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The Significance of Artificial Intelligence in Healthcare Technology Management for Organizational Engagement

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Abstract: This research is designed to investigate the usage of Artificial Intelligence (AI) in Healthcare Technology Management and to present its significance on Organizational Engagement among healthcare workers. The fast growth of data in healthcare has created an ideal environment for the development of Artificial Intelligence (AI). Healthcare workers have experienced a paradigm shift brought on by Artificial Intelligence, which promises to increase the quality of services provided. Convenient Sampling is done, and questionnaires are distributed via google forms to respondent. Data is then analyzed using SMART PLS software. All above Cronbach Alpha values are above 0.5, hence indicating that the questions asked are acceptable and hence is reliable for variables of Organizational Engagement, Decision Making, Change Management. The growth of Artificial Intelligence in the healthcare sector in the state of Perlis is indeed upcoming and in the developing stages.

Keywords: Artificial Intelligence, Healthcare Technology Management, Organizational Engagement

1. Introduction

Since the mid-twentieth century, the adoption of ICT has had an impact on the healthcare sector (Ford et al., 2017). Technological innovations in healthcare have an impact on operations and processes, and research has revealed a variety of patterns in this regard (Kraus et al., 2021). Healthcare technology applications have rapidly influenced and changed primary healthcare service delivery in recent years (Abbas et al., 2018). AI in healthcare resulted in a number of beneficial effects wherein through the use of AI tools and systems, any sorts of diagnosis was made more quickly and rather relatively be more accurately done (Chokri Kooli & Hend Al Muftah, 2022; Serag et al., 2019).It is through efficient internal communication and training, where responsible AI principles can offer direction on how to run and exploit AI technologies completely, responsibly, and ethically. Gains from this engagement method will provide staff more insight on how to use AI (Wang et al., 2021). This study attempts to find out the significance of organizational engagement along with the use of healthcare technology management with artificial intelligence towards healthcare workers in Perlis, Malaysia.

2. Problem Statement

The healthcare industry is divided into two separate systems, namely public healthcare and the other being private healthcare. Highly subsidized by the government, public healthcare is used by majority of Malaysian population while private healthcare is more to targeting well-off members of the public. Regarded as service-based organization, the healthcare industry's performance of their human resources affects the quality of service delivered to patients and patient's families which is their clients (Rabiatul Adawiyah Ma'arof & Mat, 2019). The development of artificial intelligence technology in healthcare is thought to have lagged behind other fields despite the rapid advancement of AI across all industries. The slow progress of healthcare is due to a variety of causes, including financial, ethical, and social ones (Turki Al-Sabhan et al., 2020).Artificial intelligence is considered one of the main forces that will alter the future of healthcare, but the usefulness of these new technologies is still debatable and there is no established international standard for evaluating them (Fasterholdt et al., 2022).The presence of Artificial Intelligence (AI) has left many implications but nevertheless, AI is in contact with many abstract or complex things, causing the complexity of its application in the healthcare field to grow (Ria Emilia Sari et al., 2020).When it comes to the application of Artificial Intelligence in Healthcare Technology Management, it is evident that rising healthcare costs are a challenge for healthcare systems all over the world due to the expectations of high-quality care, combined with an ageing population and more sophisticated treatments which have resulted in higher healthcare costs and as a result, there is growing pressure to provide high-quality care at lower costs (Diana Cordes Feibert & Jacobsen, 2018).

The employment of AI may not only result in the loss of human jobs but also the ability for "warm human" care to be provided during the course of treatment. It is exceedingly improbable that robots will ever possess empathy or feelings (Turki Al-Sabhan et al., 2020).

3. Literature Review

3.1 Healthcare Technology Management

The digitalization of healthcare has made it possible to collect patient data including laboratory imaging, medicine, and descriptive data, store it in the cloud, and analyze it using big data analytics (Yelton & Schoener, 2020).

3.2 Artificial Intelligence in healthcare

Artificial intelligence in healthcare technology management means the developing algorithms for processing real-time data and produces accurate findings and analysis from the massive amount of vast data (Abdulhafis Abdulazeez Osuwa & Huseyin Oztoprak, 2021)

3.3 Organizational Engagement

Organizational engagement debates about individual motivation towards organizational goals (Malik, 2020)

3.4 Decision Making

The broad definition of decision-making is selecting one course of action from a variety of options (Padilla et al., 2018)

3.5 Change Management

Change management meaning is to identify the transformational and incremental components of change, as well as the activities that must be taken to bring about that change (Rosenbaum et al., 2018)

3.6 Social Cognitive Theory

It is very evident that Social Cognitive Theory is indeed have been used before in healthcare for clinical reasoning, and with good clinical reasoning it will influence the engagement among healthcare workers in a good way. From the above diagram, it is notable that there are three factors involved namely environmental, patient, and physician. All these factors intertwined with each other to coordinate in the clinical reasoning that is being made. Hence, Social Cognitive Theory is indeed playing a role in healthcare (Merkebu et al., 2020).The development of artificial intelligence systems and the understanding, identifying, and mitigating (or preventing) of errors are two areas of health professions education where distributed social cognitive theories continues to draw interest. Risk-taking behaviours are among the varied spectrum of human behaviours for which Social Cognitive Theory has been utilised to understand the aetiology which is a disease or condition's cause, causes, or mode of causation (Roberts & Fillmore, 2017). Social Cognitive Theory provides a starting point for investigating how IS professionals' attitudes toward the establishment of IT-healthcare partnerships are influenced by their self-efficacy beliefs about their knowledge and skills linked to healthcare technology management (HTM).

3.7 Research Framework

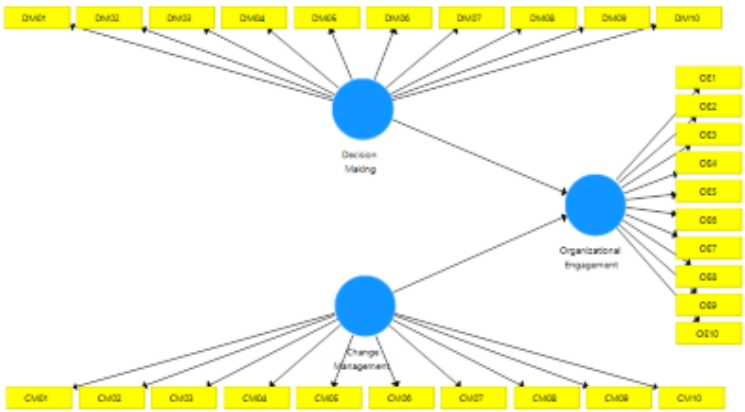

Figure 1: Research Framework

4. Methodology

4.1 Study design

Quantitative methods are used, following closely with positivism philosophy. From there, approaches are deduced. All responses are measured statistically via google forms. G-Power was used to determine the minimum sample size needed for this study. SMART PLS software used for analysis purposes for the data.

4.2 Inclusion and exclusion criteria

The study includes all healthcare workers such as doctors, nurses, pharmacists, medical officers, and is excluded to van drivers.

Instrument

For data collection, a validated self-administered questionnaire is used. The survey questionnaires were given fully at random to healthcare workers because it is an efficient and inexpensive method, a questionnaire was distributed to gather data for this study. Frequently, the questionnaire enables the review of the findings and permits respondents to consider extensively before completing the questionnaire. The questionnaire has clear instructions that respondents must follow. All of the statements and questions were written in the form of a closed-ended question, with the choices confined to a single fixed responses and answers on a given topic.

The questionnaires are developed from referring and adapting to the journals, and relevant points are taken from the journals. The questionnaires are in Google Forms and are distributed via e-mail. The questionnaires distributed are linked to the QR Code which will direct them straight to the Google Form. The instruments are validated by 6 Experts Opinions.

4.3 Data Management and Analysis

All data processing activities are done by SMART PLS software.

5. Results and Discussion

Table 1: Demographics

Demographics	Frequency	Percent	Valid Percent	Cumulative Percent
Male	50	51.0	51.0	51.0
Female	52	49.0	49.0	100.0
Total	102	100.0	100.0	
20-29 years old	18	17.6	17.6	17.6
30-39 years old	45	44.1	44.1	61.8
40-49 years old	31	30.4	30.4	92.2
50-59 years old	8	7.8	7.8	100.0
Total	102	100.0	100.0	
Less than 1 year	20	19.6	19.6	19.6
More than 5 years	47	46.1	46.1	65.7
1-5 years	35	34.3	34.3	100.0
Total	102	100.0	100.0	

Table 2: Cronbach Alpha

Variable	Number of Items	Cronbach's Alpha
Change Management (IV)	10	0.861
Decision Making (IV)	10	0.863
Organizational Engagement (DV)	10	0.905

According to one popular interpretation of the coefficient, values less than 0.5 indicate low dependability, values between 0.5 and 0.8 indicate acceptable dependability, and values greater than 0.8 indicate high (excellent) dependability (Ekolu & Quainoo, 2019). All of the above Cronbach Alpha values are greater than 0.5, indicating that the questions asked are acceptable and thus reliable.

6. Conclusion

Despite the rapid development of AI in all industries, it is believed that the development of artificial intelligence technology in the healthcare sector has lagged behind other fields. There are several reasons why healthcare is moving slowly, including ones that are economical, moral, and societal (Turki Al-Sabhan et al.,

2020). Despite this, it is obvious that the development of artificial intelligence in the state of Perlis' healthcare industry is still in its infancy, but still growing day by day.

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