A STUDY OF TECHNOLOGY INNOVATION AFFECTING UAE PUBLIC HEALTH CARE ORGANISATIONAL PERFORMANCE

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ABSTRACT

Objective: Innovative technology is critical for improving the UAE's healthcare performance. Healthcare professionals can streamline administrative chores, improve patient care, and reduce medical errors by incorporating modern technologies and systems. Technology-enabled solutions can also improve data analysis, facilitate evidence-based practices, and empower healthcare providers to provide more accurate diagnoses and personalized treatment strategies. Hence, this study was carried out to formulate a prediction multi-linear regression model of technology innovation dimensions affecting UAE public health care organizational performance.

Research Method: Data was collected through a questionnaire survey among the employees of UAE public. A total of 398 completed questionnaire sets were used to formulate the equation model.

Findings: It was found that the multi-linear regression equation model attained 0.529 degrees of fitness which is considered good.

Originality: This equation model can be applied to measure the UAE public health care organizational performance by inserting the three variables' values namely Organization Innovation Capabilities; Potential Absorptivity Knowledge; and Interaction with Technology. Hopefully, the outcomes of this research contribute to the body of knowledge and to the community of UAE public health care organizations.

Keywords: Technology Innovation, Public Health Care, Organizational Performance, UAE

1. INTRODUCTION

Imagine a world where cutting-edge Technology Innovations revolutionize the healthcare landscape, ensuring exceptional service quality for patients all around the globe. However, when it comes to the Middle East, there is a pressing need to delve deeper into healthcare service quality. Astonishingly, only a handful of studies have ventured into exploring this crucial aspect concerning organizational performance in the UAE (Aburayya et al., 2020).

Picture a nation striving for excellence in healthcare, where the quality of health services is at the heart of every decision, and patient satisfaction is the ultimate priority. The UAE, a land of incredible growth and potential, stands at a crucial crossroads in its healthcare journey. However, the path forward is clear - it is time to investigate and elevate the quality of health services to new heights.

In recent times, a concerning trend has emerged - a significant portion of the population prefers seeking medical care outside the country rather than utilizing local healthcare facilities (Lee & Kim, 2017). This poses a critical question: Why are patients choosing to look elsewhere for medical attention when we have the means and resources to provide world-class healthcare within our borders? The answer lies in the rising income and expectations of Emiratis, coupled with their increasing awareness of medical services.

As the bar for quality is raised, hospitals must rise to the challenge and be at the forefront of this transformative journey. The growth of the UAE's healthcare sector

depends on hospitals making significant contributions to enhance the quality of healthcare services (Abu-Rumman et al., 2021). The time has come for us to invest in our healthcare infrastructure, empower our medical practitioners, and embrace innovative approaches to meet the evolving needs of our patients.

We must acknowledge that delivering the best medical treatments alone is not enough. Patient satisfaction is the cornerstone of service quality (Lee & Kim, 2017). Even with skilled healthcare practitioners, the entire healthcare experience can be compromised if patients are dissatisfied with the services they receive. Our goal should be to create an environment where patients feel cared for, respected, and valued at every step of their healthcare journey.

In the pursuit of excellence in the UAE's healthcare sector, a pressing concern demands our immediate attention. Aburayya et al. (2020) shed light on the critical issue of limited access to hospitals for UAE citizens, particularly in primary healthcare institutions. This not only disrupts patient flow but also leaves a significant number of individuals dissatisfied with the healthcare services they receive. It is time to address this challenge head-on and revolutionize the patient experience.

At the core of this problem lies the first-come, first-served approach, which governs patient wait times in most hospitals. As a result, the struggle to secure timely medical attention can become a frustrating and disheartening experience for patients. We cannot overlook the profound impact this has on the perception of healthcare quality and patient satisfaction.

To rise above this challenge, healthcare organizations must embrace strategic initiatives that prioritize the swift delivery of services to patients (Al-Neyadi et al., 2018). Imagine a healthcare landscape where patients are no longer left waiting in uncertainty but are promptly attended to with the utmost care and efficiency. This is the future we envision, a future where access to quality healthcare is not a distant dream but a tangible reality for every UAE citizen. By focusing on improving process efficiency and reducing patient wait times in primary healthcare facilities, we send a powerful message - a message that echoes our unwavering commitment to providing exceptional healthcare services. As we embark on this transformative journey, we anticipate a positive shift in the primary healthcare business in the UAE.

In the ever-evolving landscape of technology and its far-reaching impact on various sectors, the UAE government stands at the forefront, recognizing the immense potential of these advancements in revolutionizing healthcare. With the world embracing technology-driven solutions, the UAE government has taken a visionary step by crafting Vision 2030, a bold initiative aimed at harnessing the power of Artificial Intelligence (AI) across all public sectors, including healthcare. The goal? Achieving 100% automation by 2020 and transforming the UAE into a smart nation (UAE 2031, 2018). Artificial intelligence (AI) has been shown to be a very successful technique for reducing complexity and making appropriate decisions quickly in order to succeed. The field of artificial intelligence is new and expanding quickly. It works well in many different fields (Almarashda et al. 2021). It enables a device to recognise its environment and take the proper actions. AI uses improved databases and more powerful computers to process data more quickly and with the right interpretation (Almarashda et al. 2022).

This ambitious vision reflects the government's unwavering commitment to excellence and progress in the healthcare domain. The transformational power of technology in enhancing service quality cannot be overstated, and it is high time we explore its full potential in the health sector of the UAE. As we surge forward on the path to a smarter, tech-driven future, it becomes crucial to shed light on the uncharted territory of technology elements in healthcare service quality. Surprisingly, despite the UAE's dynamic progress, comprehensive studies on this vital aspect are still scarce. But here is where we step in.

1.1 UAE HEALTH CARE

According to the UAE ministry website in 2020, there were 53 public hospitals and 104 private hospitals with about 11 thousand beds; more than 16,000 doctors, and 3,821 dentists, while the total number of nursing staff in all hospitals is 31,119 nurses. Presently, Sheikh Shakhbout Medical City is the UAE's largest hospital. These statistics indicated that the number of private sector hospitals is about double the number of government hospitals, however, the number of beds in government hospitals is nearly double the number in private hospitals. The healthcare expenditure was 50.3 billion (3.4% of GDP) and it is expected to rise to 53 billion.

For the fourth year in a row, the United Arab Emirates holds the top spot in the world for most hospitals, clinics, and other healthcare facilities that have received international accreditation from the Joint Commission International for Accreditation of Health Facilities (JCI). The government has provided funding for it to deliver high-quality healthcare to the populace through both the public and private health sectors. additionally controls medical services at both the federal and emirate levels. The Ministry of Health and Prevention, Dubai Health Authority (DHA), Abu Dhabi Health Authority (HAAD), Dubai Healthcare City Free Zone, and the Emirates Health Authority (EHA) are the regulatory bodies that oversee public healthcare in the United Arab Emirates. Each of them oversees facilities, physicians, chemists, and other medical specialty licensing. Although it is one of the primary players in the UAE's healthcare system, the Ministry of Health is not the only one (Arnold, 2020).

2. TECHNOLOGY INNOVATION DIMENSIONS

In technology innovation dimensions, this study incorporates four groups namely Organization Innovation; Digital Tools; Absorbing Knowledge; and Interaction with Technology. Following are the elaborations on these groups.

2.1 ORGANIZATION INNOVATION CAPABILITIES (OIC)

Although it is obvious that different firms have varying levels of innovative capability, innovative activities must nonetheless concentrate on a variety of factors at once, including new products, organizational and marketing practices, administrative systems, and process technologies (Edu et al., 2020; Migdadi, 2020; YuSheng & Ibrahim, 2020). Additionally, introducing administrative and technical innovations at a balanced rate is more beneficial than doing so on its own in helping businesses maintain and raise their level of performance. Although the literature on innovation does not provide a conclusion as to whether a particular innovation type is likely to have a greater or lesser impact on corporate performance, it can be said that innovations influence one another and must be implemented in tandem (Mendoza-Silva, 2020).

According to research findings, organizational (re)structuring that results in administrative and structural renewal or improvement catalyzes other sorts of innovations. Rahmah et al. (2020), for instance, discovered that administrative innovations sparked technical innovations. Like this, Brosig (2020) emphasized the value of collaborative organizational redesigns and coordination frameworks to advance technological advancements within the organization. Recently, Cheng and Wang (2022) discussed the connections between organizational, marketing, and service innovations.

We contend that organizational innovations, or organizational renewal in the form of structural enhancements improving intra-organizational coordination and cooperation mechanisms, would contribute to the formation of a favourable internal environment for innovation to flourish, which influences the organization's performance. Hence, it is postulated that:

In the organization innovation capabilities groups, the following are the related factors affecting the public organizations' performance of healthcare service;

- **Leadership and Vision:** Effective healthcare organizations with strong innovation capabilities have visionary leaders who prioritize and champion innovation. These leaders inspire and motivate the entire organization to embrace new ideas, technologies, and processes to improve healthcare services.
- **Culture of Innovation:** A culture that encourages creativity, risk-taking, and continuous improvement is essential for fostering innovation capabilities in healthcare service. Organizations that promote open communication, collaboration, and a willingness to experiment tend to excel in driving innovation.
- **Resources and Investment:** Adequate allocation of resources, both financial and human, is crucial for building innovation capabilities in healthcare service. Organizations that invest in research and development, cutting-edge technologies, and staff training empower their teams to deliver innovative solutions.
- **Collaboration and Partnerships:** Healthcare organizations with strong innovation capabilities often collaborate with external partners, such as universities, research institutions, startups, and other healthcare providers. These partnerships foster a dynamic exchange of ideas and resources, accelerating the pace of innovation.

User-Centric Approach: Organizations that prioritize a user-centric approach to healthcare service innovation tend to be more successful. They actively seek feedback from patients, healthcare providers, and other stakeholders to identify needs, pain points, and opportunities for improvement, leading to more relevant and impactful innovations.

2.2 POTENTIAL ABSORPTIVITY KNOWLEDGE (PAK)

When organizations encounter new issues or need to modify current procedures to enhance potential behaviours or close the gap between expectations and results by processing information, the concept of organizational learning becomes relevant (Fan et al., 2021). A growing number of businesses today seek to foster innovation by looking for outside knowledge to strengthen their competitive advantages. It has also been highlighted that a company's capacity for knowledge absorption may be the secret to its innovation success (Rezaei-Zadeh & Darwish, 2016).

The concept of potential absorptivity is connected to learning and the acquisition of external knowledge (Oksanych, 2020). The capacity to absorb and integrate outside knowledge and information into existing organizational knowledge typically serves as a good indicator of a person's capacity to learn. The identification, assimilation, and application of outside knowledge or information by organizations is referred to as knowledge absorptivity (Sein & Vavra, 2020).

According to Cárcel-Carrasco and Gómez-Gómez (2021), industrial activities necessitate the acquisition of extensive knowledge as well as very complex technical and human factors to produce excellent processes or services. Although the incorporation of these competitive advantages should be given top priority for use in the company's operations, the absorption, management, and application of knowledge in this activity are frequently overlooked. Industry 4.0 begins with the visualization of knowledge as a strategic and vital component, and it is necessary to take into account that organizational processes should be studied through internal organizations, visualizing how knowledge is created and absorbed, and identifying the knowledge they have (Zhao et al., 2020). The internal organization should be taken into account when analyzing organizational procedures, visualizing the creation and assimilation of knowledge, and determining the knowledge they already possess.

In the absorbing knowledge groups, the following are the related factors affecting the public organizations' performance of healthcare service;

- **Continuous Learning Culture:** Healthcare organizations that prioritize absorbing knowledge foster a culture of continuous learning among their staff. They encourage employees to engage in professional development, attend workshops, and conferences, and stay updated with the latest advancements in their fields.
- **Research and Innovation Initiatives:** Healthcare service providers that actively engage in research and innovation initiatives absorb new knowledge and best practices. They invest in research projects, collaborate with academic institutions, and participate in clinical trials to stay at the forefront of medical advancements.
- **Knowledge Sharing and Collaboration:** Promoting knowledge sharing and collaboration among healthcare professionals is crucial for absorbing knowledge. Regular meetings, case discussions, and interdisciplinary forums facilitate the exchange of ideas and experiences, leading to enhanced learning.
- **Access to Up-to-date Information:** Having access to reliable and up-to-date medical literature, research papers, and evidence-based guidelines is essential for healthcare professionals to stay informed and make well-informed decisions in their practice.
- **Continuous Improvement Processes:** Healthcare organizations that emphasize continuous improvement methodologies, such as Lean, Six Sigma, or Quality Improvement, promote the absorption of knowledge. These processes encourage staff to identify areas for improvement, implement changes, and learn from the outcomes.

2.3 INTERACTION WITH TECHNOLOGY (IWT)

The use of digital tools and services for routine tasks and internal firm communication constitutes the third factor, which is technology services. Technology process innovation, technology service innovation, and technology integration innovation are all examples of service innovations, according to Lyytinen and Rose (2003). Utilizing digital services has the benefit of increasing services' long-term effectiveness by reducing wait times and streamlining organizational procedures. Digital tools can facilitate collaboration within an organization and aid in the management of documents, human resources, customer relationships, and internal processes (Rycroft & Kash, 2011). Mutie (2018) claims that using digital tools within an organization can enhance customer relationship management and human resource management. Employees in various locations can communicate effectively thanks to the intranet. To manage customer relationships effectively, methodically, and profitably, customer management tools are used. In terms of human resource management tools, they are used to assist the organization in managing employees to do their best and to evaluate their performance.

By enabling businesses to use a variety of self-service technologies that expand the original service channels and boost customer participation, the development of mobile information technology has further improved self-service delivery and revolutionized the service landscape. Kiosks, the internet, interactive voice response, and mobile services are currently used by organizations as self-service technology interfaces (Oliveira et al., 2021). Human-technology interaction is the process of customers interacting with self-service facilities. In this study, technical convenience and technical security and information quality are the two subdimensions we use to assess the effectiveness of human-technology interactions.

The sub-dimension of technical convenience shows how self-services are available via technology. When using self-services through technology, customers seek convenience that can be had anytime and anywhere. Technical convenience is believed to have a significant, favourable impact on customer loyalty (Wang, 2012). Customers will only remain loyal to businesses if the technology they are using is convenient, dependable, and easy to use (Darzentas and Petrie, 2019).

Technical security and information quality are sub-dimensions that deal with the quality, handling, and safety of information as well as the use of technology. The security and accuracy of the information are concerns for customers in technology-based transactions (Herath et al., 2020). Technology that provides the comprehensive information needed in real-time to complete self-service tasks raises the perceived quality of the service among customers. Contrarily, customers' opinions of self-service technologies are negatively impacted by perceptions of risk and uncertainty (Hameed & Arachchilage, 2020).

In the interaction with technology groups, the following are the related factors affecting the public organisations' performance of healthcare service;

- **Electronic Health Records (EHR) Systems:** Interaction with technology in healthcare involves the use of electronic health records systems, allowing healthcare professionals to access and update patient information digitally. EHRs streamline data management, improve communication, and enhance the overall efficiency of healthcare services.
- **Medical Devices and Equipment:** Healthcare providers interact with various medical devices and equipment that are technologically advanced. These devices, such as diagnostic tools, monitoring equipment, and surgical instruments, enable accurate diagnosis and treatment, leading to better patient outcomes.
- **Telemedicine and Virtual Care Platforms:** Interaction with technology in healthcare includes telemedicine and virtual care platforms, which facilitate remote consultations between patients and healthcare providers. These technologies enhance accessibility to healthcare services, especially for patients in distant or underserved areas.
- **Health Information Systems:** Health information systems play a crucial role in healthcare service delivery. These systems manage patient data, administrative tasks, and billing processes, optimizing the organization and flow of information within healthcare facilities.
- **Health Apps and Wearable Devices:** Patients interact with technology through health apps and wearable devices, which monitor and track their health parameters. These technologies empower individuals to take an active role in managing their health and well-being by providing real-time data and insights.

Table 1: List of technology innovation factors in healthcare sector

Groups	Code	Factors
Organization Innovation Capabilities (OIC)	OIC1	Leadership and Vision
	OIC2	Culture of Innovation
	OIC3	Resources and Investment
	OIC4	Collaboration and Partnerships
	OIC5	User-Centric Approach
Potential Absorptivity Knowledge (PAK)	PAK1	Continuous Learning Culture
	PAK2	Research and Innovation Initiatives
	PAK3	Knowledge Sharing and Collaboration
	PAK4	Access to Up-to-date Information
	PAK5	Continuous Improvement Processes
Interaction With Technology (IWT)	IWT1	Electronic Health Records (EHR) Systems
	IWT2	Medical Devices and Equipment
	IWT3	Telemedicine and Virtual Care Platforms
	IWT4	Health Information Systems
	IWT5	Health Apps and Wearable Devices

3. HEALTHCARE ORGANIZATIONAL PERFORMANCE

Al Khajeh (2018) claims that the "transformation of inputs into outputs to achieve specific goals" is the definition of organizational performance. Performance in terms of substance (effectiveness) explains the relationships between minimal and effective costs (economy), between effective cost and realized output (efficiency), and between output and realized outcome. There are many ways to evaluate an organization's success; sales performance can be defined as all business choices or outlays made over a specific period. The total revenue generated from the sold goods could be used to calculate it. Before any costs are deducted, a company's growth revenue is the whole amount of money it receives for the products it sells over a certain period. However, in the contact of hospital performance concerning adopting technological innovation, the organizational/hospital performance shows improved patient care and outcomes with the utilization of cutting-edge medical technology, electronic medical records, and telemedicine platforms.

The use of technology streamlines administrative chores, improves workflow, and boosts overall effectiveness, resulting in shorter wait times and more patient satisfaction. Technology can help public hospitals stay on the cutting edge of medical development, deliver higher-quality care, and successfully meet the changing healthcare demands of their communities. Here are the hospital performance indicators due to the adoption of technology innovation;

- **Improved patient outcomes:** One of the primary indicators of a healthcare organization's performance due to technology innovation is improved patient outcomes. Technology innovation can lead to better treatment options, more accurate diagnoses, and enhanced patient recovery rates.
- **Positively impact patient satisfaction:** Technology innovation can also positively impact patient satisfaction. Digital tools, telemedicine, and other technological advancements can improve the patient experience by providing more convenient access to care, reducing wait times, and enhancing communication between patients and healthcare providers.
- **Increased Efficiency and Productivity:** Healthcare organizations that embrace technology innovation often experience increased efficiency and productivity. Electronic health records, automated processes, and AI-powered systems can streamline administrative tasks and optimize workflow, allowing healthcare professionals to focus more on patient care.
- **Cost Savings:** Technology innovation can lead to cost savings for healthcare organizations. Implementing digital solutions and automation can reduce operational expenses, decrease medical errors, and minimize unnecessary resource utilization.
- **Overall Quality of Care:** The overall quality of care provided by a healthcare organization is significantly influenced by technological innovation. Advanced medical equipment, data-driven decision-making, and evidence-based practices contribute to a higher standard of care and better health outcomes for patients

Table 2: List of Organizational Performance (OP) factors in the healthcare sector

Code	Factors	Reference
OP1	Improved patient outcomes	Charlton et al. (2008)
OP2	Positively impact patient satisfaction	Rozenblum et al. (2013)
OP3	Increased Efficiency and Productivity	Hollingsworth (2008)
OP4	Cost Savings	Mutnick et al. (1997)
OP5	Overall Quality of Care	Rao and Prasad (2002)

4. DATA COLLECTION

This study adopted a quantitative approach. The data was collected through a questionnaire survey among employees of UAE public hospitals. The study distributed a total of 300 sets of questionnaires randomly to the employees of the public hospital in Abu Dhabi. However, only 274 completed sets of questionnaires were returned and used for analysis. The main content of the questionnaire is as in Table 3. Respondents were requested to gauge using 5-point Likert Scales which are not at all agree-1; slightly agree-2; moderately agree-3; significantly agree-4; and extremely agree-5.

Table 3: List of factors and Questions used for Data Collection

Code	Factors	Questions
OIC1	Leadership and Vision	Leadership in our hospital demonstrates a clear vision and commitment to integrating technology innovation to enhance hospital performance.
OIC2	Culture of Innovation	Our hospital encourages a culture of innovation, where new technological ideas and solutions are embraced to improve hospital performance.
OIC3	Resources and Investment	Our hospital allocates sufficient resources and investments towards technology innovation, contributing to improved hospital performance.
OIC4	Collaboration and Partnerships	Collaboration and partnerships with external stakeholders are actively pursued to leverage technology innovation for enhancing hospital performance.
OIC5	User-Centric Approach	Our hospital adopts a user-centric approach when implementing technology innovations, keeping the needs and preferences of patients and healthcare providers in mind.
PAK1	Continuous Learning Culture	Our hospital promotes a culture of continuous learning to stay updated with technological advancements and their impact on hospital performance.
PAK2	Research and Innovation Initiatives	Research and innovation initiatives focusing on technology adoption contribute to enhancing hospital performance.
PAK3	Knowledge Sharing and Collaboration	Knowledge sharing and collaboration among healthcare professionals are encouraged to effectively implement technology innovations for better hospital performance.
PAK4	Access to Up-to-date Information	The availability of up-to-date information and resources is crucial in facilitating successful technology innovation adoption for improved hospital performance.
PAK5	Continuous Improvement Processes	Continuous improvement processes are integrated with technology innovation adoption to drive enhanced hospital performance.
IWT1	Electronic Health Records (EHR) Systems	The use of Electronic Health Records (EHR) systems in our hospital positively impacts hospital performance.
IWT2	Medical Devices and Equipment	The utilization of advanced medical devices and equipment contributes to improved hospital performance.
IWT3	Telemedicine and	Telemedicine and Virtual Care platforms positively

	Virtual Care Platforms	affect hospital performance by enhancing patient care and accessibility.
IWT4	Health Information Systems	Health Information Systems play a significant role in improving hospital performance through better data management and communication.
IWT5	Health Apps and Wearable Devices	The use of Health Apps and Wearable Devices has a positive impact on hospital performance by empowering patients to manage their health proactively.
OP1	Improved patient outcomes	Do you agree that technology innovation adoption in our hospital has led to improved patient outcomes?
OP2	Positively impact patient satisfaction	Do you agree that the patient is satisfied with the impact of technology innovation adoption in our hospital?
OP3	Increased Efficiency and Productivity	Do you agree that the integration of technology innovation in our hospital resulted in increased efficiency and productivity?
OP4	Cost Savings	Do you agree that technology innovation adoption has resulted in cost savings for the hospital?
OP5	Overall Quality of Care	Do you agree that the overall quality of care provided by our hospital increased since the adoption of technological innovation?

The demography of the respondents of this study is as in Table 4.

Table 4: Demographic Information of the Respondents

Characteristic	Category	Frequency	Percent %
1. Gender	Male	164	59.6
	Female	110	40.4
	Total	274	100.0
2. Age	20-25	54	19.8
	26-30	71	26.7
	31-35	135	49.1
	Above 35	14	4.4
	Total	274	100.0
3. Nationality	Emirati	200	46.4
	Non-Emirati	74	16.9
	Total	274	100.0
4. Educational Level	Higher School	25	8.2
	Diploma	71	26.0
	Degree	137	50.7
	Master	41	15.1
	Total	274	100.0
5. Experience	Below 3 Years	32	11.8
	4 Year to 8 Year	82	29.8
	9 Year to 12 Year	104	38.0
	13 Year to 15 Year	37	13.6
	Above 15 Year	20	2.4
	Total	274	100.0
6. Hierarchy in hospital organization	Operational staff	120	44
	Middle management staff	90	33
	Top management staff	64	23
	Total	274	100.0

Table 4 presents data on various characteristics of individuals within a hospital organization. It includes information on age distribution, nationality, educational levels, work experience, and hierarchy in the hospital. Most respondents are aged between 31 and 35 and hold degrees as their highest educational level. Emiratis constitute the largest percentage of respondents, and most have 9 to 12 years of experience. The operational staff represents the highest percentage in the hierarchy, followed by middle management and top management staff.

5. RESULTS AND DISCUSSION

5.1 RELIABILITY TEST

A data reliability test is to assess the consistency and accuracy of the data collected in a study or research project (Almansoori et al. 2021a, Ahmed et al. 2021). It helps to determine the level of confidence in the data and whether the results are trustworthy and replicable. By conducting data reliability tests, it can identify any potential errors, biases, or inconsistencies in the data, ensuring the validity of their findings and conclusions (Rouse, 2019). Cronbach's alpha is used a common test for assessing reliability (Almansoori et al. 2021b) and its value varies from 0 to 1 (Alameri et al. 2021).

Table 5: Demographic Information of the Respondents

Factors Groups	Factors Code	Cronbach Alpha in each group	Cronbach Alpha for the whole groups
Organization Innovation Capabilities (OIC)	OIC1 OIC2 OIC3 OIC4 OIC5	**Reliability Statistics** Cronbach's Alpha: .879 N of Items: 5	**Reliability Statistics** Cronbach's Alpha: .950 N of Items: 20
Potential Absorptivity Knowledge (PAK)	PAK1 PAK2 PAK3 PAK4 PAK5	**Reliability Statistics** Cronbach's Alpha: .890 N of Items: 5	
Interaction With Technology (IWT)	IWT1 IWT2 IWT3 IWT4 IWT5	**Reliability Statistics** Cronbach's Alpha: .866 N of Items: 5	
Organizational Performance (OP)	OP1 OP2 OP3 OP4 OP5	**Reliability Statistics** Cronbach's Alpha: .896 N of Items: 5	

Table 5 shows the reliability of each group and the whole group. The Cronbach Alpha values for each of the 4 groups are in the range of 0.866 to 0.896 and for the whole groups, the value is 0.950. Cronbach Alpha value of 0.7 is typically considered a satisfactory level of internal consistency among the items in the scale (Soomro et al. 2020). While a value of 0.8 or higher is considered good, indicating a high level of internal consistency and reliability (Alhammadi et al. 2020). Thus, the collected data has a high level of internal consistency and reliability .

5.2 DESCRIPTIVE STATISTICS

Descriptive analysis describes the main features of a dataset, such as central tendency (mean, median, mode), dispersion (range, standard deviation), and shape of the distribution (skewness, kurtosis). It provides valuable insights into the data to gain a quick overview of the data's characteristics and identify patterns, trends, or outliers.

Table 6: Descriptive Statistics of the Data

Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
OIC1	398	4.91	.299	-3.094	.122	8.752	.244
OIC2	398	4.86	.355	-2.242	.122	3.640	.244
OIC3	398	4.83	.386	-2.065	.122	3.092	.244
OIC4	398	4.82	.415	-2.204	.122	4.157	.244
OIC5	398	4.82	.419	-2.146	.122	3.867	.244
PAK1	398	4.87	.369	-2.755	.122	7.241	.244
PAK2	398	4.84	.390	-2.206	.122	3.973	.244
PAK3	398	4.85	.390	-2.608	.122	6.386	.244
PAK4	398	4.80	.428	-2.011	.122	3.217	.244
PAK5	398	4.81	.440	-2.285	.122	4.629	.244
IWT1	398	4.88	.341	-2.715	.122	6.667	.244
IWT2	398	4.84	.388	-2.237	.122	4.136	.244
IWT3	398	4.83	.398	-2.086	.122	3.379	.244
IWT4	398	4.81	.408	-1.779	.122	1.833	.244
IWT5	398	4.81	.406	-1.803	.122	1.930	.244
OP1	398	4.89	.337	-3.070	.122	9.257	.244
OP2	398	4.84	.396	-2.304	.122	4.609	.244
OP3	398	4.84	.396	-2.304	.122	4.609	.244
OP4	398	4.80	.416	-1.849	.122	2.299	.244
OP5	398	4.83	.386	-2.065	.122	3.092	.244
Valid N (listwise)	398						

Table 6 presents descriptive statistics for 20 different variables based on a sample size of 398 indicating no missing data for the analysis. The statistics include the mean, standard deviation, skewness, and kurtosis for each variable. Skewness measures the asymmetry of the distribution, and kurtosis measures the heaviness of the tails compared to a normal distribution. Positive skewness indicates a longer tail on the right side, while negative skewness indicates a longer tail on the left side. High kurtosis values indicate heavy tails and potentially more outliers compared to a normal distribution.

5.3 SPEARMAN CORRELATION

Spearman correlation analysis assesses the strength and direction of the relationship between two ordinal or ranked variables. It measures the monotonic association between the variables, which means it does not assume a linear relationship. The Spearman correlation coefficient ranges from -1 to +1, with values

closer to -1 or +1 indicating a stronger monotonic relationship, while values close to 0 suggest a weak or no association. The results of the correlation are as in Table 8.

Table 7: Results of Spearman Correlation

Correlations

		AvgOIC	AvgPAK	AvgIWT	AvgOP
AvgOIC	Pearson Correlation	1	.732**	.653**	.604**
	Sig. (2-tailed)		.000	.000	.000
	N	398	398	398	398
AvgPAK	Pearson Correlation	.732**	1	.718**	.687**
	Sig. (2-tailed)	.000		.000	.000
	N	398	398	398	398
AvgIWT	Pearson Correlation	.653**	.718**	1	.646**
	Sig. (2-tailed)	.000	.000		.000
	N	398	398	398	398
AvgOP	Pearson Correlation	.604**	.687**	.646**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	398	398	398	398

**. Correlation is significant at the 0.01 level (2-tailed).

Table 7 shows the correlations between four groups of factors which are Organization Innovation Capabilities (OIC); Potential Absorptivity Knowledge (PAK); Interaction with Technology (IWT); and Organizational Performance (OP). The data used to develop this correlation was the average from each of the groups. The table indicates that all the correlations among the groups are positive and significant.

5.4 MULTI-LINEAR REGRESSION

Multiple linear regression analysis is a statistical method used to model the relationship between a dependent variable and two or more independent variables. It helps predict the dependent variable's value based on the values of the independent variables and establishes a mathematical relationship between them. The analysis allows for understanding the strength and direction of relationships and identifies significant predictors among the independent variables for the dependent variable.

For this study, the multiple linear regression analysis was conducted using SPSS software where the dependent variable is AvgOP while independent variables, also known as predictors are AvgIWT; AvgOIC, and AvgPAK. The result of the regression model summary is as Table 8.

Table 8: Fitness of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.727[a]	.529	.525	.2241

a. Predictors: (Constant), AvgIWT, AvgOIC, AvgPAK

Table 8 indicates the overall performance and fit of the regression model. The R coefficient represents the strength and direction of the linear relationship between the predicted values and the actual values of the dependent variable. In this case, the R-

value is 0.727, indicating a strong positive linear relationship between the predicted values and the actual values. R Square is the coefficient of determination that represents the proportion of the variance in the dependent variable that is explained by the independent variables in the model. R Square value also symbolizes the fitness of the model and in this case, the value is 0.529, which means that approximately 53% of the variability in the dependent variable is accounted for by the independent variables included in the model.

The following table 9 provides is the coefficient table that provides information about the estimated coefficients, and significance levels for the multiple linear regression model. It allows us to assess the impact and significance of each independent variable on the dependent variable.

Table 9: Coefficients of multiple linear regression model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.936	.193		4.853	.000
	AvgOIC	.149	.055	.142	2.688	.007
	AvgPAK	.371	.055	.385	6.715	.000
	AvgIWT	.287	.053	.277	5.376	.000

a. Dependent Variable: AvgOP

Table 9 displays the coefficients, standard errors, standardized coefficients (beta values), t-values, and significance levels for a multiple linear regression model. The regression coefficient ranges from -1 to 1 and represents the estimated effect of each independent variable on the dependent variable. Results in the table indicate that all the 3 independent variables and the constant are significant, hence, the multi-linear regression equation or model can be established as follows.

AvgOP = 0.936 + 0.149AvgOIC + 0.371AvgPAK + 0.287AvgIWT..... Equation 1

Equation 1 can be used in predicting organizational performance by inserting the values of 3 predictors which are OIC; PAK; and IWT.

6. CONCLUSIONS

This study was carried out to formulate a prediction multi-linear regression model of technology innovation dimensions affecting UAE public health care organizational performance. Data was collected through a questionnaire survey among the employees of the UAE public. A total of 398 completed questionnaire sets were used to formulate the equation model. It was found that the multi-linear regression equation model attained 0.529 degrees of fitness which is considered good. This equation model can be applied to measure the UAE public health care organizational performance by inserting the three variables' values namely Organization Innovation Capabilities; Potential Absorptivity Knowledge; and Interaction with Technology. Hopefully, the outcomes of this research contribute to the body of knowledge and the community of UAE public health care organizations.

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