

Factors Influencing the Success Criteria of ICT Project Management Case Study Constructions in Mogadishu

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Abstract:- Being a developing nation, our nation's project construction is advanced in comparison to earlier years. Therefore, the overall goal of this study is to evaluate and examine the local elements influencing the success criteria of ICT project management in the construction sectors. The purpose of this study is to evaluate the technical factors that affect the success of ICT project management in the Somali construction industry. To determine the organizational factors that affect the ICT project management success in the Somali construction industry. And to investigate the cultural factors that affect the success of ICT project management in the construction industry. The most recent study to look at environmental factors influencing the performance of ICT project management in the Somali construction industry. The report focuses on construction initiatives completed in Somalia's capital city of Mogadishu. Both interviews and questionnaires were used to gather the data. The questionnaire was completed online using Google Form, and the respondents were clients, consultants, and contractors. The researchers used practical sampling to gather 100 surveys. There are four case study companies that I have chosen as an experiment construction companies are utilized as a case study for this research project. The data from the questionnaires were analyzed using SPSS to produce the average index from the study; Dalbile construction and contracting company, Bile home repair and Construction service, Qidmad Construction Company and Gaabow Construction Company. Due to the growing technological uncertainty, the building sector is dynamic. Building projects are getting easier and more advanced today. The coordination between the project participants is what has an impact on how well construction projects execute when using the design build method of procurement. The Somali government should establish and enforce strict penalties to combat fraudulence activities, the licensing of contractors and consultants should be thoroughly scrutinized to ensure that they are qualified and have the tools necessary to perform their jobs, and the contractors should enhance their estimation methods and take into account all external factors that could affect their projects.

Keywords:- Factors Affecting the Success Criteria of ICT Project Management, ICT Project Management in Constructions Companies, ICT.

I. INTRODUCTION

Throughout history, a lot of significant projects have been completed with success. But compared to earlier times, initiatives are now more challenging. Today's initiatives must take into account several factors, including high costs, short deadlines, standard quality, and others. Due to this issue, information, communication, and technology (ICT) have evolved to have an impact on project management procedures. ICT benefits from newly created management tools and cutting-edge technology. The importance of ICT is growing today. ICT is required for all societal, governmental, and international concerns. Every area of society is being penetrated by and integrated with ICT on a daily basis. ICT is becoming more and more a part of daily life. ICT will eventually be pervasive like the air. This is the driving force behind the widespread adoption of ICT by people and businesses. Construction projects are also not an exception. Throughout the course of a construction project, ICT is responsible for producing, transmitting, and analyzing information.

The incorporation of Information and Communication Technology (ICT) has become a crucial component of project management across numerous industries in today's world of rapid evolution. The introduction of technology developments has also had an impact on the construction industry, which is well known for its complex and dynamic nature. The proper administration of ICT projects within the construction sector brings both opportunities and challenges, particularly in places where infrastructural development is a significant concern (Chan, C. Y., 2019).

II. LITERATURE REVIEW

This section offers a thorough analysis of the body of knowledge on building projects, project success criteria, and information and communication technology (ICT) project management. The review takes into account both a broad viewpoint and a focused attention on the Somalian setting. This section lays a basis for understanding the complexities of ICT project management in construction by looking at pertinent scholarly publications, especially in the context of Somalia's distinct culturally and economic environment.

➤ ICT

Technology and tools that can be used to store, retrieve, transfer, and manipulate data are referred to as information technology (IT). (Uzoma and others, 2021). The

infrastructure and parts that make up modern computers are known as ICT, or information and communications technology (or technologies).

➤ *ICT Project Management in Construction*

ICT has been a driving force behind transformational change in a variety of industries, including the building trades. Studies have emphasized the potential advantages of incorporating technology into building projects, from greater stakeholder communication to improved data-driven decision-making. The importance of Building Information Modeling (BIM) in expediting project communication and boosting project effectiveness was highlighted by Chan, C.Y. (2019).

➤ *Factors Influencing Project Success*

Any project's success is dependent on a wide range of variables. The literature emphasizes how important it is to understand these elements in order to improve project management procedures. Technical, organizational, cultural, and environmental dimensions are broad categories that can be used to classify factors that affect project performance.

➤ *Technical Factors*

Technical variables include all areas of technology that have an impact on project success. These elements consist of system compatibility, adequate technical infrastructure, and successful technological integration. The selection and implementation of appropriate ICT systems are vital in construction projects, as these systems support effective scheduling, resource management, and data sharing. El-Sayah and Sood (2018) stressed the value of utilizing the proper technologies to handle issues unique to the construction industry, like resource allocation and timetable management. In the context of Mogadishu, the use of up-to-date construction software and efficient ICT tools can enhance project monitoring, quality control, and on-time delivery.

➤ *Organizational Factors*

Organizational aspects have to do with how the building project is run internally and how it is managed.

Critical components include effective communication, teamwork, and project leadership. Successful ICT projects rely on strong project governance, where clear roles and responsibilities are defined. In construction projects, especially in challenging environments like Mogadishu, leadership is crucial in coordinating various stakeholders such as contractors, suppliers, and project managers. Additionally, fostering an organizational culture of accountability and transparency can significantly enhance productivity and decision-making processes, leading to a higher chance of project success.

➤ *Cultural Factors*

Project dynamics are significantly shaped by culture, especially in varied situations like Somalia. Project interactions and stakeholder participation are impacted by cultural norms, values, and communication practices. In Mogadishu, the diverse cultural landscape can lead to differing expectations and communication styles among stakeholders, which, if not managed effectively, can result in misunderstandings and conflicts. Successful ICT projects in construction should take into account local customs, negotiation styles, and conflict resolution methods. Engaging local communities and ensuring culturally sensitive management approaches can build trust and support, essential for the long-term success of construction projects.

➤ *Environmental Factors*

The external circumstances that have an impact on a project's implementation are referred to as environmental factors. These elements may include geographical difficulties, regulatory restrictions, political instability, and economic conditions. In Mogadishu, construction projects face unique environmental challenges such as security concerns, lack of proper infrastructure, and fluctuating material costs due to import restrictions. Regulatory factors, including government policies on construction standards and urban development, also play a critical role. Navigating these environmental variables requires flexibility and proactive risk management strategies to avoid delays and cost overruns.

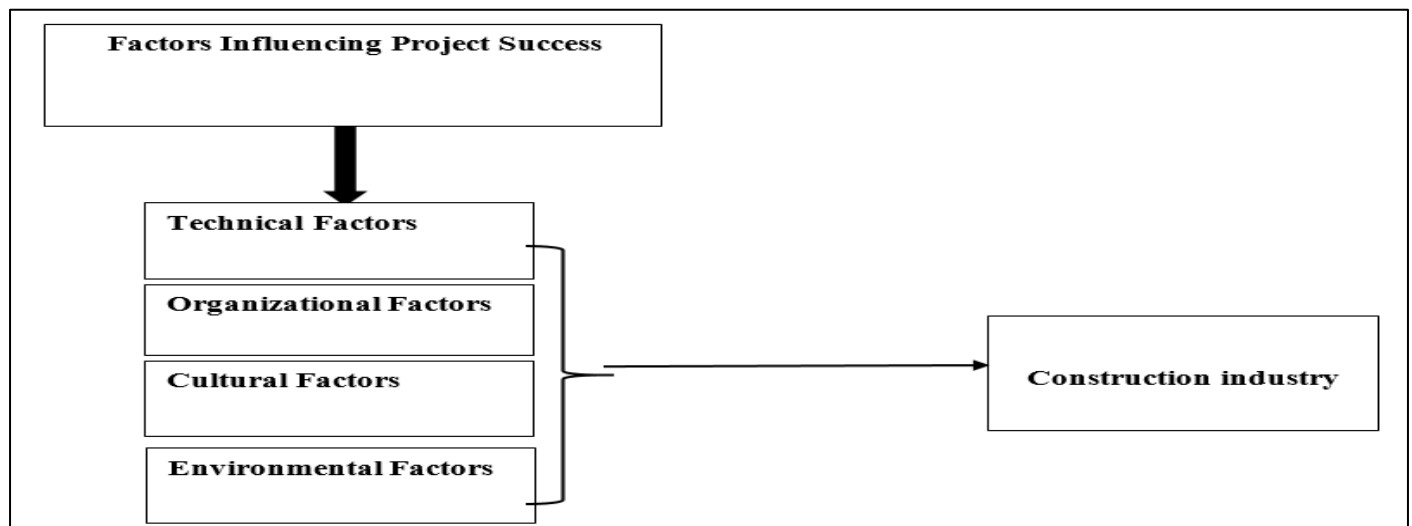


Fig 1 Factors Influencing Project Success

III. RESEARCH METHODOLOGY

The research technique utilized to examine the variables impacting the success criteria in ICT projects in the construction companies in Mogadishu, Somalia, is presented in this section. This section includes research design, questionnaire design & development, data collection procedure, and data analysis.

➤ Target Population

The term "target population" describes the entire participating population. The target population of this study was 100 of our population working for the construction companies in Mogadishu.

Number of Companies	Number of Population
Dalbile construction and contracting company	40
Bile home repair and Construction service	20
Qidmad construction company	10
Gaabow Construction Company	30
Total	100

From among the many Mogadishu ICT construction enterprises, 100 respondents in total were chosen. And from the ICT division of a Somalian construction firm. The poll was conducted in June 2023, making it quite current and trustworthy in the sense that the companies utilized for the survey may be contacted and questions about the study can be raised. As a general guideline, it was established that a study needed at least twice as many respondents as questions to be declared legitimate (Hailu, Y., 2017).

questionnaires for this study: In order to acquire relevant information for the study topic. In order to acquire relevant information for the study topic, the researchers first based the questionnaires on the literature review and research objectives; next, the researchers separated the questionnaires into two sections: Section (A): Demographic information about respondents ICT project management is influenced by the factors in Section (B). The researchers eventually corrected any errors and inaccuracies to increase validity and dependability.

➤ Questionnaire Design & Procedures

For this project, questionnaire is the main tool for gathering data. A questionnaire is a collection of questions with an accompanying request for a written response from the respondent. An argument in favor of using this method is that questionnaires can be simply measured and analyzed. Additionally, the researchers choose this strategy because it allows them to speak with respondents, explain the study's goals, and help them complete the surveys. The following procedures were used by the researchers to draft the

➤ Questionnaire Development

For the purpose of gathering data, a questionnaire survey has been created. For those variables where a score of 4 meant you strongly agreed and a score of 1 meant you strongly disagreed, the pressure points of the Likert scale were employed. With the use of data collect, a survey that was conducted online was created and distributed. It took more than five minutes for the employee to complete the survey when using their laptops and smartphones.

Table 1 Questionnaire Design

No.	Variables	Scale of Measurement	Likert Scale
Section A: Demographic Profile			
1	Sex	Nominal	N/A
2	Age	Nominal	N/A
3	Level of education	Nominal	N/A
4	Job Level	Nominal	N/A
5	Job Industry	Nominal	N/A
6	Experience	Nominal	N/A
Section B: factors influencing the success criteria of ICT project in constructions companies			
1	Technical Factors	Likert	4-point
2	Organizational Factors	Likert	4-point
3	Cultural Factors	Likert	4-point
4	Environmental Factors	Likert	4-point

Refer to Table 1 for survey questions to assess each component affecting the success criterion of ICT projects in construction firms toward ICT constructions companies in Mogadishu.

during the research: to sign an informed consent form, to respond to all questions and not leave any open-ended questions, to prevent biases, and to be objective when responding to the questions. As quickly as feasible, the surveys were obtained. All surveys were located and their completion status was verified. In addition, this research began with an examination of current IT change patterns in the construction sector, which was followed by an

➤ Data Gathering Method

The researchers utilized a questionnaire to collect data. The researchers asked the respondents these three things

assessment of strategies or methods employed by the sector.

➤ *Data Analysis and Demographic Characteristics*

IBM SPSS is used to analyze the data. Three procedures are taken to analyze the data: The characteristics of the respondents were the focus of the first data analysis stage, which conducted a descriptive analysis with a focus on frequency and percentage. The amount of ICT factors influencing the success criteria of ICT project management in constructions is described using the second step's means and standard deviation. In the third step, the model fit was verified using structural equation modeling and factor analysis. The study's hypotheses were tested using last phase regression.

➤ *Respondents' Demographic Characteristics*

This section presents the demographic characteristics of the respondents. The characteristics discussed in this section are; **Sex of participants, Age of participants, Level of educational., Experience in the constructions company, Marital status, Experience in ICT Project Management, Position/Job Title, Job level and Job industry**, In addition, the responders have pledged that their identities will be kept private and that all the information they supplied will only be utilized for academic research.

➤ *Sex of Participants*

Table 2 Sex of Participants

		Frequency	Percent
Valid	Male	110	83.3
	Female	22	16.7
	Total	132	100.0

As the above table and chart below show 110 (83.3%) of the respondents were male, while the 22 (16.7%) were female. This means that male respondents more than female respondents, because ICT companies are mostly employed by men.

➤ *Age of Participants*

Table 3 Age of Participants

		Frequency	Percent
Valid	24 and less	25	18.9
	24-28	61	46.2
	28-32	27	20.5
	32-36	10	7.6
	36-40	7	5.3
	41 and above	2	1.5
	Total	132	100.0

As the above table and chart below indicate there is no age of the respondents which 24 and less than years, 25 (18.9%) of them between 24 and less than years, 61 (46.2%) of them between 24-28 years, while 27(20.5%) of them between years 28-32 years, 10 (7.6%)of them between years32-36, 7 (5.3%) of them between years 36-40 and 2(1.5%) are 41 and above years old. This means that most of the respondents were between 20-30 years, because ICT staff working in companies are mostly those people.

➤ *Level of Educational*

Table 4 Level of Educational

		Frequency	Percent
Valid	Secondary	2	1.5
	Diploma	79	59.8
	Bachelor	49	37.1
	Master	2	1.5
	Total	132	100.0

As the above table and chart below indicate almost 2(1.5%) of the respondents were secondary, 79(59.8%) of the respondents have diploma, 49(37.1%) of the respondents have bachelor, and 2(1.5%) of the respondents have a master degree, this shows that the most respondents were Diploma Degree.

➤ *Experience in the Constructions Company*

Table 5 Experience in the Constructions Company

		Frequency	Percent
Valid	less than 5 years	88	66.7
	5-10	33	25.0
	10-15	7	5.3
	15-20	3	2.3
	21 and above	1	.8
	Total	132	100.0

As the above table and chart below indicate the experience of 88(66.7%) of the respondents were less than 5 years, while 33(25.0%) have 5-10 years, while 10-15 years of experience are 7(5.3%), while 15-20 years of experience are 3(2.3%) and 1(.8%) have 21 and above years of experience. This shows that the majority of our respondents have less than 5 years and 5 years of experience equally.

➤ *Marital Status*

Table 6 Marital Status

		Frequency	Percent
Valid	Single	87	65.9
	Married	45	34.1
	Total	132	100.0

As the above table and below graph show 87(65.9%) of the respondents were single, while 45(34.1%) of them were married, this means that the majority of the respondents were single.

➤ *Experience in ICT Project Management*

Table 7 Experience in ICT Project Management

		Frequency	Percent
Valid	0-5	82	62.1
	5-10	33	25.0
	10-15	13	9.8
	15-20	3	2.3
	21 and above	1	.8
	Total	132	100.0

As the above table and chart below indicate the experience in ICT project management of 82(62.1%) of the respondents were 0-5 years, while 33(25.0%) have 5-10 years, while 10-15 years of experience are 13(9.8%), while 15-20 years of experience are 3(2.3%) and 1(.8%) have 21 and above years of experience. This shows that the majority of our respondents 0- 5 years and 5 years of experience equally.

➤ *Position/Job Title:*

Table 8 Position/Job Title

		Frequency	Percent
Valid	Manager	26	19.7
	company/organization	8	6.1
	Owner	7	5.3
	Employee	91	68.9
	Total	132	100.0

As the above table and chart below indicate almost 26(19.7%) of the respondents were managers, 8(6.1%) of the respondents of position jobs are companies or organization, while 7(5.3%) of the respondents have owners, and 91(68.9%) of the respondents are employee, this shows that the most respondents of job position were employee.

➤ *Job Level:*

Table 9 Job Level

		Frequency	Percent
Valid	entry-level	25	18.9
	Intermediate	47	35.6
	mid-level	45	34.1
	senior or executive-level	15	11.4
	Total	132	100.0

As the above table and chart below indicate almost 25(18.9%) of the respondents were entry-level, 47(35.6%) of the respondents have intermediate, 45(34.1%) of the respondents have mid-level, and 15(11.4%) of the respondents have senior or executive-level, this shows that the most respondents were intermediate-level.

➤ *Job Industry:*

Table 10 Job industry

		Frequency	Percent
Valid	primary industry	67	50.8
	secondary industry	46	34.8
	tertiary industry	19	14.4
	Total	132	100.0

As the above table and chart below of job industry indicate almost 67(50.8%) of the respondents were primary industry, while 46(34.8%) of the respondents are secondary industry, and 19(14.4%), of the respondents have tertiary industry, this shows that the most respondents were primary industry.

➤ *Factors Influencing the Success Criteria of ICT Project Management Case Study Constructions in Mogadishu:*

- *Technical Factors*

Table 11 The Impact of Modern Technology on the Construction of the Country when we Look at the Quality

		Frequency	Percent
Valid	strongly Disagree	4	3.0
	Disagree	2	1.5
	Neutral	14	10.6
	strongly agree	56	42.4
	Agree	56	42.4
	Total	132	100.0

This table above presents that the majority 56(42.4%) and 56(42.4%) of the impact of modern technology on the construction strongly agreed and agreed respectively. 14(10.6%), 4(3.0%), 2(1.5%) and of them were neutral, strongly Disagreed and Disagreed respectively that the impact of modern technology on the construction of the country when we look at the quality.

- *Organizational Factors*

Table 12 Do you believe that having clear project objectives and goals, aligned with the organization's overall strategy, is essential for the success of ICT projects in construction?

		Frequency	Percent
Valid	strongly Disagree	8	6.1
	Disagree	8	6.1
	Neutral	14	10.6
	strongly agree	51	38.6
	Agree	51	38.6
	Total	132	100.0

This table above presents that the majority 51(38.6%) and 51(38.6%) of that having clear project objectives and goals, aligned with the organization's overall strategy, strongly agreed and agreed respectively. 14(10.6%), 8(6.1%), 8(6.1%) and of them were neutral, strongly Disagreed and Disagreed respectively that Do you believe that having clear project objectives and goals, aligned with the organization's overall strategy, is essential for the success of ICT projects in construction?

• *Cultural Factors*

Table 13 In your opinion, how does the organizational culture within construction firms in Somalia impact the adoption and success of ICT projects?

		Frequency	Percent
Valid	strongly positively	35	26.5
	Positively	67	50.8
	Neutral	20	15.2
	Negatively	8	6.1
	strongly Negatively	2	1.5
	Total	132	100.0

This table above presents that the majority 67(50.8%) and 35(26.5%) of how does the organizational culture within construction firms in Somalia positively and strongly positively respectively. 20(15.2%), 8(6.1%), 2(1.5%) and of them were neutral, Negatively and strongly Negatively respectively that so In your opinion, how does the organizational culture within construction firms in Somalia impact the adoption and success of ICT projects?

• *Environmental Factors*

Table 14 To what extent do external factors, such as political stability and economic conditions, affect the success of ICT project management in construction projects in Somalia?

		Frequency	Percent
Valid	strongly affect	56	42.4
	Affect	46	34.8
	Neutral	12	9.1
	do not affect	14	10.6
	strongly do not affect	4	3.0
	Total	132	100.0

This table above presents that the majority 56(42.4%) and 46(34.8%) of external factors, such as political stability and economic conditions strongly Affect and Affect respectively. 14(10.6%), 12(9.1%), 4(3.0%) and of them were Do not Affect, Neutral and Strongly Do not Affect respectively that so To what extent do external factors, such as political stability and economic conditions, affect the success of ICT project management in construction projects in Somalia?

• *Building Activities Expectation of the Construction Industries*

Table 15 How do you expect your building activity to develop over the next 3 months?

		Frequency	Percent
Valid	Increase	97	73.5
	remain unchanged	23	17.4
	Decrease	9	6.8
	refused/not applicable	3	2.3
	Total	132	100.0

This table above presents that the majority 97(73.5%) and 23(17.4%) of that building activity to develop over the next 3 months Increase and remain unchanged respectively. 9(6.8%), 3(2.3%), and of them were Decrease and refused/not applicable respectively that How do you expect your building activity to develop over the next 3 months?

IV. DISCUSSION OF THE FINDINGS

The study's results, which were reported in findings section, are discussed here. This study's objective was to evaluate the variables influencing ICT project management success criteria (using a case study of Somali construction firms). The findings from the questionnaire and research results were addressed. Mogadishu, Somalia.

- Based on the results of objective one, it is clear that the researchers discovered that modern ICT infrastructure has a positive impact on construction projects, the significance of selecting ICT tools for buildings, and the importance of being extremely beneficial to those involved in construction projects who use technology to carry out their work. Simplicity.
- Based on what Objective Two's findings reveal the study discovered that in addition to having an effect on the structure and culture of the organization's workforce, the belief of those involved in construction projects that they are an integral component of the organization's broader strategy has an impact on the success of ICT construction projects. In addition, the study discovered that senior management's evaluation of its level of decision-making in the execution of ICT projects is quite strong in comparison to that of other construction businesses' management. The associations of construction enterprises have also learned from the experience to advance and preserve the life of their businesses.
- Based on what Objective Three's findings indicate additionally, the researchers gathered feedback from a few Somalia-based construction companies whose opinions are culturally influencing the success of other ICT projects. This information was gathered in order to take into account the workplace cultures of construction companies' employees, as culture shapes the context in which these businesses operate. Along with other factors that we have identified in this study, the culture of the workplace and the sector might affect the difficulties that come with working in the construction business.
- The researchers observed that there is an external influence on ICT construction projects, which can be environmental and other variables related to the external impact that might be a barrier to the success of their construction projects, according to the findings in goal four. In addition, construction firms and individuals involved in related concerns claimed to experience particular environmental difficulties.
- In conclusion, this research revealed that an estimated 73.5% of technology will be used in construction over the next three months, increasing the amount of technology that ICT building projects companies are projected to use. According to the report, construction firms should network with other contractors and ensure that their work is completed on schedule and under supervision throughout its entire life cycle. The study also discovered that it is possible to prioritize the construction operations of the companies and their materials, as well as to check the project aim and the ultimate completion time, as well as to be aware of the various types of construction equipment used in industry.

V. CONCLUSION

The full analysis of the data from the study's conclusions and data analysis has been completed by the researchers. The researchers is prepared to prove the problem statement through the interpretation and finding

analysis from the questionnaires, fully achieving the analysis objectives. However, 132 people participated in this study in total, and SPSS 27 was used to analyze the data. Due to the fact that the researchers discovered in this study that technology is advancing and having a significant impact on the nation's construction companies, the level of ICT construction companies is significantly higher than it was in past years. IN Somalia, the education sector plays a significant role in promoting ICT in construction firms. The study was carried out in Mogadishu from July-October 2023 in Mogadishu Somalia.

RECOMMENDATIONS

- Given that Somalia is one of the developing nations that is currently making great strides in the use of technology, it made the most of this chance to bring in cutting-edge equipment that is essential for the workers and the extensive amount of time that went into the construction, so the researchers advised the managers of the construction companies to replace the outdated equipment.
- The researchers recommend that the construction firms might need to hire some professionals to support the building construction companies and to give promotions to their staff because they lack ICT training and technical support.
- The researchers suggest that all of Somalia's construction firms be inspired by the value of ICT and devise deliberate steps that allocate a portion of their internal budget plan for ICT investments.
- The researchers advise some of the nation's building firms to adopt computerized constructions, which help to enhance and simplify construction projects.
- In order to make the questionnaire more trustworthy, the researchers would like to advise other researchers who are interested in delving as far into the subject to carefully construct it and include more questions.

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