THE ADOPTION OF ADVANCED HEALTHCARE TECHNOLOGIES IN PRIVATE HEALTHCARE INDUSTRY: CASE OF IHH HEALTHCARE BERHAD, MALAYSIA

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ABSTRACT

The Malaysian healthcare system emphasizes patient satisfaction and technological advancements to enhance treatment and operations. Despite progress, not all aspects are fully addressed. The study analyzes the role of technology and stakeholders in economic growth, constructing a research framework to understand theoretical perspectives and identify gaps in literature. A quantitative survey investigates challenges and opportunities in digital transformation, using positivism, a deductive approach, and an explanatory design. Random sampling minimizes biases, contributing to a comprehensive understanding of technology adaptation in Malaysia's healthcare sector.

1. Introduction

1.1 Introduction

The first chapter of the doctoral study consists of a basic introduction to the research topic, the background of the research along with the background of the company. IHH Healthcare although a popular organisation in the healthcare industry is dealing with certain issues related to the management of large patient populations. The main aim of the research is to identify challenges experienced by the organisation in the present market scenario, while further, its key objectives are listed in this chapter. The problem statement and the research questions are included, which helps in understanding the basis of the research.

1.2 Background of the research and company

IHH Healthcare, a leading private healthcare group based in Kuala Lumpur, operates extensively in the international market, including Greater China, Singapore, Turkey, India, and other regions. The organization, one of Asia's largest, employs around 65,000 people and manages multiple sub-brands like Acibadem, Parkway, IMU, Gleneagles, Pantai, Prince Court, Fortis, and Mount Elizabeth. Despite its robust international presence and consistent growth in healthcare technologies within the Malaysian sector, IHH Healthcare has struggled during the pandemic with resource shortages and the lack of advanced technological platforms. This has led to poor management of large patient volumes, a shortage of space and beds, and challenges in handling minor check-ups that could potentially be managed digitally (Fahami et al., 2019; Ihhhealthcare, 2022).

1.3 Significance and Scope of the study

This study examines the challenges and opportunities for IHH Healthcare in adopting advanced digital technologies, which are crucial for enhancing performance and managing a broad spectrum of patient needs. Despite being a prominent player in the Malaysian healthcare sector, IHH Healthcare has struggled with technological advancements, particularly highlighted during the pandemic when the lack of sufficient facilities and technology led to severe capacity issues and contributed to the country's mortality rates. The research aims to identify necessary technological improvements and strategies that could enable IHH Healthcare to effectively manage patient overflow and improve service delivery in today's digitally-driven environment.

1.4 Problem statement

IHH Healthcare, a private Malaysian healthcare group, faces significant challenges in integrating advanced technologies into its operations. The organization lacks both the necessary resources and expertise to implement technological changes, which critically impacted its performance during the pandemic. This limitation became evident as patients were forced to physically visit the facility to schedule appointments, complicating management during times of high patient influx. However, the market offers advanced technology applications that could enhance IHH Healthcare's capabilities. These applications feature integrated dashboard and appointment modules, inpatient management, and approval systems, allowing for online patient admission, schedule tracking, and updates on healthcare data. By adopting these technologies, IHH Healthcare could improve its efficiency and manage a larger patient population more effectively, even under challenging circumstances like a pandemic. This would also keep healthcare staff informed about industry changes and help prioritize critical appointments, streamlining operations and improving patient care.

1.5 Research objectives

The Main Objectives of the Research are:

- To analyse the method used by the Malaysian private healthcare industry for introducing hybrid healthcare solutions within the country.
- To identify the need for new and advanced technologies for improving patients' conditions within Malaysia
- To identify the requirement of new technologies within IHH Healthcare for solving the issues associated with large-scale populations.

1.6 Research questions

The research questions are:

- What are the methods considered by the Malaysian private healthcare industry to establish hybrid healthcare solutions?
- What is the extent to which the Malaysian healthcare sector requires advanced technologies in enhancing patient outcomes within the country?

- How new tools and technologies can be used within IHH Healthcare processes for mitigating the challenges associated with large-scale populations?

1.7 Technological Innovations and Challenges in IHH Healthcare's Operations

Digital technologies and Big Data play crucial roles in the healthcare sector, offering significant advantages such as improved patient care and operational efficiency. Employees utilize mobile apps and IT technologies to collect patient data, while doctors leverage artificial intelligence to enhance healthcare services and potentially address complex diseases in the future. Wearable devices and AI are increasingly integrated to monitor health metrics and expand care to a larger population. Big Data, on the other hand, helps reduce costs, enables real-time care, and provides critical clinical insights by aggregating and analyzing vast amounts of patient data, thus aiding in the prevention of medication errors and preparation for future healthcare challenges.

However, the study examining IHH Healthcare's integration of these technologies reveals significant limitations, including a lack of detailed implementation strategies and an oversight of potential challenges that might arise during technology adoption. The research primarily focuses on technological solutions without considering other viable options, thus not fully addressing the breadth of potential improvements. The first chapter of the study provides an overview of IHH Healthcare, highlighting its popularity and the challenges it faces due to inadequate technological resources, despite the Malaysian healthcare industry's advancements in adopting new, automated technologies. This background sets the stage for understanding the organization's specific issues and the industry's efforts towards technological transformation.

2. Literature Review

2.1 Introduction

Analysis of the healthcare industry is done with the aim of understanding its growth in different geographical locations. In this regard, the sector's economic ground and managerial role are highlighted. The current scenario of medical background depends on advanced technologies and replaces traditional tools. Based on the health issues, the technologies are applied to the patients. The importance of strategies, resource planning, and healthcare infrastructure are described. The research aims to analyse the growth of the healthcare industry in regional, global, and Malaysia. A research framework is developed to understand the relationship between independent and dependent variables.

2.2 Literature from a global perspective

Advanced medical technologies have greatly enhanced patient outcomes and propelled innovation within the healthcare sector. Technologies such as Virtual Reality, Artificial Intelligence, telemedicine, robotic surgery, and mRNA technology are now central to modern medical practices, pushing the boundaries of what can be achieved in patient care. Alongside historical advancements like germ theory and gene therapy, these technologies are being increasingly adopted to improve health outcomes within set timeframes. Investment in healthcare innovation has been boosted significantly, as healthcare leaders have successfully advocated for increased government funding, enabling further development and application of these transformative technologies.

On the operational side, healthcare institutions have implemented strategic resource planning to improve health outcomes. This includes the careful recruitment of skilled doctors and nurses, and the procurement of advanced medical technologies through substantial investment. Strategies such as cost reduction and enhanced inventory management are employed to ensure financial sustainability, while telehealth has emerged as a critical service, allowing patients to consult with doctors remotely, thus overcoming geographic and mobility barriers. Effective use of the internet and technology infrastructure has been crucial in maintaining communication and improving the quality of healthcare services during crises such as the COVID-19 pandemic. This integrated approach in resource management and infrastructure development has not only improved health services but also strengthened the doctor-patient relationship, contributing to better overall patient experiences and outcomes.

2.3 Literature on the regional perspective

In Southeast Asia, the healthcare sector heavily relies on advanced technologies like Artificial Intelligence, robotics, and automation to address various health issues. Telemedicine has become particularly significant, with around 70% of the population in regions like Indonesia and Vietnam using mobile applications to access healthcare services. This digital approach not only facilitates easier communication between patients and healthcare providers but also helps in building stronger doctor-patient relationships.

Resource planning within the healthcare industry of Southeast Asia involves strategic deployment of advanced technologies and innovation to enhance patient experiences and outcomes. Significant investments are made to integrate these technologies, which in turn helps in improving the efficiency and reputation of healthcare services in the region. Moreover, the adoption of health insurance schemes has been encouraged to mitigate economic pressures on patients, allowing for better management of healthcare costs and enhancing overall service accessibility.

However, the healthcare infrastructure faces challenges, notably the shortage of trained medical professionals, which impacts the quality of care provided. Governments are thus prompted to invest in training for doctors, nurses, and caregivers to elevate the standard of care. Additionally, while insurance plays a crucial role in healthcare accessibility, its absence can negatively affect the healthcare sector's image and financial sustainability, highlighting the need for comprehensive support systems that alleviate economic burdens on patients and improve the healthcare infrastructure across Southeast Asia.

2.4 Literature on Malaysia's perspectives

In Malaysia, advanced medical technologies significantly enhance patient outcomes and the accessibility of healthcare services. Communication technologies such as telemedicine allow patients to interact with doctors through online platforms and social media, improving service speed and effectiveness for common ailments. Innovations like frugal technology make healthcare more affordable, particularly for underserved populations, while advanced diagnostic tools like CT scans and MRI machines enhance disease diagnosis. The Malaysian healthcare system also focuses on innovative surgical technologies and data management to improve treatments, particularly in specialized areas like elective neurosurgery.

Resource management and infrastructure development are critical strategies for advancing healthcare services in Malaysia. During the pandemic, the healthcare system faced significant challenges, leading to strategic enhancements such as expanding the healthcare team

and increasing hospital resources like beds and specialized staff to manage critical care efficiently. Network data analysis and Data Envelopment Analysis are employed to optimize decision-making and financial management within healthcare institutions. Additionally, social media is increasingly used by hospitals to gauge patient satisfaction and adjust services accordingly. Efforts are also made to accommodate foreign patients by addressing language and cultural barriers, improving the financing of healthcare infrastructure, and fostering collaborations between private and public sectors to enhance service quality and financial sustainability.

2.5 Literature Gap

The research on the healthcare industry has outlined its performance within Malaysia. The analysis has not highlighted the growth of economic ground within this sector. Based on the former research, it can be underlined that the infrastructure of the healthcare industry is advanced enough within Thailand and Singapore. The governments of these countries have invested a higher amount in the technologies and thus, all advanced services are undertaken. On the contrary, the Malaysian healthcare sector becomes unable to raise the funds from the local authorities. This problem has been reflected negatively on economic growth and technology. In order to resolve this economic issue, the management needs to analyse the business strategies of Singapore and Thailand.

Another problem that is found within the healthcare sector of Malaysia is its poor infrastructure of medical aid. Advanced medical aids and technical tools are not present within the companies and resultantly, prompt treatment cannot be provided. It can be stated from the observation that the healthcare sector of Malaysia becomes unable to raise the funds. Due to poor performance, the management of this industry cannot raise the GDP. The leaders need to analyse the performance reports of Singapore and Thailand so that the best services can be understood. As a consequence, the best treatment and services can be delivered from the industry's end.

2.6 Identification of research gap

Current research on the healthcare sector of Malaysia has not analysed the performance of managers and doctors. They have performed a valuable role in controlling the technologies and treatment. Therefore, the patients can get the best treatment and thus, the death rates can be lowered. Avoidance of this information within the research has lowered its quality. In order to raise the quality of the research paper, interest needs to be placed on managers and doctors. Moreover, all details of the technologies and medical tools are not described.

2.7 Conceptual framework

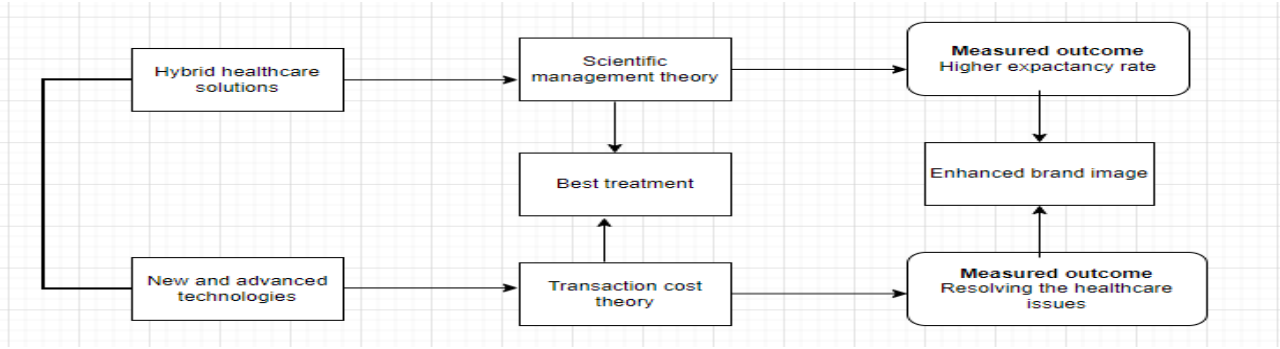

Figure 2.14: Research framework

(Source: Self-developed)

2.8 Chapter Summary

The healthcare industry of Malaysia is a developing one and currently incorporates advanced technologies. This section of research analyses the growth of the healthcare sector in a global manner. In addition to this, the performance of this industry in Malaysia and Southeast Asia is described as well. It is highlighted that the common healthcare strategies and technological management, cost reduction, and innovation. Health insurance has played a valuable role as it lowers the economic pressure on patients and their families. It can be summarized that the infrastructure of the healthcare industry is more advanced in Thailand and Singapore. Thus, the Malaysian government needs to consider the performance reports of advanced healthcare technologies.

3. Research Model and Hypotheses

The research methodology employed in this study focuses on a systematic approach to collect, organize, and analyze data through primary quantitative methods, primarily using SPSS for statistical analysis. The research adopts a deductive approach to explore the relationship between advanced technologies and patient satisfaction within the Malaysian healthcare system, guided by the principles of Positivism to ensure objective and reliable data collection. The explanatory research design facilitates a deep understanding of the impacts of technology on healthcare, allowing predictions and deeper insights into future phenomena and the current state of healthcare enhancements.

Data were primarily collected through a close-ended questionnaire, supplemented by some open-ended interview questions, focusing on the use of technology in healthcare settings. A significant portion of the research also involves regression and T-test analyses to understand the relationships and impacts of technological advancements on patient outcomes. The study's ethical considerations ensure participant anonymity and data confidentiality, upholding the integrity of the research process. The random sampling method was used to handle the large sample size efficiently, selecting 152 responses out of 200 potential participants to generalize the findings about the impact of technology on the Malaysian healthcare system. This approach not only highlights the technological advancements but also the strategic resource planning and infrastructure adjustments made to accommodate and enhance patient care during critical times, like the COVID-19 pandemic.

4. Methodology

4.1 Methods to analyse the data and use of statistical tools

i. Age-frequency
ii. Gender frequency
iii. IHH Healthcare and their growth assessments
iv. Responses for robotic surgery and its growth
v. Responses regarding AI in healthcare
vi. Responses regarding Telehealth for positive communications
vii. Responses regarding digital therapeutic interactive programme
viii. Responses regarding inclusion of therapeutic radiology in IHH Healthcare
ix. Responses towards Southeast Asia and technological advancements
x. Responses regarding price to include advanced technology in healthcare

4.2 Data analysis

4.2.1 Analysis for Primary Quantitative data (SPSS analysis)

Age-frequency

Based on data showing entire participants up to *152* where no data has been missing and the way of understanding its possibilities for analysing its further assessments. Table 4.3.2 has been showing *age frequency* where three age groups have been mentioned such as ***25-30, 30-35 and 35-40 years*** as well. Other values have explained ***38.6% for 25-30 years, 41.2% for 30-35 years and 20.3% for 35-40 years*** as well. Apart from that, *cumulative data* has included their individual values with *38.6 for* ***25-30, 79.7 for 30-35*** and *100.0 for* ***35-40 years*** for portraying the frequencies as well.

Gender frequency

Based on data showing *gender frequencies* with *152 participants* along with differentiating between male and female along with others such as responses from transpersons as well. Information has explained with *84% frequency from* ***females, 33% frequency from males and 36% from others*** as well. Apart from that, *female responses* have included up to ***54.9%, male responses*** have included up to *21.6%* and *23.5%* have been accumulated from others onwards. On the other hand, *cumulative percentage* has included their values up to *54.9%* from *females, 76.5% from males* and *100.0* from others.

Descriptive statistical analysis

Based on data showing ***descriptive analysis*** with three major statistical factors such as ***mean, standard deviation and sample numbers.*** On the other hand, ***mean value*** has been denoted for ***dependent variables*** up to ***±2.5817*** along with ***independent variables*** such as ***±2.4510, ±2.5752, ±2.5686, ±2.4052, ±2.5359 and ±2.3725*** as well. On the other hand, ***standard deviation*** has been included with ***1.36504 for dependent variable*** and ***independent variables*** have denoted up to ***1.36662, 1.40812, 1.36094, 1.27959, 1.44197*** and ***1.47738*** onwards.

Correlation for Linear regression

Based on data showing ***correlation for linear regression*** where it has been showing ***Pearson correlation*** and ***Sig. (1-tailed)*** for explaining relation between those variables. Specific formation has identified the values with ***1.000*** between dependent variables along with ***.285*** for ***first independent variable, .335*** for ***second independent variable, .458*** for ***third independent variable*** and ***.237, .349 and .270*** for rest of the independent variables as well. ***Sig. (1-tailed)*** has explained its values up to ***.349*** for ***dependent variables*** along with ***.414 for first independent variable, .485 for second independent variable, and .377 for third independent variable.*** Rest of the values such as ***.309, 1.000, and .452*** have explained the independent variables as well.

Analysis of entire summary

Based on data been showing a model of summary analysis along with developing concepts and ideas and the process of understanding their values. Data set has been showing ***dependent and independent variables*** along with ***R value*** up to ***.518[a], R Square*** value up to ***.268*** and ***Adjusted R Square value*** up to ***.238.*** On the other hand, partial values have included ***Std. Error of the Estimate*** up to ***1.19136, R Square Change*** up to ***.268, F Change*** up to ***8.925, df1*** has been ***6*** and ***df2*** has been up to ***146*** as well. Apart from that, ***Sig. F Change*** has explained up to ***.000*** along with ***Durbin-Watson*** up to ***2.091*** as well.

ANOVA analysis

Based on data has been showing ***ANOVA analysis*** along with ***Regression analysis*** and ***Residual*** analysis as well. On the other hand, ***Sum of Squares*** has been denoted up to ***Regression*** has portrayed different values such as ***76.004 for Sum of Squares, 6 for df, 12.667 for the Mean square*** and ***8.925 for F*** along with ***.000[b]*** onwards.

Coefficient correlation

Based on data has been explaining ***coefficient correlation*** with ***relationship between two variances*** along with understanding its distribution onwards. Apart from that, values have been connected to ***1.000 for dependent variables, .043, -.217, -.130, -.098 and -.284*** for understanding their distribution onwards. Apart from that, it has been associated with ***.000 form dependent variables, .007, -.001, -.002, .000*** and ***-.002*** and ***-1.592E-005*** for measuring covariances. Hence, both the ***correlations and covariances*** have been measured by developing key values and the way to make changes as per the requirements as well. On the other hand, it has been associated with ***digital therapy*** as the way of analysing another independent variable and the way to measure its values. Values have explained with ***-.002, -.002, -1.592E-005, -.001, -.002 and .007*** for analysing its key points. On the other hand, it has been associated with ***-.001, .000, -.002, -.001, .007 and -.002*** for ***AI implementation*** and the core analysis for deriving its correlation with dependent variables.

Residual statistical analysis

Based on data has been showing ***residual statistical analysis*** along with understanding of their values and ideas to meet key objectives and its associated ideas onwards. Apart from that, all the values have been denoted with different analytical factors such as ***Minimum, Maximum, Mean, and Std. Deviation*** onwards. Apart from that, ***Predicted Value*** has explained up to ***1.5202, 1.5202, 2.5817, and .70713*** along with ***-2.54778, 2.52448, .00000, and 1.16761*** for justifying ***residual value*** as well.

One-sample T-test

Based on data has been showing ***one-tailed T-test*** along with covering its values and analysis regarding ***healthcare sectors*** in innovative programmes in ***Malaysia.*** Values have been explained with ***Mean, Std. Deviation and Std. Error Mean*** with focusing on ***three***

individual independent variables. However, first independent variable has displayed ***mean values*** up to ***±2.2288, ±2.5359 and ±2.3464*** along with ***Std. Deviation*** up to ***1.37324, 1.32534*** and ***1.44197*** as well. On the other hand, ***Std. Error Mean*** has been associated with ***.11102, .10715, and .11658*** as well.

One sample T-test with factor analysis

Based on data has been denoting ***one sample T-test with factor analysis*** and the way to describe independent variables along with innovative programmes as well. On the other hand, values have been explained with ***t-values*** of ***21.135, 20.801 and 21.753*** along with ***df values*** of ***152, 152 and 152*** onwards. Apart from that, it has again explained its values with ***Sig. (2-tailed)*** up to ***.000, .000 and .000*** as well. On the other hand, it has denoted values with ***Mean Differences*** up to ***2.34641, 2.22876 and 2.53595*** along with ***95% Confidence Interval of the Difference*** as well. Therefore, it has been showing multiple ranges such as ***Lower values*** with ***2.1271, 2.0171 and 2.3056*** along with ***upper values*** such as ***2.5657, 2.4404 and 2.7663*** onwards. Hence, factors analysis has strictly and prominently explained its narration with significant values and the way to support ***two-tailed T-test analysis*** onwards.

4.2.2 Analysis for Primary Qualitative data (Interview transcription)

Familiarising of data

Data has to be familiarised in terms of understanding its description and justifications for analysing ideas and values related to healthcare sectors. Shahzad et al. (2019) have nurtured their ideas and possibilities for narrating empirical justifications for portraying healthcare systems. ***Three IHH Healthcare researchers*** have been denoted for interviewing and the way of its clarification regarding healthcare systems. On the other hand, data has to be scattered and it has been needed to focus on different perspectives as well.

i. ***Status of the healthcare sector in Southeast Asia***

Status of healthcare systems has to be explained by analysing included ideas and values and the way for merging the process of analysis. Rajmohan & Johar (2020) have included new strategies and ideas for understanding each factor and the way for making changes within the systems. Apart from that, ***Researcher 1*** has explained the process of technical developments within healthcare systems and the way it has been diffused in different countries. On the other hand, it has explained their perspectives for understanding definite factors and ways of expansion within ***Japan*** as well.

Researcher 2 has explained digital services within diagnostic centres as the way of penetrating for ***market in Southeast Asia.*** On the other hand, it has explained their assessments for good performance maintenance in the healthcare sectors as well.

Researcher 3 has identified proceed its explanation regarding ***lack of appropriate digital technologies in Southeast Asia*** along with inabilities. Major inabilities have included the process of meeting medical requirements in healthcare activities and are mostly found in ***Southeast Asia*** onwards.

ii. ***The advanced technologies that can influence the patient outcomes***

Researcher 1 has explained their ideas for understanding ***telecommunications*** as the suitable way for analysing the best technology within the healthcare sectors. Tan et al. (2019) have nurtured issues and factors connected to healthcare systems and proper way of its development. Hence, advanced technology has the probability of incorporating new ideas and ways for basic analysis onwards.

Researcher 2 has explained its values and proportionate ideas for clarifying different factors and the way to focus on nursing institutes. On the other hand, ***booking and online medical care*** have been followed for identifying key issues and the way for making changes within their aspects as well.

Researcher 3 has explained ***social media perceptions*** and the way their analysis is connected to the most affected tools in their perceptions. On the other hand, it has been associated with identifying possibilities for healthcare sectors and their patient outcomes and the way researchers have assimilated their strategies.

iii. ***The strategies that can be adopted for proper resource planning***

Researcher 1 has explained their perspectives for understanding the situations within hospitals as well. On the other hand, it has been associated with the process of hiring trained doctors and the way to make changes in their systems.

Researcher 2 has ventilated their ideas by explaining proper healthcare services and cultures and the way to make changes in their assessments. On the other hand, ***proper workplace culture and appropriate objectives*** have been denoted as the suitable way to justify their strategies and associated justifications.

Researcher 3 has included its perceptions and specific explanations regarding new diagnostic styles along with new treatment styles. On the other hand, it has explained resource planning as one of the better ways to support healthcare systems in Malaysia.

Data familiarisation has been one of the specific ways for clarifying their different perceptions within arguing within the procedures. On the other hand, ***three researchers in Malaysian contexts*** have developed their justifications towards the growth of healthcare systems by incorporating digital technologies onwards.

Derivation of essential codes

Codes have been derived depending on the transcription and the ways for analysing its additional concepts and process of explaining conflicts within the information.

4.3 Findings from the analysis

Insufficient resources

In Malaysia, it has been seen the country is well-developed and well-known for its medical facilities, which has been seen from analysis. In Malaysia, advanced technology such as robotic surgery, mRNA technology, Artificial Intelligence, Telehealth, and therapeutic radiology, has been seen to be incorporated into the healthcare industry of Malaysia (Hussein et al. 2019). The company IHH Healthcare has been seen trying to provide extraordinary benefits to healthcare facilities with all the above-mentioned technologies in the hospitals.

The report has demonstrated there are only 40% of vaccines that till now made without this technology. Even in Malaysia they also make vaccines for Covid-19 with this technology. However, there are certain challenges have also been seen to be enhanced in the use of mRNA technology due to the lack of proper knowledge of people on genetics, and even on the implementation of this technology in the organisation. As per the view of Wong et al. (2022), poor knowledge of this technology and a lack of confidence have been seen among people. This article also revealed that only 15.7% are extremely wiling and 38.9% are somewhat willing to ensure to take vaccines with this technology. Therefore, inefficiencies of knowledge have been seen to be enhanced.

The finding has also suggested the areas of therapeutic radiology, which helps to impose a great health potential to the individual. In Malaysia Isotope therapeutic radiology has been followed, which has seen to enhanced in the organisation for enhanced technological inclusion. In Malaysia, therapeutic radiology has been seen to be enhanced in the organisation for the development of medical technology growth in the organisation. It has been seen in IHH Healthcare they also have emerged the interventional therapeutic radiology in the organisation for the measurements of skeletal conditions (Khan et al. 2021). On the other hand, the healthcare system has included innovative sub-technology under radiology, which helps to enhance the organisational system with the development of extra growth potential.

The analysis has shown the challenges of maintaining Artificial Intelligence in health sectors is the biggest challenge that enhances the lack of maintenance in Artificial Intelligence. In IHH Healthcare there is lack of expertise, who has maintained the organisation with the development of financial incapability in the hospital systems (Mubarak et al. 2021). Therefore, it has been financial and people inefficiencies have been seen to be imposed in the organisation. In addition, trust deficit issues have also been seen in IHH Healthcare, which reduces the technological competencies in the organisation.

Insufficient infrastructure planning

The areas of infrastructure planning also get affected in the field of advanced medical technology in hospital settings. Therefore, the medical infrastructure in Malaysia has been seen to be enhanced with the development of information technology incorporation. The medical infrastructure in Malaysia fails to provide facilities of extraordinary services to patients. Even they have enhanced the system's technological implementation in the organisation with the development of beneficiary control (AlHamad et al. 2022). In some cases, the infrastructure of IHH Healthcare faces a lack of organisational resources and proper management that can bring healthcare potential to the organization with the development of conflict management in the organization.

The findings also suggest around 34% of people agree with the statements that the price is the obstruction that reduces the incorporation of advanced technology in the organisation. Contrarily, around 29% people agree with the statement. Therefore, it has been infrastructure planning in advanced medical technology gets obstructed with the development of financial problem. It has also been seen from the cost report in the Malaysia healthcare system around to enhance in the organisational perspectives of around to 5.02% in the organizations (Alam & Murad, 2020). Therefore, the enhanced of extra cost inhibit the healthcare settings in proper infrastructure planning. On the other hand, it has also been seen the organisation helps to enhance the growth of the organisation to reduce the functional effectiveness of the hospitals. Moreover, it has also been seen to enhance the organisation lack of proper stakeholders in the organisation to reduce the conflict management system in the organisation.

Problem with budget allocation

On the other hand, the organisation incorporates all the technologies; however, lack of expertise and lack of proper management of budget reduce the system of growth potential in the organisation to develop the organisational development. Therefore, the budget conflicts for the development of healthcare transformation in the organisation. It has also been seen in being a developing country Malaysia have reduced the workforce if they have faced the problem in budget (Cham et al. 2021). On the other hand, it has also been sot developed the organizational features to attract more monetary growth in the organisation. Therefore, it has been seen the budget allocation get affected by cost enhancements of healthcare sectors.

On the contrary, after the pandemic in IHH Healthcare the price of services and products has been increased as the transportation of equipment gets affects with new facilities and regulation in the hospital sectors. Therefore, it has been seen the organisation seen to be enhanced the procedures of budget conflicts in the organisation. According to the 2021 report, the healthcare services in Malaysia have changed on to the wellness services. This also change some features of healthcare services in the organization with the development of budget conflicts in the organisation (Naseri, 2021). Therefore, the findings have suggested the IHH Healthcare system have faced lack of organizational growth with the development of conflicts along with the system of inferential expertise lack in the organisation.

Status of healthcare sectors in Southeast Asia

The healthcare sectors in Southeast Asia are seems to be vulnerable, which imposes a great threat on the heath issues in the organisation. It has been seen the organizations and healthcare sectors of Southeast Asia face great issues in certain areas of medical field. It has been seen the organizations of healthcare sectors provide the opportunities for the areas of development though there is some obstruction that inhabit the growth of healthcare sectors in Southeast Asia (Alzoubi et al. 2022). It is the development of inferential features in the healthcare sectors. According to the report it has been seen from the answer of interviewee some areas of Southeast Asia have stated to be enhanced the updated healthcare system with digital incorporation though some areas face some certain issues (Qureshi et al. 2020). For example, the first interviewee has stated that Japan has to be incorporates some latest technologies and skills in the healthcare sector to make it digitalized.

In addition, the interviewee has stated the services of digital diagnosis in some areas of Southeast Asia are still the topic of controversy, which has reduced the effectiveness of the healthcare system in the region (Ghazal et al. 2021). In contrast with the above interviewee the other interviewee has stated unable to meet the basic requirements in medical sectors the organisation also imposed some issues of digital technologies and tee glitches has seen to be enhanced the organization with the development of complexities in technological infrastructures for the healthcare systems.

Advanced technologies influencing the patient outcomes.

Advanced technologies have significant roles in all industries as well as in the improvement of the healthcare sector. The implementation of new technology is important for improving the patient care and the industry is trying to include new technologies to continue growth in a consistent manner. For example, Artificial Intelligence is focused on taking clinical decision support while uncovering useful insights from large data sets of patients. This technology is crucial for turning huge data sets into electronic records, images, notes, devices, and sensors in terms of finding trends in improving patient care (Alsabeeha et al. 2023). On the other hand, Blockchain technology plays a key role by offering a user-centred way for health information to be verified, gathered, and shared. This advanced technology is implemented to safeguard and anonymize patient data while maintaining interoperability and transparency in the highly fragmented healthcare sector.

Apart from Blockchain and Artificial Intelligence, Cloud Computing is an essential technology for increasing the success rate in patient care. This modern technology is crucial in suggesting treatment processes and tactics from the previously solved medical case as well as determining the success rate in medical science. Particularly, the hybrid cloud environment can make compliance with other regulations and HIPAA for retaining flexibility to the usage of collected patient data (Garcia et al. 2019). Moreover, a healthcare institute can adopt cloud computing technology to open up opportunities to use Machine Learning and Artificial Intelligence tools. The technologies are very much influential to reduce medical errors that are directly related to patient outcomes. The biometric patient

identification tool identifies the care continuum such as the prevention of duplicate medical files, medical errors, patient mix-ups and more. A patient data management system is used for gathering data and monitoring the health condition of the patients, resulting in better patient conditions.

Strategies for proper resource planning in medical sectors

Strategy planning practice in the system of healthcare organisation has seems to be defined as the process involves in the creation of goals and objectives for the long-term growth and success in the organisation. It has been the organisation is set up the strategies to obtain the most effective approach in the health care settings of the organization (Othman et al. 2020). On the other hand, it has been seen the single projects and reflective work to be enhanced with the development of healthcare sectors in the organisation. The resource planning or the strategy planning in the medical sectors also associated with the development of all amenities that can beneficial for the patients.

According to the interviewee's, incorporation of more doctors or medical practitioners help to enhance the effectiveness of healthcare settings. Therefore, it has been seen the organisation must take the benefits of hierarchy planning with personnel incorporation in the organisation. It also helps to develop the benefits of new ideas and decision making in the organization, which has also helped to develop the personnel management. In addition, the other interviews have also stated proper workplace culture with personnel management has been seen as the development of resource planning in the health care sector's organisation (Alsabeeha et al. 2023). Moreover, they also suggest the new systems of diagnosis may be beneficial for the incorporation of resource incorporation for latest technology in the organisation.

4.4 Summary of Chapter 4

The healthcare sector has focused on integrating advanced technology in order to survive in Industry 4.0. However, the industry of Malaysia often faces several challenges in the process. The sector has faced the prominent issue related to privacy and security, in order to provide improved patient, care they faced challenges related to managing the data and integration with the appropriate processes. Despite taking a digital healthcare strategy, business organizations within the sector face challenges related to interoperability. In addition to that, the cost of advanced technology has affected business entities. The lack of technical knowledge of the employees also contributes to the problem.

5. Data Analysis and Results

5.1 Summary of all chapters

IHH Healthcare Berhad is one of the famous names in the healthcare industry of Malaysia which aims to provide the utmost healthcare services to all its customers to maintain their satisfaction. The contemporary issue of this healthcare business is the incapability of dealing with threatening challenges while implementing updated technologies within the workplace. In the present day, the implication of digital technologies such as Big Data and Artificial Intelligence plays a vital role in developing the real growth of a business and meeting the needs as well as expectations of consumers. This present discussion aims to identify and evaluate every challenge encountered by IHH Healthcare within the healthcare market of Malaysia.

In the very beginning, some significant objectives have been projected in order to proceed with further discussion such as probing potential methods that the Malaysian healthcare industry is utilising to implicate hybrid business solutions. Besides this, the necessity of updated technologies within the business environment in order to develop the conditions of patients has also been evaluated clearly in the discussion of previous chapters. The utilisation of Big Data in the hospitals of Malaysia allows every business healthcare organisation in reducing the overall cost and deal with potential real-time care for patients.

On the other hand, the installation of digital technologies plays an inevitable role in managing inventory and reducing operational costs for the service providers of medical units. The urge for technological updating has become more urgent after the threatening impacts of the pandemic era. A better medical care along with low costs regarding wellness services and minimising management errors can be achieved by the utilisation of advanced technologies in medical care businesses. Information systems within the industry can also be developed with the assistance of different information technologies such as *EHRs or "electronic health records"*, *e-prescribing*, and *PHRs or "personal health records"* (Lee et al. 2022). The personal details of every patient can be recorded with the help of PHR and this mentioned technology is also capable of protecting all this information. Besides this, patients can also enhance their adaptability to the use of technologies while gathering virtual information regarding their visits to hospitals in Malaysia.

In order to enhance the authenticity of the entire discussion a detailed survey has been done where a total number of 152 participants were asked to share their views regarding the implementation of advanced technologies in the Malaysian healthcare sector. Most of the participants have agreed that updated technological facilities should be developed within the medical businesses in order to assure advancement in operational dimensions. They have also shared their views that in the contemporary era, technological implementation is necessary for increasing the rate of productivity of businesses and therefore, advanced medical technologies should be implemented within the hospitals.

5.2 Linking with objectives

Objective 1: The procedures for evaluating potential methods in the private healthcare industry of Malaysia while implicating hybrid working solutions within the workplace

The business authority of the medical sector in Malaysia is concentrating on developing the entire business performance in order to maintain the overall fame of their organisations within the marketplace. Intending to provide satisfactory services to all the existing consumers and attract new groups at the same time the implementation of updated technologies is one of the best ways (Wong et al. 2020). This procedure is the method of building a strong connection with customers along with maximising the overall margin of organisational revenue. In every country, the healthcare business plays a vital role in managing the wellness of residents by reducing the overall death rate and offering them better medical services.

On the contrary of these benefits, in some cases, both healthcare employees, as well as consumers, deal with challenges due to the lack of skills in using technical tools. Therefore, potential training sessions should be offered by the leaders of medical firms to their employees so that they can develop their understanding of using technical instruments (Dang et al. 2021). In Malaysia, there are several skilled leaders such as Kelvin Loh, Stephen Byrne, Angela Ryan, and Tahsin Güney in the healthcare sector. In order to develop the procedure of consumer management experiences of these leaders can be evaluated within expanding businesses.

Objective 2: Identification of actual needs for advanced and new technologies in the healthcare industry of Malaysia in order to improve patients' condition

The main aim of adopting technological development within business places is to enhance support to patients, keep the details of customers secured so that no harm can be brought upon them, and increase the annual revenue at the same time. In the present era, the implication of potential technologies such as Artificial Intelligence, Blockchain, Cloud Computing, algorithms, and other devices is significantly advancing the outcomes of Malaysian medical services and increasing the overall growth of the industry as well. Innovative tech upgradation is evolving brand reputation and consumers' loyalty in a significant manner (Bamgbade et al. 2022). On the other hand, this mentioned practice is also helping managers and health workers to identify issues both within the organisation and among patients.

The procedure of identifying the core health issues of consumers is capable of providing them with consequential care as per the needs of their health and thus, brings faster growth of business as well as the company. While identifying the actual and chronic health issues of patients Internet of Things and Artificial Intelligence are playing one of the most important roles and assisting health workers to specify the precise solutions for them (Khan & Qureshi, 2020). As a result of this practice, the quality of treatment provided by the medical institutes in Malaysia is becoming higher day by day and henceforth, is enhancing the performance of the firm in an effective manner.

Objective 3: Importance of implicating advanced technologies within the healthcare businesses such as IHH Healthcare for dealing with challenges of the large-scale population

In Malaysia, both the rate of population and the patient base is extremely high and they need potential assistance from the healthcare business in order to develop the condition of their living (Tan et al. 2019). In this field, the implementation of advanced technology is necessary and its plays a major role in developing the condition of patients as well as other residents. After adopting technical refinement, the healthcare businesses in Malaysia have become capable of serving their consumers in a shorter period of time in an effective manner. Technological development is necessary for enhancing organisational profitability potentially and bestowing medical businesses with significant growth. In order to incorporate the utilisation of highly potential technical tools within the workplace, the *"innovation of right regarding technological development"* can prove its significance within the workplace (Adnan et al. 2019).

It can also become beneficial for patient protection and the overall development of *"patient care service"* at the same time (Hanaysha & Alzoubi, 2022). Technical development has become an intangible part of Malaysian healthcare businesses as it is improving procedures of medical treatment. Organisational growth has become secured with the growing rate of satisfied consumers as they are getting potential services as per their needs. It is important for implicating digital tools within the workplace as they can leaders along with their subordinates in managing store data as well as information of patients easily. In order to bring more development in the field of technological implementation feedback from the employees and consumers can be taken so that both merits and demerits of this activity can be tracked (Ali et al. 2021). This procedure can be helpful in analysing the weaknesses of the medical authority while using technically advanced medical tools and they can also be capable of mitigating the challenges.

5.3 Filling the research gap mentioned in Chapter 2

The main identified gaps in Chapter 2 are the lack of concentration on the analysis of the entire Malaysian healthcare sector along with the performance of healthcare employees such as doctors and managers. The researcher has dealt with the avoidance of necessary information of the detailed information on healthcare businesses in this particular country which has imposed a negative effect on the effectiveness of this present discussion and has diminished its grade at the same time. In order to fill up this mentioned gap, in the further study the researcher has to maintain the concentration on analysing both the environments of the healthcare industry along with the chosen organisation so that the performance, as well as the core contribution of healthcare workers, can be identified in an effective manner. Therefore, in order to enhance the refinement of this study, distinctive details have to be given within the review parts.

On the other hand, although some key names of medical tools or technologies such as digital therapeutics, Artificial Intelligence, and predictive analysis have been mentioned, detailed descriptions of them and how they are contributing to the growth of the development of the healthcare businesses have not been mentioned in a clarified manner. Therefore, in order to enhance the refinement of this study, distinctive details have to be given within the review parts. Besides this, although the entire discussion is based on the healthcare sector of Malaysia and the impact of technological advancement on this sector, the detailed and periodical economic growth has not been properly outlined throughout this study.

Therefore, some other detailed facts have to be imprinted within this discussion on the one hand to develop the overall effectiveness and on the other hand to boost the acceptability of this discussion as well. Not every merit and demerit of technological implementation has been discussed in the present study which can bring limitations to the understanding of it. Although the challenges have been mentioned related to installing advanced technologies, the exact ways to resolve them have not been portrayed in a detailed manner. It is necessary to recommend potential solutions for threatening issues regarding any field. Therefore, the researcher can opt for modifying the solutions for the possible challenges related to the issues in the healthcare sector in Malaysia such as filling up the lack of skills in technology adoption.

6. Conclusion

The entire discussion is based on the issues that IHH Healthcare is facing within the healthcare industry of Malaysia while implicating advanced technologies within the workplace. The main challenges are the deficiency of proper resources and the absence of proper skills as well as knowledge among employees so that they can deal with technically advanced medical tools in an effective manner. The use of potential technologies is boosting the growth of the entire industry along with the operating businesses within it with the assistance of innovation and creativity. At the very beginning, the business authority encountered challenges related to the lack of funding that restricted them from implicating advanced technologies in some cases.

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