Knowledge Management-oriented Innovation in Medical Tourism

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ABSTRACT

Despite the considerable growth of interest in medical tourism, there are no standard procedures to measure the main factors in medical tourism destinations. Medical tourism is a rising global phenomenon that is strongly dependent on innovation and knowledge management and demands systematic and innovative hospitals. Hence, being both innovative and systematic in medical tourism requires thought enrichment for knowledge management.

The main concern in the current thesis is to inform managers working in medical tourism about the importance of innovation and knowledge management areas by applying both qualitative and quantitative methods. This thesis presents a newly developed tool, "knowledge management-oriented innovation," to analyze any new product or service from hospitals active in medical tourism.

Project Management Body of Knowledge presents 10 areas namely integration, scope, time, cost, quality, human resources, communication, risk, procurement, and stakeholder management. Standard steps of all knowledge management areas developed in questionnaires format using the Delphi technique through several meetings and consultations with a committee of professional project managers in Iran.

An expert review and pilot study in hospitals evaluated the developed close-ended, *Likert*-type scale items by examining 40 questionnaires, and the results of confirmatory factor analysis and exploratory factor analysis supported the accuracy of the items.

By examining whether time, cost, and quality management orientation in innovation processes will increase innovation speed and operational performance, this thesis presents their positive effects for medical tourism and especially international hospitals in Iran.

The results present how the selected knowledge management areas will impact operational performance through the mediating role of innovation speed. Broadly speaking, cost and quality management-oriented innovation facilitate innovation speed and operational performance, while innovation speed is a mediator. Regarding time management-oriented innovation, in the current thesis and for this case study, it has a positive and direct relation with innovation speed but does not present a positive and statistically significant relation with operational performance for international hospitals in Iran.

Keywords: knowledge management area, innovation, hospital, medical tourism, operational performance.

ÖZ

Tıbbi turizme duyulan ilginin artmasına rağmen, sağlık turismi destinasyonlarındaki ana faktörleri ölçmek için standart prosedür bulunmamaktadır. Sağlık turismi, inovasyon ve bilgi yönetimine güçlü bir şekilde bağımlı olan ve sistematik ve yenilikçi hastanelere ihtiyaç duyan yükselen küresel bir olgudur. Bu nedenle, sağlık turisminde hem yenilikçi hem de sistematik olmak bilgi yönetimi için zenginleştirmeyi gerektirir.

Bu tez çalışmasında temel konu, sağlık turismiçalışan yöneticilerin hem nitel hem de nicel yöntemler kullanılarak inovasyon ve bilgi yönetimi alanlarının önemi hakkında bilgi vermektir. Bu tez, medikal turizmde faaliyet gösteren hastanelerden yeni ürün veya hizmetlerin analiz edilmesi için yeni geliştirilen "bilgi yönetimi odaklı inovasyon" aracı sunmaktadır.

Proje Yönetimi Bilgi Birimi, entegrasyon, kapsam, zaman, maliyet, kalite, insan kaynakları, iletişim, risk, tedarik ve paydaş yönetimi olmak üzere 10 alan sunmaktadır. Tüm bilgi yönetimi alanlarının standart adımları, Delphi tekniğini kullanarak, Hindistan'daki profesyonel proje yöneticileri komitesi ile çeşitli toplantılar ve istişareler yoluyla anket formatında geliştirilmiştir.

Hastanelerde uzman bir gözden geçirme ve pilot çalışma, geliştirilen yakın uçlu Likert tipi ölçek maddelerini 40 anketi inceleyerek değerlendirdi ve doğrulayıcı faktör analizi ve keşif faktörü analizi sonuçlarının doğruluğunu destekledi.

İnovasyon süreçlerinde zaman, maliyet ve kalite yönetimi yöneliminin inovasyon hızını ve operasyonel performansı artıracağını inceleyerek bu tez, sağlık turismive özellikle İran'daki uluslararası hastaneler için olumlu etkilerini ortaya koymaktadır.

Sonuçlar, seçilen bilgi yönetimi alanlarının, inovasyon hızının aracı rolüyle operasyonel performansı nasıl etkileyeceğini göstermektedir. Genel olarak, maliyet ve kalite yönetimi odaklı inovasyon, inovasyon hızının bir arabulucudur, inovasyon hızı ve operasyonel performansı kolaylaştırır. Zaman yönetimi odaklı inovasyon konusunda, mevcut tezde ve bu vaka çalışması için, inovasyon hızı ile pozitif ve doğrudan bir ilişkisi vardır, ancak İran'daki uluslararası hastanelerin operasyonel performansı ile pozitif ve istatistiksel olarak anlamlı bir ilişki göstermemektedir.

Anahtar Kelimeler: bilgi yönetimi alanı, yenilikçilik, hastane, sağlık turismi, operasyonel performans.

DEDICATION

To my everything, To my Family

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PMBOK	Project Management Body of Knowledge

Chapter 1

INTRODUCTION

In radical innovation (Schumpeter, 1934; Teece, 2010) a product or service is delivered to the market for the first time. Hence, it should be considered a new project and consequently requires the standard project steps for all knowledge management areas in practice. Knowledge management areas are categorized into 10 sections according to Table 1.1 (PMI, 2013).

Because of the increasing interest in medical tourism, it is fundamental for compatible hospitals in destinations to be innovative and systematic. In the first phase of this thesis, the standard project steps for any knowledge management area were developed as measurement items. These items are suitable tools for hospital managers. The items developed into a questionnaire format will help hospital managers with knowledge management-oriented innovation. This means any new product or service will be analyzed comprehensively before delivering it to the market to attract more medical tourists.

The measurement items are used for the second phase of the thesis in quantitative analysis to demonstrate how they will positively affect innovation speed and operational performance. This phase was conducted to determine whether the developed items have a positive effect on innovation speed and operational performance in practice.

1.1 Background

Interest in medical tourism is increasing rapidly, and medical tourists are looking to many hospitals for treatment. Hospitals that deliver services with low cost and high quality have more chance to compete, but delivering services considering time, cost, quality and other related knowledge management areas is not easy for managers and the main stakeholders in hospitals. Most of the time, new services are delivered to customers because of managers' own interest, without analyzing the market, which is the main reason for failure.

Innovation and competition require an efficient exchange of knowledge (Chen et al., 2009; Li et al, 2013). Thus, being innovative by emphasizing knowledge management areas is helpful to remain competitive in the market. Medical tourism is more complicated, as innovation and knowledge deal with both medical and tourism industries in practice.

1.2 Medical Tourism

Medical tourism is a particular type of patient mobility. Patients go abroad to receive different treatments in other countries (Lunt et al., 2016). More than 30 countries and hundreds of hospitals and clinics around the world deliver services to medical tourists. This information indicates the importance of being innovative and systematic to attract more medical tourists (Saadatnia & Mehregan, 2014a), but these numbers do not demonstrate how much we know about this industry.

Recently, medical tourism has received attention as a serious topic for consideration (Han, 2013; Reddy et al., 2010). This industry is growing in Asia every year (Crozier & Baylis, 2010). In Asia, many countries compete to attract more medical tourists in

related hospitals by delivering high-quality and low-cost services (Horowitz et al, 2007). In many studies regarding medical tourism, the primary focus is on time, cost, and quality (Dehdashti & Nakhaei, 2016; Fetscherin & Stephano, 2016; Han & Hyun, 2015; Lunt & Carrera, 2010). However, these are just three main knowledge management areas, and no tool or guidance has been introduced to measure them practically.

Iran is an excellent destination for medical tourists; it offers both touristic attractions and high-quality health care services in hospitals. Many countries and companies are involved in medical tourism, but this type of tourism does not have fundamental indicators. Some indicators of a destination, including medical costs, medical facilities, and services (Fetscherin & Stephano, 2016) have been considered as the leading indicators in the medical tourism industry. The improvement of medical tourism in Iran and the demand for particular treatments (e.g., fertility treatments) require the focus of academic research to provide more systematic and standard support. Many hospitals in Iran are leading destinations for medical tourism, and these hospitals should follow the primary criteria and standard procedures to remain competitive through innovation.

1.3 Appraisal of the Problem

The importance of innovation in hospital management is obvious. Innovation could be in the form of a product, service, or any other type, but all of them require detailed and comprehensive analysis before delivery to the market. In this regard, seeing any new idea as a new project and considering the standard project steps is necessary. In professional project management, 10 main knowledge management areas are defined. PMBOK presents these areas in 10 categories: integration, scope, time, cost,

quality, human resources, communication, risk, procurement, and stakeholder management.

Hospitals are strongly dependent on their procedures, which are undertaken to be competitive (Cleven et al., 2016). There are some studies which emphasize the importance of some knowledge management areas in hospitals, like procurement management (Ginsburg, 2005); cost management (Culler et al., 2017; Wu, 2009) and communication management (Berger et al., 2017; Sharpe & Hemsley, 2016). However, to our best knowledge, no study presents a comprehensive analysis of the importance of innovation in hospitals.

1.4 Aims and Objectives

The Iranian government is interested in attracting more tourists in both the medical and tourism industries, and its vision is to achieve 20 million international tourist arrivals by 2024, but there are no suitable strategies to achieving this in place (Jabbari et al., 2012). The government is interested in developing this industry, but the main problem is lack of a systematic and standard infrastructure in this country. Iran is planning to expand its shared market by delivering the latest technologies in medical tourism. It will deliver high-quality new products and services in less time and at lower cost, but the main concern is how this will be undertaken. As will be discussed in detail (Section 2.7), the main concerns in medical tourism are time, cost, and quality management, which are the three main parts of the 10 knowledge management areas. Thus, considering knowledge management areas during the innovation process could be the best way to deliver successful new products and services to medical tourists.

The main purpose of the current thesis is to consider that many projects around the world fail every year because there is no professional analysis before delivering a new product or service to the market. By using the standard steps of PMBOK, this thesis will develop new measurement items for innovation through a comprehensive analysis of the hospitals active in medical tourism. It emphasizes conducting a professional analysis for each knowledge management area. The developed items, called "knowledge management-oriented innovation," measure innovation and knowledge management areas together in hospitals. The items will be used in the second phase of the current thesis for quantitative research.

By examining whether time, cost, and quality management orientation in innovation processes will increase innovation speed and operational performance, this thesis presents their positive effects for medical tourism and especially international hospitals in Iran. In details it examines 10 main hypotheses (4.2.1).

The main purpose of the second phase is to extend the available studies on knowledge management areas in the tourism sector by presenting the effect of knowledge management areas on innovation and eventually the operational performance of hospitals. It was necessary to prove that the developed items have a positive effect on innovation speed and consequently operational performance. The results support the usefulness of the developed items.

1.5 Contributions of the Thesis

Many studies illustrate the effect of knowledge management areas on innovation, like the effect of time management (Schumpeter, 1934) and cost management (Martĺnez-Ros & Orfila-Sintes, 2009). Indeed, the impact of each knowledge

management area on innovation is considered directly or indirectly in different organizations and industries. However, to our best knowledge, no study has comprehensively considered all 10 knowledge management areas in the same study for innovation processes. Further, there is no tool to measure innovation and knowledge management areas together. The absence of standard indicators for measuring innovation is apparent in the medical tourism industry when all the knowledge management areas are considered.

Fetscherin and Stephano (2016) developed the "medical tourism index" to help managers active in this industry from a different point of view. However, in their study, although many items were introduced in four categories, the main focus was on cost and quality management, which are just two knowledge management areas.

This study attempts to go beyond previous ones, which are limited to certain aspects of knowledge management areas. The importance of cost and professional management as leading indicators in medical tourism are discussed, but more indicators should be considered to obtain a more comprehensive view. For example, time, cost, quality, and risk strongly influence each other, and they cannot be considered separately because of their direct correlation (PMI, 2013).

Table 1.1: Project Management Processes

Knowledge Management Areas	***Project Management Process Groups***				
	Initiating	**Planning**	**Executing**	**Monitor and Controlling**	**Closing**
Integration Management	Develop Project Charter	Develop Project Management Plan	Direct and Manage Project Work	Monitor and Control Project Work Perform Integrated Change Control	Close Project or Phase
Scope Management		Plan Scope Management. Collect Requirements Define Scope Create WBS		Validate Scope Control Scope	
Time Management		Plan Schedule Management. Define Activities Sequence Activities Estimate Activity Resources Estimate Activity Durations Develop Schedule		Control Schedule	
Cost Management		Plan Cost Management Estimate Costs Determine Budget		Control Costs	
Quality Management		Plan Quality Management.	Perform Quality Assurance	Control Quality	
Human Resource Management		Plan Human Resource Management	Acquire Project Team Develop Project Team. Manage Project Team		
Communication Management		Plan Communications Management	Manage Communication	Control Communications	
Risk Management		Plan Risk Management. Identify Risks Perform Qualitative Risk Analysis Perform Quantitative Risk Analysis Plan Risk Responses		Control Risks	
Procurement Management		Plan Procurement Management	Conduct Procurements	Control Procurements	Close Procurement
Stakeholder Management	Identify Stakeholders	Plan Stakeholder Management	Manage Stakeholder Engagement	Control Stakeholder Engagement	

Source: Project Management Institute (PMI), (2013)

After developing the measurement items to measure all 10 knowledge management areas in hospitals, in the second phase, quantitative research was conducted to present that the chosen knowledge management areas have a positive relationship with both innovation speed and operational performance.

For the second phase, among knowledge management areas, the most related and effective ones were chosen to be analyzed to measure their relation to innovation speed and operational performance. Overall, three knowledge management areas were selected, which are the main ones according to the previous studies (Crooks, et al., 2011; Fetscherin & Stephano, 2016; Han & Hyun, 2015; Heung, et al., 2010; Saadatnia & Mehregan, 2014b). These areas are time, cost, and quality management.

1.6 Theory

Theories are essential, as they are an important way to prove the reasonableness of any scientific field (Baskerville & Dulipovici, 2006). Theories act as a coordinator to present the main purpose of any research and justify the methods used (Laudan, 1986).

Baskerville and Dulipovici (2012) mentioned different areas of knowledge management as fundamental indicators in knowledge management theory. Among the specified areas, including organizational behavior, organizational structure, and strategic management, elements like innovation, performance measurement, and quality management (the main constructs of the current thesis) were mentioned.

Nonaka (1995) mentioned concepts related to knowledge management, such as knowledge creation or knowledge organizations, to present the importance of knowledge management areas in organizations. The importance of knowledge management in innovation cannot be ignored in any organization because it leads to better performance, efficient operational work, and delivering high-quality products and services (Wiig, 1994).

Some studies have examined the theory of innovation in organizations, such as those performed by Ren et al. (2015) and Esterhuizen et al. (2012). However, considering all the constructs emphasized in the current thesis, knowledge management theory is the theory that covers all of them (Baskerville & Dulipovici, 2012). These constructs are innovation, different knowledge management areas, and performance; all of them are examined in the theories by Baskerville and Dulipovici (2012) and Wiig (1994).

It is necessary to present a summary of the theoretical basis of knowledge management to define more details of this theory. Knowledge management is built on many important theoretical bases, like strategic management, organizational behavior, organizational culture, quality management, and organizational performance measurement. All the mentioned items are the foundation to define knowledge management theory to present the main process of managing knowledge and then evaluating the defined processes in practice.

From 1995 to 2005, different knowledge concepts were presented, including knowledge culture, knowledge organization, knowledge infrastructure, and knowledge economy. From 1990 to 2000, knowledge management was a "buzzword" in the management area (Shoesmith, 1996), and in 1997 it was used often by human resource managers (Benson, 1997).

In 1998, the main concern in any organization was strengthening the knowledge of organizations (Ruggles, 1998). Knowledge management has a connection with other underlying theoretical foundations, which indicates its main role in management theories. Knowledge management developed in organizations to enhance the

performance of many factors, like creativity in organizations, productivity in operational work, and the quality of both products and services (Wiig, 1994).

Scholars have worked on different areas and categories of knowledge, like tacit knowledge (Tordoir, 1995), firm-specific knowledge (Tordoir, 1995), and knowledge management frameworks (Baskerville & Dulipovici, 2006). The main concern about knowledge management is its measurement. It is crucial to measure knowledge management quantitatively. Theories of quality management and risk management were adapted for use in knowledge management. Thus, developing measurement items for knowledge management and its processes is fundamental in this area (Baskerville & Dulipovici, 2006). The current thesis will fulfill this demand. It helps to measure knowledge management in innovation processes for the first time. Also it examines the effect of different knowledge management areas on innovation speed and operational performance. This thesis measures main concern of knowledge management theory like innovation and performance.

Knowledge has also been used to demonstrate the productivity of organizations. In sum, after considering the knowledge management theory's concepts and implications, it was chosen for the current thesis. It deals with knowledge management areas, performance, innovation, and processes; hence, it is the most appropriate theory for the current thesis.

Chapter 2

LITERATURE REVIEW

In this chapter, a detailed review of the existing literature is presented. While doing so, first the notion of innovation, its meaning for both service and tourism industries, and its main categories are presented. Second, different definitions of medical tourism, and its importance in Asia and Iran, by referring to the importance of innovation are presented. Finally, according to the important role of medical tourism in Asia and Iran, and by considering the necessity of being innovative to remain competitive in the market, considering any new idea as a new project is strongly suggested. In this regard, all the standard steps of project management shown in Table 1.1 should be applied.

To apply all the standard steps of project management in innovation processes, it is essential to show that all 10 knowledge management areas of project management are related to innovation. Consequently, if applying innovation and knowledge management areas is productive and necessary in hospitals (first phase) it should improve operational performance as the primary output of being innovative in this sector and present high innovation speed as a mediator of the current thesis (second phase).

2.1 Definition of Innovation

Organizations have found innovation to be the best way to transform any changes to opportunities and consequently gain success (Huse et al., 2005). Innovation is vital for organizations, and absolutely all of them want to get as many benefits from it as.

Studies placed more focus on market and customer satisfaction, and less on innovation, while innovation itself is a key to expanding organizations' market share and having more satisfied customers (Engelen et al., 2014). Different definitions of innovation that emphasized on different orientations, like innovation capacity and innovativeness presented before (Hurley & Hult, 1998). Being open to any new idea in organizations is called innovativeness, and innovation capacity is related to the organizations' capability to perform new ideas, such as a new product or service.

When all the employees in an organization believe in innovation and its advantages, it means they are systematically innovative (Kleysen & Street, 2001). In sum, the managers who believe in innovativeness (Hurley et al., 2005) will make the way of innovation as much as easier for employees.

2.2 Innovation in the Service and Tourism Sectors

Innovation in products, which have a defined scope of work and descriptions, cannot be compared with innovation in services (Hipp & Grupp, 2005). However, many scholars have developed theories about innovation in the service sector based on those ones used in production (Gallouj & Savona, 2008; Tether, 2005).

Innovation in the service sector is entirely different among different firms, as it is executed by and delivered to different people, but there are some mutual aspects.

Innovation in the service sector and its characteristics still is a topic that needs to be discussed more in both academic and market types of research (Ettlie & Rosenthal, 2011).

It seems reasonable for there to be an integrated perspective that covers service and product criteria together (de Vries, 2006; Drejer, 2004). Such an integrated system with both manufacturing and service firm characteristics would be beneficial for organizations (de Vries, 2006; Gallouj & Savona, 2008). By erasing the border between these two sectors and moving them together, innovation definitions and aspects will be developed positively and productively (Drejer, 2004). Innovation in service sectors occurs to achieve customer satisfaction but is not an easy job for organizations active in this sector (Mudrak et al., 2005).

The tourism sector cannot remain competitive in the market without innovation. Being innovative in the tourism sector means organizations could attract more customers than their competitors and be open to novel ideas in their organizations (Sundbo et al., 2007). The most important indicator of innovation in the tourism sector is knowledge, and without a corporate culture of knowledge, innovation is not reachable (Hjalager, 2010).

2.3 Fundamental Categories of Innovation

Innovation is an important concept that has different categories and definitions. These categories are as follows according to scholar's opinions (Table 2.1):

Table 2.1: Fundamental Categories of Innovation

Category	Author(s)
Product	(Aldebert et al., 2011)
Process	(Aldebert et al., 2011)
Management, Organization, Administration	(Daft, 1978; Damanpour, 1987; Kimberly & Evanisko, 1981)
Service	(Rycroft, 2006)
Marketing	(Aldebert et al., 2011; Rycroft, 2006)
Communication	(Rycroft, 2006)
Eco innovation	(Panapanaan et al., 2014)
Internal and external innovation	(Chesbrough, 2007; Von Hippel, 1988)
Radical and incremental innovation	(Brettel et al., 2011)

Table 2.1 helps to have an overview of innovation categories and its main sub factors. According to the table, innovation can be internal or external (Chesbrough, 2007; Von Hippel, 1988) and radical or incremental (Damanpour, 1996; Martínez-Ros & Orfila-Sintes, 2009; Schumpeter, 1934; Teece, 2010; Tushman & Anderson, 1986). Management, administration, and organizational innovation are in the same group because Daft (1978), Damanpour (1987), and Kimberly and Evanisko, (1981) stated they have same meaning in practice.

2.4 The Concept of Medical Tourism

Medical tourism is an outcome of health care globalization (Hopkins, 2010; Meghani, 2011). From the 18th to the 20th century, mainly wealthy patients from developing countries traveled to medical centers in Europe and the United States for medical treatment. This trend began to reverse in the late 20th century and increased significantly in the 21st century (Fetscherin & Stephano, 2016).

In recent years, organizations such as the World Health Organization (WHO), the American Medical Association (AMA), and the Indian Institute of Tourism and Travel Management (IITTM) have put their main focus on medical tourism.

There is considerable interest in medical tourism, a unique industry that delivers both tourism and medical services as a new form of tourism (Connell, 2006). According to Hoz-Correa et al. (2018) and Lunt and Carrera (2011) medical tourism includes a range of treatments like cosmetic surgery, dentistry, or fertility treatment. In fact, medical tourists travel for elective surgery (Wang, 2012). Elective surgical treatments are related to non-emergency medical services rendered to patients (Carrera & Bridges, 2006).

2.5 Medical Tourism Definitions

Medical tourism has different terms and definitions. Traveling abroad with the aim of improving one's health is one of them (Bookman, 2007). Alternatively, it can be defined as any organized travel to other countries to enhance or restore an individual's well-being in mind and body (Carrera & Lunt, 2010). Medical tourism can be traveling to have treatment with high quality and more accessible services or just the act of traveling abroad to receive medical care (Cormany & Baloglu, 2011). According to Thompson (2008) medical tourism is a phenomenon organized through institutions rather than individuals' own decisions to travel abroad for treatment. Hopkins et al. (2010) also mentioned that medical tourism integrates both touristic and medical aspects for patients who travel to a new environment to receive services with less cost and high quality.

There are more reasons beyond the mentioned factors of medical tourism, like demand for international standards, support of insurance companies in other countries, and qualified and certified doctors and staff. Medical tourism destinations are highly dependent on their health care laws, certification, licensure, and accreditation (Lunt et al., 2013).

Recently, the number of patients who travel just for medical purposes has increased significantly. The rapid growth of the number of patients who travel to other countries to receive medical, dental, and surgical care and to visit touristic attractions has caused different definitions, like medical tourism, health tourism, and wellness tourism (Sarantopoulos et al., 2014; Yu & Ko, 2012). The following section of this chapter provides an overview of these categories.

2.6 Medical Tourism Categories

Medical tourism deals with many new terms, like medical travel, fertility tourism, health tourism, and wellness tourism. M. Smith and Puczkó (2008) stated that health tourism includes both medical tourism and wellness tourism.

Borman (2004) and Goodrich (1994) stated that health tourism attracts tourists by delivering both touristic and medical services while Connell (2006) believes the term "medical tourism" should be used only for medical interventions or surgical issues. However, medical tourism is a combination of both tourism and the medical industry and the degree of their involvement is different in practice.

As Jagyasi (2008) stated, medical term is related to illness and surgeries, and it is hard to define a clear threshold between health and medical tourism. For example, dental tourism has a different meaning (Pollard, 2011), and it is hard to assign it as

medical tourism. The health tourism and medical tourism terms differ mainly based on the type of treatment (Crooks et al., 2010). In fact, in health tourism the main focus is on relaxing by using the spa (Smith & Puczkó, 2008), for example, whereas medical tourism deals with hospitalization and operations (Connell, 2006).

2.7 Medical tourism in Asia and Iran

The number of patients traveling every year is increasing. The number grew from 19 million travelers in 2005 to near 26 million in 2007 (RNCOS, 2008), and estimated statistics from the World Tourism Organization showed that the number of individuals engaged in healthcare tourism increased by 32% between 2005 and 2010, with 42% increase in revenue. Medical tourism has considerable market share for fertility treatment, and 5–30% of the world's population has been affected by primary or secondary infertility (Moghimehfar & Nasr-Esfahani, 2011). Thus, many couples around the world are seeking destinations that deliver such services at a lower price with higher quality.

Ganguli and Ebrahim (2017) highlighted Asia's high-quality medical services as one of the main reasons of the continent's significant share in the market. Asian countries received 4.3 million medical tourists in 2010, generating revenue over US$6.7 billion, and have become among the most preferred destinations for medical treatment (Mohamad et al., 2012).

Many hospitals and clinics in the Middle East serve couples looking for fertility treatments (Sills et al., 2007) and more than 70 clinics and centers in Iran deliver fertility treatment, as well. Iran is surrounded by Muslim countries such as Iraq, Afghanistan, Pakistan, Turkey, and Azerbaijan. With more than 7,000 years of urban

settlements and many touristic places, Iran is a priority location for these countries regarding medical tourism (Zendeh Del, 2001).

Reproduction technologies are illegal in some countries (Blyth & Farrand, 2005; Heng, 2007; Inhorn, 2005; Jones & Keith, 2006), but Iran has many places for this type of treatment in cities like Tehran, Yazd, and Isfahan. Royan Institute, for example, is a well-known and professional center for fertility treatment in Tehran and has many customers from other countries every year.

The active and aggressive market, developed infrastructure, international accreditation, and expert doctors are some of the main motivators for medical tourists to choose Iran. Iran is famous for its advanced fertility technologies, heart operations, and eye surgeries, for example. It has 850 highly equipped hospitals and rehabilitation centers that deliver services at reasonable costs. The cost of treatment in Iran is less than in developed countries and in other Asian countries, including Jordan, Turkey, Dubai, and Saudi Arabia (Jabbari et al., 2012).

Iran has a successful health care system. It also has expert medical doctors and nurses. Iran has wonderful touristic attractions and nice weather, in addition to advanced medical services technologies. More than 50,000 patients traveled to Iran for treatment in 2007. As a medical hub delivering high-quality services, Iran is a suitable destination for people from Muslim countries. It has 51 medical schools training approximately 3,000 doctors annually. The Iranian government is interested in attracting more tourists in both the medical and tourism industries, and its vision is to achieve 20 million international tourist arrivals by 2024, but there are no suitable strategies to achieving this in place (Jabbari et al., 2012).

2.8 Medical Tourism and Knowledge Management Areas

More than any other hospitality industry, medical tourism is dependent on knowledge. This kind of knowledge is critical, as it deals with people's health as tourists in a foreign country. Despite the importance of medical tourism, there is still a lack of knowledge and standard procedures. Some academic journals and associations are working specifically on medical tourism to represent its importance by introducing both academic and practical studies. However, there is a lack of standards for medical tourism.

According to Connell (2006), today's concerns about medical tourism are cost, quality, and improvement of medical tourism services. Scholars have mostly focused on only one or two knowledge management areas, specifically, cost and quality, rather than all 10 areas. In all the previous studies, innovation was not considered as a new project which requires detailed analysis. In PMBOK, each knowledge management area for any new project has standard steps, which were developed in a questionnaire format according to Table 1.1 in this thesis (Results chapter, first phase). We have used these items in the current thesis to measure knowledge management areas in hospitals regarding improvements in innovation speed and operational performance.

Some studies present the importance of knowledge management areas in hospitals, as shown in Table 2.3. To our best knowledge, however, no study analyzed all 10 areas together, especially in relation to innovation processes in hospitals.

Table 2.2: Knowledge Management Areas in Hospitals

Knowledge Management and Hospitals	Author(s)
Human resource management	(Jończyk, 2015; Qingwei, 2012)
Stakeholder management	(Bravi et al., 2013; Buchanan et al., 1997; Zehir ae al., 2016)
Procurement management	(Ginsburg, 2005)
Cost management	(Culler et al., 2017; Wu, 2009)
Communication management	(Berger et al., (2017); Sharpe & Hemsley, 2016)

2.9 Knowledge Management Areas and Innovation

A strategic approach to knowledge management is fundamental for innovation, both theoretically and in the execution phase (Valkokari et al., 2012). It is necessary to prove that each of the main knowledge management areas in any new project has a positive relation with innovation according to scholars' opinions, as follows:

Table 2.3: Knowledge Management Areas and Innovation

Knowledge Management Areas and Innovation	Author(s)
Integration management and innovation	(Pavlou & El Sawy, 2011; Salazar et al., 2012)
Scope management and innovation	(Saleh & Ryan, 1992)
Time management and innovation	(S chumpeter, 1934)
Cost management and innovation	(Martĺnez-Ros & Orfila-Sintes, 2009)
Quality management and innovation	(Cohen & Levinthal, 1990)
Human Resource management and innovation	(Bruns et al., 2008; Seibert et al., 2001)
Communication management and innovation	(Homburg & Kuehnl, 2014; Lui, 2009)
Risk management and innovation	(Gurd & Helliar, 2017)
Procurement management and innovation	(Haugbølle et al., 2015)
Stakeholder management and innovation	(Ommen et al., 2016)

2.10 Time, Cost, Quality Management, and Innovation

Recently, medical tourism has gained more market share among service industries in many destination countries. In short, globally, medical tourism is one of the fastest-growing tourism sectors (Bookman, 2007; Han, 2013). The main concern in this industry is attracting more customers by proposing new services and products to the market (Han, 2013). Thus, recognizing motivation factors is becoming more important for the destinations and hospitals active in this industry.

In terms of the motivating factors, many studies have been conducted to identify push and pull factors for medical tourism. The main push factors for choosing a destination are lack of expert doctors, low quality of services, and lack of medical technologies (Blyth & Farrand, 2005; Derckx, 2006; Howze, 2006). Veerasoontorn and Beise-Zee (2010) in their study identified push factors, like high costs, and some pull factors, like innovation, high quality and patient-doctor relationships.

Demand for medical tourism is rising for various reasons, like long waiting lists for special surgery and treatment, high cost, low quality, or demand for fertility treatment (which is forbidden in many countries) (Connell, 2006; Garg & Bhardwaj, 2012). In a study conducted by Ehrbeck et al. (2008) the results showed that patients look for high-quality services, less waiting time, and lower cost. Consequently, RNCOS (2008) reported that Asian countries are delivering medical services with the mentioned characteristics of high quality, less waiting time, and less cost, as well as offering the best medical equipment.

Consequently, clinics around the world that deliver services to medical tourists are improving their facilities and services to remain competitive in the market

(Bernstein, 2012; Hume & Demicco, 2007; Sheehan-Smith, 2006). Hence, medical tourism patients can choose among countries that deliver services with better facilities, less cost, and more quality (English et al., 2005).

This section presents how time, cost and quality management areas are crucial in medical tourism among ten main knowledge management areas. Also in previous studies scholars illustrated how these three knowledge management areas improve innovation in organization (S chumpeter, 1934; Martĺnez-Ros & Orfila-Sintes, 2009; Cohen & Levinthal, 1990).

Time, Cost and Quality Management  Innovation

By considering any new product and service as a new project in innovation processes applying standard steps of new projects are emphasized and strongly recommended in current thesis. If standard steps of time, cost and quality management will be performed in a systematic way then the delivered new service or product will be successful. Then in sum time, cost and quality management oriented innovation will increase innovation.

Innovation could be measured by two main dimensions. These dimensions are innovation speed and innovation magnitude (Gopalakrishnan & Damanpour, 2000) . Innovation speed defines the time should be expended on the whole processes of delivering any new product or service to the market (Kessler& Chakrabarti, 1996). It shows organization's capability in innovation life cycle. Innovation speed is a main factor to measure innovation and presents its success in the market (Allocca & Kessler, 2006). In fact, innovation speed emphasizes on being systematic in

delivering new products and services in less time to the market. Hence it is chosen to measure successful innovation in current thesis and develop related hypotheses.

Time, Cost and Quality Management ⟶ Innovation Speed

The main objectives in innovation processes are reduction in time and improvements in performance while the quality is also considered (Cohen, etc. 1996). Then time management orientation and following its standard procedures will improve successful innovation (Schumpeter, 1934).

Time is an important indicator to measure innovation speed as its main concern is reduction in delivering time to the market. As previous studies stated time has a considerable effect on innovation (Abubakar & Ilkan, 2016; Fetscherin & Stephano, 2016).

By executing all standard steps of time management organizations present more successful innovations (Fetscherin & Stephano, 2016). According to the mentioned opinions and studies following hypothesis could be developed:

H1. Time Management oriented innovation has Positive and Statistically Significant Relation with the Innovation Speed.

In a study conducted by Craighead, et al. (2009) main factors in innovation processes were considered namely; innovation- cost strategy and effect of knowledge on performance.

Cost management is a fundamental factor regarding innovation processes and needs detail analysis before delivering the new product or service to the market. Cost management directly affects innovation (Abd Mutalib et al., 2017; Moghavvemi et al., 2017).

By performing cost management's standard procedures organizations present significant improvement in innovation (Willcocks, et al., 2010). The speed and cost of innovation have direct relation together (Mansfield, E., 1988) then following hypothesis could be developed:

H2. Cost Management oriented innovation has Positive and Statistically Significant Relation with Innovation Speed.

Haner in 2002 mentioned about importance of quality in innovation processes and consequently in performance regarding new product and service development. Considering quality is a fundamental indicator to enhance innovation (Sethi, R., 2000).

New products or services could be deliver in less time and cost but the main issue is also considering the quality (Chuang et al., 2014; Glinos et al., 2010; John & Larke, 2016; Wu et al., 2016).

Quality management means the standards should be checked from the beginning to the end of innovation processes. In sum, regarding innovation processes the final products should meet all the required quality (Wu et al., 2016). By emphasizing on importance of quality management orientation in innovation processes following hypothesis is developed:

H3. Quality Management oriented innovation has Positive and Statistically Significant Relation with Innovation Speed.

2.11 Innovation and Operational Performance

Managers working in hospitals that deliver services to medical tourists need an indicator and a suitable tool for measurement to be sure of success in this industry. In many previous studies (Connell, 2013; Crooks et al., 2011; de la Hoz-Correa et al., 2018; Han & Hyun, 2015; Heung et al., 2010; Saadatnia & Mehregan, 2014b; Skountridaki, 2017; Smith, P. C & Forgione, 2007) being strongly innovative and delivering high-quality services at a low price is suggested. There are two main concerns: first, ensuring success of all innovation types by applying systematic procedures, and, secondly, seeing the outcomes of being systematic in the innovation process.

If hospitals are innovation-oriented, then they have high innovation speed, which is the initial seed of any activity related to innovation (Gopalakrishnan & Damanpour, 2000). Consequently, innovation-oriented system lead hospitals to high operational performance in practice (Clifton et al., 2010).

Innovation speed is an important factor to present competitive advantage and performance (Carbonell& Escudero, 2010). Organizations are encouraged to faster innovation in order to remain competent in the market (Lynn, 2008). In innovation speed delivering new product or service by considering quality, cost, and consequently performance is presented beside many other factors (Lahiri, 2010).

Organizations with better innovation have also better performance (Sadikoglu & Zehir, 2010). Innovation directly affect operational performance (Parasuraman,

2010) hence scholars are interested to find more about importance of innovation in performance (Clifton, et al., 2010; Vaccaro, et al., 2010). In other words, innovation speed is a factor to present less time and cost by improvement in performance (Tidd, et al., 2005).

Improvement in innovation has different effects on different areas. It strongly will improve operational performance as a significant result (Xiaosong Peng, 2011). Improvement in innovation lead organization to present better financial and operational performance (Saunila, M., 2014). Therefore, it is hypothesized:

H4. Innovation Speed has positive and Statistically Significant Relation with Operational Performance.

As the necessary intangible assets for any organizations, knowledge should be elaborately managed. Wang and Wang (2012) in their study examined the influence of knowledge sharing on innovation speed and operational performance. In their model innovation speed was the mediator between all knowledge sharing categories and operational performance. The results illustrated that different types of knowledge sharing will enhance innovation speed and operational performance by emphasizing on knowledge management orientation.

In current thesis the same model will be applied to present how chosen knowledge management areas will improve innovation speed and operational performance while innovation speed is a mediator. This model was also supported by the results of a study conducted by Fugate, et al. (2009) which stated how improvement in knowledge management has a positive effect on operational performance.

This thesis hypothesizes knowledge management areas have positive relation with operational performance. Then time management as an important section of knowledge management areas will also present positive relation with operational performance.

Regarding time management as a sub factor of knowledge management areas by performing it's all standard steps in innovation processes, operational performance will be improved. In fact, performing time management practices have significant effects on operational performance (Bortolotti, et al., 2013) and the following hypothesis could be developed:

H.5 Time Management oriented innovation has Positive and Statistically Significant Relation with Operational Performance.

Cost management orientation and efficient analysis will improve operational performance in organizations (Kaushal, et. al., 2014). By performing cost management requirements as estimate costs, determine and control budget, absolutely organizations present better performance (PMI, 2013).

By executing standard steps of cost management in organizations operational performance will be increased. Cost management has a direct relation with operational performance (Kaushal, et. al., 2014) as all the financial steps will be controlled for any new product or service in organizations.

The effect of cost on operational performance is obvious for all industries (Zou & Hansen, 2012). Then by relying on cost management's fundamental role in innovation processes following hypothesis will be developed:

H.6 Cost Management oriented innovation has Positive and Statistically Significant Relation with Operational Performance.

There are many studies which emphasized on positive effects of quality management on operational performance (Samson & Terziovski, 1999; Feng, et al., 2007). If organizations are interested to present better operational performance they should meet the required quality standards in execution (Feng, et al., 2007). In fact, there is a direct relationship between quality management and operational performance and this specific knowledge management area is fundamental to present better operational performance.

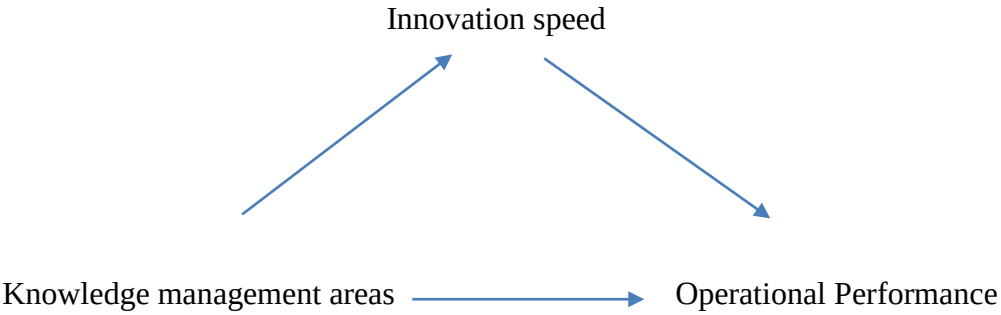
Quality management is a process from the beginning to the end of delivering any new product or service and directly will affect operational performance (Samson & Terziovski, 1999). Without considering quality, organization could not present high operational performance in practice (Baird, et al., 2011).

In all the mentioned studies scholars stated how both quality assurance and control will improve operational performance which support following hypothesis development:

H.7 Quality Management oriented innovation has Positive and Statistically Significant Relation with Operational Performance.

Knowledge management practices do not directly lead to an improvement of organization's performance (Law & Ngai, 2008). According to knowledge management literatures, this thesis argues that knowledge management practices not only have positive relationships with firm operational performance directly but also

influence innovation speed. By considering mediation role of innovation speed between knowledge sharing categories and operational performance (Wang & Wang, 2012) the following general hypothesis illustrated regarding knowledge management areas:



Wang and Wang (2012) in their study examined the influence of knowledge sharing on innovation speed and operational performance. In their model innovation speed was the mediator between all knowledge sharing categories and operational performance.

The chosen knowledge management areas for current thesis are time, cost and quality management.

As it was discussed earlier in this section, time management has positive relation with both innovation (S chumpeter, 1934) and operational performance (Bortolotti, et al., 2013). Also innovation speed has positive relation with operational performance (Parasuraman, 2010). According to these relations then by emphasizing on time management orientation in innovation processes the following hypothesis is developed:

H.8 Innovation Speed play as a Mediator between Time Management and Operational Performance.

As it was discussed earlier in this section, cost management has positive relation with both innovation (MartÍnez-Ros & Orfila-Sintes, 2009) and operational performance (Zou & Hansen, 2012). Also innovation speed has positive relation with operational performance (Parasuraman, 2010).

By considering mediation role of innovation speed between knowledge management areas' categories and operational performance, same relation could be applied to present how cost management orientation in innovation processes will improve operational performance by mediating role of innovation speed.

Cost management is an important category among ten knowledge management areas and by relying on the proved model which presented mediation role on innovation speed between knowledge management areas and operational performance, the following hypothesis could be developed:

H.9 Innovation Speed play as a Mediator between Cost Management and Operational Performance.

Knowledge management practices not only have positive relationships with firm operational performance directly but also influence innovation speed while innovation speed is a mediator. Knowledge management area has ten main sections and this relation could be applied for each of these sections.

Wang and Wang (2012) stated innovation speed is a mediator between knowledge management sharing and operational performance and the same relation about knowledge management areas will be applied in current thesis.

As it was discussed earlier in this section, quality management has positive relation with both innovation (Cohen & Levinthal, 1990) and operational performance (Samson & Terziovski, 1999). Also innovation speed has positive relation with operational performance (Parasuraman, 2010). According to these relations by emphasizing on quality management orientation in innovation processes the following hypothesis is developed:

H.10 Innovation Speed play as a Mediator between Quality Management and Operational Performance.

Chapter 3

METHODOLOGY

The main concern in the current thesis is to inform managers working in medical tourism about the importance of innovation and knowledge management areas by applying both qualitative and quantitative methods. The current thesis has two main phases, which are described in following sections.

3.1 First Phase

In the first phase, new questionnaires were developed for the first time by applying the Delphi technique and considering the standard steps of project management with a consultant committee made up of professional project managers working in hospitals. These developed items were used in the second phase to show how the items will affect innovation speed and operational performance in practice through quantitative analysis.

The leader of the committee was Mr. Ali Forouzesh (Agile Certified Practitioner, Professional in Business Analysis, Project Management Professional, Portfolio Management Professional, and Organizational Project Management Maturity Model certified), the founder and CEO of Ofogh Project Management Institute[1] in Iran. He invited the committee members, all of whom were hospital general managers and Project Management Professionals (PMP) certified by the Project Management Institute (PMI).

[1] www.ofoqpm.com

3.1.1 The Standard Steps of PMBOK

The standard steps according to PMBOK (PMI, 2013), presented in Table 1.1, show how a new project should be conducted in any organization in an organized and systematic way. In recent studies related to medical tourism, the primary focus is on time, cost, and quality (de la Hoz-Correa et al., 2018; Fetscherin & Stephano, 2016; John & Larke, 2016; Skountridaki, 2017). These are three of the 10 main knowledge management areas. This shows that the knowledge management areas are crucial and important in the medical industry. In all the studies mentioned above, there is no suitable tool or procedures for measuring them in practice. The standard steps of PMBOK help managers to have reliable indicators in this regard. These steps are the basis for developing measurement items for each knowledge management area in the innovation process in hospitals.

3.1.2 Delphi Technique

The Delphi technique, a group decision-making technique, was selected for the current thesis, as it was necessary to recognize whether the standard steps of projects are applicable to medical tourism according to the experts' opinions. In this technique the experts answer to the related questions and give their feedback for each round. In current thesis 10 sessions were executed. At first five sessions were conducted to consider all the standard steps and then five sessions were conducted to finalize developed items.

Thus, a committee of eight professional project managers familiar with medical tourism was invited to evaluate and develop these steps in a questionnaire format. All the committee members were project management professional certified from project management institute and all general managers working in local and international hospitals. All of them were doctors with at least ten years work

experience as a general manager in hospitals. The members were contacted by the leader of the committee. He explained the main purpose in the first session. The committee was gathered ten times to analyze ten knowledge management areas.

They were asked to answer the following questions: (1) Are the standard steps also applicable in hospitals? (2) If yes, is there any need to change the items according to hospitals' systems? Further, as any knowledge management area requires specific knowledge, they were asked to consider (3) Could different functional managers in hospitals answer the items? Finally, the committee drafted a preliminary version of the measurement items, which is presented in detail in the result section. The members gave answers to these three questions to the leader of committee anonymously. In sum all of them agreed about these three questions as leader of the committee stated. The committee had ten sessions to analyze the ten knowledge management areas.

Another important question in analysis asks: (4) Do the developed items have a positive effect on increasing innovation speed and operational performance in hospitals? This question will be answered in the second phase in quantitative analysis. About questionnaire design, the book entitled 'Questionnaire Design, Interviewing and Attitude Measurement' by Oppenheim, A. N. (1968) mentioned to some guides like avoid ambiguities in questions' wording, the need for pilot work, problems of reliability and validity and etc. which were considered in details in current thesis.

The developed questionnaires need to be verified both in clarity and applicability. These purposes were ensured by conducting an expert review. The expert review was

performed by 10 participating hospital managers. They were selected from both local and international hospitals. They assessed the items to be sure they are clear and relevant to hospitals. Further, the validity and reliability of the items were examined by 40 questionnaires answered by hospitals' general and functional managers in a pilot study to conduct confirmatory factor analysis and exploratory factor analysis. The output of this phase is the tables, which appear in the results chapter, first phase. These tables are identified as knowledge management-oriented innovation. Regarding integration management, for example, the table's title is "Integration Management-oriented Innovation," and the items show what should be performed in integration management for innovation processes in hospitals.

3.2 Second Phase

Following the first phase, in the second phase the items developed in questionnaire format used in the empirical analysis. By doing so, the effects of the items on innovation speed and operational performance were estimated. The analysis is based on scholars' opinions presented in Section 2.12 of this thesis and also on the findings of (Wang & Wang, 2012).

The developed model in the second phase in summary is presented as follows:

Knowledge management areas → Innovation → Operational performance

Moreover, the model shows the following detailed relations:

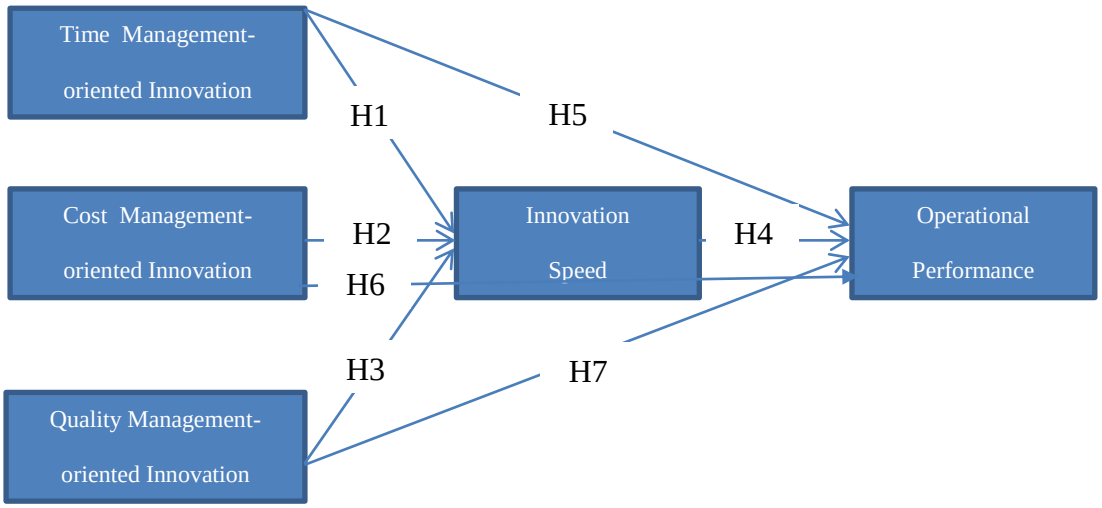
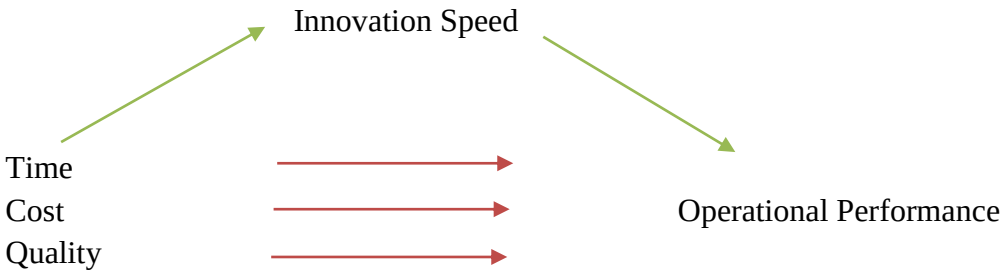


Figure 3.1: Research Model
Author's drawing

Also Hypothesis 8,9, and 10 are summarized as follows:



The research model in this study has five main constructs. In sum, it aims to illustrate that time, cost, and quality management areas in innovation processes have positive relations to operational performance through the mediating role of innovation speed. The independent variables were chosen among the 10 knowledge management areas according to the facts illustrated in Section 2.7.

3.2.1 Respondents and Procedure

Data was collected through the participation of international hospitals' general and functional managers in Iran. The general managers of international hospitals in Iran were contacted directly to present the importance of the study. The questions related to time, cost, and quality-oriented innovation (Results chapter, first phase) and innovation speed and operational performance (Section 3.2.3) were answered by general and functional managers. Data collection was conducted on June 2016 and finished at the end of November 2016.

Referring to the formula presented by Tabachnick & Fidell (2007) to determine the number of questionnaires that should be answered by general and functional managers ($N > 50 + 8*m$; where m is equal to the number of indicators) 260 questionnaires were distributed in international hospitals in Iran and, finally, 250 questionnaires were analyzed. The cities chosen for data collection in Iran are Yazd, Tabriz (neighboring Azerbaijan, Armenia and Turkey), Tehran, Mashhad (neighboring Afghanistan), and Rasht. All the mentioned cities are good destinations for medical tourism from different countries. For example, Mashhad[2] alone had 14,000 medical tourists in 2014. There are 10 knowledge management areas. However, in order to reduce the related bias (Podsakoff et al., 2003), hospital managers on the committee (first phase) were asked to choose three more efficient knowledge management areas in their organizations by relying on the statements presented in section 2.7. Finally, almost all the managers chose time, cost, and quality management questionnaire to be answered by general and functional managers in international hospitals.

[2] https://ariamedtour.com/mashhad/

The general and functional managers in each hospital were asked to answer the questions after a meeting of around 30 minutes to one hour about measurement items. The questionnaires were collected after two weeks. All the respondents have had experience of being directly involved in medical tourism. To minimize the common method bias, functional managers were ensured about management support through a cover letter.

In this research, 250 general and functional managers among 17 highly equipped hospitals in Iran related to the medical tourism are considered as the sample. Obviously, existing hundreds of hospitals in Iran specializing in different types of treatments forces us to use a special method of sampling aiming to show the situation of medical tourism in Iran. Therefore, non-probability sampling is utilized to get the needed samples based on the aim of this study. In this regard, judgmental sampling is utilized to invite the managers to be a part of this research.

The questionnaires were developed according to PMBOK, which is in English, and the official language in Iran is Persian. Thus, back translation was performed for all the items.

The developed items are multiple-items and designed using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

3.2.2 Measurement Items

The items adapted from Table 1.1 and developed in the first phase were used in the second phase to measure time, cost, and quality management areas regarding innovation processes (Results chapter, first phase). In summary, as presented in the results section, 13 items were used to assess these three knowledge management

areas. Innovation speed was measured through five items taken from (Gopalakrishnan & Damanpour, 2000). These items are as follows:

- Our hospital is quick in coming up with novel ideas as compared to key competitors.
- Our hospital is quick in new products/services launching as compared to key competitors.
- Our hospital is quick in new products/services development as compared to key competitors.
- Our hospital is quick in new processes as compared to key competitors.
- Our hospital is quick in problem-solving as compared to key competitors.

Further, five items from (Seleim et al., 2007; Wang & Noe, 2010) were used to assess operational performance. These items are as follows:

- Customer satisfaction of our hospital is better than key competitors.
- Quality development of our hospital is better than key competitors.
- Cost management of our hospital is better than key competitors.
- Responsiveness of our hospital is better than key competitors.
- The productivity of our hospital is better than key competitors.

The items related to measuring innovation speed and operational performance are supported by the results obtained by Wang & Wang (2012).

Chapter 4

RESULTS

4.1 First Phase

This chapter presents the main findings of the thesis. In the current thesis, there are two main outputs from two different phases. First, according to the standard steps of PMBOK, 10 new questionnaires were developed to measure all the knowledge management areas regarding innovation processes.

4.1.1 Measurement Items

In today's world, in which being innovative is fundamental to any organization, just developing many new ideas without systematic analysis will lead to failure. Being innovative means there is a systematic and strategic procedure for innovation. Delivering a useful tool to measure innovation through a knowledge management orientation will help hospital managers to be sure about the success of any new project and avoid wasted time and cost. Hospitals active in medical tourism attract more customers by delivering on time and on budget services with high quality. Considering other knowledge management areas creates a vision that could be achieved by using the items in the questionnaire developed in the first phase.

The *Likert*-type scale (1=strongly disagree; 5=strongly agree) questionnaires passed through several steps: consultation with a professional committee, expert analysis, and a pilot study involving presenting acceptable figures for both confirmatory factor

analysis (CFA) and exploratory factor analysis (EFA). The items called knowledge management-oriented innovation are the main result of the first phase (Appendix1).

4.2 Second Phase

4.2.1 Developed Hypothesis

According to sections 2.10 and 2.11, by referring to previous studies and scholar's opinions ten main hypotheses were developed. These hypotheses were examined and the results are presented in the following sections.

4.2.2 Data Analysis

In this study, operational performance and innovation speed are endogenous variables, and three variables related to knowledge management areas are exogenous variables. Table 4.1 below shows the descriptive statistics of these variables.

Table 4.1: Decriptive Statistics of the Variables

Variable	Mean	Std. deviation	Skewness	Kurtosis	Number
OP	3.399	0.802	0.034	-0.634	99
IS	3.522	0.731	0.085	-0.494	99
TIME	3.175	0.423	-0.276	0.026	99
COST	3.118	0.678	0.626	0.052	99
QUALITY	3.479	0.681	0.059	-0.359	99

OP: Operational Performance, IS: Innovation Speed, TIME: Time management oriented innovation, COST: Cost management oriented innovation QUALITY: Quality management oriented innovation

One of the challenges in data analysis in general and predictive modeling in particular is dealing with outliers. To detect outliers, the standardized residual values that should be between -3 and +3 were reviewed.

The distribution of the dependent variable should be normal, which is presented by calculating the amount of skewness and kurtosis (Table 4.1). That is, if the degree of skewness and kurtosis obtained is between -2 and +2, then the distribution of that variable will be normal.

In terms of the lack of linearity between independent variables, if the predicted variables in the regression model have a high correlation with each other, this results in an unreliable regression coefficient. Generally, before entering the predictive variables, their correlation should be measured and the two variables that have the highest correlation should be removed.

In the table above, descriptive statistics of all variables are collected. It should be noted that according to the values of the skewness and kurtosis, which are in the range of -2 to 2+, the distribution of all variables is close to normal.

The Kolmogorov-Smirnov test (K-S) was used to check the normal distribution of operational performance (OP) and innovation speed (IS) variables (Table 4.2).

Table 4.2: Kolmogorov-Smirnov test

One-Sample Kolmogorov-Smirnov Test			
		IS	OP
N		99	99
Normal Parameters	Mean	3.5217	3.399
	Std. Deviation	0.73057	0.80426
Most Extreme Differences	Absolute	0.081	0.096
	Positive	0.081	0.096
	Negative	-0.073	-0.081
Kolmogorov-Smirnov Z		0.804	0.96
Asymp. Sig. (2-tailed)		0.537	0.315

It shows that the distribution of both variables is normal. Therefore, in analysis, they could be used as criterion variables in the model.

It is concluded from the following diagrams that the model's errors are normal (Figs. 4.1 and 4.2). In the regression standardized residual histogram, the dependent variable is operational performance.

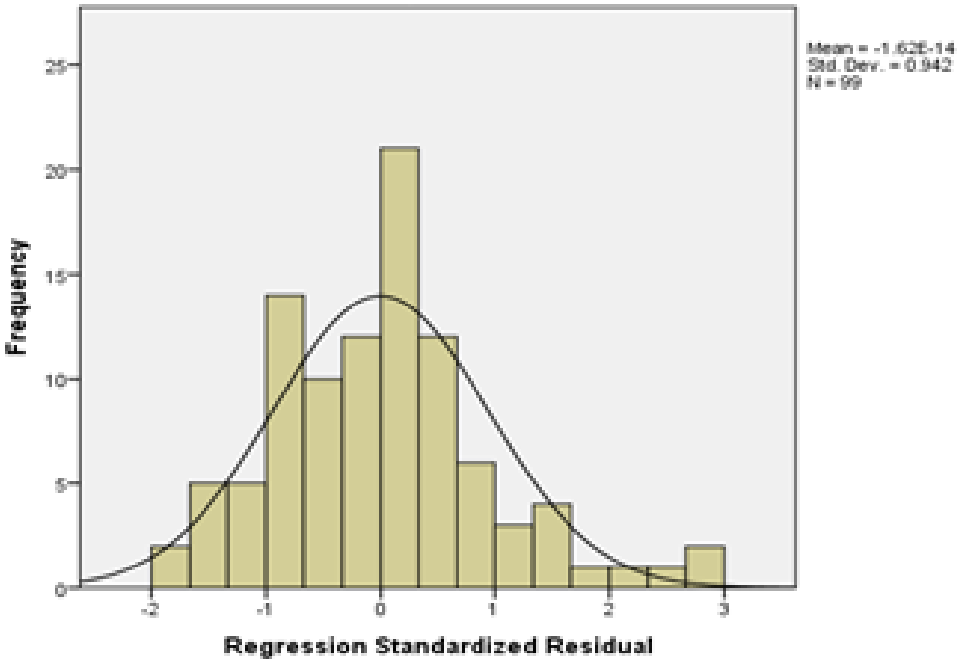


Figure 4.1: Regression standardized residual

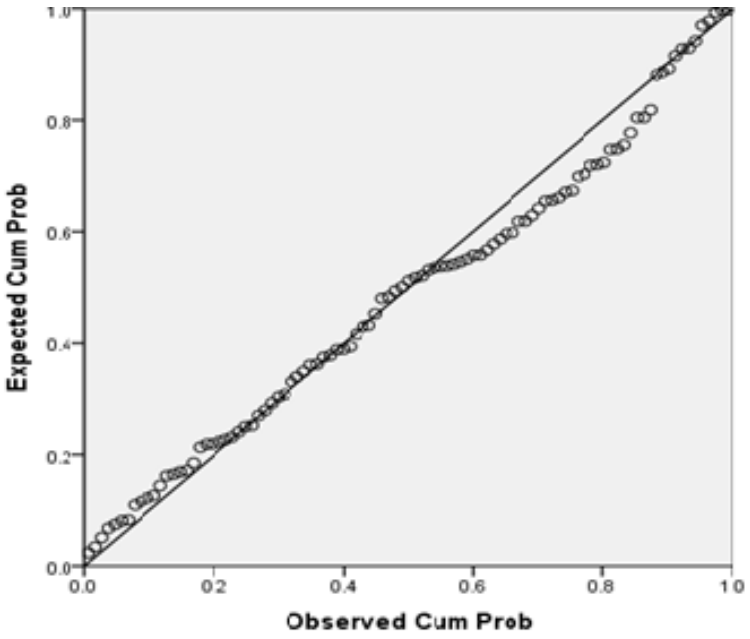


Figure 4.2: Normal P-P plot regression standardized residual

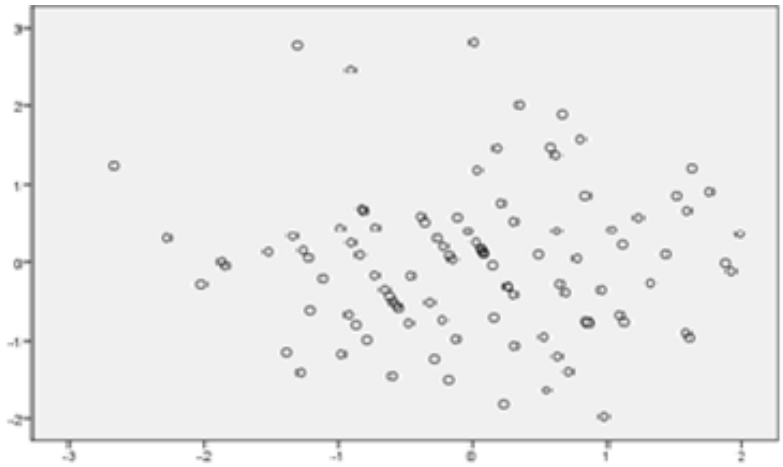


Figure 4.3: Scatterplot

In the above scatterplot (Fig. 4.3), the relation between regression standardized residual and regression standardized predicted value is presented. It was concluded from the above diagram that the model's errors are approved, and there is no outlier detection.

Structural equation modeling is conducted using AMOS 21 for 250 collected questionnaires to determine the mediator role of innovation speed. The computed model and mediator analysis paths are presented in Figs. 4.4 and 4.5.

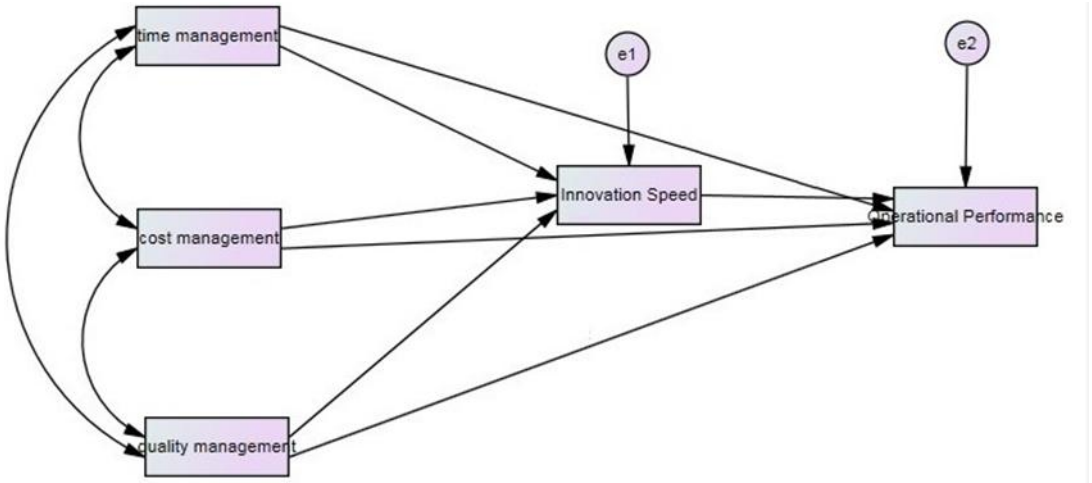


Figure 4.4: Compute Model by AMOS

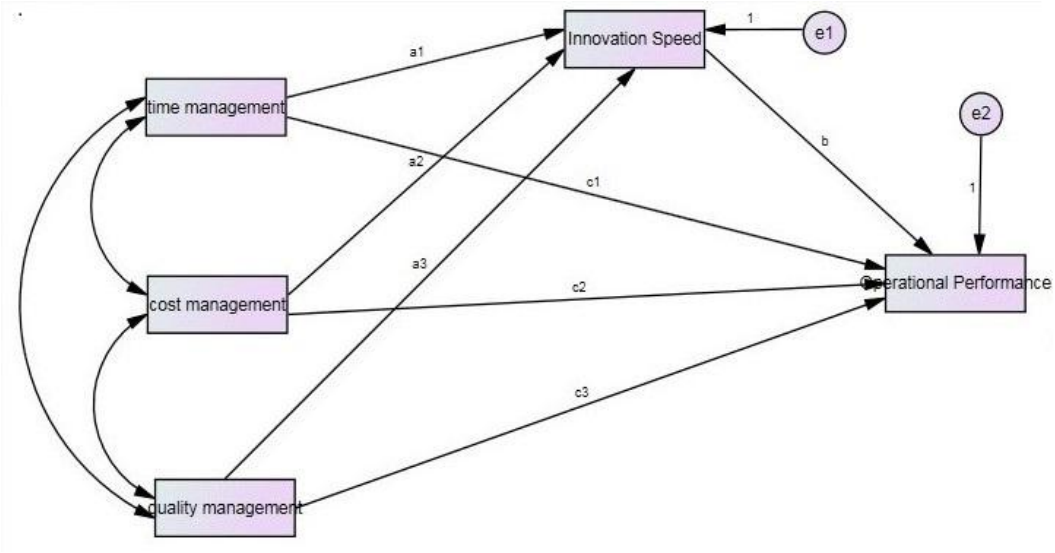


Figure 4.5: Mediator Analysis Paths

4.2.3 Exploratory and Confirmatory Factor Analysis

The following tables present the exploratory factor analysis. Table 4.3 shows the KMO is larger than 0.7 and Bartlett's test of sphericity is less than 0.05, which are acceptable ranges.

Table 4.3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.866
Bartlett's Test of Sphericity	Approx. Chi-Square	3628.427
	Df	276
	Sig.	.000

According to Table 4.4, all the questions related to each variable will be used in the analysis, as they are in order. In short, there was proof of convergent and discriminant validity.

Table 4.4: Rotated Component Matrix

	Component				
	1	2	3	4	5
IS1		.767			
IS2		.865			
IS3		.840			
IS4		.750			
IS5		.817			
TIME1	.811				
TIME2	.856				
TIME3	.780				
TIME4	.655				
TIME5	.729				.342
TIME6	.733				
TIME7	.516				.355
OP1			.594		
OP2			.832		
OP3			.618		
OP4			.778		
OP5			.794		
QUALITY1				.327	.750
QUALITY2					.758
QUALITY3	.303		.347		.616
COST1				.795	
COST2				.756	
COST3				.736	
COST4				.820	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

The results of Tables 4.3 and 4.4 were achieved through SPSS 21, and all the following tables were created using AMOS 21.

Table 4.5: CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	61	431.338	239	.000	1.805
Saturated model	300	.000	0		
Independence model	24	3749.299	276	.000	13.584

Table 4.6: Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.885	.867	.945	.936	.945
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Table 4.7: RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.054	.046	.062	.195
Independence model	.214	.208	.220	.000

In Tables 4.5, 4.6, and 4.7, CMIN/DF is less than 3, RMSEA is between 0.08 and 1, and three items (IFI, TLI, and CFI) are larger than 0.9.

4.2.4 Structural Equation Modeling

In following tables F1, F2 and F3 present time, cost, and quality in order; F4 presents innovation speed and F5 presents operational performance.

Table 4.8: Regression Weights

			Estimate	S.E.	C.R.	P	Label
F4	<---	F1	.351	.116	3.025	.003	
F4	<---	F2	.144	.058	2.480	.011	
F4	<---	F3	.197	.083	2.383	.014	
F5	<---	F1	.103	.151	.679	.497	
F5	<---	F2	.201	.077	2.610	.010	
F5	<---	F3	.506	.113	4.477	***	
F5	<---	F4	.208	.093	2.236	.016	
TIME7	<---	F1	1.000				
TIME6	<---	F1	1.177	.138	8.503	***	
TIME5	<---	F1	1.342	.152	8.843	***	
TIME4	<---	F1	.885	.121	7.301	***	
TIME3	<---	F1	1.198	.144	8.308	***	
TIME2	<---	F1	1.113	.134	8.288	***	
TIME1	<---	F1	1.051	.133	7.913	***	
COST4	<---	F2	1.000				
COST3	<---	F2	.741	.073	10.192	***	
COST2	<---	F2	.911	.075	12.107	***	
COST1	<---	F2	1.137	.085	13.397	***	
QUALITY3	<---	F3	1.000				
QUALITY2	<---	F3	1.053	.089	11.764	***	
QUALITY1	<---	F3	.974	.082	11.882	***	
IS5	<---	F4	1.000				
IS4	<---	F4	.710	.058	12.243	***	
IS3	<---	F4	1.015	.071	14.254	***	
IS2	<---	F4	1.128	.076	14.835	***	
IS1	<---	F4	.926	.080	11.649	***	
OP5	<---	F5	1.000				
OP4	<---	F5	.968	.088	10.951	***	
OP3	<---	F5	.952	.104	9.166	***	
OP2	<---	F5	1.050	.087	12.006	***	
OP1	<---	F5	.837	.098	8.536	***	

The results presented in Table 4.8 show that C.R for F1, F2, and F3 are greater than 1.96 and their P-Value are less than 0.05 which prove hypotheses H1, H2, H3, H4, H6, and H7 cannot be rejected whereas hypothesis H5 is rejected. The results related to the relationship of time management and operational performance show C.R is

less than 1.96 and the P-Value is bigger than 0.05. The summary of Table 4.8 is presented in Figure 4.6.

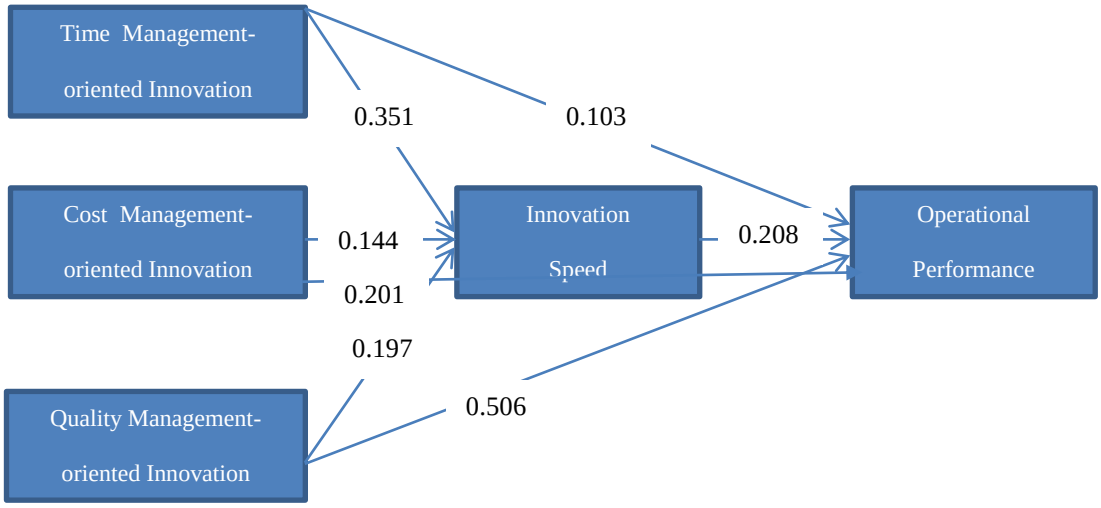


Figure 4.6: Regression Weights Results
Author's drawing

Table 4.9: Standardized Regression Weights

Variables			Estimate
F4	<---	F1	.285
F4	<---	F2	.107
F4	<---	F3	.238
F5	<---	F1	.061
F5	<---	F2	.213
F5	<---	F3	.451
F5	<---	F4	.153
TIME7	<---	F1	.528
TIME6	<---	F1	.769
TIME5	<---	F1	.804
TIME4	<---	F1	.623
TIME3	<---	F1	.794
TIME2	<---	F1	.784
TIME1	<---	F1	.713
COST4	<---	F2	.754
COST3	<---	F2	.631
COST2	<---	F2	.757
COST1	<---	F2	.871
QUALITY3	<---	F3	.754
QUALITY2	<---	F3	.777
QUALITY1	<---	F3	.811
IS5	<---	F4	.755
IS4	<---	F4	.593
IS3	<---	F4	.842
IS2	<---	F4	.903
IS1	<---	F4	.713
OP5	<---	F5	.749
OP4	<---	F5	.701
OP3	<---	F5	.621
OP2	<---	F5	.778
OP1	<---	F5	.590

Table 4.10: Standardized Total Effects

	F3	F2	F1	F4	F5
F4	0.238	0.107	0.285	0	0
F5	0.488	0.229	0.105	0.153	0
OP1	0.244	0.135	0.01	0.09	0.59
OP2	0.322	0.178	0.014	0.119	0.778
OP3	0.257	0.142	0.011	0.095	0.621
OP4	0.291	0.161	0.012	0.108	0.701
OP5	0.31	0.172	0.013	0.115	0.749
IS1	0.17	0.076	0.203	0.713	0
IS2	0.215	0.097	0.257	0.903	0
IS3	0.2	0.09	0.24	0.842	0
IS4	0.141	0.064	0.169	0.593	0
IS5	0.18	0.081	0.215	0.755	0
QUALITY1	0.811	0	0	0	0
QUALITY2	0.777	0	0	0	0
QUALITY3	0.754	0	0	0	0
COST1	0	0.871	0	0	0
COST2	0	0.757	0	0	0
COST3	0	0.631	0	0	0
COST4	0	0.754	0	0	0
TIME1	0	0	0.713	0	0
TIME2	0	0	0.784	0	0
TIME3	0	0	0.794	0	0
TIME4	0	0	0.623	0	0
TIME5	0	0	0.804	0	0
TIME6	0	0	0.769	0	0
TIME7	0	0	0.528	0	0

Table 4.11: Standardized Direct Effects

	F3	F2	F1	F4	F5
F4	.238	.107	.285	.000	.000
F5	.451	.213	.061	.153	.000
OP1	.000	.000	.000	.000	.590
OP2	.000	.000	.000	.000	.778
OP3	.000	.000	.000	.000	.621
OP4	.000	.000	.000	.000	.701
OP5	.000	.000	.000	.000	.749
IS1	.000	.000	.000	.713	.000
IS2	.000	.000	.000	.903	.000
IS3	.000	.000	.000	.842	.000
IS4	.000	.000	.000	.593	.000
IS5	.000	.000	.000	.755	.000
QUALITY1	.811	.000	.000	.000	.000
QUALITY2	.777	.000	.000	.000	.000
QUALITY3	.754	.000	.000	.000	.000
COST1	.000	.871	.000	.000	.000
COST2	.000	.757	.000	.000	.000
COST3	.000	.631	.000	.000	.000
COST4	.000	.754	.000	.000	.000
TIME1	.000	.000	.713	.000	.000
TIME2	.000	.000	.784	.000	.000
TIME3	.000	.000	.794	.000	.000
TIME4	.000	.000	.623	.000	.000
TIME5	.000	.000	.804	.000	.000
TIME6	.000	.000	.769	.000	.000
TIME7	.000	.000	.528	.000	.000

Table 4.12: Standardized Indirect Effects

	F3	F2	F1	F4	F5
F4	.000	.000	.000	.000	.000
F5	.037	.016	.044	.000	.000
OP1	.244	.135	.010	.090	.000
OP2	.322	.178	.014	.119	.000
OP3	.257	.142	.011	.095	.000
OP4	.291	.161	.012	.108	.000
OP5	.310	.172	.013	.115	.000
IS1	.170	.076	.203	.000	.000
IS2	.215	.097	.257	.000	.000
IS3	.200	.090	.240	.000	.000
IS4	.141	.064	.169	.000	.000
IS5	.180	.081	.215	.000	.000
QUALITY1	.000	.000	.000	.000	.000
QUALITY2	.000	.000	.000	.000	.000
QUALITY3	.000	.000	.000	.000	.000
COST1	.000	.000	.000	.000	.000
COST2	.000	.000	.000	.000	.000
COST3	.000	.000	.000	.000	.000
COST4	.000	.000	.000	.000	.000
TIME1	.000	.000	.000	.000	.000
TIME2	.000	.000	.000	.000	.000
TIME3	.000	.000	.000	.000	.000
TIME4	.000	.000	.000	.000	.000
TIME5	.000	.000	.000	.000	.000
TIME6	.000	.000	.000	.000	.000
TIME7	.000	.000	.000	.000	.000

Table 4.13: Effect of all variables on OP

Variable	Direct effect	Indirect effect	Total effect
Time	0.061	0.044	0.105
Cost	0.213	0.016	0.229
Quality	0.451	0.037	0.488
IS	0.153	–	0.153

Table 4.13 shows the summary of tables 4.10, 4.11 and 4.12. It presents total, indirect and direct effects of all variables on operational performance.

4.2.5 Mediation Analysis

The current thesis hypothesizes that F4 (innovation speed) mediates the relations between F1, F2, F3 (time, cost, and quality) and F5 (operational performance).

According to the results of Table 4.14 and looking at the p-values of the estimates these conclusions reached: paths c2 and c3 are statistically significant, but c1 is not statistically significant, at the 5% level of significance. Finally, indirect effects are analyzed to discover the mediation role (Table 4.15). According to the results, paths a1, a2, a3, and b are statistically significant. The paths are shown in Figure 4.5.

Paths c2 and c3 are also statistically significant, but c1 is statistically insignificant. Thus, the results lead to the following conclusions:

Hypotheses H1, H2, H3, H4, H6, H7, H9, and H10 cannot be rejected. However, hypotheses H5 and H8 are rejected, as c1 path, is not statistically significant.

Regarding the mediation hypotheses, the results support partial mediation (Baron & Kenny, 1986; Hair, Black, Babin, Anderson, & Tatham, 1998). Innovation speed partially mediates the relations between both cost and quality management, and

operational performance. But time did not show statistically significant relation with operational performance and consequently innovation speed could not mediate the relation between time and operational performance. Then hypotheses H5 and H8 are rejected.

Time, cost and quality management oriented innovation presented positive and statistically significant relation with innovation speed as it was supported by previous studies too (S Chumpeter, 1934, MartÍnez-Ros & Orfila-Sintes, 2009, Cohen & Levinthal, 1990). It means by applying the standard steps of these three knowledge management areas in innovation processes the speed of delivering new product and services to the market will be increased. Also about the relation between three chose knowledge management areas and operational performance, cost and quality management shown positive relation with operational performance.

Absolutely by considering all the standard steps of time, cost and quality management the hospitals will deliver more successful products and services and consequently their innovation speed will be increased. The same results were obtained regarding positive effect of both cost and quality management on operational performance. It says by applying standards steps of cost and quality management, hospitals have higher operational performance.

Table 4.16 shows descriptive information for all the variables, like mean, standard deviation, and variance. The mean of answers for all the close-ended, *Likert*-type scale is between 2.77 to 3.23.

Table 4.14: Regression Weights- Mediation Effect

			Estimate	S.E.	C.R.	P	Label
F4	<---	F1	.000				
F4	<---	F2	.000				
F4	<---	F3	.000				
F5	<---	F1	.026	.149	.176	.860	c1
F5	<---	F2	.215	.077	2.776	.005	c2
F5	<---	F3	.465	.110	4.243	***	c3
F5	<---	F4	.000				
TIME7	<---	F1	1.000				
TIME6	<---	F1	1.183	.141	8.392	***	
TIME5	<---	F1	1.346	.154	8.713	***	
TIME4	<---	F1	.894	.123	7.238	***	
TIME3	<---	F1	1.222	.148	8.238	***	
TIME2	<---	F1	1.124	.137	8.203	***	
TIME1	<---	F1	1.066	.136	7.851	***	
COST4	<---	F2	1.000				
COST3	<---	F2	.741	.073	10.202	***	
COST2	<---	F2	.910	.075	12.110	***	
COST1	<---	F2	1.137	.085	13.397	***	
QUALITY3	<---	F3	1.000				
QUALITY2	<---	F3	1.044	.089	11.683	***	
QUALITY1	<---	F3	.957	.081	11.785	***	
IS5	<---	F4	1.000				
IS4	<---	F4	.714	.059	12.198	***	
IS3	<---	F4	1.022	.073	14.093	***	
IS2	<---	F4	1.139	.078	14.656	***	
IS1	<---	F4	.937	.081	11.614	***	
OP5	<---	F5	1.000				
OP4	<---	F5	.970	.089	10.945	***	
OP3	<---	F5	.948	.104	9.133	***	
OP2	<---	F5	1.053	.088	12.008	***	
OP1	<---	F5	.838	.098	8.533	***	

Table 4.15: Regression Weights- Mediation Effect

			Estimate	S.E.	C.R.	P	Label
F4	<---	F1	.351	.116	3.012	.003	a1
F4	<---	F2	.144	.058	2.482	.012	a2
F4	<---	F3	.197	.083	2.383	.017	a3
F5	<---	F1	.103	.151	.679	.497	c1
F5	<---	F2	.201	.077	2.610	.010	c2
F5	<---	F3	.506	.113	4.467	***	c3
F5	<---	F4	.208	.093	2.224	.016	b
TIME7	<---	F1	1.000				
TIME6	<---	F1	1.177	.138	8.503	***	
TIME5	<---	F1	1.342	.152	8.843	***	
TIME4	<---	F1	.885	.121	7.301	***	
TIME3	<---	F1	1.198	.144	8.308	***	
TIME2	<---	F1	1.113	.134	8.288	***	
TIME1	<---	F1	1.051	.133	7.913	***	
COST4	<---	F2	1.000				
COST3	<---	F2	.741	.073	10.192	***	
COST2	<---	F2	.911	.075	12.107	***	
COST1	<---	F2	1.137	.085	13.397	***	
QUALITY3	<---	F3	1.000				
QUALITY2	<---	F3	1.053	.089	11.764	***	
QUALITY1	<---	F3	.974	.082	11.882	***	
IS5	<---	F4	1.000				
IS4	<---	F4	.710	.058	12.243	***	
IS3	<---	F4	1.015	.071	14.254	***	
IS2	<---	F4	1.128	.076	14.835	***	
IS1	<---	F4	.926	.080	11.649	***	
OP5	<---	F5	1.000				
OP4	<---	F5	.968	.088	10.951	***	
OP3	<---	F5	.952	.104	9.166	***	
OP2	<---	F5	1.050	.087	12.006	***	
OP1	<---	F5	.837	.098	8.536	***	

Table 4.16: Descriptive Information

	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Time	1.14	4.57	2.7978	.03948	.70630	.499
Cost	1.00	5.00	3.2391	.04262	.76249	.581
Quality	1.00	5.00	3.1312	.05642	1.00925	1.019
IS	1.00	5.00	2.7738	.05131	.91785	.842
OP	1.00	5.00	3.0112	.05241	.93748	.879

Broadly speaking cost and quality management-oriented innovation facilitate innovation speed and operational performance, while innovation speed is a mediator. Regarding time management-oriented innovation, in the current thesis and for this case study, it has a positive and direct relation with innovation speed but does not present a positive and statistically significant relation with operational performance for international hospitals in Iran.

4.2.6 Demographics of Managers

The general and functional managers who participated in data collection presented the following information:

Their age, marital status, educational level and their work experience in hospitals is listed in Table 4.17.

Table 4.17: Demographic information of surveyed managers

Demographics Information	
Work Experience	
<5	49
5-10	137
11-15	51
16-20	13
Sum	250
Age	
25-34	55
35-44	113
45-54	61
55-64	17
>65	4
Sum	250
Marital Status	
Married	141
Single	67
Divorced or Widow	42
Sum	250
Educational Level	
High School or less	0
Associate Degree	13
Bachelor’s Degree	91
Master’s Degree	123
Doctorate Degree	23
Sum	250

Chapter 5

CONCLUSION

5.1 Discussion

This study provides a platform to measure a country's attractiveness for medical tourists as a destination. Any destination for health care and medical treatments delivers services to promote medical tourism and expand the related shared market. Hence, having an indicator to measure the delivered service is fundamental and helpful for the hospitals active in this industry.

Attracting potential customers as medical tourists requires analyzing the market's demands and developing a written plan to address them systematically. According to the previous studies, delivering on-time services with low cost and high quality is the main concern in medical tourism. Because of the importance of these parameters and of innovation in medical tourism, the lack of a tool to measures and analyze all the indicators is an obvious deficit.

Scholars have illustrated the importance of knowledge management areas as leading indicators to attract more medical tourists, but just one or two of them: for instance, time, cost, or quality management (Dehdashti & Nakhaei, 2016; Fetscherin & Stephano, 2016; Han & Hyun, 2015). There are 10 main knowledge management areas, which are correlates, and a comprehensive analysis and a suitable and reliable tool to measure them is demanded in the medical tourism industry. This need caused two main outputs in two different phases in the current thesis.

According to the latest research in medical tourism, like Jenson et al. (2016) and de la Hoz-Correa et al. (2018) novel ideas in this industry are not analyzed comprehensively, which will cause a new project's failure. The main reason for failure is the lack of a systematic procedure for innovation processes. The importance of processes and being systematic cannot be ignored in hospitals. The results of the current thesis in questionnaire format will be seen as a useful tool for managers to be systematic in delivering any new service and product to medical tourists (first phase) and consequently achieve high innovation speed and operational performance (second phase). Some previous studies were conducted to represent the importance of innovation and some knowledge management areas, but none shows all the knowledge management areas together and gives a suitable indicator to measure them, like the first phase of the current thesis does.

The developed questionnaire, which measures knowledge management-oriented innovation in hospitals, is a tool to measure the effectiveness and productivity of services delivered to medical tourists for elements like innovation speed and operational performance.

The procedures applied in the tourism industry cannot be used for medical tourism because it has concerns and problems in practice. The services delivered to medical tourists in hospitals are completely different from those delivered in hotels. Further, customers in hotels are completely different from customers in hospitals. Thus, successfully delivering services in hospitals is not an easy job at all and requires a comprehensive and detailed analysis in practice.

By proposing a model discussing the influence of time, cost, and quality management-oriented innovation (the essential knowledge management areas in medical tourism according to 2.7) on innovation speed and operational performance, this thesis proves that being systematic in innovation processes will increase operational performance in hospitals.

As Wiig (1994) and, Baskerville and Dulipovici (2012) in knowledge management theory stated, it leads organization to high innovation and high operational performance which also were supported by the results of current thesis.

The mediating role of innovation speed between cost and quality management-oriented innovation and operational performance was confirmed through structural equation modeling. In sum, all three chosen knowledge management areas contribute to hospitals' innovation speed, and, according to the results, cost and quality management-oriented innovation have positive and direct relations with operational performance through the mediating role of innovation speed.

Time management did not show a positive relation with operational performance in this case study, but presented a positive effect on innovation speed. As innovation speed will also cause operational performance, then it will indirectly improve operational performance in hospitals.

Time management oriented innovation has seven questions which were answered by the related functional manager. This variable by measuring seven professional terms and condition requires professional functional managers familiar with the terms. During the meeting conducted to define the main purpose and procedures for general

and functional managers some of them were completely unaware about the standard terms hence it could be one of the reasons of rejection of hypothesis which stated time management has positive relation with operational performance and innovation speed mediates the relationship between time management and operational performance.

5.2 Managerial Implications

Medical tourism in Iran has many advantages; medical treatment costs less than in the United States and European countries. Many well-trained doctors are working in high-technology hospitals with high bed capacities, and the number of private hospitals is increasing. Thus, improving the current conditions and adding new value to the market is strongly suggested to the managers in hospitals and medical tourism.

The results of the current thesis provide many useful recommendations for hospital managers. Managers should consider all the standard steps regarding any new idea for any knowledge management area if they want to remain competitive in the medical tourism market. The results will show how to achieve better performance by using knowledge management areas in innovation processes.

The 10 main questionnaires, which are called knowledge management-oriented innovation, will expand managers' knowledge about correct and systematic innovation with comprehensive analysis to increase innovation speed and operational performance and reach a larger market for medical tourism. This will be done by delivering a new tool that helps them to measure knowledge management-oriented innovation.

The current thesis has its own managerial implications. The proposed model informs hospital managers about the importance of performing detailed analysis regarding knowledge management areas to reach innovation speed and operational performance. It is critical for hospital managers to know how the standard steps of each knowledge management area will improve success in innovation and performance. Hospital managers are strongly recommended to write strategies for performing standard steps for each knowledge management area, and especially any new idea, if they want to remain competitive in the medical tourism market.

Project management has 10 main knowledge management areas. This means 10 functional managers should each manage one of them, like a risk manager, a cost manager, a time manager, and a human resources manager. Maybe one person has two duties and the human resources manager is also the stakeholder manager, but in practice these titles need an assigned person.

Iran has some main obstacles including: lack of a specific data base for medical tourism, lack of international behavior training and lack of people with the necessary skills besides incapable marketing.

The government has a vision of achieving 20 million international tourist arrivals by 2024 (Jabbari et al., 2012) but in practice the governmental laws, airlines, hotels, and hospitals' procedures do not support this. Thus, it is strongly suggested to enrich the procedures and standards for all the related organizations active in tourism, and especially hospitals active in this industry.

5.3 Limitations

This thesis, like any study, has some limitations. The results of the first phase could be applied in any hospital around the world, but the results of the second phase are obtained from data collection in Iran and could differ in different countries. Further, the results are reliable in the current situation of international hospitals active in this industry, and absolutely the condition of international hospitals will change in the following years.

Data collection was conducted in international hospitals in Iran, but this does not mean all of them have international accreditation certificates. Surely, they have national accreditation certificates, but when it comes to medical tourism, being globally certified is necessary and fundamental.

Another problem is the lack of a project management office, which is a basic requirement for project management. Further, some of the functional managers were not familiar with some professional terms related to professional project management.

Regarding medical tourism in Iran, only the final destination (i.e., hospitals) was considered in the current thesis, but in practice, many other factors, like airlines and hotels, are fundamental. Both airlines and hotels also deliver services at different costs and qualities, which will affect medical tourist purchase behavior in selecting a destination for treatment.

5.4 Further Research

Future researchers could define and perform suitable strategies related to implementing knowledge management areas regarding high innovation speed and operational performance. It is strongly suggested to future researchers to examine which knowledge management area has the largest effect on innovation in hospitals. This could differ by hospital according to the organizational structure and many other factors.

When it comes to management, both general and functional managers need to be professional. Thus, hospitals need professional managers in today's competitive medical tourism environment. Professional project managers are familiar with all the knowledge management areas. Performing qualitative research to examine managers' knowledge of each knowledge management area is critical for hospitals that want to remain competitive in the medical tourism market.

Further, establishing a project management office in hospitals to record all the lessons learned and analyze about any new idea will decrease the risk of failure in future research.

This study focused on variables dealing with the managerial level and points of view. For future researchers, it would be better to choose the dependent variables from medical tourists' point of view and received services.

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APPENDIX

KNOWLEDGE MANAGEMENT-ORIENTED INNOVATION

Integration Management-oriented Innovation
In our hospital, a charter is developed for each new idea to demonstrate all the details.
In our hospital, a plan is developed for each new idea.
In our hospital, managers for each new idea direct and manage the project.
In our hospital, managers for each new idea monitor and control the project.
In our hospital, managers for each new idea perform integrated change control.
In our hospital, each new idea will be closed and classified after being delivered.

Scope Management-oriented Innovation
In our hospital, managers for each new idea have a scope management plan.
In our hospital, managers for each new idea collect all the requirements.
In our hospital, managers for each new idea define the scope of the work.
In our hospital, managers for each new idea create a work breakdown structure.
In our hospital, managers for each new idea validate the scope of the work.
In our hospital, managers for each new idea control the scope of the work.

Time Management-oriented Innovation
In our hospital, managers for each new idea have a schedule management plan.
In our hospital, managers for each new idea define the activities.
In our hospital, managers for each new idea arrange the activities in sequence.
In our hospital, managers for each new idea estimate the activity resources.
In our hospital, managers for each new idea estimate the activity duration.
In our hospital, managers for each new idea develop a schedule.
In our hospital, managers for each new idea control the schedule.

Cost Management-oriented Innovation
In our hospital, managers for each new idea have a cost management plan.
In our hospital, managers for each new idea estimate the costs.
In our hospital, managers for each new idea determine the budget.
In our hospital, managers for each new idea control the related costs. .

Quality Management-oriented Innovation
In our hospital, managers for each new idea have a quality management plan.
In our hospital, managers for each new idea perform quality assurance.
In our hospital, managers for each new idea control the quality.

Human Resource Management-oriented Innovation
In our hospital, managers for each new idea have a human resource management plan.
In our hospital, managers for each new idea acquire a project team.
In our hospital, managers for each new idea develop the project team.
In our hospital, managers for each new idea manage the project team.

Communication Management-oriented Innovation
In our hospital, managers for each new idea have a communication management plan.
In our hospital, managers for each new idea manage communication.
In our hospital, managers for each new idea control communication.

Risk Management-oriented Innovation
In our hospital, managers for each new idea have a risk management plan.
In our hospital, managers for each new idea identify the risks.
In our hospital, managers for each new idea perform a qualitative risk analysis.
In our hospital, managers for each new idea perform a quantitative risk analysis.
In our hospital, managers for each new idea have a risk response plan.
In our hospital, managers for each new idea control the risks.

Procurement Management-oriented Innovation
In our hospital, managers for each new idea have a procurement management plan.
In our hospital, managers for each new idea conduct the procurements by contracts.
In our hospital, managers for each new idea control all the procurement contracts.
In our hospital, managers for each new idea close all the procurement contracts.

Stakeholder Management-oriented Innovation
In our hospital, managers for each new idea identify all the stakeholders.
In our hospital, managers for each new idea have a stakeholder management plan.
In our hospital, managers for each new idea manage stakeholder engagement.
In our hospital, managers for each new idea control stakeholder engagement.