The Impact of Risk Management on Project Success: A Field Study at Humanitarian Organizations in Yemen

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Abstract

The study aimed to determine the impact of risk management (risk identification, risk analysis, risk response and risk monitoring and control) on project success (scope, schedule, cost and quality) at humanitarian organizations operating in Yemen (HOY). The study followed the analytical descriptive approach to meet its objectives. It utilized the simple random technique to select 15 organizations representing 127 HOY and the disproportional stratified random sampling technique to target the respondents. Data was collected through a printed questionnaire from 185 respondents who have roles in managing projects at the targeted organizations. The findings showed that risk management has a significant positive impact on project success. The findings also revealed that among 4 dimensions of risk management process, risk identification and risk monitoring and control were found as the most significant influencers that impact project success at HOY. The study recommends HOY to pay more attention to project risk management to attain higher project success level that ultimately contributes to the performance improvement and sustainability of their organizations. The study also recommends conducting more studies for further confirmations to the hypothesis of the study through testing the study's variables at industries other than HOY such as banking industries and telecommunications companies.

Keywords: project success, risk management, humanitarian organizations.

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أثر إدارة المخاطر في نجاح المشاريع: دراسة ميدانية في المنظمات الإنسانية في الجمهورية اليمنية

الملخص

هدفت الدراسة إلى تحديد أثر إدارة المخاطر (تحديد المخاطر، تحليل المخاطر، الاستجابة للمخاطر، ومراقبة المخاطر والتحكم بها) في نجاح المشاريع (النطاق، الجدول الزمني، التكلفة والجودة) في المنظمات الإنسانية العاملة في اليمن. استخدمت الدراسة المنهج الوصفي التحليلي لتحقيق أهدافها، كما استخدمت تقنية العينة العشوائية البسيطة لاختيار 15 منظمة تمثل 127 من المنظمات الإنسانية العاملة في اليمن، وتقنية العينة الطبقية العشوائية غير المتناسبة لاستهداف المستجيبين للدراسة في تلك المنظمات. تم جمع البيانات من خلال استبيان مطبوع تم توزيعه على 185 مستجيبًا ممن لهم أدوار في إدارة المشاريع في المنظمات المستهدفة. وخلصت النتائج أن إدارة المخاطر لها تأثير إيجابي ذو دلالة على نجاح المشاريع، وكشفت النتائج أيضًا أنه من بين المتغيرات الفرعية الأربعة لإدارة المخاطر، كان تحديد المخاطر ومراقبة المخاطر والسيطرة عليها أعلى أهمية من حيث التأثير باعتبارهما أهم المتنبئات الأعلى تأثيرا في نجاح المشاريع في المنظمات الإنسانية، وأوصت الدراسة المنظمات الإنسانية العاملة في اليمن بمزيد من الاهتمام بإدارة مخاطر المشاريع لتحقيق مستوى أعلى من نجاح المشاريع والذي في نهاية الأمر سيسهم في تحسين الأداء المنظمي وكذلك سيسهم في استدامة منظماتهم. كما أوصت بدراسة متغيرات البحث في قطاعات مختلفة غير المنظمات الإنسانية في اليمن مثل قطاع البنوك أو شركات الاتصالات.

الكلمات المفتاحية: نجاح المشاريع، إدارة المخاطر، المنظمات الإنسانية.

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Introduction

Every organization aims to realize its strategic goals to satisfy its stakeholders. Projects have become universal in many organizations as important constructs to implement strategy and achieve organizational goals (Marinich, 2020). Therefore, failure to realize project objectives will affect the realization of organization goals. For that reason, it is crucial for organizations to ensure the success of their implemented projects. Projects, regardless of their implementation environment, are exposed to threats that may affect their success, such as natural hazards and global pandemics.

In the literature of project management, a definition for project can be found as an assignment or job that is to be completed to create unique amendments, services, or outcomes of a certain specification to fulfill the demands of the stakeholder or beneficiary, within limited resources, cost and time (Novile, 2023). Project success depends directly on project management that applies a set of tools and techniques for directing the use of various resources toward the successful achievement of project. In order to obtain successful project, it has to achieve its objectives and to be completed with a fixed budget, within a specific period of time and in a good quality. These three points are considered as the most critical elements for project success (Shaaib, 2022).

Identifying what might pose a threat to the successful completion of the project is called risk management. Risk management has a prominent position in the framework of project management theory and methodology for the reason that unexpected events usually occur during a project execution (Kuma, 2018). Risk management is frequently ignored although it is one of the most critical elements for successful project delivery. Generally, project success depends on delivering a project's defined scope on time and within budget (Gumataw, 2019).

Giving the importance of risk management in project management functioning, the efficiency of risk management is expected to significantly influence project performance. Studies on the impact of risk management on project performance have indicated that effective risk management improves project performance by enhancing productivity (Kuma, 2018).

Humanitarian organizations operating in Yemen are non-profit national and international organizations that are not interested in financial gain in their operations but to achieve a community or social benefit. Despite their reliance on donor institutions for funding, humanitarian organizations

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maintain a certain degree of fiscal independence, while rules require their administrations to be registered and validated by the government. Although in most parts of the world the legal criteria to organize and operate such organizations are relatively minimal, with authorities not requiring evidence of their financial capabilities, as the case in Yemen (Al-Qadri, 2023; Sailan, 2023).

The study has targeted humanitarian organizations in Yemen that perform a variety of services for social benefits such as developing infrastructure projects, health, nutrition, food security and protection services as well as capacity building projects.. Based on the assumption that the leaders of the under-investigated organizations plan for projects that only provide the highest value to their organizations, and that the study respondents are familiar with risk management methodologies and have applied risk management in their projects, the study aimed to determine the impact of risk management—measured through four dimensions: risk identification, risk analysis, risk response, and risk monitoring and control—on project success, measured through four dimensions: scope, schedule, cost, and quality, at humanitarian organizations operating in Yemen.

Literature Review

Project Success

In literature, project is defined differently in many ways. According to the Project Management Institute (PMI, 2013, p. 3), ''a project is a temporary endeavor undertaken to create a unique product, service, or result''.

It is a temporary endeavor means that is not endless; it has a start date and an end date. Projects do not go on indefinitely; activities that go on indefinitely are typically known as processes or operations. It creates a unique product, service, or result, which can be a new building or an improvement of a service. Projects must define the objectives expected to be achieved, including scope, cost, and time/schedule. Scope refers to 'the work performed to deliver a product, service, or result with the specified features and functions' (PMI, 2021, p. 149); cost is defined as 'the cost of the resources needed to complete project activities' (PMI, 2017, p. 201); and time/schedule encompasses 'the planned start and finish dates for the project's activities' (PMI, 2013, p. 210).

Projects represent the vision and mission of organizational leaders and serve as a strategic roadmap for setting organizational goals and implementing strategies. Their success depends directly on effective project management, which applies tools and techniques to manage resources toward successful achievement. Thus, when project managers deliver a project on schedule and within budget, it meets the project management goals (Marinich, 2020; Shaaib, 2022). Generally, perceptions about project success have evolved overtime from simple definitions confined to the implementation phase of the project life cycle to more comprehensive statements that appreciate achievement across the whole product and project life cycle. Many experts agree that a project is considered successful if it meets or exceeds stakeholders' quality expectations, achieves its objectives and generates substantial net value for the company upon its completion. For the past two decades, this has been the accepted definition. Nowadays, a successful project is one that is completed within the allotted time frame, stays within budget, and meets the desired performance specifications, as well as customer/user's expectations (Al-Qadri, 2023; Nori, 2021).

Based on discussions with a wide variety of project participants and observations in real life projects, there are classifications of different definitions for project success (Ntibiramira, 2017). First, a project can be considered successful if it delivers all or most of what was promised (the scope), regardless of schedule or budget. Second, a project can be defined as successful if it delivers what was promised, on schedule and/or within the agreed budget. Third, a project can be considered successful if it delivers what was promised, on schedule, within the agreed budget, and meets the expected quality standards. Finally, a project can be deemed successful if it achieves all agreed objectives—scope, schedule, budget, and quality—and if the project's outcome creates significant net value for the organization.

Risk Management

The Institute of Risk Management (2018, p. 8) defines the risk as "the effect of uncertainty on objectives". This definition is clarified by a note to the definition stating that risk is usually expressed in terms of risk sources, potential events, their consequences and their likelihood. It describes the risk management as "coordinated activities to direct and control an organization with regard to risk" (ISO, 2018, p. 1). Risk is inherent in any project; although different projects may have more or fewer risks than others, no project is completely

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free of risk. Projects are initiated so that an organization can achieve objectives that deliver value in support of the organization's purpose; however, there are always uncertainties surrounding the project that can affect the success of achieving these objectives.

A risk is ''an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives" (PMI, 2013, p. 559). Risks are uncertainties or events that planning cannot completely overcome or control. Risk planning is about identifying specific activities that can be implemented proactively in the project to control the impact of potential risks. These activities become part of the project scope, budget, and schedule (PMI, 2013).

Risk management is a proactive approach rather than reactive. It is a preventive process designed to ensure that surprises are reduced and that negative consequences associated with undesirable events are minimized. Successful risk management of project gives the project manager better control over the future and can significantly improve chances of reaching project objectives on time, within budget, and meeting required performance (Ntibiramira, 2017). Risk management is the process of identifying, assessing, and monitoring risks. It also undertakes actions, such as risk control and mitigation, as well as monitoring and process modification (Kinyar, 2020). Risk management is an attempt to identify potential threats to projects and their potential to take appropriate action to address these threats and to verify their likelihood as consideration of these possibilities leads to action which can reduce these risks (Al Mhirat & Irtemeh, 2017).

PMI (2013) recommends the following risk management processes: during the planning phase, risks should be identified and analyzed, and responses should be planned; and during project execution, risks should be monitored and controlled. Throughout the planning phase, the project team should develop and document their strategies for implementing the risk response procedures to address identified risks during the project execution phase.

Risk Identification

In organizations, at the project management level, risk identification process is the initial step towards risk management and its main objective is to make early identification of events that may occur during the project implementation

phase and may cause negative impacts to the project objectives. These events must be identified and stated clearly so that the project team can move on to analysis and response planning.

Risk planning begins by identifying possible risks that could impact the project. The project manager, project team, and key stakeholders should all participate in identifying possible risks for a project. Risks can include technological, economic, cultural, environmental, organizational, resources, schedule, budget and quality of deliverables (PMI, 2013).

Standard practices that can be used to identify risks are SWOT analysis, brainstorming, analysis of other similar projects, checklist of common risks, interviews, and review the project plans or documents such as schedule, and budget for any assumptions that could manifest themselves into risks (Marinich, 2020; PMI, 2013).

According to Kinyar (2020), several methods can be used to identify risks and build a risk portfolio, such as surveys, internal auditing, interviews, and brainstorming sessions.

Identified risks should be captured in a document called Risk Register that will serve as the master copy for risk planning as well as risk monitoring and control during the project execution phase. Risk identification is measured by the extent to which an organization practices creating risk registers and risk reports (Al-Awadhi, 2022; PMI, 2013).

Risk Analysis

Risk analysis is the second step in risk management process. The challenge for most project managers is that there are many identified risks that cannot be addressed. Therefore, it is important in the project planning phase to prioritize the identified risks to ensure addressing the most important project risks first. For risk prioritization, identified risks must be analyzed based on their impact on the project objectives and probability of occurrence on both an inherent and residual basis using several analysis techniques such as qualitative risk analysis, sensitivity analysis, scenario analysis and stress testing (Kinyar, 2020; PMI, 2013).

Basically, qualitative risk analysis assesses the importance of the identified risks and develops prioritized lists of risks for further analysis to determine how to reduce their potential impact (Lomothey, 2018). Qualitative risk analysis is prioritizing risks by assessing their probability of occurrence and

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impact to focus primarily on risks that have the highest and most immediate impacts. For this purpose, probability and impact matrix technique can be used, which is considered a grid for mapping the probability of each risk occurrence and its impact on the project objectives if that risk occurs (Al-Awadhi, 2022).

Risk Response

Risk response planning is the third step in the risk management process It involves developing detailed strategies and actions for each of the top risks, prioritizing risk actions, and creating a risk management plan to be integrated with the project management plans.

According to Al-Awadhi (2022) and Kuma (2018), risk response planning refers to the process of developing options, selecting strategies, and determining actions to enhance opportunities and reduce threats to the project's objectives. A risk response is a proactive action that can be taken to address the risk in advance, with the intent to completely avoid it, mitigate its impact and/or probability, or transfer the risk to a third party (PMI, 2013).

Risk response specifies the decisions made by the project manager to reduce the impact of identified risks on the project (Marinich, 2020). According to Kinyar (2020), there are various options of risk responding activities such as risk avoidance, risk acceptance, risk mitigation or risk-sharing. In addition, it also focuses on developing a set of actions to align risks with the organization risk tolerances.

For risks with possible negative impacts to the project, there are four options to a strategy for handling them, which are accept, mitigate, avoid and transfer. Also, sometimes risks may represent opportunities to the project. In such cases, there are four options for dealing with the possible upside of a risk, which are accept, enhance, exploit and share (Rochester Institute of Technology [RIT], 2019).

Risk Monitoring and Control

Risk monitoring and control is the fourth and last step in risk management process. It involves monitoring the implementation of risk response plans, where the identified risks are monitored continuously, emerged risks are identified, risk responses are reviewed and process effectiveness is evaluated throughout the life cycle to make sure it meets the project requirements (Al-Awadhi, 2022; Murad, 2018). In this step, the risk register is significant to

the identification, monitoring, and control of the risks over the life of the project and must be considered a living document in which outputs of risk management process are recorded (PMI, 2013). Risks should be reviewed on a regular basis during project execution when the project status is reviewed in order to determine what risks should be closed, what new risks may need to be opened, and how to respond to those risks (RIT, 2019). Control activities are applied all over the organization, including all its levels (operational level, technical level, and strategic level). Policies and procedures are created and implemented to ensure that risk responses are executed efficiently (Steinberg et al., 2004). Continuing changes in project and operating environments require project teams to regularly re-assess the status of identified risks and to update the plans to prevent or respond to problems associated with these risks.

Risk Management and Project Success

Different attitudes toward risk can be explained as cultural differences between organizations. The risk management approach depends on the organization's policies and internal procedures. To increase the chances of project success, it is necessary for the organization to understand potential risks, systematically and quantitatively assess these risks, anticipate possible causes and effects, and then choose appropriate methods for addressing them (Kendrick, 2009). The actions taken as a result of risk management contribute to the project's success. Applying the principles of risk management supports quality improvement and enhances cost estimation by identifying and mitigating potential risks before a project begins. This proactive approach allows for realistic schedule and cost estimates, ensuring the successful completion of the project. Also, there is a strong link between the amount of risk management undertaken in a project and the level of success of the project, more successful projects use more risk management. Furthermore, the earlier that risk management was used in a project, the more successful it was (Kishk & Ukaga, 2008; Tesfaye, 2022).

In addition, the failure to adopt appropriate risk management practices, resulted in the projects being delayed and longer time to complete, increasing the project's budget. This problem is critical in Libya and most developing nations. Studies conducted between 2018 to 2020 at construction projects in Qatar, Pakistan and Malaysia to test the impact of risk management in project success showed that the importance of formal RM practices has a significant impact on project success (Algremazy et al., 2023).

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Alsaadi and Norhayatizakuan (2021) indicated that the risk management approach allows organizations to observe and identify all the risks associated with a project. This helps make an informed decision with a consistent and economical use of resources to control and reduce the impact and overall probability of undesirable events on a project. Their review of previous studies revealed a strong association between risk management and performance of construction projects and success in construction project indicated by its performance in the achievement of project time, cost, quality, safety and environmental sustainability objectives. The results of these studies showed that adopting project risk management practices has a significant positive impact on project success, especially as project teams include a risk manager. In addition, it was found that paying attention to uncertainties during the project, making use of the project risk management techniques and deeply understand the business environment are critical success factors that demand attention of project managers and risk managers.

Project risks are those risks that are threats to the projects itself and may impact the achievement of the project's objectives within budget and on time. Typical risks associated with project risks could be supplier failure, skill shortage (manpower), or new methods (new technology). There are a lot of factors that contribute to project risks, such as scope definition, time, cost, incorrect management, ineffective shareholder management, human resources, and poor communication. (Lomothey, 2018). This indicates that all projects are exposed to some risks and through risk management where tools and techniques are applied to monitor and track those risks to reduce their possible impact on the success of a project.

Problem Statement

Project success is unlikely to be predictable due to the effect of the uncertainty of events on its objectives that are known as risks (Institute of Risk Management, 2018; PMI, 2013). Project failure is a global phenomenon. Even with enhancements in project management methodologies, many projects continue to fail for a number of reasons including unmanaged risks. For instance, the failure level of IT projects in US is high at 70% despite years of research in the field of project management. The problem is that some project managers do not realize the relationship between risk identification, risk response and success of project (Marinich, 2020).

Similarly, in Yemen, the World Bank Information Center reports have mentioned that some humanitarian projects have failed despite the presence of effective monitoring and evaluation techniques that should have led to project success (Al-Qadri, 2023). Also, a recent World Bank Group report highlighted that low levels of external support pose significant risks to Yemen. This is due to the precarious public financial conditions in donor countries, as well as unstable regional and local dynamics. Since 2019, a noticeable decline in support flows to Yemen has been observed. Currently, 40% of the Humanitarian Response Plan remains unfunded. As a result, the reduction or closure of vital programs by humanitarian organizations could have a serious impact on the ground (World Bank, 2022).

Moreover, a report issued by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) on 14 September 2023 stated that 98 national and international organizations delivering humanitarian projects in Yemen have published a joint statement. This statement highlights the ongoing crisis and the significant funding gap in the 2023 Humanitarian Response Plan, which has led to severe cuts in aid, impacting the most vulnerable people in Yemen.

In addition, not to mention facing this situation, humanitarian organizations in Yemen, mainly implement projects in very risky environments, so during the past six years, infrastructure and many operational humanitarian projects, of which the majority of Yemenis depend on, have been either stopped or destroyed (Nori, 2021). On the other hand, the impact of risk management on project success is accepted among researchers on project management; however, the extent to which risk management impacts project success is still unclear (Ntibiramira, 2017). Therefore, the study aims to determine the impact of risk management on project success at humanitarian organizations in Yemen. This can help evaluate its contribution/value for project success and answer the following questions:

1. What is the impact of risk management on project success at humanitarian organizations operating in Yemen?
2. Are there any significant differences in the respondents' opinions about project success among humanitarian organizations operating in Yemen that could be attributed to size and age of organizations?

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Study Hypotheses

In light of the conceptual framework developed for this study, which was designed to address the research variables, the following hypotheses were formulated to provide answers to the research questions.

The first principal hypothesis (H1): Risk Management has a significant impact on project success at humanitarian organizations operating in Yemen, which has the following four Sub-hypotheses:

H1a: Risk identification has a significant impact on project success at humanitarian organizations operating in Yemen.

H1b: Risk analysis has a significant impact on project success at humanitarian organizations operating in Yemen.

H1c: Risk response has a significant impact on project success at humanitarian organizations operating in Yemen.

H1d: Risk monitoring & control has a significant impact on project success at humanitarian organizations operating in Yemen.

The second hypothesis (H2): there are significant differences in the respondents' opinions about project success at humanitarian organizations operating in Yemen attributed to size and age of organizations. This hypothesis has the two following sub-hypotheses:

H2a: There are significant differences in the respondents' opinions about project success at humanitarian organizations operating in Yemen attributed to the organization size.

H2b: There are significant differences in the respondents' opinions about project success at humanitarian organizations operating in Yemen attributed to the organization age.

Conceptual Framework of the Study

The conceptual framework of this study was developed by referring to the relevant literature to identify the dimensions of both the dependent and independent variables, as shown in Figure 1. These dimensions were drawn from previous studies (Hana Nori, 2021; Marinich, 2020; Murad, 2018; Ntibiramira, 2017; Shaaib, 2022) that explored similar variables and helped shape the study model. This approach ensures that the framework is grounded in established research, providing a solid foundation for examining the relationships between the variables.

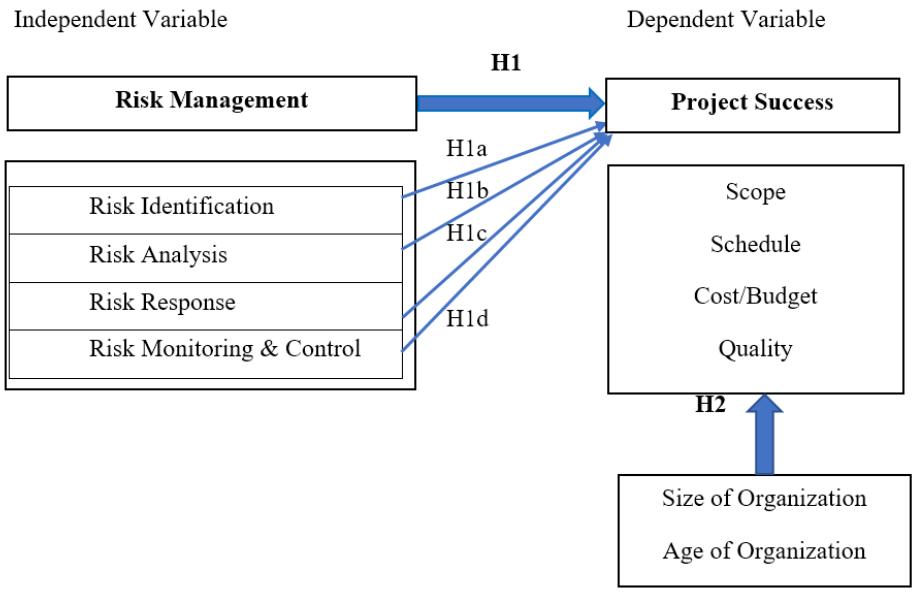

Figure 1: Conceptual Framework of the Study

Methodology

Study Design

A descriptive and analytical approach was used to meet the objectives of the study. Also, quantitative methods were employed for collecting date about the study's variables from the target respondents.

Study Population

The target population was the humanitarian organizations operating in Yemen. Based on the report of OCHA (2023b) issued on 12 September 2023, 127 organizations implemented projects under the Humanitarian Response Plan (HRP) in all districts of Yemen. A simple random sample of 15 organizations representing the total number of 127 organizations was selected by using Systematic Sampling method. A number of 356 individuals, who have roles in projects management at the 15 targeted organizations including directors, project and program managers, was the estimated population size as per statistics taken from the Supreme Council for the Management and Coordination of Humanitarian Affairs and International Cooperation (SCMCHA) and HR of the organizations.

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Study Sample

A sample size of 185 respondents representing the total estimated population, was calculated based on the table of Krejcie and Morgan (1970). Using the disproportionate stratified random sampling technique targeting the respondents, 185 questionnaires were distributed to the fifteen organizations to collect the required data. Table 1 summarizes the organizations' population size, sample size and ratio of the sample size.

Table 1: Study Sample

No.	Organization	Population Size	Sample Size	Sample Size Ratio
1	ADO	13	7	3.78%
2	AOBWC	21	11	5.95%
3	DEEM	27	15	8.11%
4	GWQ	12	6	3.24%
5	MOZN	9	6	3.24%
6	RDP	23	12	6.49%
7	SOUL	12	6	3.24%
8	TYF	17	10	5.41%
9	YDF	10	6	3.24%
10	YWU	58	26	14.05%
11	DRC	43	23	12.43%
12	IRC	21	11	5.95%
13	MSIY	25	13	7.03%
14	RI	39	19	10.27%
15	UNFPA	26	14	7.57%
	Total	356	185	100%

A total of 134 questionnaires were retained representing 72.43% out of the 185 distributed questionnaires as the response rate of the study sample.

Study Data Collection Tool and Scale

A printed questionnaire was used to collect the required data for the study from the target respondents. The questionnaire was composed of four main parts. The first part included questions for obtaining general information of respondents' characteristics (gender, age, education, experience and position). The second part included questions about study sample organizational characteristics (type, age and size of organizations). The

third part included 5-Point Likert scale questions, consisted of 20 items for measuring the independent variable (risk management) through 4 dimensions (risk identification, risk analysis, risk response and risk monitoring and control). The fourth part also included 5-Point Likert scale questions, consisted of 12 items for measuring the dependent variable (project success) through 4 dimensions (scope, schedule, cost and quality). The researcher took into consideration previous studies related to the variables of this study (Al-Qadri, 2023; Gumataw, 2019; Marinich, 2020; Murad, 2018; Nori, 2021; Sailan, 2023) in developing the questionnaire's items for each dimension of study's variables. The questionnaire was developed in two languages (Arabic and English), and distributed to the study's sample after being validated by a committee of six academic specialists in business administration from University of Sciences and Technology, Sana'a, Yemen. The data collection tool was also tested by Cronbach Alpha analyses to check its reliability and internal consistency.

Findings and Discussion

Hypotheses Testing

Testing First Main Hypothesis and its Sub-hypotheses

The simple linear regression analysis was used to test the first main hypothesis (H1) "Risk management has a significant impact on project success at humanitarian organizations operating in Yemen". Table 2 displays the results of the used test.

Table 2: Result of First Main Hypothesis Test

R	R^2	F	Sig.	Beta	β	T	Sig.
0.630	0.398	81.812	*.000	0.630	0.584	9.045	*.000

* Significant set at Sig. ≤ 0.05

According to the obtained results, the regression model indicates a significant positive correlation (R = 0.630) between the predictor, RM and the PS. Coefficient of determination R^2 (0.398), suggesting that 39.8% of the variance in project success is explained by the inclusion of ''risk management'' as a predictor, while the increasing degree in risk management will increase project success by (58.4%). The ANOVA values indicate that the overall significance of the regression model ($F = 81.812$, $p < 0.001$), suggesting that the inclusion of risk management significantly contributes to predicting

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project success. This empirical finding suggests that an increase in proficient risk management practices is correlated with a favorable influence on project outcomes. Therefore, the first main hypothesis (H1) is accepted. When comparing this result with previous studies findings it was found that it is consistent with the previous studies such as Alsaadi and Norhayatizakuan (2021), Algremazy et al. (2023), Alchammari et al. (2021), Murad (2018) and Novile (2023) undertaken at construction of projects industry respectively in Oman, Libya, Bahrain, UAE, and Rwanda, which revealed that risk management has a significant positive impact on project success. Also, this result is concurrent with result of Al Mhirat and Irtemeh (2017) which concluded that risk management has impact on the success of the projects of the Jordanian Ministry of the Environment.

Similarly, the multiple linear regression test was used to test the first main sub-hypotheses (H1a) "Risk identification has a significant impact on project success at humanitarian organizations operating in Yemen", (H1b) "Risk analysis has a significant impact on project success at humanitarian organizations operating in Yemen"; (H1c) "Risk response has a significant impact on project success at humanitarian organizations operating in Yemen"; and (H1d) "Risk monitoring and control has a significant impact on project success at humanitarian organizations operating in Yemen". Table 3 displays the results of test.

Table 3: Result of First Main Sub-Hypotheses Test

Sub-Hypothesis	R	R^2	F	Sig.	β	Beta	T	Sig.
H1a	.649	.421	21.98	.000	0.304	0.352	2.945	*004
H1b					0.036	0.046	0.407	.685
H1c					0.003	0.003	0.026	.979
H1d					0.259	0.304	2.469	*.015

* Significant set at Sig. ≤ 0.05

Based on the obtained results presented in Table 3, the regression model demonstrates a significant positive correlation (R = 0.649) between the predictors (risk monitoring and control, risk analysis, risk identification, and risk response) and project success. Approximately, 42.1% of the variance in project success is explained by the predictors, as indicated by the coefficient of determination (R^2). These summary statistics collectively highlight the model's effectiveness in capturing the relationship between risk management factors

and project success. The ANOVA values underscore the overall significance of the regression model ($F = 21.98$, $p < 0.001$), indicating the significant contribution of at least one predictor to project success.

The first sub-hypothesis (H1a) posits that the predictor 'risk identification' demonstrates a significant positive impact on project success (Beta = 0.352, $p = 0.004$), indicating that an increase in risk identification is associated with a favorable effect on project outcomes. This statistically significant relationship underscores the importance of considering and managing specific risks identified by risk identification in achieving project success. Therefore, H1a hypothesis is accepted. This result of the study is consistent with the findings of Marinich (2020) and Pimchangthong and Boonjing (2017) which revealed that risk identification has a statistically significant impact on IT project success in US and Thailand, respectively. Also, it is consistent with the findings of Algremazy et al. (2023), Murad (2018) and Novile (2023) which showed that risk identification has a positive influence on the success of construction projects in Libya, UAE and in Rwanda, respectively.

The fourth sub-hypothesis (H1d) shows that 'risk monitoring and control' also has a remarkable positive influence on project success (Beta = 0.304, $p = 0.015$), suggesting that effective risk monitoring and control contribute positively to project outcomes. The statistical significance of this coefficient emphasizes the relevance of robust monitoring and control mechanisms in enhancing overall project success. Therefore, H1d hypothesis is accepted. This result agrees with the findings of Algremazy et al. (2023) and Murad (2018) which found that risk monitoring and control has a positive and significant impact on project success.

The second sub-hypothesis H1b and the third sub-hypothesis H1c, in contrast, ''risk analysis'' and ''risk response'' respectively do not show statistically significant effects on project success ($p = 0.685$ and $p = 0.979$, respectively). These findings imply that variations in risk analysis and risk response, within the context of the model, may not significantly impact the ultimate success of the project. Therefore, H1b is rejected. This result is concurrent with the results of Al Mhirat and Irtemeh (2017) which determined that risk analysis has no impact on the success of the projects of the Jordanian Ministry of the Environment. Similarly, the result agrees with the findings of Murad (2018) which indicated a week impact of risk analysis on project success. Also, H1c is rejected. This result is coherent with Marinich (2020) study outcome

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which indicated that risk response was not statistically significant with project success. Also, Murad (2018) indicated a week impact of risk response on project success.

Testing Second Hypothesis through its Sub-hypotheses

An analysis of variance (ANOVA) was conducted to know if there are significant differences in the respondents' opinions about project success at humanitarian organizations operating in Yemen attributed to the organization size and age, as follows:

Results Related to the Organization Size

The results of the differences in the respondents' opinions about project success at HOY related to the organization size are presented in Table 4.

Table 4: One-Way ANOVA Test Results Related to the Organization Size

Organization Size	Frequency	Mean	SD	F	Sig.
Small	5	3.85	0.190	0.642	0.528
Medium	69	4.13	0.591		
Large	52	4.05	0.646		
Total	126	4.08	0.604		

As presented in Table 4, the descriptive statistics reveal mean scores for project success of 4.0529 (SD = 0.64550) for large organizations, 4.1304 (SD = 0.59124) for medium organizations, and 3.8500 (SD = 0.19003) for small organizations. The ANOVA results (F = 0.642, p = 0.528) indicate that there are no statistically significant differences between the means of the respondents' responses about the level of project success at HOY attributed to the organization size. This indicates that project success, regardless of organizations size, is more related to the effectiveness of risk management practices employed by these organizations.

Results Related to the Organization Age

The results of the differences in the respondents' opinions about project success at HOY related to the organization age are presented in Table 5.

Table 5: One-Way ANOVA Test Results Related to the Organization Age

Organization Age	Frequency	Mean	SD	F	Sig.
5-10 years	28	3.87	0.659	3.801	*0.025
11-15 years	30	4.30	0.453		
Over 15 years	68	4.08	0.615		
Total	126	4.09	0.604		

* Significant set at Sig. ≤ 0.05

As presented in Table 5, descriptive statistics for project success means were examined across three organizational age categories: 5–10 years, 11–15 years, and Over 15 years. The descriptive statistics show mean scores for project success of 3.8720 (SD = 0.65870) for organizations with 5–10 years of age, 4.3000 (SD = 0.45254) for organizations with 11–15 years of age, and 4.0821 (SD = 0.61482) for organizations with over 15 years of age. The ANOVA results (F = 3.801, p = 0.025) indicate that there are statistically significant differences between the means of he respondents' responses about the level of project success at HOY attributed to organizational age.

The multiple comparisons analysis utilizing the Least Significant Difference (LSD) test was conducted to explore means of the respondents' responses about the level of project success at HOY attributed to organizational age. As shown in Table 5 and Figure 2, the results reveal a significant difference in respondents' responses about the level of project success between organizations with 5–10 years and 11–15 years of age, with the former showing a lower mean project success level. However, no significant differences were observed between organizations with 5–10 years and over 15 years or between organizations with 11–15 years and over 15 years. This finding may be attributed to the challenges that younger organizations often face, such as limited operational experience, weak project management practices, and the development of essential networks.

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Table 5: Multiple Comparisons Analysis Results

Organization Age (I)	Organization Age (J)	Mean Difference (I-J)	Sig.
11 – 15 years	5 – 10 years	.42798*	.007
	Over 15 years	.21789	.095
Over 15 years	5 – 10 years	.21008	.116
	11 – 15 years	-.21789-	.095

* Significant set at Sig. ≤ 0.05

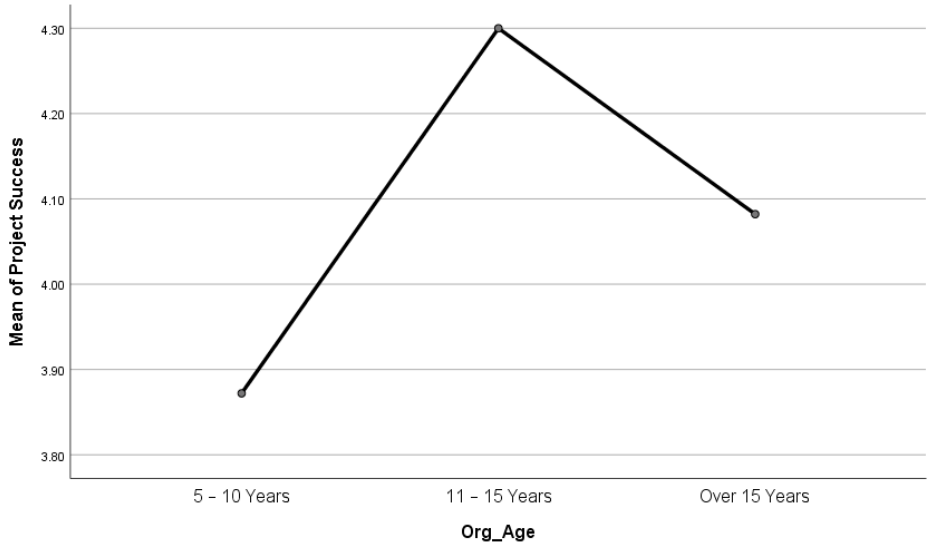

Figure 2: Project Success Mean Related to the Organization Age

Conclusions

Based on the findings extracted from the analyzed data, the study has drawn a number of conclusions. Project success is highly achieved in the humanitarian organizations operating in Yemen through its four dimensions (scope, schedule, cost and quality). Project success level achieved in the humanitarian organizations in Yemen does not differ significantly based on the organizations' size, indicating that all humanitarian organizations in Yemen are equally motivated and competent in regard with project success achievement. However, it differs significantly based on the organizations'

age, revealing that the 11-15-year-old organizations might be more interested and experienced in reaching project success than the 5-10-year-old organizations.

In addition, the study concludes that risk management is practiced at a somewhat high level in the organizations under investigation. This conclusion is based on its four dimensions: risk identification, risk analysis, risk response, and risk monitoring and control. Among these dimensions, risk monitoring and control demonstrates the highest level of practice, while risk response exhibits the lowest level. This emphasizes the importance of risk monitoring and control in enhancing the overall risk management practice. It also highlights a significant gap in the preparation of risk response plans within humanitarian organizations in Yemen.

Furthermore, risk management with its four dimensions (risk identification, risk analysis, risk response and risk monitoring and control) has a significant and positive impact on project success in the organizations under study, underscoring the importance of improving the risk management practices to maximize opportunities of project success. The impact of risk management on project success at the organizations under investigation differs among its four dimensions, indicating that the risk identification seems as the most influencer dimension on project success pursued by the risk monitoring and control dimension, while risk analysis and risk response dimensions appear having insignificant impact on project success. Therefore, giving the priority to enhance the practices of risk identification and risk monitoring and control certainly augments the positive impact on project success at humanitarian organizations operating in Yemen.

In light of the conclusions drawn, the organizations under investigation should focus on enhancing the capacity of project managers and their team members in risk management knowledge. This approach aims to achieve a higher level of risk management practice, which in turn will contribute to improving project success. Creating data management systems or developing the current practices for archiving project documents, plans and other related works to be used in the risk identification of their future projects is highly recommended as well. Moreover, the study recommends the humanitarian organizations operating in Yemen to encourage their employees involved in project implementation acquiring the essential skills in risk analysis and response techniques for a continual and more effective risk management

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process throughout the project life cycle. Engaging all stakeholders in the project risk management and promoting the standards of risk management at all levels in general and particularly at project management level are also extremely recommended for improving project success at the humanitarian organizations under study that ultimately contributes to the performance improvement and sustainability of humanitarian organizations in Yemen.

Future Research

For future research, the study recommends to assess the impact of other independent variables rather than risk management such as intellectual intelligence, information technology and leadership styles on project success as this study revealed that the presence of risk management explains only 40% of variances on project success and the rest of 60% is explained by other influences rather than risk management. In addition, it would be useful to conduct more studies for further confirmations to the hypothesis of this study through testing the study's variables at other industries rather than humanitarian organizations in Yemen, for instance banking industries and telecommunications companies or in countries other than Yemen.

Authors' Contribution

MAS and NAS developed the introduction, literature review, problem statement, and study objectives, designed the study methodology, collected and analyzed the data, and participated in interpreting the findings and providing the conclusions and recommendations. Both authors read and approved the final manuscript.

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