

The mediating role of operational Flexibility on the relationship between quality of health information technology and management capability

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ABSTRACT

Article history:

Received May 12, 2022

Received in revised format June 24, 2022

Accepted August 28 2022

Available online

August 28 2022

Keywords:

Quality of Health Information Technology

Management Capability

Operational Flexibility

Public Hospitals

Jordan

The purpose of this study is to investigate the mediating role of operational flexibility between the quality of health information technology and management capability. A cross-sectional study was conducted; data was obtained based on 365 medical staff (medical doctors, nurses, and medical technologists) from public hospitals in the northern region of Jordan; a covenant sample was used. The authors used structural equation modeling to verify the hypotheses. The results reveal that the quality of health information technology has a significant impact on management capability and operational flexibility. Operational flexibility as a partial mediating variable also showed a significant impact on management capability. The study suggests that increasing the quality of health information technology will enhance the management capability and operational flexibility in healthcare organizations and will increase employee loyalty as a vehicle to trigger positive work-related attitudes. This study is one of the very limited studies in the Middle East that examined the role of operational flexibility in the quality of health information technology and employee management capability.

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1. Introduction

The health sector in Jordan has flourished recently. It has witnessed significant development in all fields and medical specialties. As a result of the efforts made to carry on the provision of medical services at a high level and efficacy in all hospitals affiliated to it, a number of government and private hospitals have been distributed throughout the Kingdom since the establishment of the Ministry of Health in 1951. Thus, the development of health care services, legislation, and the allocation of sufficient financial resources to raise the level of health services for patients and citizens in Jordan.

The advancement of the health field, treatments and services of the healthcare system, and the persistent demand for health services have resulted in a critical need to provide patients with high-quality medical services at all levels. As a result, Jordanian hospitals in the public sector strive to provide medical services that satisfy patients and meet their needs in outpatient clinics. Hence, the importance of providing high-quality medical services and medical services quality has attracted individuals' and health institutions' attention. Moreover, the significance of this research is to identify the concept of quality health information management, operational flexibility, and management capability, and the impact of quality health information management on both management capability and operational flexibility.

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2. Literature review

2.1 Introduction

The healthcare industry, similarly to other businesses, strives to provide superior performance while improving service outcomes, so it started to implement health information technology and flexibility concepts in healthcare management and the health industry. However, the field of healthcare differs from other industries due to multiple factors. So, this study highlighted three major variables that play a key role in enhancing healthcare productivity; quality of health information technology; operational flexibility; and management capability. Many healthcare organizations today are focusing on the quality of health information technology infrastructure and operational flexibility as tools to promote process improvement and sustainability.

Due to increased demand for healthcare services and limited resources (capital, labor, or time), multiple challenges constantly emerge; costly technology infrastructure, an aging population, and severe recession strains (McIntosh et al., 2014). However, healthcare strives to provide high levels of service quality with accepted levels of operational flexibility to meet today's requirements. Many approaches are used today to serve healthcare organizational visions. Improving management capability and installing advanced technology can also support the health management philosophy effectively.

2.2 Quality of health information management

The World Health Organization considers health information systems as one of the six basic dimensions of health systems worldwide. Health information systems play an important role in the development of health systems in the world (WHO, 2007, 2010). The other building blocks are access to essential medicines, leadership and governance, health workforce, health system financing, and provision of health services. While each of the six building blocks is essential, health information systems are essential for decision-making within each of the other five, and then form the basis of health systems (Nutley, 2012). Diverse and multiple sources of data are needed, such as household surveys, epidemiological surveillance, vital registration, health assessment data, and health service delivery centers, to obtain information that feeds health information systems (Chan et al., 2010). On the other hand, workers in the health sector realize the importance of health information systems to improve the productivity and efficiency of their informational mechanisms. In some cases, inadequate understanding of valid methods to implement this system effectively due to a lack of awareness, poor knowledge, or training about health information technology leads to confusion while using the system, which in turn results in shortages and system failure (Meri et al., 2019). Every e-health plan in South Africa needs a health information system as an important part of its success. Furthermore, more than 15 million rupees have been invested in health information technology projects recently. The inability to implement any health information technology project seems to be affected by the lack of an integrated management plan, insufficient procurement from consultants, high staff turnover, need-based training, and poor business model. These major factors can be attributed to impairments in establishing high-quality health information system plans (Campione et al., 2019). In this study, the quality of health information technology will be measured along three main dimensions: interface, functions, and performance (Rivière et al., 1999).

2.2.1 Interface

There has been a great interest lately in human-computer interface design as well as an interest in modern technologies and the usability of modern technical systems (Tariq et al., 2022; Eldahamsheh et al., 2021). However, the practices that are sought to be adopted, in many cases, are insufficient to achieve the desired goals (Eason, 2001). The effectiveness of health care and computer systems is sensitive to uniformity and a mix of scientific and social acceptance. The characteristics of the system must be competent to be able to meet all the requirements and needs of users and leaders in the health sector. In addition to the availability of the characteristics of the practical ability to accept and compatibility with any new system, these characteristics are, for example, as follows (compatibility with existing systems, cost, reliability, support, etc.) (Nielsen, 1993). Manpower is an essential component of ensuring the suitability, design, acceptance, and usability of health systems. A system analyst is a technical expert who is able to assess user requirements, analyze the course of work, document information sources, and support the quality of work and facilitate the methods of use, which helps in increasing the efficiency of technological systems and the quality of information, benefiting from the components of electronic systems and data, and avoiding redundant data (Alshawabkeh et al., 2022). Further, manpower is necessary to create easy data interfaces to the health quality information system. As a result, the user can easily navigate between the system components and interfaces information and data entry screens or perform import or export to electronic sources to populate the health quality information system data warehouse (Niland et al., 2006).

2.2.2 Functions

Healthcare systems are characterized by having a rapid transformation. Furthermore, health information management necessitates the ability and functional competence to perform basic executive management functions (Kloss, 2016). The information entry function has all the needed requirements to make the data file accessible for processing (for example, accept, select, enter, scan, read, and receive). Storage functions, on the other hand, imply the activities required to maintain

the data system and provide them permanently (read, transform, copy, create, update). Processing functions specify the ways in which data can be processed that produce value-added information. Output functions retransmit those steps to generate reports and summaries of data from the system (Niland et al., 2006). Moreover, functional reflection is the ability of the health information system to give the system users an opportunity to reverse and correct errors (incorrect information) as well as allow the system to find the error and correct it easily, quickly, and accurately. a secure and solid tracking system that identifies errors, whether they are from the entry, processing, import, or storage, and enhances the level of the system's quality functioning.

2.2.3 Performance

Poor knowledge of the main performance factors that may affect the quality of health information systems, including data collection and the efficiency of data-based monitoring and performance evaluation mechanisms, can contribute to public health programs (Al-Nawafah et al., 2022; Al-khawaldah et al., 2022; Davis and Burgess, 2017). Completeness, accuracy, and timeliness are three of the most commonly used quality criteria used in many studies to assess the performance of health information technology systems (Alhalalmeh et al., 2022; Alhalalmeh et al., 2020; Chen et al., 2020).

Training plays a key role in transferring knowledge and skills from the trainer to the trainee to help them gain the knowledge and skills they need to carry out work duties constantly and improve their performance (Al-Abbadi et al., 2021). It is essential that senior management regularly organizes seminars and workshops in this regard. It must be commissioned by higher authorities and senior management. Ongoing education and training programs should be provided to all frontline health professionals, managers, and those who work in health information management systems. Furthermore, training should be measurable and focus on health service delivery procedures (Kaposhi et al., 2015).

2.3 Operational Flexibility

Healthcare managers could fit organizational structures with their decisions in terms of staffing, technology, and excluding or adding services to their organizations. The tasks of the healthcare manager are not limited to the internal operations of the institution; managing staff and health services, but rather imply understanding, adapting, and seizing opportunities from the activities and policies existing in the external environment, which inevitably impact the institution and its way of functioning. Thus, the manager's performance and decisions are reflected on the institution as a whole. Businesses need to develop mechanisms to cope with uncertainties in a volatile business environment. Flexibility is one of the mechanisms that can assist a company in dealing with insecurity as much as possible (Al-Hawary et al., 2017). Operational flexibility, as one of the basic types of flexibility, has become necessary to respond quickly and effectively to dynamic environments, thereby improving their performance (Yousuf et al., 2019). According to Metternich et al. (2013), flexibility means the ability to adapt rapidly with minimal penalties in terms of time, cost, effort, or performance as the situation changes. Operational flexibility refers to the ability to respond proactively or reactively to uncertainties in a business environment. This capability has a number of dimensions that may differ in their significance. There is a rising concern about the idea of flexibility and its applicability to operations management. Flexibility has long been recognized as an important factor in a competitive industry characterized by high rivalry, small product life phases, rapidly altering client preferences, increased technical innovation, and so on. Generally, flexibility refers to a company's capability to deal with or adapt to environmental uncertainty, hence creating chances for long-term competitive advantage (Sawhney, 2006; Tiwari, Tiwari, & Samuel 2015).

Based on Butler and Leong (2000), hospital flexibility is an essential and intrinsic aspect of health care delivery, permitting healthcare organizations to react efficiently to unpredictability in client expectations and altering political and financial climates. Ward et al. (2015) have recently observed that hospital flexibility regarding flexible lists and physical sources may improve hospitals' receptiveness to patients by addressing their changeable healthcare requirements by providing them with physical sources (e.g., beds), personnel, and space. The primary barrier for hospitals, however, remains how to incorporate a high level of flexibility in order to respond to shifting demands and anticipations (Dias and Escoval, 2014). Meanwhile, operational flexibility considers patient clinical outcomes as well as unit-based value costs. Integrating flexibility into medical and non-medical divisions may lead to fundamental enhancements and sustain health outcomes, especially during times of elevated demand and ambiguity. In this study, the operational flexibility concept in the healthcare sector will be covered by three dimensions (input, process, and outcome) flexibility (Chahal, Gupta, & Lonial, 2018).

2.3.1 Input Flexibility

How well-established an internal system is can be measured by its inputs. Solid inputs allow the system to work with high efficiency to deal with expected and unexpected changes. Input operational flexibility is capable of having the customers returned in the presence of any error, and by qualified input flexibility, the organization can build an effective and flexible operating system (Kumar & Singh 2019).

2.3.2 Process Flexibility

The flexibility of the process depends on three phases of customer value creation: first, the provider domain (creating value for the customer, focusing on planning, reviewing, and adjusting positive value creation); secondly, the cooperation domain (creating a state of positive interactions between the service provider and customers and between customers and the vision

of the organization in general); and thirdly, the customer domain (it is basically concerned with the additional organizational distinctive value that positively affects customer attraction). On the other hand, process flexibility is concerned with many contributing factors that may improve organizational services, thus enhancing their competitive advantages (Ojha et al., 2020).

2.3.3 Outcome Flexibility

This flexibility outcome deals with competitiveness in a professional way. This happens when the organization is focusing on the six basic capabilities that increase its competitiveness, such as; service flexibility, service cost, service price, service quality, speed of delivery, and finally the reliability of delivery. All these multiple abilities may help the organization's leaders to make suitable decisions based on more understanding of the competitive environment. They will enable them to choose between the available alternatives and concentrate on various performance evaluation criteria, which will enhance the relationship between organizations and their customers to meet their satisfaction. An organization's performance is limited to the degree to which outcome flexibility has extended; thus, enhancing the internal environment of the organization leads to achieving high levels of competitiveness in the market (Alamro et al., 2018; Kumar & Singh, 2019).

2.4 Management Capability

Management is a complex process and a multidisciplinary field of study that requires a wide range of skills and knowledge (Mohammad, 2020; Mohammad, 2019). To be a successful manager, you need to be able to understand and effectively implement modern management principles and techniques. In order to become an effective manager, one must have a solid understanding of the fundamental concepts of management. The ability of a company's management to adapt to the ever-changing nature of the organization is essential to gaining and maintaining a competitive advantage over its competitors (Pindur et al., 1995). Jacobides and Winter (2012) found that many management texts use the term "capability" to refer to a concept that is taken for granted, sometimes with a broad and all-encompassing meaning.

Management capability refers to an organization's management capacity, expertise, and processes that are used to implement programs and activities that lead to superior performance. The ability to effectively manage inter-organizational relationships is often involved in a company's management capabilities. In business, "managerial capability" refers to a company's ability to manage its resources, expertise, and processes in order to achieve superior results. Inter-organizational management skills are frequently included in evaluations of management abilities as well Karabag and Berggren(2016).

2.5 Theoretical Framework

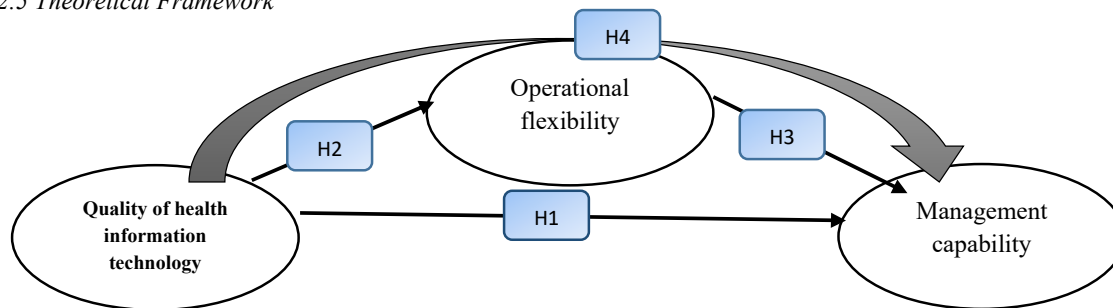


Fig. 1. Proposed theoretical framework

Based on the theoretical model, which appeared in Fig. 1, the researchers have four proposed research hypotheses as follows:

H₁: *Quality of health information technology has a significant impact on Management capability.*

Many studies have proven that health information technology is able to contribute to preventing medical errors and improving health worker productivity. On the other hand, the quality of health information systems helps in improving management procedures and improving health service outcomes. These studies focused on the role of health information technology in the medical sector and its impact on patient satisfaction and the importance of improving the quality of health service. All these studies provided facts about the importance of the impact of the use of health information technology on health performance, follow-up, and improvement process. This result helps in better understanding the gaps and challenges in health organizations (Sittig et al., 2015; Whitehead et al., 2018; Darragh et al., 2018).

H₂: *Quality of health information technology has a significant impact on Operational flexibility.*

Healthcare systems need effective use of information technology, re-engineering of traditional processes, a greater focus on flexibility to respond quickly to changing needs, and performance evaluation so that senior management can make better decisions. Health system administrators and leaders need to envision realistically derived models that will be useful for health systems. Experts also need to visualize a complex dynamic system that provides effective resilience, providing solutions to

analyze "what if" scenarios and the opportunities and ideas that simulation programs provide in adequately addressing such challenges (Krakauer et al. 1998).

From the above, it is clear that the availability of operational flexibility is very important to improving the quality of health information systems. On the other hand, operational flexibility needs an important provider of high-quality input information, and this is what the quality of health information systems provides. This hypothesis is considered an important research contribution because, within the scope of the researcher's knowledge, this hypothesis has not been studied before, especially in the health sector.

H₃: *Operational flexibility has a significant impact on Management capability.*

Zhang et al. (2003) examined the effects of flexibility on performance and outcome capabilities. The study found that operational flexibility reduces costs in general and operational time, which contributed to introducing new products and improving services provided, which led to improved customer satisfaction. On the other hand, Al-Khalil and Darwish (2019) examined the level of flexibility adoption in the auto industry, as their study revealed that implementing flexibility dimensions would lead to significant improvement in operational performance. Operational flexibility is the ability to respond to uncertainties (that is, proactive or reactive) in the external and internal environment of the organization. From the above, the researchers proposed that operational flexibility is important and has an impact on improving management capabilities and efficiency.

H₄: *Operational flexibility is a mediating variable between Quality of health information technology and Management capability.*

The fourth hypothesis, as shown in Fig. 1, operational flexibility is a mediating variable between the quality of health information technology and management capability. From the logic, and according to the management theories and studies, quality in health information technology needs operational flexibility, and operational flexibility has a clear impact on performance, especially in management capability. The operational flexibility in this study gives more value to this study, studying the mediating role of operational flexibility is one of the most important contributions to this study

3. Research methodology

3.1. Research sample

The population of the study involved medical doctors, nurses, and medical technologists in the public teaching hospitals in the Northern Region of Jordan (3 public hospitals and 1 university hospital). The estimated total number of medical staff leaders and medical doctors at public teaching hospitals at the time of the research was more than 2000 medical staff leaders and medical doctors. Sample size is an essential element of research design that significantly affects the validity and significance of the results of the study. The calculation of the sample size is necessary to assure the adequacy of the sample size and avoid Type II errors. The purposive sample of the study was restricted to 380 medical staff and medical doctors. The questionnaires, with instructions on how to fulfill them, were distributed to respondents by an interviewer. Subjects were asked to assess their perceptions of various items of different constructs. Assessments of the quality of information technology were based on a seven-point Likert scale rating from -3 to +3, and assessments of operational flexibility were based on a seven-point Likert scale ranging from "Completely disagree" (1) to "Completely agree" (7), The management capability assessments were based on a seven-point Likert scale ranging from "Strongly disagree" (1) to "Strongly agree" (7). The interviewer checked and collected the completed surveys. A total of 500 questionnaires were distributed to sample members, and 365 completed questionnaires were returned, yielding a 73% response rate.

Table 1
Hospital participation percent.

| Name of the hospital | Frequency | Percent (%) |
|--------------------------|-----------|-------------|
| Public hospital number 1 | 127 | 34.8 |
| Public hospital number 2 | 68 | 18.6 |
| Public hospital number 3 | 49 | 13.4 |
| University Hospital | 121 | 33.2 |
| Total | 365 | 100.0 |

Table 2
Professions

| Professions | Frequency | Percent |
|-------------------------|-----------|---------|
| Practical Nurse | 83 | 22.7 |
| Medical Technologist | 45 | 12.3 |
| Register Nurse | 105 | 28.8 |
| General Practice Doctor | 28 | 7.7 |
| Resident Doctor | 78 | 21.4 |
| Specialist Doctor | 26 | 7.1 |
| Total | 365 | 100.0 |

The sample size is generally recognized to be ten observations per indicator variable (Nunnly, 1967). To comply with the preceding criteria, the researchers carefully selected a proper sample size of 365 respondents for 33 observations in the study tool from Jordan's four public hospitals in the north. To choose responders from the observed population, a stratified random sampling method was used. Table 2 shows that 22.7% of respondents were Practical Nurse, 12.3% were Medical Technologist and Registered Nurse were 28.8 %, 7.7 % were general practice doctors, 21.4% were resident doctors and finally 7.1% were specialist doctors. From 365 respondents, the female and male percentages were 64.9 and 35.1 percent, respectively. Their ages ranged from 20 to 80, and they were categorized into four groups, with each group having a 15-year.

3.2. Research instrument

Part one of the questionnaire was assessed by the quality of health information technology dimension which included fourteen items and it was adapted from Ribiere et al. (1999). Part two focused on operation flexibility and consisted of 13 items it was adapted from (Chahal et al., 2018). Part three management capability was measured by borrowing the six-item scale was adapted from (DeSarbo et al. 2005).

Table 3
Loadings, AVEs and CRs

| Study Variables | Item | Loading | AVE | CR |
|--|--|---------|-------|------|
| Operational Flexibility | Ability to expand capacity through overtime and/or temporary hiring (Outcome flexibility 1). | 0.775 | 0.697 | 0.96 |
| | Ability to produce a wide range of service lines within the period used by the hospital minimum planning (Outcome flexibility 2). | 0.845 | | |
| | Ability to introduce new and/or modifying existing services within.(Outcome flexibility 3) | 0.905 | | |
| | Ability to shorten service times for procedures (Outcome flexibility 4). | 0.823 | | |
| | Ability to produce varying levels of output at a profit within the minimum planning period used by the hospital (Outcome flexibility 5). | 0.77 | | |
| | Ability of our employees to handle a range of tasks. (Process flexibility 1) | 0.868 | | |
| | Ability of the technologies to handle a wide range of operations. (Process flexibility 2) | 0.877 | | |
| | Ability of our processes to perform procedures on patients in varied sequences. (Process flexibility 3) | 0.78 | | |
| | Suppliers' ability to respond to our request for changes in order mix. (Input flexibility 1) | 0.788 | | |
| | Suppliers' ability to respond to our request for changes in volume. (Input flexibility 2) | 0.819 | | |
| | Suppliers' ability to respond to our request for changes in delivery time. (Input flexibility 3) | 0.842 | | |
| | Suppliers' ability to respond to our request for changes in new services. (Input flexibility 4) | 0.884 | | |
| | Suppliers' ability to respond to our request for changes in service modifications.(Input flexibility 5) | 0.859 | | |
| Management Capability | We have integrated logistics systems. | 0.774 | 0.68 | 0.88 |
| | We have cost control capabilities. | 0.832 | | |
| | We have financial management skills. | 0.917 | | |
| | We have human resource management capabilities. | 0.911 | | |
| | We have accuracy of profitability and revenue forecasting. | 0.797 | | |
| | We have marketing planning process. | 0.696 | | |
| Quality of the Health Information Technology | Screen layout are well designed. (Interface 1) | 0.825 | 0.69 | 0.97 |
| | Screen colors are pleasant. (Interface 2) | 0.835 | | |
| | Information is readable. (Interface 3) | 0.871 | | |
| | Menus are easy. (Interface 4) | 0.851 | | |
| | Volume of output per screen is suitable. (Interface 5) | 0.856 | | |
| | Graphics are pertinent.(Interface 6) | 0.852 | | |
| | Charts are concise. (Interface 7) | 0.807 | | |
| | Screen interface is easy to customize. (Interface 8) | 0.727 | | |
| | Simple (Functions 1) | 0.847 | | |
| | Secure (Functions 2) | 0.86 | | |
| | Fast (Functions 3) | 0.76 | | |
| | Complete (Performance 1) | 0.83 | | |
| | Sufficient (Performance 2) | 0.924 | | |
| Successful (Performance 3) | 0.827 | | | |

Note: the AVE and CR were calculated based on the standardized loading of the sub dimension of the constructs in the second-order model.

4. Statistical Analysis

We performed structural modeling analysis using the AMOS 24 platform to calculate confirmatory factor analysis, direct and indirect effects. Furthermore, SPSS 24 was used to compute descriptive statistics.

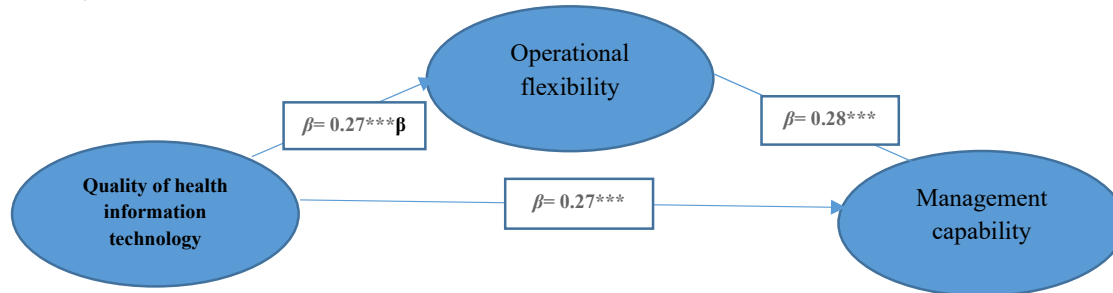
4.1 Confirmatory factor analysis: validity and reliability

Table 3 displays the average variance extracted (AVE) and composite reliability (CR) values for the constructs. The AVEs were higher than 0.5, and the CRs were greater than 0.7, indicating that the constructs were convergently valid (Fornell and Larcker, 1981). The AVEs and CRs were just as follows: 0.697 and 0.96 for operational flexibility; 0.68 and 0.88 for managerial capability; and 0.69 and 0.97 for health information technology quality. Furthermore, the CFA results did not indicate that any of the items should be deleted because all of their standardized loadings were sufficient. Additionally, the CFA results for hypothesized model show that our data fit the model [chi square = 1205.590, (DF) = 479, (CFI) = 0.928, (TLI) = 0.921, (RMSEA) = 0.065, incremental fit index = 0.929, information criterion = 1369.590, and p-value = 0.000]. The CFI and TLI values were all greater than 0.90, indicating an excellent match, however the RMSEA was less than 0.08, as predicted by Hair et al (2016).

5. Results and Hypotheses testing

To test hypotheses, SEM, as shown in Figure 2, was built to include quality of health information technology, operational

flexibility, and management capability variables. The fit indices of the SEM demonstrate a good fit for the model (chi square = 1250, DF = 479, CFI = 0.928, TLI = 0.921, RMSEA = 0.065, and p-value = 0.000). The results show that the quality of health information technology has a positive impact on the management capability and operational flexibility, and operational flexibility has a positive impact on the management capability. The results lend support to H1, H2 and H3. With regard to the mediating effects of operational flexibility, the findings report that the indirect effect of the quality of health information technology on management capability is significant via operational flexibility. These results support our hypothesis on the mediating effect of operational flexibility on the examined variables. It is noteworthy to mention that operational flexibility played a partial mediating effect between the quality of health information technology and management capability (Hair et al., 2016).



*** significant at 0.001

Fig. 2. Structural model – Standardized effects

6. Discussion

Kulikowski et al. (2012) define informatics as the application of computerized information systems to problem-solving, decision-making, and question-answering (Kulikowski et al., 2012). There is no doubt that the implementation of health information technology leads to fundamental enhancements in the quality, safety, and effectiveness of the provided health services (Martin et al., 2020). Health information technology implies a variety of systems, ranging from simple charting to more advanced decision assistance and integration with medical equipment. Furthermore, health information technology presents numerous opportunities for improving and revolutionizing healthcare, including lowering human error rates, improving clinical outcomes, reinforcing care regularity, increasing practice effectiveness, and tracking data over time (Alotaibi & Federico). Computer-based data entry systems enable physicians to manage their medication orders using electronic devices (Us et al., 2001).

As a result, it is rational for hospitals to concentrate their efforts on certain aspects that affect electronic medical record adoption and opposition (Darby et al., 2019). Some firms emphasize the utilization of cutting-edge technologies and high-tech services, including robot surgery or organ transplantation, as a differential managerial strategy (Trinh, 2020).

The emergence of the electronic health record (EHR) and various eHealth technologies has significantly altered how healthcare is provided and how medical professionals perform their duties. Therefore, as robotics and artificial intelligence are further integrated into the healthcare system, this transformation will be persistent (Buch et al., 2018; Arnold & Wilson, 2017; Safdari et al., 2015). Utilization of technology infrastructure to support strategic planning, public health, and patient-centered care is comprehensive to a growing health system (Sheikh, 2020; "The Evolving Evidence Base-Methodologic and Policy Challenges," 2007).

According to Schön et al. (2019), the degree to which technology may be used effectively, efficiently, and satisfactorily on the basis of system design is known as usability of health information technology. Insufficient information entry and retrieval, as well as communication and coordination errors, can be attributed to poor usability of HIT (Coiera et al., 2016). Poorly constructed systems, on the other hand, may also lead to undesired burnout of skillful staff and demotivation (Kroth et al., 2019). According to the literature, definitions of flexibility could be varied. In the context of production systems, flexibility typically refers to a system's capability to adapt to changes (Gupta & Buzacott, 1989). Based on (Stevenson & Spring, 2007), operational flexibility can be defined as the ability to adapt either proactively or reactively to ambiguity. This capability has a number of aspects, each of which may vary in relevance depending on the situation. The capacity to react to uncertainty, foster efficiency, and other characteristics that are frequently associated with operational flexibility (Yousuf et al., 2019), as well as the capability to extend operations (Olsson et al., 2010). Operational flexibility is made up of interconnected capabilities and flexibilities. Further, enabling workers to shift between workstations, for instance, increases the workforce and is helpful in inducing operational flexibility (Azizi & Liang, 2013). On the other hand, technology integration is essential for any business to run smoothly, and any activity that is based on massive human interaction needs to have a proper establishment of technology to boost operational flexibility without endangering the operators' security and safety. As a result, solid operational flexibility requires the facilitation of a variety of sources and technological capabilities (Berglund, 2022). Thus, the primary contribution of health information technology to improving adherence to protocol-or guideline-based care is its ability to promote patient care besides electronic reminder availability. Therefore, studies from four benchmark leaders

suggest that implementing a multifunctional system can actually be beneficial in terms of increased delivery of care based on guidelines (particularly in the area of preventive health), improved monitoring and surveillance activities, decreased rates of medication errors, and decreased rates of utilization for potentially redundant or inappropriate care (Care, 2006).

Operational flexibility, on the other hand, can be induced through high-tech foundations. Health information technology, for instance, is an effective tool to promote the well-established flexibility required for basic health operations in health care organizations and hospitals. As these findings strongly relate to organizations in the health sector, decision-makers' and clinical stakeholders' attention is required to expand technological and operational approaches throughout health care providing centers. Organizations are continually looking for ways to expand the economic value they may provide through carefully chosen alliances that make up their primary network of contacts (Doz, 1996). In conceptual interpretation, a capability is a condition of constant progress. Thus, management capability is a state of knowledge development (Jarratt, 2004) and actual adaption of practical activities. The more an organization is able to constantly adapt to changes, the closer it becomes to achieving its objectives and goals. Operational flexibility is increasingly becoming an effective factor in organizational development, along with expanded managerial capability. Furthermore, flexible organizational operations positively impact an organization's capacity to cope with consistent environmental and non-environmental changes. Thus, policymakers should be aware of the importance of knowledge building, network connections, and competitive advantage achievement. An organization has to recognize and then expose its differential characteristics.

7. Conclusion and Implications

Health information systems have become an important basis for the development of health services today. Health quality necessitates advanced documentation and follow-up processes that prioritize medical diagnosis, follow-up on treatment procedures, and reduce medical errors. The quality of health information technology is the point of distinction today. It is not enough to have health information technology in the health system; the goal is to reach a degree of quality in health information systems that increases productivity, reduces costs, and increases opportunities for continuous improvement, in addition to reaching satisfactory levels of patient satisfaction, which is one of the main goals. The management capabilities in hospitals today are considered a point of excellence and advancement in the medical service. In order for the management capabilities to be distinguished, they need important support to facilitate the process of entering and processing medical and administrative information in an easy, fast, and secure manner, which is reflected in the level of decision-making in the hospital and provides a mainstay for excellence in hospitals.

Operational flexibility is an important management philosophy in making organizations capable of facing the internal and external changes within their organization. Operational flexibility helps the organization to reach a state of robustness that reduces any potential losses and, at the same time, works to support productivity and fill any shortcomings or weaknesses. Operational flexibility plays a role as a mediating factor and is one of the strengths of this research. There are limited studies that depend on enhancing the quality of health information technology through participatory processes with operational flexibility, and this is a healthy thing for the organization. The role of operational flexibility as a mediating variable was clear from the results of this study, as operational flexibility was a mediating variable between the quality of health information technology and the management capability of the hospitals covered by the research.

On the other hand, the results of this study also showed the positive impact between the quality of health information technology and operational flexibility, as well as between operational flexibility and the management capability of the hospitals covered in this study. Encourage hospital management to enhance their operational flexibility in all hospital policies and procedures because it has a significant impact on the quality of health information technology and management capabilities in hospitals by increasing the culture of operational flexibility among workers, training them to apply it in their daily work and enhancing its presence in hospital strategies. which increases efficiency, improves service and patient satisfaction for patients and their families, increases the competitive level of the hospital, and enhances the hospital's market position.

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