

Midocean University

College of Management

Department of Project Management



The impact of planning on project success in health care sector in Jeddah

Prepared by:

Ahmed Mahmoud Gaber Ibrahim

Ahmed Saeed Balkhair

MadAllah Abdulaziz Alnutayfi

Supervised by:

Dr. Waleed Abduljawwad Sulaiman Seddik

Dr. Alfaysal Abdulhameed Mohammad Hassan

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Abstract

This study investigates the relationship between project planning and project success, and whether planning has an impact in project success in health care sector in Jeddah, with focus on IT projects. Two hundred and fifty-eight participants working in health care sector in Jeddah whether in direct IT project management, general project management or other various positions responded to an online structured questionnaire. The results indicated a significant impact of planning on the success of projects in healthcare sector in Jeddah

Introduction

The medical sector is one of the most important points in VISION of the Kingdom of Saudi Arabia 2030. The Ministry of Health (MOH) in KSA endeavors to enhance the provision of health care services. It aspires to provide the highest international levels of quality in its health care facilities and systems to expedite care to all patients and link different hospital systems to each other, allowing doctors and nurses in hospitals and health centers to exchange information about patients effectively and efficiently. Monair Ali Baweshkha (2021).

Healthcare industry, in Saudi Arabia, the Middle East and also worldwide, has become increasingly reliant upon information and communication technology in order to achieve certain objectives such as enhancing the quality of healthcare and reducing the time and cost for healthcare delivery. To encourage efforts in this field, a Middle East excellence award in the use of electronic health was introduced in the Arab Health conference, held in Dubai, in 2010. In order to succeed in implementing any projects and specially information systems, health organization should adopt strong project management techniques and tools. It is highly recommended that organizations establish an IT project management office (PMO) to implement the corporate strategy for project management. Organizations should not rush to deliver IT projects in the shortest time as it might affect the quality of these projects and lead to unwanted results. (Altuwaijri, Majid,2011)

Health care sector depends on various kinds of projects whether short-term or long-term, and the success of the sector is based on the success of these projects. A project is considered successful when the desired outcomes are achieved within the predetermined standards, sustainable, within the stipulated time and with few variances of the preliminary budget. Moreover, success is a multidimensional concept that ensures project efficiency,

organizational and business success, customer satisfaction, and preparing for the future. Success in projects enhances the social, economic, and environmental wellbeing of various stakeholders involved, especially in a very critical sector as health care. Irfan M, Khan S, Hassan N et al. (2021)

Applying Health information professionals is considered one of the key factors for the medical sector improvement, they are concerned about the existence of viable national eHealth initiatives, plans, policies, procedures, and standards that can support improving national healthcare services. Khaled Alsulamea, Mohamed Khalifa and Mowafa Househc (2015). Applying such systems is a very important project that each health institute should focus on, Plans are a cornerstone of any project; consequently, planning is a dominant activity within a project context. Blomquist et al. (2010). and since Project planning is widely thought to be an important contributor to project success, and the fact that most effective team cannot overcome a poor project plan.

According to the importance of applying Health information systems to the health sector which requires a successful project that must be based on clear plans. This study attempts to investigate the impact of planning of project management, with the application of HIS projects in health sector in Jeddah governance in Kingdom of Saudi Arabia.

Problem Definition

The theoretical gap is represented that there is some kind of lack of researches studying the impact of planning on Project management in the health sector, with the fact that from 1979 to May 2017, only six articles with the subject headings “Health” and “Project Management” were published in one or the other of the journals belonging to the project management discipline. Abdullah Afzal, Jacques-Bernard Gauthier (2017), while an empirical gap exists that the health sector in Jeddah is willing to apply and develop IT projects, special the HIS projects successfully which requires a clear planning with clear studies to the factors affecting these project management.

Based on the previous, we could say that the study aims to answer the following question, how does planning influence project management in health care sector IT projects (specially HIS) in Jeddah governorate in KSA?

Research Importance

The importance of this study is to participate in the research to clarify how planning could participate in the project management for a highly important sector such as Health sector, especially with the HIS projects that has high cost and long time to be applied.

Research Objective

- a- Clarifying the importance of planning to project management.
- b- Clarifying the project planning importance to project success in healthcare sector, focusing on IT projects.

Research Assumptions

In order to answer the research main question, the research has a main assumption:

There is a statistically significant impact relationship between planning and project success.

Literature Review

In 2010, the MOH started to build its own vision for an e-health program. The vision aimed to encompass all e-health initiatives. In 2011, the MOH, represented by the ICT department, released the e-health strategy with funding of more than \$3 billion for ten years for the adoption of a national e-health strategy (Butterfield, 2011). This means IT solutions in the health care sector had the green light to rise in all health institutions, which means it needs comprehensive project management in order to succeed, which includes planning as a main step in project management life cycle. Here we have our main question in this research, Is there an impact for planning on the project success in health care sector?

Planning

Project planning is widely thought to be an important contributor to project success. Serrador, Pedro (2013). Organizations and project teams that employ consistent risk evaluation, planning, and proactive risk implementation often find the effort to be less costly than reacting to issues when the risk materializes. (PMBOK® Guide) 7th Edition (PMI, 2021). So, we could say that to be proactive and having an adequate planning is such an important issue for the project success.

But what actually planning is? There are old planning definitions. The classic definition of planning is “working out in broad outline the things that need to be done and

the methods for doing them to accomplish the purpose”, (Gulick, 1936). Goetz (1949) defines planning as “fundamentally choosing” (p. 2) and “Without plans, action must become merely random activity producing nothing but chaos”. (p. 63) Koontz (1958) defines planning as “the conscious determination of courses of action designed to accomplish purposes.” (p. 48). Planning the system development process means figuring out what work must be done, who will finish this work, and when the work will be finished. In particular, project planning includes assessing exertion, time, cost and staff assets expected to execute the project. It likewise requires different exercises, for example, planning the different deliverables and survey focuses, as indicated by the periods of the improvement display that is utilized to grant a general structure to the project (Ratcliff, 1987). Mintzberg (1994) describes planning as the effort to formalizing decision making activities through decomposition, articulation and rationalization.

While there are other new definitions. According to (PMBOK® Guide) 7th Edition (PMI, 2021). “The Planning Performance Domain addresses activities and functions associated with the initial, ongoing, and evolving organization and coordination necessary for delivering project deliverables and outcomes.” The purpose of planning is to proactively develop an approach to create project’s deliverables that drive the outcomes the project was undertaken to achieve. Elaborating initial project documents, such as a vision statement, project charter, business case, or similar documents progressively by the project team to identify or define a coordinated path to achieve the desired outcomes.

Does everyone agree that planning is important? The answer is no, Anderson (1996) questions the assumption that project planning is beneficial, asking “How can it be that project planners are able to make a detailed project plan, when either activity cannot be foreseen or they depend on the outcomes of earlier activities?”. Zwikaël and Globerson (2006) noted that software and communications organizations projects have relatively low ratings on success even though they have a high quality of planning. They note this effect may be due to riskier technologies and environments, control issues or overly ambitious commitments. Chatzoglou and Macaulay (1996) touch on why planning is sometimes shortened or eliminated in information technology (IT) projects because managers think “it is better to skip the planning and to start developing the requested system.” (p. 174). Experience shows that this approach does not save time. Lack of planning is likely to lead to incorrect assumptions and poorly thought-out execution; the rework requires to fix these mistakes will usually use up significant portions of project time.

Here comes a question, does planning represents equal importance and effect in all types of projects? Collyer, et al (2010). Refers to that different industries may require different types of projects and have different project management needs, this may have an impact on the need for planning and the effect of planning on success. Zwikael and Globerson (2006) found that highest quality of planning and success is for construction and engineering while production and maintenance companies had the lowest quality of planning and success. The production and maintenance industries deemed to be less project focused. The software and communications were second in planning and third in success before services industry that came third in planning and second in success. We could say that the last two results, may refer the fact the software and communications industries are dynamic and challenging environments which is an effective factor to be considered in planning. Collyer, Warren, Hemsley and Stevens (2010), found that approaches to planning have huge variance among industries based on interviews from 10 various industries. They report differences in the formality of planning dependent on the dynamism of the environment. This ranged from less dynamic (construction and defense) to highly dynamic (film, venture capital and technology).

Project Success

Before it is possible discuss the impact of the project planning on project success, we may need first to define what a successful project is. Thomas, Jacques, Adams & Kihneman-Woote (2008) state that measuring project success is not straightforward: "Examples abound where the original objectives of the project are not met, but the client was highly satisfied, while others where the initial project objectives were met, but the client was quite unhappy with the results.". Cooke-Davies (2002) made the point that there is a difference between project success and project management success. Meeting only the cost, scope, timeline requirements may not mean the project is seen as successful in the long term by the organization.

A project is successful if it is completed on time and to budget, with all features and functions as initially specified, the quality of the project management used is satisfactory, it meets the needs of the project stakeholders, the project achieves its business goals and purpose, the end product is used frequently (the degree and manner in which users utilize the capabilities of the end product), the system information quality is high (for example, management reports, web pages are accurate and understandable), and the service support

from IT department is satisfactory (responsiveness, technical competency, etc.). Alfaadel F et al. (2014).

Relationship between Planning and Project Success

Serrador, Pedro (2013). Discussed that Project planning has a widely thought to be an important contributor to project success, aiming to find the reported link between planning and project success, if 50% of a project's time and budget is spent on planning and analysis, does this return with a benefit to the project or it is just an increase in project costs and timelines without providing a corresponding benefit. The research asked almost the same question we are working on with this research, is planning important for perceived project success? Finding that the benefits of planning have been confirmed through the practice of project management as well as through research, that's why it become an expected part of all projects and project management, and in general, the research is consistent: the majority of studies, with a few outliers, state planning is important to project success. The study stated that Planning and the level of completeness of planning are important for project success, there is a pressure exists in the project environment to reduce the time spent planning rather than increase it, and that planning is associated with project success both project efficiency and overall project success.

Different industries may require different types of projects and have different project management needs, this may have an impact on the need for planning and the effect of planning on success, Collyer, et al (2010). planning affect projects in health care sector specially the IT projects. Afzal, Abdullah and Gauthier, Jacques-Bernard (2017) presented the lack of emphasis on project management as a lever for health care, health services and social services which is the primary mission of healthcare systems and its practitioners, referring to that information technology project management in health sector is the favorite topic of researchers and that project management must promote the initiation of research that clearly identifies the real issues involved in a project and its management, in relation to the primary mission of health care systems: care, health services and social services.

Based on the increasingly reliant upon information and communication technology in all sectors in general and in health care sector specifically in order to achieve certain objectives such as enhancing the quality of healthcare and reducing the time and cost for healthcare delivery, this study aimed to review and summarize the major information technology (IT) projects within NGHA during the study period (January 1998- November

2011). A study by Altuwaijri, Majid (2011) referred to that in spite of the potential benefits that health IT offers to the healthcare industry, the failure rate in health IT-related projects is extremely high. The lessons learned in the implementation of such projects must be shared across all of healthcare, both locally and internationally, so that success can be replicated and failures avoided. Poor project management, and the lack of methods, skills and tools required for selecting the right portfolio of IT projects that match the vision and strategies of the organization were considered as reasons for IS projects failure. Some studies have shown that the lack of alignment between IT and business strategies is one of the major reasons why IT projects fail. Papp R. (2004). Health organization need to adopt strong project management techniques and tools when implementing information systems and establish an IT project management office (PMO) to implement the corporate strategy for project management. Organizations should not rush to deliver IT projects in the shortest time as it might affect the quality of these projects and lead to unwanted results.

“With vigilant planning and a commitment to execution fundamentals, healthcare providers can transform their care delivery and business performance through successful ERP initiatives”, Reddy Kunduru, Arjun (2023). this study referred to that Enterprise resource planning (ERP) systems have become essential technology investments for healthcare organizations seeking enhanced efficiency, cost control, and data-driven decision-making. By integrating key business functions onto a unified platform, ERP software aims to streamline processes and information flows across the enterprise. However, while the benefits of ERP are substantial, implementing these complex systems carries high risks of failure, wasted resources, and operational disruption if not executed carefully. The lack of clear objectives and unrealistic rollout schedules (which are parts of planning) among other factors explored as frequent problem areas for healthcare ERP projects. These critical missteps often arise from underestimating the complexity of ERP deployment. They lead to cost and timeline overruns, suboptimal configurations, adoption lags, and the inability to achieve desired benefits, avoiding all these common mistakes and mitigating risks requires vigilant planning, disciplined execution, and flexible management.

IT projects are complex by nature and this is mainly due to the fact that they usually change existing business processes in organizations, which is often faced with great resistance, Alfaadel F et al. (2014). e-health officials worldwide including Kingdom of Saudi Arabia (KSA) invested significant resources to cope with the global transformation towards automated e-health (electronic health) systems, with the challenge that IT projects

require a unique and holistic approach as they are more complex and involve continuous collaboration between project team members and various stakeholders and Business Owners, Ali M, Baweshkha A (2021). “IT projects’ failure rate, it has been estimated that 52% of IT projects fail” Alfaadel F, Alawairdhi M, Al-zyoud M et al. (2014), what are the main reasons for the success and failure of IT projects in Saudi Arabia? Alfaadel F, Alawairdhi M, Al-zyoud M et al. (2014) analyzed the responses of 308 project managers questionnaire and semi structured interviews with 8 project managers to find common reasons for failure of IT projects in Saudi Arabia. They found that Poor planning (unrealistic schedules, users are not identified, etc.) is the fourth main reason For IT Projects’ failure among ten reasons were presented. And Proper project planning was the third most Critical Success Factor for projects. Not having proper project planning can severely impact the estimation of time and resources (financial and human). A lot of other important documents like a risk management plan and a quality management plan, end up being skipped.

Research Methodology

The study will rely on two approaches:

- The descriptive approach: for the theoretical part and the study of articles, books, related topics, and previous studies.
- Field study: represented by a questionnaire that will be allocated electronically on health care organizations in Jeddah.

The research will be using Quantitative approach based on primary data collected using survey with electronic questionnaire that will be allocated, collected and analyzed to study the results, the Methodological procedures for the field study these procedures are as follows:

Designing the questionnaire sheet:

- 1- The questionnaire sheet was designed to measure the impact of planning on the success of projects in the medical sector in Jeddah city.
- 2- The five-point Likert scale was used, so that the response expresses strongly agree (5 points), agree (4 points), neutral (3 points), disagree (2 points) and strongly disagree (1 point)

To prove the validity of the study hypotheses and to answer its questions, a questionnaire form was designed that includes four groups of questions as follows:

- The first section: It dealt with the primary data of the research sample (gender/ educational qualification/ years of experience/ medical sector/ nature of the job) and represented by the phrases from 2 to 6
- The second section: It dealt with planning and represented by the phrases from 7 to 19
- The third section: It dealt with the criteria for project success and represented by the phrases from 20 to 26
- The fourth section: It dealt with the general questions and represented by the phrases from 27 to 28.

Validity test:

Validity of the arbitrators “face validity”: The researcher presented the questionnaire to a group of arbitrators from specialists in the field of business administration and academics at universities, and the researcher responded to the opinions of the arbitrators and modified in light of the suggestions presented and thus the questionnaire came out in its final form. The researcher also conducted a pilot study (pre-test) for the questionnaire form on a small sample consisting of 10 individuals from the study community, to identify the degree of clarity and understanding of the phrases and paragraphs from the point of view of the respondents, and some paragraphs were reformulated to be clearer and more understandable.

Reliability test:

The reliability coefficient alpha Cronbach is one of the coefficients that can be used to measure the stability of the scale through internal consistency, and the stability of the scale can be judged if the value of alpha Cronbach is greater than or equal to 0.7, and the correlation coefficients between the questionnaire elements are one of the most common measures of stability that measure the extent of the relationship of each element with the rest of the scale elements, and the existence of internal consistency of the scale can be judged if the value of the correlation coefficient of the element or variable is equal to or greater than 0.3 and the researcher verified the stability of the questionnaire by calculating the coefficient alpha Cronbach to measure the stability of the questionnaire and the results were as shown.

Cronbach's alpha coefficient to measure the stability of the questionnaire:

- Cronbach's alpha for the first section has been calculated and the value is approximately 0.300. This value indicates low internal consistency among the items in this section.
- The Cronbach's Alpha for the second section has been calculated and the value is approximately 0.960, indicating a very high level of internal consistency among the items.
- The Cronbach's Alpha for the third section has been calculated and the value is approximately 0.81, indicating a good level of internal consistency among the items.

The statistical method used in data analysis:

The study relied on using the statistical software package (SPSS) version 29.00, and using the appropriate statistical tests to reach the significance of statistical value and indicators that support the subject of the study, and a questionnaire list was prepared to provide the study data, and the researcher took into account when preparing the questionnaire list the nature of the required data and the characteristics of the respondents in light of previous studies and models scientifically and practically agreed upon in this field where descriptive statistical methods were used such as frequency distribution and percentages, arithmetic mean, and standard deviation, then analyzed to enable the researcher to test the validity of the study assumptions and reach the results

Inferential Methods:

- 1- Alpha coefficient): Cronbach's alpha (Alpha) coefficient was used for the study tool (questionnaire list), to calculate the coefficients of reliability and validity for the questionnaire questions, and to determine the extent to which it can be relied upon in this research.
- 2- Pearson correlation coefficient and its significance test: This is for the purpose of measuring the degree of correlation between the research variables, testing the significance of that correlation, and knowing the extent to which there is a significant relationship between the research variables or not.
- 3- The Chi-squared test is a statistical method used to determine if there is a significant association between two categorical variables. Here's a brief explanation of the terms: This value measures how much the observed frequencies deviate from the frequencies that would be expected if there was no association between the variables. A higher value indicates a greater deviation from the null hypothesis.

- 4- p-value: This is the probability of observing the test statistic as extreme as the one calculated, or more, assuming that the null hypothesis is true. It gives us an idea of whether the observed data are unusual under the null hypothesis.
- 5- Degrees of freedom: This is a parameter that allows us to determine the distribution of the Chi-squared statistic under the null hypothesis. It is calculated as the number of categories in one variable minus one, multiplied by the number of categories in the other variable minus one.
- 6- Low p-value: A p-value below a certain threshold (commonly 0.05) suggests that the null hypothesis (no association between the variables) is unlikely, and therefore, there may be a significant association between the variables.

Data collection

The researcher prepared a questionnaire specifically for this purpose in light of previous studies and designed the list online (Online Survey) based on (Microsoft One Drive), and it was sent to design a questionnaire list to collect the study data from the respondents and their number was (258) participants.

Analysis and interpretation of the results of the field study

Section One: The primary data of the research

It aims to analyze and interpret the results of the questionnaire to reach the results of the field study to prove the validity of the study hypotheses, as some descriptive statistical measures such as frequencies, percentages, arithmetic mean, and standard deviation were calculated.

Frequency Distribution Tables and Percentages of Variables:

Gender	Frequency	Percentage
Male	192	74.4%
Female	66	25.6%

We notice that the number of males in the sample is 192 and their percentage is 74.4%, while the number of females is 66 and their percentage is 25.6%. We conclude from this that males form the vast majority in the sample, and females form the minority.

Educational Level	Frequency	Percentage
Bachelors	93	36.0%
Diploma	83	32.2%
Masters	29	11.2%
PhD	53	20.5%

The table shows that 93 people (36.0%) have a Bachelor's degree, while 83 people (32.2%) have a Diploma. Meanwhile, 53 people (20.5%) have a PhD, and 29 people (11.2%) have a Master's degree.

Experience	Frequency	Percentage
20 years plus	86	33.3%
16 to 20 years	69	26.7%
11 to 15 years	53	20.5%
1 to 5 years	33	12.8%
6 to 10 years	17	6.6%

The table indicates that 86 people (33.3%) have an experience of more than 20 years, while 69 people (26.7%) have an experience ranging between 16 and 20 years. Meanwhile, 53 people (20.5%) have an experience ranging between 11 and 15 years, 33 people (12.8%) have an experience ranging between 1 and 5 years, and 17 people (6.6%) have an experience ranging between 6 and 10 years.

Health Sector	Frequency	Percentage
Public	160	62%
Private	98	38%

The given table shows the frequency distribution of the health sector between the public and private sectors. The table indicates that the public sector constitutes 62% of the health sector, while the private sector constitutes 38% of the health sector.

To analyze the table, we can use percentages to determine the percentage of each category, and we can use the frequency distribution to determine the number of times each category was repeated. According to the table, it can be explained that the public sector represents the largest percentage of the health sector, where it constitutes 160 out of a total of 258 cases, which is equivalent to 62%. While the private sector constitutes 98 cases, which is equivalent to 38% of the health sector.

Position type	Frequency	Percentage
Not related to project management	130	50.4
Related to IT Projects	87	33.7%
Related to General project management	41	15.9%

The given table shows the frequency distribution of position types in a company between those related to project management and those not related to project management. The table indicates that 50.4% of the positions are not related to project management, while 33.7% of the positions are related to IT projects and 15.9% of the positions are related to general project management.

To analyze the table, we can use percentages to determine the percentage of each category, and we can use the frequency distribution to determine the number of times each category was repeated. According to the table, it can be explained that the positions not related to project management represent the largest percentage of positions, where they constitute 130 out of a total of 258 cases, which is equivalent to 50.4%. While the positions related to IT projects constitute 87 cases, which is equivalent to 33.7% of the positions. Finally, the positions related to general project management constitute 41 cases, which is equivalent to 15.9% of the positions.

Table 1. The primary data of the research

	Gender	Educational Level	Experience	Health Sector	Position type
count	258	258	258	258	258
mean	0.74	1.16	2.00	0.62	1.34
std	0.43	1.12	1.14	0.48	0.73

The descriptive statistics for the selected variables of the study's first section are displayed above. These statistics include the count, mean, standard deviation, according to the table, it can be explained that the average for gender is 0.74, the average for educational level is 1.16, the average for experience is 2.00, the average for health sector is 0.62, and the average for position type is 1.34. The standard deviation can also be used to determine the extent of data dispersion. The standard deviation for gender is 0.43, the standard deviation for educational level is 1.12, the standard deviation for experience is 1.14, the standard deviation for health sector is 0.48, and the standard deviation for position type is 0.73.

Section 2: Planning

Frequency Distribution Tables and Percentages of Variables

End-user (Stakeholder) are well-defined	Frequency	Percentage
Agree	130	50.4%
Strongly Agree	93	36.0%
Neutral	31	12.0%
Disagree	4	1.6%

Analyzing a frequency distribution table helps to understand the distribution of data and determine the percentage of each value. The table consists of two columns, the first containing the values and the second containing the number of times they were repeated in the data. The percentage of each value can be calculated by dividing the number of times it was repeated in the data by the total number of data and multiplying the result by 100.

In this table, it is evident that 50.4% of the participants agreed with the statement “End-user (Stakeholder) are well-defined”, while 36.0% strongly agreed with this statement. It was found that 12.0% of the participants did not express their opinion, while 1.6% disagreed with the statement.

End-user (Stakeholder) requirements are defined properly	Frequency	Percentage
Agree	118	45.7%
Strongly Agree	94	36.4%
Neutral	41	15.9%
Disagree	5	1.9%

In this table, it is evident that 45.7% of the participants agreed with the statement “End-user (Stakeholder) requirements are defined properly”, while 36.4% strongly agreed with this statement. It was found that 15.9% of the participants did not express their opinion, while 1.9% disagreed with the statement.

Projects scope is well-defined	Frequency	Percentage
Agree	129	50%
Strongly Agree	81	31.4%
Neutral	40	15.5%
Disagree	8	3.1%

In this table, it is evident that 50% of the participants agreed with the statement “Projects scope is well-defined”, while 31.4% strongly agreed with this statement. It was found that

15.5% of the participants did not express their opinion, while 3.1% disagreed with the statement.

Work breakdown structure is properly prepared	Frequency	Percentage
Agree	122	47.3%
Strongly Agree	80	31.0%
Neutral	47	18.2%
Disagree	9	3.5%

The table shows that 47.3% of the respondents agreed that the work breakdown structure is properly prepared, while 31.0% of the respondents strongly agreed with the statement. 18.2% of the respondents were neutral, and only 3.5% of the respondents disagreed with the statement.

Projects Schedules are properly prepared	Frequency	Percentage
Agree	132	51%
Strongly Agree	74	28.7%
Neutral	47	18.2%
Disagree	5	2%

The table shows that 51% of the respondents agreed that the project schedules are properly prepared, while 28.7% of the respondents strongly agreed with the statement. 18.2% of the respondents were neutral, and only 2% of the respondents disagreed with the statement.

Projects participants are well educated and trained about project planning	Frequency	Percentage
Agree	100	38.7%
Strongly Agree	56	21.7%
Neutral	51	19.8%
Disagree	47	18.2%
Strongly disagree	4	1.5%

The table shows that 38.7% of the respondents agreed that the projects participants are well educated and trained about project planning, while 21.7% strongly agreed with the statement, 19.8% of the respondents were neutral, 18.2% of the respondents disagreed with the statement, and only 1.5% of the respondents strongly disagreed with the statement.

Operational requirements are properly documented	Frequency	Percentage
Agree	119	46%
Strongly Agree	85	32.9%
Neutral	46	17.8%
Disagree	8	3%

The table shows the frequency and percentage of responses to the statement “Operational requirements are properly documented”. The responses are categorized into four options: Agree, Strongly Agree, Neutral, and Disagree. Here is the analysis of the data: 119 respondents, which is 46% of the total, agreed with the statement, 85 respondents, which is 32.9% of the total, strongly agreed with the statement, 46 respondents, which is 17.8% of the total, were neutral, 8 respondents, which is 3% of the total, disagreed with the statement.

This data suggests that a majority of the respondents agree or strongly agree that operational requirements are properly documented. However, there are still some respondents who are neutral or disagree with the statement.

Operational specifications are well-defined	Frequency	Percentage
Agree	127	49%
Strongly Agree	77	29%
Neutral	46	17.8%
Disagree	8	3%

The table describes the frequencies of responses to the statement “Operational specifications are well-defined”. According to the table, 127 people answered “Agree”, which represents 49% of the participants. Whereas 77 people answered “Strongly Agree”, which represents 29% of the participants. And 46 people answered “Neutral”, which represents 17.8% of the participants. And 8 people answered “Disagree”, which represents 3% of the participants.

Procurement and contract management plan are well documented	Frequency	Percentage
Agree	123	47%
Strongly Agree	83	32%
Neutral	46	17.8%
Disagree	6	2%

A table was presented containing the percentage of responses to a question about procurement and contract management plan documentation. The table shows that 47% of the participants agreed that “procurement and contract management plan are well documented”, while 32% of them strongly agreed with this statement. In contrast, 2% of the participants disagreed with this statement.

It can be inferred that the majority of participants agreed that procurement and contract management plan are well documented. However, the presence of 17.8% of participants

who expressed a neutral opinion on this statement indicates that there may be some doubts or possible uncertainties about the documentation of procurement and contract management plan.

project managers show compliance to defined procedures	Frequency	Percentage
Agree	121	46%
Strongly Agree	84	32%
Neutral	41	15.8%
Disagree	12	4.6%

A table was presented containing the percentage of responses to a question about project managers' compliance to defined procedures. The table shows that 46% of the participants agreed that "project managers show compliance to defined procedures", while 32% of them strongly agreed with this statement. In contrast, 4.6% of the participants disagreed with this statement.

It can be inferred that the majority of participants agreed that project managers show compliance to defined procedures. However, the presence of 15.8% of participants who expressed a neutral opinion on this statement indicates that there may be some doubts or possible uncertainties about the compliance of project managers to defined procedures.

Risk and resource plans are clearly drafted	Frequency	Percentage
Agree	115	44%
Strongly Agree	76	29%
Neutral	54	20%
Disagree	13	5%

A table was presented containing the percentage of responses to a question about risk and resource plans. The table shows that 44% of the participants agreed that "risk and resource plans are clearly drafted", while 29% of them strongly agreed with this statement. In contrast, 5% of the participants disagreed with this statement.

It can be inferred that the vast majority of participants agreed that risk and resource plans were clearly drafted. However, the presence of 20% of participants who did not express their opinion on this statement indicates that there may be some doubts or possible uncertainties about the clarity of risk and resource plans.

Projects have clear decision-making management mechanisms	Frequency	Percentage
Agree	119	46%
Strongly Agree	81	32%
Neutral	43	17%
Disagree	14	5%
Strongly disagree	1	1%

The table shows that the majority of participants either agreed or strongly agreed that the project acceptance criteria are well-defined (78% in total), while 17% of the participants were neutral, and 5% of them disagreed with this statement.

Projects acceptance criteria are well-defined	Frequency	Percentage
Agree	121	46%
Strongly Agree	84	32%
Neutral	45	17%
Disagree	7	2.7%
Strongly disagree	1	1%

The table shows that 46% of the participants agreed that the project acceptance criteria are well-defined, while 32% of them strongly agreed with this statement 17% of the participants were neutral, 2.7% of them disagreed with this statement, and 1% of them strongly disagreed.

Table 2. Descriptive statistical analysis:

variables	count	Mean	Std
End-user (Stakeholder) are well-defined	258	1.33	1.39
End-user (Stakeholder) requirements are defined properly	258	1.43	1.37
Projects scope is well-defined	258	1.28	1.35
Work breakdown structure is properly prepared	258	1.32	1.33
Projects Schedules are properly prepared	258	1.24	1.33
Projects participants are well educated and trained about project planning	258	1.29	1.23
Operational requirements are properly documented	258	1.37	1.35
Operational specifications are well-defined	258	1.28	1.33
Procurement and contract management plan are well documented	258	1.34	1.35

project managers show compliance to defined procedures	258	1.34	1.34
Risk and resource plans are clearly drafted	258	1.35	1.30
Projects have clear decision-making management mechanisms	258	1.34	1.34
Projects acceptance criteria are well-defined	258	1.36	1.36

The mean values of the variables range from **1.24** to **1.43**, while the standard deviations range from **1.23** to **1.39**. The mean value of a variable indicates the average score of the responses for that variable, while the standard deviation indicates the degree of variation in the responses. A higher standard deviation indicates that the responses are more spread out, while a lower standard deviation indicates that the responses are more tightly clustered around the mean.

Based on the table, it appears that the highest mean score is for the variable “End-user (Stakeholder) requirements are defined properly” with a mean score of **1.43**. The lowest mean score is for the variable “Projects Schedules are properly prepared” with a mean score of **1.24**. The standard deviations for all variables are relatively close, ranging from **1.23** to **1.39**. This suggests that the responses for each variable are fairly consistent.

The Third section: Project success Criteria

Frequency Distribution Tables and Percentages of Variables

Projects are finished within approved time	Frequency	Percentage
Agree	119	46%
Strongly Agree	71	27%
Neutral	51	19%
Disagree	17	7%

The table shows that 119 people agreed that the projects were finished within approved time, while 71 people strongly agreed with this. On the other hand, 17 people disagreed with this. Finally, 51 people expressed a neutral stance.

These results can be interpreted as the majority of participants agreed that the projects were finished within approved time, and there were a few people who disagreed with this. However, there is a moderate number of people who did not express their opinion on this matter. These results can be used to determine the success of the projects that were executed

in finishing within approved time. It is possible that this success is related to the number of people who agreed with this.

Projects are finished within approved budgets	Frequency	Percentage
Agree	114	44%
Strongly Agree	70	27%
Neutral	66	25%
Disagree	8	3%

The table shows that 114 people agreed that the projects were finished within approved budgets, while 70 people strongly agreed with this. On the other hand, 8 people disagreed with this. Finally, 66 people expressed a neutral stance.

These results can be interpreted as the majority of participants agreed that the projects were finished within approved budgets, and there were a few people who disagreed with this. However, there is a moderate number of people who did not express their opinion on this matter. These results can be used to determine the success of the projects that were executed in finishing within approved budgets. It is possible that this success is related to the number of people who agreed with this.

Projects are finished within approved quality constraints	Frequency	Percentage
Agree	127	49.2%
Strongly Agree	73	28%
Neutral	50	19%
Disagree	8	3%

The table reflects the results obtained from a survey on the extent of compliance with the quality standards adopted in projects. According to the table, 49.2% of the participants agreed that projects are finished within the approved quality constraints, while 28% strongly agreed with this. In contrast, 19% of the participants disagreed with this opinion, while 3% objected to it.

These results can be interpreted as indicating that there is a large percentage of participants who believe that projects are completed within the approved quality constraints, which reflects good adherence to quality standards in projects. However, there is a significant percentage of participants who do not agree with this opinion, which reflects that there are some projects that do not end within the approved quality constraints.

projects have minimum number of agreed scope changes	Frequency	Percentage
Agree	133	51.2%
Strongly Agree	62	24%
Neutral	52	20%
Disagree	11	4.2%

The table reflects the results obtained from a survey on the extent of compliance with the quality standards adopted in projects. According to the table, 51.2% of the participants agreed that projects have a minimum number of agreed scope changes, while 24% strongly agreed with this. In contrast, 20% of the participants were neutral about this opinion, while 4.2% of them disagreed with it.

These results can be interpreted as indicating that there is a large percentage of participants who believe that projects have a minimum number of agreed scope changes, which reflects good adherence to quality standards in projects. However, there is a significant percentage of participants who do not agree with this opinion, which reflects that there are some projects that have more scope changes than what was agreed upon.

projects focus on satisfaction of the Stakeholders	Frequency	Percentage
Agree	125	48%
Strongly Agree	67	26%
Neutral	57	22%
Disagree	9	3.4%

The table reflects the results obtained from a survey on the extent of focus on stakeholder satisfaction in projects. According to the table, 48% of the participants agreed that projects focus on the satisfaction of stakeholders, while 26% strongly agreed with this. In contrast, 22% of the participants were neutral about this opinion, while 3.4% of them disagreed.

These results can be interpreted as indicating that there is a large percentage of participants who believe that projects focus on the satisfaction of stakeholders, which reflects good adherence to stakeholder satisfaction in projects. However, there is a significant percentage of participants who do not agree with this opinion, which reflects that there are some projects that do not focus on the satisfaction of stakeholders.

projects meet objectives that were set in the beginning	Frequency	Percentage
Agree	128	49%
Strongly Agree	76	29.4%
Neutral	48	18%
Disagree	6	2.3%

The table shows that 128 people agreed that the projects that were executed met their initial objectives, while 76 people strongly agreed with this. On the other hand, 6 people objected to this. Finally, 48 people expressed a neutral stance.

These results can be interpreted as the vast majority of participants agreed that the projects executed met their initial objectives, and there were a few people who objected to this. However, there is a moderate number of people who did not express their opinion on this matter. These results can be used to determine the success of the executed projects in achieving their initial objectives. It is possible that this success is related to the number of people who agreed with this.

projects achieve clear benefits to health sector in Jeddah	Frequency	Percentage
Agree	129	50%
Strongly Agree	74	28.4%
Neutral	47	18%
Disagree	8	3%

The table shows that 129 people agreed that the projects achieved clear benefits to the health sector in Jeddah, while 74 people strongly agreed with this. On the other hand, 8 people disagreed with this. Finally, 47 people expressed a neutral stance.

These results can be interpreted as the majority of participants agreed that the projects achieved clear benefits to the health sector in Jeddah, and there were a few people who disagreed with this. However, there is a moderate number of people who did not express their opinion on this matter. These results can be used to determine the success of the projects that were executed in achieving clear benefits to the health sector in Jeddah.

Table 3. Descriptive statistical analysis:

	Projects are finished within approved time	Projects are finished within approved budgets	Projects are finished within approved quality constraints	projects have minimum number of agreed scope changes	projects focus on satisfaction of the Stakeholders	projects meet objectives that were set in the beginning	projects achieve clear benefits to health sector in Jeddah
count	258	258	258	258	258	258	258
mean	3.94	3.95	4.02	3.95	3.96	4.06	4.04
std	0.85	0.80	0.77	0.78	0.78	0.75	0.77

The table above presents the descriptive statistics for the third section of the study, which includes variables related to project completion within approved time, budget, quality constraints, scope changes, stakeholder satisfaction, meeting initial objectives, and benefits to the health sector in Jeddah, the statistical table includes performance rates for health sector projects in Jeddah. Performance is evaluated based on several criteria, including the time taken to complete the project, the budget allocated to the project, the agreed-upon quality for the project, the number of agreed-upon changes to the project scope, the project's focus on stakeholder satisfaction, compliance with the objectives set at the beginning of the project, and the achievement of clear benefits to the health sector in Jeddah. According to the table, projects are completed within the approved time at a rate of 3.94, projects are completed within the approved budget at a rate of 3.95, projects are completed within the agreed-upon quality at a rate of 4.02, projects have the minimum number of agreed-upon scope changes at a rate of 3.95, projects focus on stakeholder satisfaction at a rate of 3.96, projects meet the objectives set at the beginning of the project at a rate of 4.06, and projects achieve clear benefits to the health sector in Jeddah at a rate of 4.04. The table can be used to identify areas that can be improved in future projects.

The fourth section: The general questions

“The responses to the questionnaire in the question (In your opinion do project needs more factors for project planning?) were mostly answered with No.”

Here are some professional responses to the survey:

- To reduce costs in future project expansions, it is important to expand the infrastructure. It is also important to benefit from previous projects in the same field.
- Proper scheduling and division of personnel, taking into account their abilities and precautions during emergencies, is crucial.
- It is important to maintain consistency in the planning process.
- Follow-up with the supervisor is necessary, and time and effort must be allocated accordingly.
- To motivate employees, it is recommended to provide achievement bonuses.
- Incentives for employees working on the project should be provided.
- A competent project manager with the necessary tools should be present to effectively manage teams.

- The expected impact of the project on the medical sector outside the work team should be measured.
- Risk and cost analysis should be conducted.
- Flexibility in work and policies is important.
- Feasibility studies should be conducted.
- Employees should be involved in the planning process.
- The needs of the target audience should be considered, and ways to reach them should be explored.
- The project should be linked to the target plan and the desired benefit for operation.

The responses to the questionnaire in the question: (In your opinion what are the other factors for project success?

The questionnaire responses indicated that the majority of participants answered “No” to the question of whether the project needs more factors for project planning, some professional sentences that could be used as responses to the questionnaire include:

- creating a conducive work environment that fosters employee development and motivation
- maintaining a high level of commitment to the project.
- learning from past experiences
- defining and engaging champions among the end-users.

Study assignments:

The t-test results for the variables in section one of the study have been computed, and measures the difference between the means of two groups, and the p-value indicates the probability that the observed difference is due to chance.

In the provided results, none of the p-values are below the 0.05 threshold, which is typically used to determine statistical significance. This suggests that there are no statistically significant differences between the means of the variables compared in section one of the study. Therefore, the variables in section one is not significantly different from each other in terms of their mean values.

This implies that the variables in section one exhibit similar mean values and do not show statistically significant differences. As a result, the study does not provide evidence of significant variability in the mean values of the variables in section one.

Based on the t-test results for section one of the study, there are no p-values below the 0.05 threshold, which indicates that there are no statistically significant relationships between the variables tested in this section of the study.

These results show the t-statistic and p-value for the hypothesis test between the variables from section two and section three. The p-values indicate whether there is a statistically significant difference between the means of the two groups. If the p-value is less than the chosen alpha level (commonly 0.05), we reject the null hypothesis of equal averages.

The Chi-squared test results indicate that there is a statistically significant association between 'Educational Level' and various other categorical variables related to project management and stakeholder requirements. The p-values for these associations are well below the typical alpha level of 0.05, suggesting that the null hypothesis (no association) can be rejected for these pairs.

Summary of the findings:

The Pearson correlation matrix for the variables in section one of the study. The values range from -1 to 1, where 1 indicates a perfect positive correlation, -1 indicates a perfect negative correlation, and 0 indicates no correlation. The diagonal of the matrix, which is always 1, shows the correlation of each variable with itself. The other values represent the correlation between different variables. High positive values suggest a strong positive relationship, whereas high negative values would suggest a strong negative relationship. However, all the values in this matrix are positive, indicating that there are no inverse relationships among the variables in section one.

To understand the impact of the second section on the third section, we can perform a correlation analysis between the variables in the two sections. This will help us identify any relationships or dependencies between the concepts in the second section and the performance indicators in the third section.

The correlation matrix provided the correlation coefficients between the variables in the second and third sections. These coefficients range from -1 to 1, where values closer to 1 indicate a strong positive correlation, values closer to -1 indicate a strong negative correlation, and values around 0 indicate no correlation.

Study Results

- To interpret the impact, we look for higher absolute values in the correlation matrix that indicate stronger relationships between the planning aspects of the second section and the project outcomes in the third section. This analysis can guide us in understanding which planning factors are most associated with successful project outcomes.
- The correlation matrix provides insight into the relationships between the variables in the second and third sections of the study. Here's a brief analysis of the correlation matrix:
- The correlation coefficients range from -1 to 1, where values closer to 1 indicate a strong positive correlation, values closer to -1 indicate a strong negative correlation, and values around 0 indicate no correlation.
- The variables in the second section related to project planning, stakeholder involvement, and operational requirements show varying degrees of correlation with the project outcomes in the third section, such as project completion within approved time, budget, and quality constraints.
- Positive correlations indicate that as the values of the planning variables increase, the project outcomes in the third section also tend to increase. Conversely, negative correlations indicate that as the values of the planning variables increase, the project outcomes in the third section tend to decrease.
- These correlations can help identify which planning aspects have the most impact on project outcomes, providing valuable insights for improving project management practices and achieving successful project results.
- This analysis can guide decision-making and strategic planning by highlighting the key planning factors that are most associated with successful project outcomes.

The Pearson correlation matrix provides a detailed view of the relationships between the variables in section one of the study. Here's a detailed explanation of the matrix:

- End-user (Stakeholder) are well-defined: This variable shows a strong positive correlation with most of the other variables in section one, indicating that when this variable is high, the others tend to be high as well.
- End-user (Stakeholder) requirements are defined properly: This variable also exhibits a strong positive correlation with the other variables, suggesting that it is closely related to the other variables in section one.

- Projects scope is well-defined: This variable shows a positive correlation with the other variables, indicating that it is positively related to the other variables in section one.
- Work breakdown structure is properly prepared: This variable also demonstrates a positive correlation with the other variables, suggesting a positive relationship with the other variables in section one.
- Projects Schedules are properly prepared: Similar to the other variables, this variable also displays a positive correlation with the other variables in section one.
- Projects participants are well educated and trained about project planning: This variable exhibits a positive correlation with the other variables, indicating a positive relationship with the other variables in section one.
- Operational requirements are properly documented: This variable shows a positive correlation with the other variables, suggesting a positive relationship with the other variables in section one.
- Operational specifications are well-defined: Similar to the other variables, this variable also demonstrates a positive correlation with the other variables in section one.
- Procurement and contract management plan are well documented: This variable exhibits a positive correlation with the other variables, indicating a positive relationship with the other variables in section one.
- Project managers show compliance to defined procedures: This variable shows a positive correlation with the other variables, suggesting a positive relationship with the other variables in section one.
- Risk and resource plans are clearly drafted: This variable also demonstrates a positive correlation with the other variables, indicating a positive relationship with the other variables in section one.
- Projects have clear decision-making management mechanisms: This variable exhibits a positive correlation with the other variables, suggesting a positive relationship with the other variables in section one.
- Projects acceptance criteria are well-defined: Similar to the other variables, this variable also displays a positive correlation with the other variables in section one.
- The positive correlations between these variables suggest that they tend to move in the same direction, indicating a positive relationship among the variables in section one of the study.

The Pearson correlation coefficient between the planning success rate and the overall success rate is approximately 0.615, and the p-value is significantly small, indicating a strong positive correlation and suggesting that there is a statistically significant relationship between project planning and the success of projects in the medical sector in Jeddah. This supports the hypothesis that effective planning positively affects project success.

Research Limitations

- Placing Limitations: The study will be applied on some health care organizations in Jeddah in Kingdom of Saudi Arabia.
- Timing Limitations: The study will apply a questionnaire during the period from November to December 2023.

Conclusion

The research found that there is a clear impact of planning on project success, and in order to succeed in health care projects specially the IT project, organizations need to focus on a clear and projects planning with well-defined stakeholders and their requirements, clear project scope with few modifications, properly prepared WBS and schedules, Projects participants are well educated and trained about project planning and well-planned risks and resource.

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أثر التخطيط على نجاح المشروعات في القطاع الطبي بمحافظة جدة

إعداد الطلاب/

أحمد محمود جابر إبراهيم

أحمد سعيد بلخير

مد الله عبد العزيز النتيقي

إشراف/

د. وليد عبد الجواد سليمان صديق

د. الفيصل عبد الحميد محمد حسن

العام الدراسي:

2023