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Reasons for the Failure of Most In-House Software Development in Tanzania: A Case Study of Selected Higher Learning Institutions (HLIs)

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ABSTRACT

Since it has evolved into an essential part of today's world, 90% of Tanzanian businesses have attempted to develop in-house software for their operations. However, a substantial fraction of these projects haven't quite achieved what they set out to. The bulk of in-house software development projects in Tanzania have been unsuccessful. This article presents ideas for improving the success rate of in-house software development initiatives and explains why this is the case. As part of the qualitative research methodology, software developers, project managers, and other stakeholders took part in focus groups and interviews. The results show that there are several factors, such as a lack of qualified staff, an inadequate budget allocation, poor project management, a lack of precise project requirements, improper communication, an inadequate amount of resources, and a lack of user involvement, that significantly contribute to the failure of in-house software development projects in Tanzania. The study makes numerous recommendations for enhancing the success rate of in-house software development initiatives in Tanzania. Involving end users throughout the project life cycle, implementing strong project management practices, allocating enough time and resources for software testing, hiring experts to establish and gather precise project requirements, allocating adequate budgets, and setting up efficient communication channels are a few examples of these. Additionally, in-house software development must adhere to the SDLC's standards by enhancing the model of the SDLC that best suits the nature of the development process.

1. Introduction

In-house software development has received more attention recently in Tanzanian institutions and organizations, both public and private. Approximately 90% of firms have sought to develop software internally for their operations, according to Sultana et al. (2021). Many software development initiatives, despite major resource and labor commitment, fall short of their planned objectives, resulting in financial losses, resource waste, and extra

issues for the institutions and stakeholders involved. This study's goal is to determine why most in-house software development initiatives in Tanzania fail, with a focus on a few chosen Higher Learning Institutions (HLIs).

1.1 Background

In Tanzania, the creation of in-house software projects is not a recent development. In-house software development at Tanzanian higher education institutions has expanded dramatically in recent years (Makworo et al., 2021). These software development projects aim to boost output, improve the caliber of the provided services, and meet the particular needs of the organizations (Yusuf, 2019 and Msuya, 2021). Many of these projects, nevertheless, don't accomplish the goals and objectives they were meant to, which results in significant financial losses, resource waste, and other problems for the company and other stakeholders.

There are several reasons why in-house software development initiatives fail, including a lack of trained people, poor project management, inadequate funding, and poor communication. Ayalew et al.'s study from 2021 claims that one of Tanzania's biggest problems with software development is a lack of qualified workers. According to the survey, a lack of trained workers affects up to 47% of Tanzanian software development companies, which hurts project outcomes. A key factor in project failure has also been recognized as insufficient money allocation. According to a study by Han et al. (2020), a major obstacle to the success of software development projects in Tanzania is insufficient funding, which results in a shortage of tools and resources. In contrast, the study carried out by Chibuta, et al., (2021) found poor project management procedures and inadequate communication as major causes of software development project failure.

The reasons for the failure of in-house software development projects in Tanzania, particularly in the setting of Higher Learning Institutions (HLIs), have, nevertheless, received relatively little research. By performing a qualitative examination of the causes of the failure of in-house software development projects in a chosen group of Higher Learning Institutions in Tanzania, this study seeks to close this research gap. Based on current best practices and pertinent literature, the study will examine several project failure contributing variables and offer advice on how to increase the success rate of in-house software development projects. The study's findings also add to the body of knowledge on software development project failures in Tanzania and offer insightful advice for businesses, particularly higher education institutions, on how to avoid similar mistakes in the future.

1.2 Problem Statement

Due to the potential advantages it offers in terms of addressing unique business demands and enhancing operational efficiency, firms in Tanzania, including Higher Learning Institutions (HLIs), are becoming more and more interested in developing in-house software (Chibuta, M. et al. 2021). However, a sizable portion of in-house software development initiatives in Tanzania fall short of their stated objectives despite significant investment in time, money, and personnel. The organizations concerned have suffered financial losses, resource wastage, and a deterioration in their reputation as a result of this failure (Msuya, D. J. et al., 2021). The failure of these projects was due to a lack of knowledge of the causes, which led to following efforts repeating the same errors. To offer suggestions for raising the success rate of the next projects, this study intends to explore the causes of the failure of the majority of in-house software development projects in Tanzania, concentrating on chosen Higher Learning Institutions.

1.3 Significance of the Study

This study is significant on two different levels. First, it will offer insights into the causes of the majority of in-house software development projects in Tanzania's Higher Learning Institutions (HLIs), in particular, their environment. Organizations and project managers in Tanzania can avoid these mistakes by being aware of the root causes of these failures, which will raise the success rate of subsequent in-house software development initiatives.

Second, by offering a case study on a developing nation, this study can add to the body of knowledge already available on in-house software development. The majority of the material now available on in-house software development concentrates on developed nations, paying little attention to the special difficulties and situations that emerging nations like Tanzania must deal with. Therefore, this study can help to a deeper understanding of this subject by offering a useful viewpoint on the difficulties of in-house software development in a developing nation context.

Furthermore, politicians, researchers, and software development professionals can use the study's results and suggestions to raise the caliber and efficiency of in-house software development projects in Tanzania and other comparable developing nations. Organizations can boost the success rate of their in-house software development projects, which can ultimately result in more efficiency, productivity, and competitiveness, by addressing the identified obstacles and putting the suggested solutions into practice.

2. Literature Review

The study examined recent developments and research on the reasons why the majority of in-house software development projects in Tanzania fail. To strengthen the study's contributions, it identified a research gap that could be filled by merging current practices, pertinent literature, and prior research.

2.1 Similar Studies

Based on a systematic examination of 84 papers, (Chibuta, et al., 2021) identified the difficulties and key success elements of in-house software development. The study found that poor project management, unsuitable budget allocation, poor communication, a lack of resources, and inadequate testing were the primary reasons why in-house software development projects failed.

The report of Ayalew, K. et al. (2021) offers a thorough analysis of the factors that cause software development project failure in Tanzania. According to the authors, a lack of competent workers, poor project management, insufficient testing, and unclear project requirements were the top reasons projects failed. Additionally, they found that a lack of user involvement during the development phase and poor communication were significant factors in project failure.

Yusuf, R. et al. (2019) developed a conceptual framework for lowering software development project failures in Nigeria. Project management, stakeholder involvement, software testing, and user involvement were all found to be significantly predictive of project success, according to the study. The writers also stressed the value of hiring skilled workers and creating precise project specifications.

Mushashu and Mtebe (2019) did a study with the goal of examining the approaches and practices used in Tanzania's developing software sector. Despite the substantial economic growth ascribed to this industry, little research has been done on the approaches employed and how they affected project success or failure. The study employed a total of 54 developers and project managers to collect data from 18 software companies in Dar es Salaam, Tanzania, utilizing questionnaires, semi-structured interviews, and document reviews. According to the survey, traditional software development approaches were preferred by the vast majority of software companies in Tanzania (72% of the 79 software products examined). The waterfall model was one of these, and it was the approach that was applied in almost half of the software products examined. It's interesting to note that the Tanzanian software sector rarely adopted agile methodologies or other iterative techniques. This may indicate that more contemporary and adaptable methods of software development were less used which may lead to software development project failure.

"We have long known that IT projects typically fail. The primary causes are often listed as poor project management, inaccurate cost estimation, and inadequate requirements. Many software projects are underfunded, overdue, and fail even before they are delivered. Failure of software projects is closely related to a lack of quality. Software that is of poor quality may reduce the commercial worth of the company for which it was built (Lauesen, 2020). Lauesen (2020) draws attention to the ongoing issue of IT project failures and argues that the conventional causes—poor project management, incorrect cost estimates, and unmet requirements—are insufficient to prevent these failures. IT security breaches must be successfully avoided by identifying what occurs in these efforts, identifying their root causes, and developing solutions to address these issues. The report has a total of 37 root causes. Notably, only one of these primary causes is related to programming, indicating that numerous other elements influence IT project failures. Other factors were unforeseen issues with system integration and inaccurate performance forecasts for individuals. To develop effective preventive measures, the study underlines the need to investigate the precise underlying reasons for IT project failures in addition to the conventional justifications. It makes clear the different, frequently ignored factors that cause project failures.

Mwakisole et al., (2019) conducted a study on the implementation of Cloud Computing Architecture for eLearning Systems in Secondary Schools in Tanzania. In order to improve the quality of education in Tanzania's secondary schools, schools have recently made significant investments in the ICT (information and communications technology) infrastructure. Most of these systems are implemented on school grounds using a conventional web-based eLearning approach, which is expensive and has a limited user base due to its lack of scalability and flexibility. Researchers established that most of web-based learning systems do not bring desired results due to poor user requirements specifications. Therefore, this calls for in-house software developers in HLIs to involve all key users before starting a project.

2.2 Research Gap

While several studies have attempted to provide insight into the problem, limited research has been conducted in the area of in-house software development within Higher Learning Institutions. Therefore, further investigation is necessary, given that literature indicates both public and private Higher Learning Institutions have adopted the use of in-house software development to create customized software for their business processes, which has resulted in an 80% failure rate (Karimi, J. et al., 2021).

2.3 Research Questions

While the study seeks to investigate the reasons for the failure of most in-house software development projects in Tanzania, the study had the following research questions to be answered in the findings section.

1. What are the reasons for the failure of in-house software development projects in selected HLIs in Tanzania?
2. What are the perceptions of project managers, software developers, and system users regarding the failure of in-house software development in selected HLIs in Tanzania?
3. How can HLIs in Tanzania improve their in-house software development practices to minimize the risk of failure in future projects?

3. Methodology

A qualitative study methodology is used to determine the causes of the failure of in-house software development projects in Tanzania, specifically in a five sampled higher education institutions. To gain a thorough understanding of the issue and investigate the numerous elements that contribute to the failure of in-house software development projects, the research will adopt a case study design.

3.1 Research Design

The study used qualitative research as a good tool for examining the nuanced and individualized causes of the failure of in-house software development initiatives. To do this, the researchers used a case study approach, which entailed a thorough investigation of a specific phenomenon in its actual setting. The phenomenon in this instance was the failure of in-house software development projects at several HLIs in Tanzania. The researchers chose five HLIs in Tanzania that had attempted to create software internally but had run across problems that ultimately caused the project to fail. To get a range of opinions on the subject, the HLIs chosen combined both public and private organizations.

3.2 Sampling

The study used purposive sampling to select Higher Learning Institutions in Tanzania that have experienced challenges in their in-house software development projects. The study selected five HLIs, with a mix of public and private institutions, to obtain diverse perspectives on the problem. HLIs are chosen based on their knowledge of In-House software development and their readiness to take part in the study. Software developers, project managers, and other pertinent stakeholders were important informants for each HLI.

3.2.1 Sampling procedures

First, the researcher conducted a thorough search of institutional web pages, reports, and other pertinent materials to find probable HLIs. The researcher contacted the management of possible institutions after finding them and described the study's goals and scope to them. The research process and the roles of the institutions' stakeholders in the study were explained to the chosen institutions. The researcher then set up interviews with the identified stakeholders (project managers, software developers, and system users) at each institution and conducted focus groups with groups of people who shared similar characteristics (project managers only or developers only). The discussions focused on the reasons why in-house software development fails in the institutions' respective contexts.

3.2.2 Sampling size

A total of 30 respondents were included in the study. These include 5 project managers, 5 software developers (one for each HLI), and 20 system users from the chosen HLIs, who were individually interviewed by the researcher. The researcher also conducted three focus groups with five project managers, ten system users, and five software engineers to examine the factors that led to the failure of in-house software development in their organizations. Therefore, 30 software development stakeholders from five specifically chosen HLIs in Tanzania served as the sample size for this study.

3.3 Data Collection

Through the use of semi-structured interviews and focus groups, project managers, software engineers, and other stakeholders from the five chosen HLIs who were involved in the software development projects were questioned. Using an interview guide with open-ended questions, semi-structured interviews with key informants were undertaken to collect rich qualitative data about their experiences, perspectives, and ideas on software development failures. The researcher conducted one-on-one interviews with each of the stakeholders in software development, including five (5) project managers, five (5) software developers, and twenty (20) system users, to understand more about their perspectives and experiences. Focus group discussions with informants were also organized to discuss the reasons why in-house software development fails in their firms. These stakeholders included project managers, software developers and system users. FGDs is used so as to identify common themes, acquire rich qualitative information, clear ambiguities and explore diverse perspectives. To supplement the information gleaned from the interviews and FGDs, pertinent material like project reports, plans, and charters was also examined to obtain additional context and data.

3.4 Data Analysis

Thematic analysis was used to examine the qualitative information gathered from the semi-structured interviews and focus groups with project managers, software developers, and other stakeholders participating in the software development projects. The goal of the analysis was to discover recurring themes, patterns, and groups of factors that contributed to the failure of in-house software development initiatives. Using a qualitative data analysis program (Nvivo), the information gleaned from the focus group talks and interview transcripts was transcribed and coded. Furthermore, the constant Comparative Method is used to compare data systematically across cases and categories, improving the analysis's robustness.

3.5 Data Validation

Data validation techniques included peer debriefing and member checking. Key informants were given access to preliminary findings in order to confirm the accuracy and interpretation of the data. This member-checking procedure contributes to the study's trustworthiness. To strengthen the reliability of the findings, the researcher sought advice and criticism from peers and professionals in the field.

3.6 Data Presentation

In order to support the themes and patterns that have been identified, the findings are presented in a narrative fashion utilizing quotes and examples from the interviews.

3.7 Ethical Considerations

The study complied with ethical standards, which included collecting participants' informed agreement, guaranteeing confidentiality and anonymity by employing pseudonym and safely keeping transcripts and recordings of interviews, limiting injury and discomfort, and making sure that people weren't in danger.

3.8 Dissemination of Findings

This study aimed to investigate the reasons for the failure of in-house software development in selected Higher Learning Institutions (HLIs) in Tanzania. The research question that the study wants to answer is what are the perceptions of system development stakeholders in the failure of in-house software development? The study found that there were several reasons why in-house software development projects failed in the selected HLIs, which are discussed below.

4. Findings and Discussion

This study sought to determine the causes of the failure of in-house software development in a sample of Tanzanian higher education institutions (HLIs). The research question that the study wants to answer is what are the perceptions of system development stakeholders in the failure of in-house software development? The study found that there were several reasons why in-house software development projects failed in the selected HLIs, which are discussed below.

4.1 Stakeholder Perceptions

Research Question 1: What are the reasons for the failure of in-house software development projects?
Their impressions of project failure were revealed by the qualitative data gathered through interviews and focus groups with project managers, software developers, and system users. Project managers acknowledged their unhappiness with insufficient funds and resource limitations while emphasizing the significance of sound project management procedures. Meanwhile, software developers highlighted the critical need for skilled personnel and stressed the importance of clear project requirements. System users showed their perceptions by expressing dissatisfaction with software that did not align with their needs and called for greater involvement in the development process.

4.1.1 Lack of skilled personnel

Table 1 presents the frequency of skilled personnel as a theme that emerged during the interviews conducted with project managers, developers, and general system users regarding in-house software development. The table also indicates the number of times each theme was mentioned by the participants.

Table 1 presents the theme of skilled personnel.

Theme Name	**How many times theme was mentioned** (across all interviews)	**How many participants mentioned the theme**
1. Skilled Personnel		
1.1 Project Manager	9	5

1.2 System Developers	7	5
1.3 General system users	30	20

This question aims to gather diverse perspectives from project managers, software developers, and system users on how the lack of skilled personnel contributes to the failure of in-house software development. The findings suggest that a considerable number of software development projects are assigned to junior programmers or IT staff who lack the necessary expertise. Consequently, the software produced is of poor quality and fails to meet the desired requirements. This is evident in the following extract from the majority of interviewees:

> *"*(….) In-house software development remains a challenge, even within my institution, we have recruited a significant number of IT staff, and many of them lack the necessary expertise to design and develop computer programs. Instead, they are often used as advanced users to support institutional operations ...."

> "(…) In general, institutions in Tanzania tend to recruit IT staff who have graduated in fields such as computer science, IT, or computer engineering, without necessarily ensuring that they possess the necessary skills and expertise in software development. Consequently, these staff members may be tasked with developing institutional systems, despite lacking the required proficiency …"

The current literature of (Yusuf, R. et al.,2019) on software development project failures is in agreement with the quoted information, highlighting how the lack of skilled personnel leads to these projects failing to meet their intended goals, resulting in financial losses, wasted resources, and a negative impact on the reputation of the institutions involved.

4.1.2 Inadequate Budget Allocation

Based on the findings, inadequate budget allocation emerges as a significant contributor to the failure of in-house software development. This lack of sufficient budget leads to challenges in acquiring essential resources such as hardware, software, and training, thereby hindering the success of the projects. Additionally, the findings indicate that a considerable number of general system users are unaware of the budget allocations for in-house software development, as illustrated in Table 2.

Table 2. Inadequate budget allocation for in-house software development

Theme Name	**How many times theme was mentioned** (across all interviews)	**How many participants mentioned the theme**
2. Budget Allocation		
2.1 Project Manager	13	5
2.2 System Developers	15	5
2.3 General system users	5	5

The following extract from the majority of interviewees, including project managers, general system users and system developers, supports this observation.

> "(…) ...ICT section/department in my institution do not allocate sufficient funds for software development projects, resulting in the use of inadequate hardware, training and software resources, which ultimately affect the quality of the developed software..."
>
> "(…) … Inadequate budget allocation affects the ability of software development teams to access and use modern software development tools and technologies, leading to outdated software products that are incompatible with modern operating systems and software environments …"
>
> "(…) … The budget for software development is typically planned and managed within the ICT department or unit, which often results in non-ICT personnel having limited knowledge of the development process, including training and product test and deployment …"

The current literature on software development project failures is in agreement with the quoted information, highlighting that Higher Learning Institutions (HLIs) often suffer from budgetary constraints. Studies of Ayalew et al.,(2021),Han et al., (2020) and Lauesen (2020) confirms. These constraints impede their teams from accessing modern software development tools and technologies. Consequently, the software products they create tend to be incompatible with the contemporary software environment.

4.1.3 Poor Project Management

Based on the findings, inadequate project management emerges as a significant factor contributing to the failure of in-house software development in the HLIs. According to system developers and general system users, there is a lack of clear project management plans, resulting in poor coordination among team members, missed deadlines, and miscommunication. Furthermore, the absence of project management frameworks, as reported in the interviews, often leads to unstructured development processes, poorly documented code, inadequate testing, and the production of low-quality software products.

Table 3. Poor project management for in-house software development

Theme Name	**How many times theme was mentioned** (across all interviews)	**How many participants mentioned the theme**
3. Poor Project Management		
3.1 Project Manager	2	1
3.2 System Developers	15	5
3.3 General system users	24	18

The following extract from the majority of interviewees, including project managers and system developers, supports this observation.

> "(...) …ICT projects are often overseen by IT staff who lack the necessary project management skills, leading to the failure to achieve the desired outcomes. As a recommendation, it is advisable to assign

ICT projects to teams that include individuals with qualifications and experience in project management ..."

"(…) … The Director of ICT is the individual responsible for overseeing ICT projects in my institution. However, despite possessing technical expertise, it appears that he lacks project management skills and demonstrates poor communication when gathering the requirements for development ..."

"(…) …Creating software to automate Higher Learning Institution (HLI) processes presents a challenge, primarily because there isn't a clear channel through which the development team can receive instructions and implement them. Instead, instructions are typically issued to the development team, often by different individuals, leading to inconsistencies and software instability …"

The existing literature on software development project failures aligns with the quoted information, underscoring the challenge faced by Higher Learning Institutions (HLIs) in terms of inadequate project management. This deficiency acts as a hindrance to the success of their software development endeavors. Consequently, the design of software products frequently deviates from the alignment with both user and institutional requirements. Other researchers in different settings found similar results. These include (Lauesen,2020; Chibuta et al.,2021 and Ayalew et al., 2021). Despite that (Lauesen, 2020) calls poor project management a conventional cause of project failure, it still affects many software development projects. It is therefore important for HLIs to improve their project management skills.

4.1.4 Inadequate Testing

The findings demonstrate that many software applications in Higher Learning Institutions (HLIs) are put into use without undergoing sufficient unit and system testing or are sometimes entirely skipped. This practice results in the release of software products that are plagued with bugs and unreliability. Table 4 illustrates the frequency of inadequate testing as observed during interviews with general system users.

Table 4. illustrates the frequency of inadequate testing during system development

Theme Name	**How many times theme was mentioned** (across all interviews)	**How many participants mentioned the theme**
1. Inadequate Testing		
1.1 Project Manager	0	0
1.2 System Developers	2	2
1.3 General system users	35	20

The following extract from the majority of interviewees, highly general system users supports this observation

"(...) … Programmers often deploy applications even when certain units or functionalities are not functioning correctly. In such cases, proactive users take the initiative to communicate with the programmer, who then proceeds to rectify the errors..."

"(...) … Sometimes, when an application is in use, users encounter programming warning errors displayed by the system. In such instances, proactive users promptly inform the programmers, who subsequently address and fix the error ..."

The current literature on software development project failures concurs with the quoted information, reinforcing the idea that in numerous Higher Learning Institutions (HLIs), software applications are rolled out without undergoing sufficient unit and system testing, and occasionally, testing is entirely omitted. This pattern results in the release of software products laden with numerous bugs, rendering them unreliable. Yusuf et al.,(2019) identified success factors for software development projects and found sufficient testing to be significantly predictive of project success. Furthermore (Ayalew et al., 2021) in their study confirm that insufficient testing contributes to the failure of in-house software development projects.

4.1.5 Lack of Clear Project Requirements

One of the primary reasons for the frequent failures of in-house development projects in Higher Learning Institutions (HLIs) is the absence of clear project requirements. Many HLIs struggle to collect precise and comprehensive requirements, resulting in software that falls short of meeting the needs of end-users. As per Mwakisole et al., (2019), the process of requirements gathering is of utmost importance and should actively involve end-users to ensure that the software aligns with their requirements. Failure to engage end-users in this process can lead to software that does not cater to their needs, resulting in low user adoption rates. Table 5 provides a frequency distribution of how often the lack of clear project requirements was mentioned during interviews.

Theme Name	**How many times theme was mentioned** (across all interviews)	**How many participants mentioned the theme**
1. Lack of Clear Project Requirements		
1.1 Project Manager	0	0
1.2 System Developers	5	3
1.3 General system users	28	12

The following extract from the majority of interviewees, system developers, and highly experienced general system users supports this observation.

"(...) … During the application development process, there is a lack of requirement documentation or system design documentation. This leads system developers to rely on prototypes for requirement collection. Since general system users often have limited knowledge of their business processes, the developed system often deviates significantly from user expectations …"

"(...) … Developers typically receive assignments from top managers and immediately begin developing applications without first studying or seeking information from end users …."
The existing body of literature on software development project failures is in agreement with the quoted information, supporting the notion that the lack of clear project requirements indeed has a substantial impact on the failure of in-house software development projects within Higher Learning Institutions (HLIs).

4.2 Stakeholder Perceptions

Research Question 2: What are the perceptions of project managers, software developers, and system users regarding the failure of in-house software development in selected HLIs in Tanzania?
The qualitative data collected from interviews and focus group discussions with project managers, software developers, and general system users provided insights into their perceptions of project failure. Project managers emphasized the importance of effective project management practices and expressed frustration with inadequate budgets and resource constraints. Software developers highlighted the critical need for skilled personnel and stressed the importance of clear project requirements. System users expressed dissatisfaction with software that did not align with their needs and called for greater involvement in the development process.
These perceptions align with the identified reasons for project failure and underscore the importance of addressing these issues from the perspectives of different stakeholders.

4.3 Recommendations for Improvement

Research Question 3: How can HLIs in Tanzania improve their in-house software development practices to minimize the risk of failure in future projects?
Based on the study's findings and insights, the following recommendations are made to enhance the success rate of in-house software development projects in Tanzania, particularly within Higher Learning Institutions:

1. **Invest in Skilled Personnel:** HLIs should prioritize the training and hiring of skilled software developers to address the shortage of expertise in the field.
2. **Robust Project Management:** Implement effective project management practices, including thorough planning, monitoring, and control, to ensure projects stay on track.
3. **User Involvement:** Involve end-users throughout the project lifecycle to gather requirements, provide feedback, and ensure that the developed software meets their needs.
4. **Adequate Budget Allocation:** Allocate sufficient budgets for software development projects to ensure access to necessary resources and equipment.
5. **Clear Project Requirements:** Invest in gathering and documenting clear project requirements at the outset to prevent scope changes and misunderstandings.
6. **Software Testing:** Prioritize comprehensive software testing to identify and rectify issues before deployment.

7. **Communication Channels:** Establish effective communication channels among stakeholders to facilitate collaboration and information exchange.
8. **Compliance with SDLC:** Ensure that in-house software development adheres to the System Development Life Cycle (SDLC) by selecting an appropriate SDLC model that suits the project's nature.

5. Implications

The study has implications in three main areas: practical, theoretical and policy implications.

5.1 Practical Implications

The study's findings have practical implications for Higher Learning Institutions and other organizations in Tanzania seeking to undertake in-house software development projects. By implementing the recommended measures, institutions can enhance the likelihood of project success, leading to improved operational efficiency and service quality.

5.2 Theoretical Implications

This study adds to the corpus of knowledge on in-house software development project failures, especially in light of Tanzania's status as a developing nation. It adds to the body of material already available that is mostly concerned with affluent countries by offering a distinctive viewpoint on the difficulties encountered in such situations.

5.3 Policy Implications

The study's conclusions and recommendations can be used by policymakers to create rules and regulations for software development initiatives in Tanzania. The effective execution of internal software development projects can be facilitated by promoting the use of best practices and addressing the highlighted issues.

6. Conclusion

This study has uncovered and examined the factors that led to internal software development projects at Tanzania's higher education institutions failing. The results highlight the significance of overcoming difficulties with hiring qualified employees, allocating funds for projects, managing communications, involving users, defining clear requirements, and testing software.

Institutions in Tanzania can increase the success rate of internal software development projects by putting the suggested actions into practice and applying the research's lessons learned, which would ultimately boost productivity, efficiency, and competitiveness in the public and commercial sectors.

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