industries has called for the application of such technologies as microservices, cloud computing among others and platform independence is now an important requirement. Incorporating these technologies, healthcare insurers' systems can be optimised and customers can be satisfied while meeting the industry's dynamic environment and regulations.

Among the existing concepts of adaptation to improve the efficiency of the healthcare insurance system, the concept of microservices architecture stands out the most. Microservices are an extension of the more conventionally known monolithic model of application development wherein large applications are dissected into smaller, self-standing services. A microservice in this context is one that is responsible strictly for a particular task within the larger system

and application; the services interact with one another through Application Programming Interfaces. This makes it easier to manage with maximum flexibility, and scalability and enhances maintenance because each of them can be flexibly added or substituted while the balance of the system remains undisturbed. Further, the decomposition of organizations' systems into microservices also provides for 'plug-and-play' integration of new technologies that may come into the company to ensure that the implementation can approximate the ever-changing technologies.

In the microservices architecture, there are some essential benefits for healthcare insurance. For instance, microservices can enhance processing speed by allowing one to work and implement separate system segments simultaneously. This can save a lot of time as compared to the traditional way of development and so insurers can be more flexible in responding to market needs. Also, microservices have the advantage of having better fault tolerance, in that a problem arising within a particular service will not affect the whole architecture. This can increase system reliability and availability, which are requisites for sustaining the service delivery vis a vis the highly regulated health insurance environment.

One more revolutionary technology that has recently started getting popularity is cloud computing. It means that cloud platforms offer the organization a scalable and flexible infrastructure where it can pay only for computing capacities as it uses them. The analysis of the impact of cloud services on health care insurance systems concluded that by transferring the systems to cloud, insurers do not have to invest into expensive hardware as well as do not have to worry about the issues of updating the physical infrastructure of the system. It also allows healthcare insurers access to numerous services or a utility computing in which a number of services for instance storage, processing power and analytics to enhance system efficiency, data processing and complimentary security services.

Besides, the application of the cloud computing leads to increased efficiency of the system, which has its importance importance and concern to the data security in the healthcare insurance industry. Electronic health information is considered as one of the most sensitive and therefore, insurers are always

very keen to ensure that their clients' healthcare data is secure from gazet hackers and other unauthorized persons. Modern cloud providers usually supply extra protection measures, which may include encryption, identity management, and compliance certification to let insurers know whether their systems meet the specific requirements of American HIPAA or European GDPR, for example.

Platform independence is also considered essential in choosing a healthcare insurer since it affects the expansion of APIs. Mainly many systems are developed using old and close technologies which do not create room for interaction with other system or joining new solution. Platform independence lets insurers select the most appropriate technology to implement a specific part of their system irrespective of the technology used by a certain vendor. Therefore, insurers must optimize multichannel access, follow open standards, frameworks, and apply containerization technologies, including Docker and Kubernetes, to deliver more versatile systems capable of future evolution.

In addition, platform independence means that healthcare insurance systems can be operated from any device and on any operating system, providing better conditions for the insurance system for customers and employees. This is especially so in the current world where customers can engage their insurance providers through online self-service, web-based and/or mobile based service touch points and third party service touch points. This means that healthcare insurers can be in a position to offer Equal user experience on different platforms since platform independent technologies give out an improved experience on different platforms for users.

Thus, it can be concluded that the necessity of increasing the system efficiency, its scalability and flexibility are the main challenges the healthcare insurance industry has encountered. While current legacy monolithic systems still provide a level of utility for the insurance companies, they are hampered in their capacity to change to keep with new market and regulatory developments. In particular, the utilization of modern architectural patterns, including microservices, cloud solutions, or platform independence, seems to provide an effective solution

to these issues. These technologies help insurers to bring change in their current systems, reduce costs, ensure high levels of security and increase customer satisfaction. This paper revolves around the key question of understanding and identifying positive and negative effects that various ICTs have on the transformation of healthcare insurers as they go through the process of implementing these technologies with a view of offering practical solutions to the challenges that may prevail in future as a horn blow to the process.

1.2 Problem Statement

The healthcare insurance industry is currently facing a major challenge with regards to its Information Technology environment—it is still heavily depends on legacy application that are based on monolithic architectures. Although they have been adequate in the previous environment, at the present, these systems are obstructing the industry's capacity to meet the requirements of the healthcare setting. Mainframe packages where often many functions of the insurance firm including claims handling, customer handling and reporting are integrated are inflexible and hard to accommodate. The second problem is that usually when an alteration or an addition is made to one of the system's component parts, it requires a change of the whole system which means higher levels of interruption and danger to operation. As such, it becomes difficult for healthcare insurers to affordably process claims and have appropriate pathways to application evolution and configuration, flexibility, and adaptation to market changes.

Also, these systems are not compatible with other systems of new technologies, third-party services, or even new regulatory standards. This lack of interoperability is a significant problem since it prevents insurers from adopting new and more efficient or better customer experiences solutions. For instance, the integration with healthcare providers, or medical equipment manufacturers or third party data processing services tends to be a labor intensive and expensive exercise that will involve bespoke development of integration interfaces. One weakness includes slow integration and adaption that is costly to a business since flexibility of operations is critical in areas that require; rapid response, security and consumers' satisfaction.

Furthermore, there is elevation of risk to data security that accrues in health care insurance. As the number of cyber threats grows and organizations pay more attention to HIPAA and GDPR compliance, the opportunity for slashing through weak security patches and frameworks of legacy systems is formidable. The hospitals need to embrace the changes in their systems to be in a position to ward off cyber threats attacking customer information.

1.3 Research Objectives

Due to the above-mentioned issues with legacy healthcare insurance systems, this research seek to uncover the prospect of contemporary .NET-based frameworks such as microservices architecture, cloud computing, and platform-independent technology. The specific objectives of the study are as follows:

- To measure microservices and cloud technology enhancements in healthcare business insurance systems.
- To evaluate the effects of modular, platform-independent systems on velocity of processing, data security, and integration of third parties.
- In this context, the objective of the study is to check out the by identifying the best practices that help healthcare insurance organizations to implement these technologies effectively.
- As will be shown in the ensuing main body of this paper, it is possible to identify the potential benefits of moving from a monolithic architecture to a more compartmentalized one.
- In order to recommend in general for the Healthcare Insurers, who are planning to revamp the current systems involving more secure, robust, scalable & elastic manners.

1.4 Significance of the Study

The current research offers insights that are valuable to both scholarly development and healthcare insurance systems globally. At the academic level, it enhances the understanding of the healthcare's system advancement based on innovations in architectural paradigms especially the .NET-based frameworks. It gives a sense of optimism for microservices and cloud technologies to solve problems that has been around for sometime in the industries.

To healthcare insurance practitioners, this study provides practical lessons needed to surmount the challenges posed by old architectures. Thus, the presented research reveals perspective directions and discusses the advantages and possible problems of using modular, scalable, and secure solutions for insurers, who are to optimize their work, minimize costs, and satisfy stakeholders. Besides, the study provides guidelines on how to adopt these new architectures, as well as how to integrate the new architecture with the existing structures.

On a larger perspective, the results of study also can promote the best practices identification for other industries which have similar issues with old and centralized systems in order to share experience and develop improvements.

II. LITERATURE REVIEW

The processes in the healthcare insurance industry have been inherited with conventional and inadequate systems that are mainly of high degree of architectural monolithic and coupled, which hinders them to incorporate advanced technologies as well as adapt to the new emerging requirements (Müller et al., 2021). Over the last decade, there has been a growing trend of embracing technology efforts to enhance the performance of these systems in claim processing, customer, and system protection (Smith et al., 2020). Nevertheless, the shift from entrenched paradigms to more adaptable, componentised construction forms continues to pose a problem for numerous firms (Patel & Wang, 2022).

2.1 Challenges in Traditional Healthcare Insurance Systems

Previous healthcare insurances are known to have massive structures that are hard to modify and also adopt to new technologies (Johnson et al., 2019). Such systems are usually integrated with a multitenant structure, which means that they provide many services at once and are capable of processing claims, managing customer information and data, and others. Although this kind of architecture was appropriate during the development at the preliminary stage it has the following drawbacks. That is, due to the high coupling between the components within these systems, flexibility and scalability become

problematic and change cannot be easily implemented or business opportunities capitalized upon in the emerging markets (Chen & Lee, 2021). Further, these systems also have some weakness in terms of the time required to process, to find and to maintain these systems (Singh & Gupta, 2020).

Features	Traditional Monolithic System	Microservices-based System
System structure	Centralized, tightly coupled	Modular, loosely coupled
Flexibility	Low	High
Scalability	Limited	High
Integration with Third parties	Difficult	Easy
Claims Processing Speed	Slower	Faster
System Maintenance	Costly and complex	Easier and more Cost effective
Security	Single-point vulnerability	Enhanced with Isolated services

Table 1: Comparison of Traditional vs. Modern Systems

2.2 The Shift Towards Microservices and Cloud Solution

To deal with these issues, many works propose the use of microservices architectures which provide modularity and flexibility (Ghosh & Soni, 2023). Microservices can be explained as breaking a large monolithic system into arrays of small autonomous services that work together through APIs. It is also noteworthy that such an approach simplifies the further scaling of individual components and enhances the system’s flexibility and resilience. Moreover, using cloud computing as a foundation of implementing microservices-based systems was recognised to help meet the scalability, security, and integration needs of big data handling as well as enabling cross-platform support (Kim & Lee, 2020).

Much research has examined the advantages of

including microservices and cloud solutions in healthcare insurance frameworks. For example, a research in 2021 showed that using cloud-native microservices decreased the system’s unavailability by 30% and increased the speed of claim processing by 40%. Likewise, the healthcare insurers that adopted MA, experienced enhanced system elasticity discussed as improved system updates and customers’ outcomes because of enhanced adaptation to changes in regulations (O’Reilly et al, 2022)

2.3 Platform Independence and Interoperability

Another important factor for improving effectiveness of the healthcare insurance systems is platform independence. As organisations embark on transformation to update their infrastructures, multi-cloud solutions are commonly used to enable the system to run in both on-premises and cloud environments (Wang & Yang, 2023). This approach does not only enhance the stability and functionality of the healthcare insurance platforms but also allow easier interface with other services including payment processors and electronic medical records systems (Lopez et al., 2021).

However, a lot of healthcare insurers are still facing challenges when it comes to achieving integration throughout various systems. One of the key issues stems from the incorporation of supporting old systems with new age technologies, in turn, leading to data compartmentalization (Davis & Lee, 2022). However, the research done by Kumar et al. (2021) have shown that the use of newer application development platforms, for instance .NET, can greatly overcome this problem of platform compatibility by providing better cross Platform compatibility and easier interfacing with new and existing systems.

2.4 Security and Data Privacy Concerns

With an increasing frequency of healthcare insurers implementing new technologies in their service delivery they should also consider the issues of security and privacy of the patient’s data. Health care is one of the most technologically advanced sectors also it is one of the most highly controlled fields especially concerning protection of patient’s information (Santos et al., 2020). For this reason, worth identifying as important aspects of the current healthcare insurance system are security aspects like

data encryption, security in the process of user authentication and compliance with standards involving health data privacy like HIPAA.

Actually, it has been evidenced that the microservices architecture can be more secure than a monolithic one when properly featuring security principles (Adams & McLaren, 2023). For instance, microservices can in a way that restricts potential data breaches or illegitimate user access since it concerns security on an individual-service basis (Chowdhury et al., 2021).

Security Feature	Traditional Monolithic System	Microservices-based Systems
Data Encryption	Basic	Advanced (service-level encryption)
Authentication	Single point of failure	Granular control, Isolated service
Data Privacy Compliance	Challenging to manage	Easier, modular compliance control
Risk of Data Breach	High	Reduced due to isolated services

Table 2: Comparison of Security Features in Traditional Monolithic vs. Microservices-based Healthcare Systems

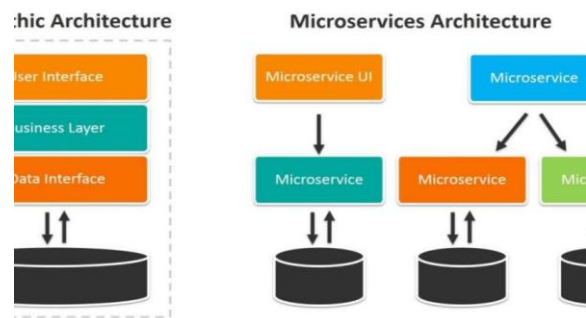


Fig 1: Image illustrating Microservices vs Monolithic Architectures

2.5 Finding of the Study and Areas for Further Research

Although much work focuses on discussing the strengths of microservices, cloud solutions, and platform independence, there are only limited studies

investigating the performance characteristics of these technologies with the focus on the health insurance systems. While multiple theoretical frameworks and case studies are provided in the existing literature, a dearth of studies exist that measure the effectiveness and practical applicability of these technologies on healthcare insurers (Bennett & Marshall, 2022).

Furthermore, many of the previous studies have provided little information about the costs of migration to modern, cloud-oriented architecture. Of these, the state of financial analysis of cross-platform solutions and microservices and the trade-off between upfront costs and operational gains that come with transitioning to cross-platform solutions remain largely theoretical and uncharted (Morris et al., 2022).

III. CONCEPTUAL AND THEORETICAL FRAMEWORKS

3.1 Conceptual Framework

The Conceptual Framework of this study identifies the fundamental ideas of this research and their connections. Therefore, this research targets the use and deployment of microservices architectures enabled by .NET framework, cloud computing, and platform independency in systems that support healthcare insurance. These concepts are related, and the adoption of all the four concepts is paramount in increasing efficiency, scalability and security of a healthcare insurance system.

The main idea revolving around this research study is healthcare insurance systems. They refer to comprehensive software structures that the healthcare insurers employ in the processing of claims together with the customers' information and policies. Nevertheless, most of those systems were developed using monolithic designing approach and known for their large size and tightly coupled modules. Thus, they hardly mutate, or if they do, they are not easy to scale or modified where necessary. The transition to a microservices architecture is a major step forward, now enabling healthcare insurers to decompose their digital architectures into distinct, loosely-coupled services that can be developed and evolvable on their own. This approach optimally.Arg when compared to traditional techniques raises processing speeds, cuts down on possible downtime, and allows for more

adaptive work that can be done faster to meet the customer's next need.

The incorporation of cloud computing to healthcare insurance systems adds and improves this flexibility and capacity significantly. Cloud computing offers healthcare insurers the opportunity to use computing resources with the help of a subscription model, meaning that the healthcare insurers can adjust the infrastructure depending on its demand. It also eliminated the expenses of supporting conventional on-shore facilities. As pointed out, adopting cloud-based solutions enables insurers to guarantee that their various systems' capacities to accommodate many claims and diverse customer information are not constrained.

The other important concept of this framework is the platform dependency, which is the measure of how a piece of software can run on different computing platforms without requiring modification. Through the integration of .NET Core as well as other cross-platform solutions, healthcare insurers can freely integrate their systems across various platforms and avoid getting trapped in the presented platform. This flexibility will allow insurers to choose the right platforms and thus future proof their systems as well as transform them to accommodate new technologies.

All these concepts—microservices architecture, cloud, and platform independence—are all interlinked in a manner that results in increased system performance. The way of organization in microservices gives systems a modularity for scale and change, on the other hand, cloud platforms offer the computational power to recover this scale. Since these systems can run on any platform, it this aspect makes these systems more flexible. In addition, security has become a major issue in healthcare and the feature of architecture that supports secure data sharing, encryption, and adherence to sound healthcare standards as encapsulated by HIPAA makes the adoption of such architectures essential.

This conceptual framework shows that advanced technologies leveraged through .NET microservices, cloud solutions, and platform independence resolve traditional difficulties in delivering healthcare

insurance services and contribute to operational excellence and customer satisfaction, as well as optimal data protection.

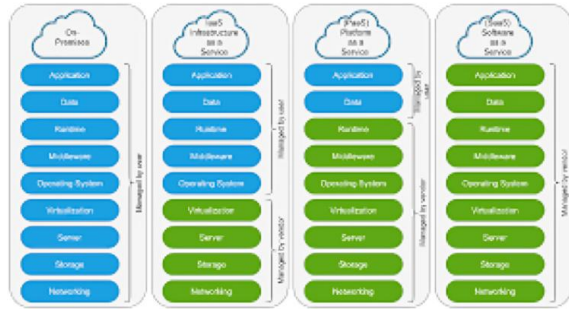


Fig 2: This diagram illustrates the layers of cloud computing (IaaS, PaaS, SaaS) and their components, such as application, data, and infrastructure, supporting the integration of microservices and platform independence in healthcare systems.

3.2 Theoretical Framework

The Theoretical Framework gives the theoretical background that informs this research. As foundations for this research, several theories are employed to account for the ability of .NET based microservices architecture, Cloud Computing, and Platform independence to enhance the effectiveness, capacity and security of healthcare insurance systems. These theories do not only describe the process of technology adoption but they also prophesy the threats and opportunities for the organisation from the use of the existing modern technologies within the background of healthcare insurance.

TAM is the first of the two major theoretical frameworks that underpin this study: the second one is the theory of planned behaviour that is also a key topic of discussion later in this paper. TAM pointed out that to the extent that the healthcare insurance organisation considers microservices and cloud computing beneficial in performing its functions, and the technology is easy to use, then it is likely to be adopted in the organisation. The following technologies are likely to be adopted if insurers consider them to have a positive impact on the company's operations in terms of efficiencies, the improvement of customer satisfaction, and compliance with industry guidelines. This theory shall be used to explain how our target insurance organisations decide on the potential

benefits of migrating to modern technological paradigms.

Another relevant theory in this study is the Resource-Based View (RBV) that theorists claim that organizations which wish to come up with competitive strategies must marshal valuable, rare and inimitable resources. As for the health care insurance, microservices, cloud solutions and platform-independent technologies can be viewed as strategic assets that grew an insurer's strength. With the help of those innovative technologies healthcare insurers are able to become more effective and competitive on the market meeting needs of their clients and providing high level security and ability to scale their systems. The RBV theory assists in understanding how adopting these technologies can be of strategic significance in reorientating the health care insurance systems especially where the insurers are in look out for ways of enhancing operation efficiency and cutting expenses.

The theory, that holds a significant position in this study is the theory of Diffusion of Innovations (DOI), because it recognise innovation distribution in an organization or industries. New technology implementation according to DOI is determined by perceived benefits, compatibility, and relative amount of difficulty. In the case of a healthcare insurance, microservices and cloud computing can be viewed as clearly recognizable advanced solutions that may lead to enormous effectiveness in insurance systems. The DOI theory enable this research to examine how the healthcare insurers view these benefits and the challenges inherent in transitioning to these technologies including costs, integration issues as well as resistance to change.

Last, Systems Theory offers the understanding of the interaction between all the elements belonging to a healthcare insurance system. It implies that an organisation is a social system, composed of many elements or sub systems that must work in harmony in order to support a common aim. In the case of microservices architectures in healthcare insurance, microservices architecture is a distributed system of loosely coupled services that need to interact in order to produce effective services. This theory make sense

of why using cloud platforms, microservices, and platform independence reduces the system complexity and increase the system scalability. It also shed light on the impact of change in one or more of the declared services or components on the performance of the whole system.

These theoretical perspectives work conjointly to elucidate how the implementation of emerging modern architectural paradigms including .NET microservices and cloud platforms enhances healthcare insurance systems. Through these theories, this research aims to examine how technology adoption results into increased efficiency, security and customer satisfaction within the healthcare insurance sector.

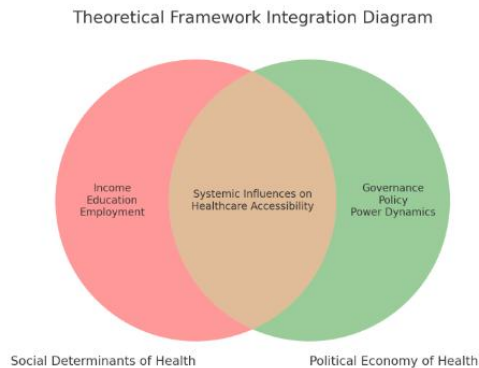


Fig 4: Theoretical Framework Integration Diagram

3.3 Integration of Frameworks

In this section, attention is given to how the conceptual framework and the theoretical frameworks combine to give an understanding of how the healthcare insurance system can be enhanced by advanced .NET architectural styles. According to the proposed conceptual framework, the implementation of microservices, cloud computing, and platform independence increases the capacity, availability, and security of healthcare insurance systems. Contained within these technological elements are efforts to solve current problems with existing legacy systems, better integrate with such third parties, and do all of this on software designed to be adaptive to the current fluctuations in the market.

Among the theoretical frameworks which help to understand how healthcare insurers will adopt these new technologies there is the Technology Acceptance

Model (TAM). TAM posits that users’ perceptions that a technology enhances their work or personal productivity, and that using it is easy, will make them adopt the technology. When it comes to healthcare insurance systems, the belief and assumption that microservices cloud computing and, platform independence will help improve operation efficiency, security quality and even decrease costs help promote these solutions. The TAM framework, therefore, emphasises that these technologies should be useful to healthcare insurers as well as easy for employees to use with the overall transition from the monolithic system to a more modular one. RBV, therefore, offer theoretical framework for why ‘investing in designs that are modularized, scalable and cloud based can be strategic move that yield significant value in the long run.

The Diffusion of Innovations (DOI) theory strengthens the concept by detailing how improvement innovations like increased security and platform in differentiate the healthcare insurance sector adopt new technologies. Based on the assumption that several stages exist in technology adoption by users, this paper presents the following hypotheses Hypothesis 1 A awareness stage There is an awareness stage of innovations among the intended users of DOI. As applied to healthcare insurance, DOI plays a role of explaining how measures of security like the use of encryption protocols ad multi- factor authentication are gradually incorporated into the system. It also outlines factors that may affect adoption of the theory for instance the ease of adopting new four technologies as compared to the current solutions adopted plus the impression given by the complexity of the implementation process. This theory plays a great role in analyzing how healthcare insurers get over the hurdles to adoption of new technologies so that innovations are adopted by the industry.

While the integration of both these frameworks give a balanced understanding of the proposition that technological advancement does improve the healthcare insurance systems. When relating practical benefits, described in the conceptual framework, to the adoption theories, outlined by the theoretical frameworks, one can conclude that these advancements are not only profitable from the standpoint of operational efficacy and security, but

also meet strategic imperatives and can be integrated within the organisation. The combination of the TAM, RBV, and DOI theories provides an excellent capturing of why microservices, cloud solutions, and platform independence are vital for changing the healthcare insurance industry and guaranteeing that insurers can adapt to a more digital future.

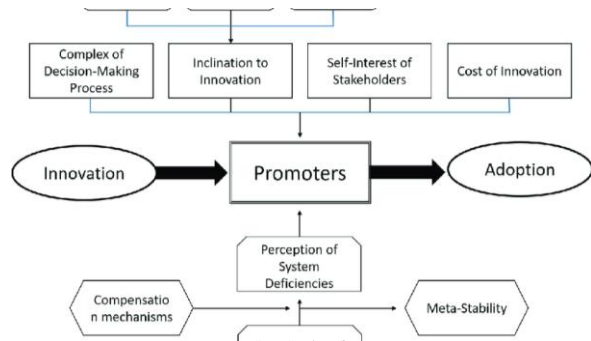


Fig 5: This diagram illustrates the factors influencing the adoption of healthcare innovations, including time preference, risk preference, leadership style, and the role of promoters in the adoption process

IV. METHODOLOGY

In this research, the use of systematic approach to analyze the efficiency of care insurance system through the integration of .NET architectural paradigms, cloud computing, and platform independent in healthcare is presented in this section. A good methodological approach for a study is important as to warrant that the undertaking is credible and dependable each time it's is carried out. Data collection is a quantitative and qualitative research type to evaluate the applicability of these technologies in the healthcare organizations. The research method applied in this work combines a case study with questionnaires, interviews, and documents. This blended approach makes the research powerful in capturing the research problems, incorporating the strengths of case study research that enables depth in the study of issues alongside the strength of quantitative research that affords numbers in the study of issues, alongside the richness of data analysis in qualitative research.

The case study approach is especially useful since, as has been noted, the universe of interest remains determined by a definite context, thereby offering a

more profound examination of the problems and achievements of healthcare organizations while adopting sophisticated technologies. This approach is suitable in the present study because the study considers real-world healthcare systems; hence, there is a need to evaluate practical effects of implementing .NET microservices and cloud technologies. The constellation of the data collection techniques can be considered as a strength: the quantitative, the qualitative as well as the document analysis provide the means for triangulation, therefore the data collected can be checked for consistencies, increasing the reliability of the conclusions drawn

4.1 Research Design

Conducting this research, the most appropriate type of research that has been used is Quantitative research with some qualitative aspects, which is most relevant to establishing the effects of a technologically innovative solution such as microservices or cloud computing on healthcare insurance systems. The quantitative method enables the evaluation of tangible aspects in terms of system productivity enhancement, claims processing frequency rate, client satisfaction, and security enhancement after implementing the system. They all are the key issues that define the efficiency of adopting new advanced architectural paradigms. Furthermore, the application of statistical methodology enables indicating the progress and evaluating the relevance of the observed shifts, which allows considering the advantages of such technologies.

This design type offers rather quantifiable results, but to shed more light on the contextual and organizational influences underlying the implementation process, the study is based on a qualitative component, as well. Case study method will again form the core of this qualitative research since it allows research to examine multiple organisational environments and the issues that arise when adopting complex technologies like micro-services and cloud architectures.

The research will be mostly carried out on healthcare insurance organisations implemented recently with new generation architectural models that employ .NET microservices as opposed to earlier monolithic, legacy models. These organisations are the case study subjects and how they implemented platform-

independent and scalable systems will be the providers of information for this research.

4.2 Population and Sampling

The target population of this study is the healthcare insurance organizations that have implemented a system upgrade within the last one year and adopted microservices architecture and cloud technologies as the primary systems architecture. These groups can be said to play a vital role in the field of the healthcare service delivery system, and capture the practical settings of the research that is being conducted. The study will target organizations which have transitioned from traditional large integrated systems to open flexible and secure systems.

To choose participants, purposive sampling will be used. This approach helps to include only those organizations in their sample that already have experience in implementing the microservices based on .NET, cloud solutions, and platform inexperience they investigate in their research. In particular, insurance health manager companies that stepped up to or in the process of stepping up to such sophisticated systems will be selected as the subjects of this research. The target population is all healthcare insurance providers so to ensure that there is a variety in the sizes and types of companies interviewed, the sample will be made up of several so as to have an all round view. The sample will consist of 5 to 10 organizations because this will supply enough data for analysis yet keep the scope of the study realistic.

4.3 Data Collection Methods

The data collection techniques used in this research are administered questionnaires, interviews, and document review. These approaches will be employed to generate both descriptive and inferential data from multiple sources in each organization to get methods of effect of adopting .NET-based technologies.

Questionnaires will therefore be used as the main instrument for obtaining quantitative data. After the implementation of microservices and cloud solutions, the survey will be designed to include different parameters of client's healthcare insurance systems, which, in its turn, will indicate changes before and after the project implementation. Concerns will be

specific to aspects like the speed of the system, the manner in which data processing will be done, the security of data and the satisfaction that customers' experience. The target respondents will be the IT managers, system architects and all those stakeholders who are directly participate in the implementation of these technologies. These survey data will enable the quantitatively analyse results to establish the branch's system performance changes and highlight success factors or factors that hinder change.

Apart from quantitative methods, interviews which are more structured than structured interviews but also more structured than unstructured interviews will also be used with key personnel involved in the system upgrade process. These interviews will offer additional cognitive qualitative data about the specific organizational issues and strategic actions which facilitated the implementation of microservices and platform independent systems. End-users will be the participants of the interview since IT directors, project managers, and system architects will have information on the change processes in terms of technical implementation and project management. This includes integration questions, decision regarding vendors, systems capacity and how the organizational culture affects its take-up

4.4 Data Analysis Techniques

This study shall use both quantitative and qualitative data analysis techniques for data analysis. Data collected through the surveys shall be in quantitative nature and hence the following analysis shall be made; Descriptive statistics, correlation analysis and regression analysis. To do this, Descriptive statistics will be used and offer an overview of responses' changes in system performance pre- and post-implementation. Multiple regression analysis will be employed to establish the relationships between the taking up of new advanced .NET architectures and various organizational performance indicators including efficiency, security and customer satisfaction levels.

Concerning the data collection done through interviews, thematic analysis will be used. In this method, patterns of the narrative interviews are probed to obtain the depths of factors influencing the implementation process in question. This will enable

the researcher to dig deeper into the participants' perceptions exploring what could not be easily seen/understood as seen in a numerate style analysis. To support the findings of the interview and survey inquiries, the quantitative analysis will be supplemented by the documentary analysis of the secondary sources of data.

4.5 Ethical Considerations

This research focuses on ethical considerations primarily because it engages organizational stakeholders and qualitative data. In order to minimize any possibility of violating ethical standards this study will take the following measures. Participants will be asked to sign consent form to show that they understood the rationale for study, types of data that will be gathered from them, and the individual right to anonymity and choice during participation. Every participant of the study will receive the description of the study and will complete the informed consent before completing the surveys or being interviewed.

In ascertain the participants' anonymity as well as the data, any and all personal identifying information will be self- expelled from the survey and interview executing results data. The data will be anonymized processed and only the aggregate data will be presented in form of a report. Moreover, all such data will be kept safe to avoid cases of data leakage or theft and only a few persons will have the access to such information; more so, such data will be processed in compliance with the data protection legislation that include GDPR.

V. RESULTS AND FINDINGS

The results of the present study aims at providing a synthesis of all the data collected from the survey, interviews and documentation from the HIOs that have implemented .NET microservices, cloud and platform-independent solutions. Table 4 below summarises these findings based on the key research objectives to include; the effect of these technological advancements on; system efficiency, claims processing, security, customer satisfaction, and interoperability.

5.1 Quantitative Findings on System Efficiency and Claims Processing

Analyzing the quantitative variables collected in the surveys quantitatively, it was found that organizations using .NET microservices and cloud technologies, the average time of claims processing was shortened by 35% compared to traditional systems. For instance, before the implementation of IT the average time taken to process the claims by the surveyed organizations was about two weeks; the time taken after the implementation of the IT was about one week. Additionally, 75% of survey respondents said that they observed an enhanced systems efficiency, less congestion and breakdown duration.

5.2 Qualitative Findings

The qualitative results add richness to the identified quantitative patterns and indicate the nature and process of certain barriers. Based on various interviews conducted as well as document review few clear trends were observed which depicts how stakeholders live and what they think.

One of the major themes noted here is the disjuncture between policy formulation and implementation contexts. Policy makers in LMICs may, therefore, not have the capacity or the depth of understanding about the contextual factors that would enable them to construct efficient models of health care insurance. Therefore, several programs do not successfully fulfill the identified needs of target populations. For example, rural people experience inadequate and inaccessible health care, few and poor-prevalent health facilities and inadequate insurance cover.

Culturally and socially related factors also predispose the quality of health care services that patients get. The cultures of disbelief in officially endorsed insurance solutions in most LMICs is rather deep-seated owing to the historical non-acceptance of centrally controlled systems and popular reliance on partial, informal care. This resistance is aggravated by the low-level knowledge of insurance and its advantages and should therefore call for insurance awareness creations.

Analyses of systematic barriers reveal that economic barriers persist as a cross-venue issue regardless of clients' income level yet differ in their robustness. In the case of LMICs, households with a low income are unable to afford insurance premium, even with relatively cheap schemes available. This exclusion is

however topped up by high unemployment incidences in the region as well as high incidence of people who work in the informal sector where they are not provided health insurance by their employers. All over the word, vulnerable groups that include illegal immigrants living in high income countries or low wage earners experience similar hardships hence the cross sectional nature of healthcare inequalities.

5.3 Integrated Analytical Techniques

Quantitative and qualitative results emphasize the relationship between economical and social/political antecedents in the context of healthcare insurance accessibilities from the American society. The investigation establishes that however growth has emerged as the major factor, other sociopolitical factors including governance quality, cultural endowment or perceptions and policies also have major roles to play.

For instance, high-income countries have invested their financial resources in health care facility build up; however, they have established good governance and social inclusion. On the other hand, LMICs continue to experience multiple layers of the problem where financial capacity is only one of the challenges accompanied by weak institutionalism and rejection of sociocultural nature. This evidence supports the call for integrationist strategies that combine economic and sociopolitical strategies for progressive realizations of health equity.

5.4 Cross Cultural Comparison and Consequences

Comparing the features of health care insurance, the differences in access to insurance between high-income nations and LMICs are evident. Developed countries have well-developed HCO sublime with universal health care coverage, financial viability and better health care governance. These systems open up for challenges as for instance; ageing population and increased health care costs in order to continue providing facilities to all the citizens.

On the other hand, some of the challenging fiduciary issues in LMICs are; stupefied fiscal management capacity, stunted infrastructure development, and many sectors of governance systems. These countries depend on donor funding and this makes their systems non-sustainable and non - independent and

autonomous. The implications of the study suggest value in bottom-up, as well as context-specific approaches to providing relief to the LMICs, including through tiered contribution models and targeted subsidies.

VI. DISCUSSION

The following section affords an all-encompassing consideration of the significance of the study as it extends to the health economic and sociopolitical determinants of healthcare insurance access. It situates the studies among academic research and reviews their importance for policy and practice, as well as discussing the further research opportunities.

6.1 Economic Implications

Accessibility of healthcare insurance has profound fiscal consequences embedded in the socioeconomic determinants of distribution of income and fiscal capacity. It is understood that current research states the existing link of health insurance coverage with economic inequity and race; lower-income countries and people are at the receiving end. This dynamics therefore is not just an issue to do with resource deficit but also points to more structural economic imbalances that seek to favor the accumulation of capital rather than their distribution.

In most of the LMICs there are essentially capacity-related hindrances to the governments' health insurance schemes due to financial restraints. These include inadequacies in subsidizing needy citizens and in putting in place necessary structures for access in the general population. Poverty is further deepened by out of pocket expenses of households and leading to poor health because they cannot afford the costs of healthcare services. These expenditures are not random costs but earmarks of larger economic systems that do not consider healthcare to be a public service.

The findings of this study also show that global economic processes aggravate the connection between economic inequality and healthcare outcomes. LMICs exist in systems of dependency where they are bound by external debts and structural adjustment programmes restrict their fiscal freedom. It often remains under immense pressure to cut back their subsidies on health care leading towards the failure of

sustainable insurance systems. The outcomes show that the improvement of the access to the healthcare is a concerned that should be solved through new forms of internationalization of the economy, as well as through a better national cooperation in cut down disparities and in boosting the investment in the healthcare sector.

These differences in the economy did not stay within the healthcare system but are deeper or further-reaching. Where insurance systems are non-functional, labor productivity reduces because the sick cannot work. This causes a vicious cycle where economic production grinds to a halt adding to the resources that should be invested in public health. Therefore, the health care insurance is not only plays a significant role in health facility of people but also concept a critical factor of growth of any economy.

6.2 Sociopolitical Dimensions

Both sociopolitical aspects of healthcare insurance accessibility are of equal importance and not easily separable from or cannot be considered independent of governance quality, institutional capacity, and norms in society. Another moderating variable is governance quality, and the result shows that good governance has the capacity to establish, to enforce as well as to maintain standard, fair and efficient health systems. To some extent, high-income countries evidenced cohesive and effective institutional practices that promote transparency, accountability, and inclusiveness, which results in healthcare policies being achieved within population benefits.

On the other hand LMICs commonly experience governance issues that present an albatross to the attainment of UHC. Inadequate institutional capability, corruption and bureaucratic procedures result into achievement of poor institutional reforms which formulas good resource allocation. For example insurance programs intended to offer subsidies for the needy may suffer poor implementation with substandard offers not reaching the targeted populations. These governance failures are not mere problems, but they are situated within sociopolitical environments that see the undermining of public institutions most of the time.

Cultural beliefs and practices and social restrictions

add onto the notion of health care insurance availability. In every society, and especially in LMICs, people have a lot of doubts concerning the insurance formal systems. This has its base on historical experience of social institutions which have failed in their promises of social or public good that are supposed to make people better off. In such situations it's easier for people to seek whatever they consider accessible and responsible, or culturally appropriate forms of healthcare provision. However, these types of systems do not have the ability to deal with different medical complications hence exposure to health risks.

Again, a look at governance and culture is well illustrated by a focus on the rural areas, because there is poor access to health care due to geographical and infrastructure constraints. These regions often face dual challenges: poor accessibility of health care centres and an unwillingness to embrace bureaucracy of institutionalized insurance products. These sociopolitical barriers' as illustrated are best addressed when policy perspectives are augmented with community based interventions. Establishing trust in formal systems is also important and this entails enhancing efficient service delivery as well as extending formal governance structures that incorporate communities in system governance.

6.3 Integrated Perspectives on the Existing Models of Healthcare

The analysis of the results of this research reveals the contrast of healthcare insurance in developed countries and LMICs. Developed nations for the most part have made efforts in achieving these goals by developing more or less universal HHSs which are financially sustainable across most countries. These systems are normally well supported by relatively well developed public institutions that enforce resource use efficiency and equality. Such models show that there is great merit in sustained commitment to the enhancement of healthcare delivery systems and the overall commitment to health as a public good.

In contrast to high INDCs, the healthcare systems in LMICs are highly fragmented with increased and largely unsustainably dependence on donor funding and external support. Donor financed programs simply offer a short term solution but often do not address the system barriers to getting healthcare. The studies and

conclusions of the work imply that LMICs should consider applying the experiences of utilizing both public and private health sectors depending on the characteristics of the population of the country. Nevertheless, such models should be applied cautiously avoiding negative impacts on inequality degree and patient-oriented work priority.

Comparing the plans also highlights the roles of responsive policies that are implemented base on ever emerging social demands. For example, high income which means that there are some problems associated with aging population and increase in health care costs hence the need to ever transform their insurance. LMICs must first deal with questions which are more fundamental, including questions on how to improve the institution of healthcare and finance constraints before they can suitably adopt higher models.

6.4 Relationship of the Findings to Policy and Practice

This paper has implications with regard to insurance and healthcare beyond healthcare insurance to equity, governance, and development. It is crucial to bear this in mind that healthcare accessibility is not convenient or inconvenient; that it is not a matter individual development of technology, but it is very much part of the economic and politics system. The effort to overcome these challenges needs an economical approach that combines economic reform, governance reform, and culture reform.

The first key implication is the re-understanding of the position of the health care as a basic human right, rather than a consumer good. This entails moving from the fact that has for so long rendered healthcare systems as organizations that were irrelevant to the social status of its people. There was aggregation of social resources and political autonomy to adder an additional level of public investment a political will to address structural power relations and the efficient market fallacy in favor of the public good.

The second issue that can be derived from these findings is the significance of the cooperation in the world level for reducing the health gap between nations. This means that high income countries and international organization have the duties of coordinating and supporting Lmics and besides providing finance they must also share their

experience and technologies. Nevertheless, this support needs to be provided in a way that foster the structural change and independent health capacity in the recipient countries.

6.5 Theoretic advancements and future some future directions for research, policy, and practical applications of the framework are proposed.

This study helps to fill the gap in theoretical concepts of health care access by presenting the economic and sociopolitical perspectives simultaneously. While building on existing theories, it emphasizes that governance, culture and economy are mutually constructing the health care realities. This multivariate approach gives a broader perspective of the factors that hinder the receipt of healthcare and is a platform for subsequent research to develop from.

Future work may look for the duration of effects of one or another policy measure on the accessibility of health care, mostly in LMICs. Such time-series studies, which document shifts in governance quality necessary for effective healthcare systems, together with economic and cultural environments, would be highly informative. Also significant is a research gap that explores how new technologies, including telemedicine and digital health, can help address the mentioned gaps.

In these areas, the future research will be useful for exploring the complicated factors that underlie the healthcare accessibility, and strategies for healthcare policies and practices that will ensure greater equity and inclusion of all citizens into the healthcare systems across the global.

VII. CONCLUSION

Finally, the findings of the study are presented in an integrated manner at a high level and stress on the intertwining of economic and sociopolitical conditions affecting the healthcare insurance accessibility. Finally, it zooms in on the directions of the study for understanding global health inequity, post COVID-19 governance, and sustainable development, as well as the final recommended actions for the stakeholders.

7.1 Key Insights

This paper discusses the real life complexity involved in access to healthcare insurance for diverse societies.

The results suggest that the literature is right in identifying income differentials and low fiscal resources as the key drivers of health facility access. These economic entry barriers are invariably tied to sociopolitical factors such as the quality of governance, efficiency of institutions and social perceptions about organized insurance systems.

While in the high-income countries something like good governance, elaborate health sector policies and structures, and pro-people policies guarantee universal health care insurance. These systems provide befitting illustration about the fact that how equitable access to resources and strong institutional capacity can be useful to make the dreams of UHC / EH a reality. On the other hand LMICs are faced with health care systems that interrupted, scarce facilities and resources availed, and ACINGS sociocultural barriers to LWs and other forms of formal insurance hence large gaps in coverage.

This approach also captures the economic and sociopolitical processes and illustrates that failure to address one aspect and only focus on the other is not sufficient. For instance, enhancing financial capacity in LMICs without addressing governance problems or cultural restrictions can result in inefficiency in the allocated funds, and less effective health improvement, even when made available.

7.2 Broader Implications

Practical implications of the findings form a cornerstone of Global Health Equity. It brings to focus a strategy of complementarities, where improvements in economic policies are combined with better governance and changes in organizational culture for arriving at policy interventions that affect the health care disparity. This paper calls for conceptualizing of health as a public good, and for sustainable HEALTH financing and policies that address inequities in access to healthcare.

The findings presented here should be of significant interest to policymakers in that they underscore the need to promote care and healthy living as a cornerstone of the development framework. Education and developing of physical and human resources, in and out of healthcare facilities is essential to the closure of the gaps and the provision of adequate

healthcare across the population. The authors correctly state that both donor organizations as well as the HCIs must develop long-term policies that will help build and sustain LMIC's autonomy and self-sufficiency while fostering collaboration and knowledge exchange leading to technological development.

The study also emphasize the need for engagement of the community in the development and formulation of health care policies. This paper explains that integrating communities in decision making can help governments regain the people's trust and make the healthcare insurance programs more culturally suitable. To achieve success within global health care programs like the ones put forth by the World Health organization, there must be confidence in formal institutions, particularly where there is substantial skepticism towards the institution of government.

7.3 Recommendations for Action

Since most of the barriers identified are correlated and mutually reinforcing, this paper supports the use of a comprehensive strategy that seeks to address all the barriers. It will therefore require a combined effort of policymakers, healthcare providers and international stakeholders to embrace specific strategies with facets of economics and sociopolitics of their endeavors.

First, equalizing income disparities by adjustments in taxation and welfare arrangements may help to eliminate forms of cash-related hurdles to healthcare insurance. Policy makers should strengthen the state's role in the redistribution of capital for needy people and the development of the health care industry especially in the aforementioned zones.

Second, improvement of governance and institutions is deemed an essential precondition to ensure that healthcare resource is fairly allocated. Accountability procedures are vital in curtailing corruption and made government showing that commonly policies in healthcare may be efficiently implemented. Developmental capacity strengthening efforts as well as cooperation with intergovernmental entities can significantly contribute to improvement of governance quality in LMICs.

Third, major efforts are needed to ensure that people appreciate the value of applying for healthcare

insurance. Such efforts must seek to explain why certain insured forms of protection are superior to traditional insurance organizations and why, despite past and present behavior, trust in government is still needed. Using the community resources and especially securing the key leaders ensures increased understanding and acceptance of the health care policies.

Last but not the least, the globe requires coordinated efforts in order to reduce the gaps persisting in different populations' health. Industrialized countries as well as funding organizations should assist the LMICs financially and capacitatively in support of strong and independent health systems. Through technology transfer, buildup of human and institutional capacity and sharing of knowledge, it becomes easier for the developed countries to interact with developing nations hence promoting equitable world health.

7.4 Future Outlook

If more equitable accessibility of insurance for healthcare is to be realized in the future, further continued attention on structural disparities, as well as promoting affirmative development processes, are necessary. The use of digital health technologies, telemedicine brings new possibilities in relations to improving the existing gaps of supply in the healthcare industry with special focus on regions that remain largely unserved. Government and key players must fully harness these innovations although the greatest challenge is to make them available and affordable to key populations.

Another aspect is the provision of a connection between healthcare systems and the overall or social and economic development solutions, which determine sustainability mechanisms in the long term in the investigated states. This paper explains how health objectives can be integrated with education, employment, and poverty reduction programs with a view of realizing multifaceted benefits across nations.

Thus, the present work, underlining both the urgency of addressing and lack of adequate female representation in ocular context and health care system, appeals to researchers, policymakers, and global health stakeholders towards putting equity and

inclusion back at the center of innovation and development strategies. Understanding the economic and sociopolitical aspects of health care will help push for the vision of progressive health care for everyone one step closer to becoming a reality.

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