Designing a Project Governance Framework for ICT Project Implementation in Public Sectors in Tanzania

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Abstract:
This research study focuses on the implementation of ICT project governance in public sectors and aims to identify the challenges faced and provide recommendations for effective governance practices. Through data analysis and findings from various sources, including stakeholders’ perspectives, the study identifies common challenges such as lack of stakeholder involvement, limited ICT literacy and awareness, resistance to change, finance issues, ICT policy and leadership, and the digital divide. Addressing these challenges is crucial for successful project governance implementation. The study proposes key principles to avoid project governance failure, including involving senior managers, prioritizing governance goals, assigning ownership and accountability, designing governance at multiple levels, providing transparency, and promoting continuous learning and education. These principles enhance decision-making, align projects with objectives, and foster a culture of improvement. The study also presents a validated project governance framework and recommends incorporating technical and non-technical challenges. Furthermore, recommendations are provided to enhance stakeholder involvement, promote ICT literacy and awareness, implement change management strategies, improve financial management, strengthen ICT policy and leadership, and bridge the digital divide. The research suggests further exploration through empirical studies, comparative case studies, longitudinal studies, cross-cultural investigations, examination of emerging technologies, and understanding stakeholder perspectives. By implementing these recommendations and conducting further research, public sectors can overcome challenges, improve governance practices, and enhance the success of ICT projects.

Keywords: Project Governance Framework, ICT Project Implementation, Public Sectors, ICT Governance.
**Introduction**

Information Communication Technology (ICT) has become a crucial factor for businesses, providing them with a competitive advantage over their rivals (Otia & Bracci, 2022). Organizations have recognized the need to re-engineer their processes to leverage the potential of ICT and gain value-added benefits in their industries. The advancement of technology has facilitated the emergence of public sectors that aim to enhance government administration and enable convenient access to governmental services through ICT (Kassen, 2018).

Despite the availability of numerous ICT project management methodologies, the performance of most ICT projects remains subpar (Lessa, 2019). Extensive literature review reveals that project governance plays a vital role in ICT project success, encompassing adherence to best practices, effective communication, monitoring and control, committed personnel, proper planning, and experienced project managers. However, despite these factors, project failures persist (Kerzner, 2017). Unique characteristics of ICT projects, such as urgency, uniqueness, short-term nature, and uncertainty, pose significant challenges in their management and necessitate innovative approaches for successful implementation (Liu & Liu, 2010).

One approach that can address the complexities of ICT project management is Business Process Management (BPM). BPM combines management methods and information technology to meet organizational needs and improve efficiency (Rosemann & Brocke, 2015; Vom Brocke & Rosemann, 2014). Surprisingly, the incorporation of BPM into ICT project management methodologies is lacking, particularly in the public sector (Syed et al., 2018). Existing project management approaches and processes rarely integrate BPM principles (Braglia & Frosolini, 2014). Given the holistic nature of BPM and its focus on continuous improvement, this study adopts a BPM model to address the research gap in ICT project management (Vom Brocke & Rosemann, 2014).

Information and communication technology (ICT) solutions have become indispensable for both private and public sector organizations, leading to increased investments in ICT projects (Asgarkhani et al., 2017). However, these organizations face complex challenges related to political, organizational, technological, and cultural changes, requiring effective management and governance of ICT projects (Davies & Fumega, 2014).

Unfortunately, many ICT initiatives fail to deliver the desired results, and ensuring value creation through effective ICT governance remains a critical concern for top management (Asgarkhani et al., 2017). A survey conducted in 2019 by Klynveld Peat Marwick Goerdeler (KPMG), Australian Institute of Project Management (AIPM), and International Project Management Association (IPMA) revealed that only a small percentage of public organizations successfully deliver projects on time, within budget, meeting original goals, and satisfying stakeholders (Kajbaje & Kamatchi, 2022). This data indicates the high likelihood of project failures and the difficulty of achieving all four dimensions of cost, schedule, scope, and stakeholder satisfaction in ICT project governance within the public sector.

Despite the existence of recommended "best practice frameworks" and models for effective ICT project governance, such as the ICT Project Management Framework (PMF), a significant number of ICT projects still fall short of expectations (Filialter & Steenkamp, 2022). The lack of a comprehensive governance framework often results in a lack of accountability, compromised project success, and delays in decision-making (Janssen & Van Der Voort, 2016).

While prior research has extensively explored ICT governance effectiveness in the public sector of developed countries, focusing on critical success factors, limited attention has been given to project governance frameworks for ICT project implementation in developing countries’ public sectors. This study aims to address this research gap by designing a project...
governance framework specifically tailored for ICT project implementation in the Tanzanian public sector.

The study objectives are:

- To identify the challenges associated with implementing ICT project governance in public sector.
- To identify the principles necessary to prevent project governance failures in public sector.
- To evaluate the acceptability of the proposed ICT project governance framework within the public sector.

**Materials and Methods**

The study is conducted at the e-Government Authority (e-GA) in Dar es Salaam, excluding offices in the highlands. The choice of this area is justified by the agency's role in coordinating e-government initiatives and the availability of research information and documents. The higher level of activity in the Dar es Salaam office ensures sufficient data for the study. The study combines positivism (quantitative) and interpretivism (qualitative) research paradigms. This decision is based on the belief that no single paradigm is sufficient on its own, and combining both paradigms ensures triangulation and complementarity of findings. The study utilizes a mixed-method approach, combining qualitative and quantitative methods to address the research question effectively. The study employs random sampling and purposive sampling techniques. The population size is 59 individuals, including IT directors, project managers, vendors, project management champions, and external project management consultants from e-Government Authority. The sample size calculation is explained using Cochran's Sample Size Formula, resulting in a sample size of 59. The study uses a combination of interviews, questionnaires, participant observations, and document review. Face-to-face interviews are conducted to gather in-depth insights, while questionnaires are administered online. The researcher also reviews relevant documents to collect secondary data and provide additional context.

**Data Analysis**

The data analysis involves both qualitative and quantitative methods. Qualitative data obtained from interviews and observations are analysed using content analysis. Quantitative data collected from questionnaires are analysed using statistical software (SPSS) to calculate descriptive statistics, frequencies, and percentages. To ensure reliability, the questionnaire tool is pre-tested, and internal consistency reliability is checked using Cronbach’s alpha test. Triangulation, detailed records, peer debriefing, member checking, and reflexivity are employed to enhance the validity and trustworthiness of the qualitative data.

**Results and Discussion**

**Challenges of ICT Project Governance Implementation**

The implementation of ICT project governance in public sectors is accompanied by various challenges. This study has identified several common challenges, as summarized in Table 1. The challenges include a lack of stakeholder involvement, inadequate ICT literacy and awareness, resistance to change, finance issues, ICT policy and leadership, and ICT culture and the digital divide.

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Stakeholder Involvement</td>
<td>5.1%</td>
<td>13.6%</td>
<td>16.9%</td>
<td>22.0%</td>
<td>42.4%</td>
</tr>
<tr>
<td>Lack of ICT literacy and awareness</td>
<td>5.1%</td>
<td>11.9%</td>
<td>20.3%</td>
<td>10.2%</td>
<td>52.5%</td>
</tr>
<tr>
<td>Resistance to Change</td>
<td>1.7%</td>
<td>10.2%</td>
<td>15.3%</td>
<td>10.2%</td>
<td>54.2%</td>
</tr>
</tbody>
</table>
The data from Table 1 reveals that a significant percentage of respondents agree or strongly agree that there is a lack of stakeholder involvement in ICT project governance implementation. Active stakeholder engagement is crucial for project success, as it ensures goal alignment and support from relevant parties. Addressing this challenge is vital for successful ICT project implementation in public sectors. Furthermore, a majority of respondents acknowledge the challenge of limited ICT literacy and awareness. This challenge can be addressed through training and educational programs to enhance stakeholders' knowledge and skills in utilizing ICT effectively, thus enabling their active participation in project governance. Resistance to change is another common challenge identified in the study. It is essential to employ change management strategies involving communication, education, and stakeholder involvement to address this challenge and increase acceptance and support for ICT project governance implementation. The data also indicates that finance issues pose a challenge to ICT project governance implementation. Proper budgeting and resource planning are crucial to ensure adequate funding and smooth project execution within available resources. ICT policy and leadership are identified as significant challenges, emphasizing the importance of well-defined policies and strategic leadership to guide and support ICT initiatives in public sectors. Lastly, the data highlights the challenges related to ICT culture and the digital divide. Efforts to bridge the digital divide and address cultural barriers are necessary to facilitate the adoption and utilization of ICT in public sectors.

### Principles to Avoid Project Governance Failure

Based on the data obtained from Table 2, it is evident that involving senior managers is considered a crucial principle to avoid project governance failure in public sectors, with 75.3% of stakeholders agreeing or strongly agreeing with this principle. Involving senior managers brings expertise, strategic perspective, and decision-making authority to the project, increasing the chances of successful outcomes.

<table>
<thead>
<tr>
<th>Principles</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involve senior managers</td>
<td>5.1%</td>
<td>16.9%</td>
<td>2.6%</td>
<td>22.0%</td>
<td>53.3%</td>
</tr>
<tr>
<td>Prioritize governance goals</td>
<td>4.2%</td>
<td>5.3%</td>
<td>3.4%</td>
<td>21.6%</td>
<td>65.5%</td>
</tr>
<tr>
<td>Assign ownership and accountability for project governance</td>
<td>2.1%</td>
<td>4.6%</td>
<td>1.8%</td>
<td>16.3%</td>
<td>75.2%</td>
</tr>
<tr>
<td>Design governance at the portfolio, program, and in project levels</td>
<td>4.4%</td>
<td>7.3%</td>
<td>3.7%</td>
<td>18.6%</td>
<td>66.0%</td>
</tr>
<tr>
<td>Provide transparency</td>
<td>3.0%</td>
<td>4.9%</td>
<td>5.0%</td>
<td>31.2%</td>
<td>55.9%</td>
</tr>
<tr>
<td>Learn, then adopt any redesign</td>
<td>0%</td>
<td>4.9%</td>
<td>15.3%</td>
<td>10.2%</td>
<td>64.4%</td>
</tr>
<tr>
<td>Educate and be educated</td>
<td>5.1%</td>
<td>13.6%</td>
<td>16.9%</td>
<td>22%</td>
<td>42.4%</td>
</tr>
</tbody>
</table>

Prioritizing governance goals is also seen as important, with 87.1% of stakeholders agreeing or strongly agreeing with this principle. By prioritizing governance goals in line with stakeholder needs and project feasibility, complexity, confusion, and conflict in project governance can be reduced, leading to more effective governance and mitigating the risk of failure. Assigning ownership and accountability for project governance is considered crucial by 91.5% of respondents. This principle helps...
establish clear lines of responsibility, promote effective decision-making, and ensure active engagement of all stakeholders, leading to a sense of ownership and commitment and reducing the risk of project governance failure. Designing governance at the portfolio, program, and project levels is seen as important by 84.6% of stakeholders. This principle ensures effective oversight, coordination, and management of projects, aligning them with organizational objectives and optimizing resource allocation. Providing transparency is recognized as crucial by 87.1% of respondents. Transparency in project governance builds trust, enhances stakeholder engagement, and fosters a culture of accountability, leading to better decision-making and mitigating the risk of governance failure. The principle of "Learn, then Adopt any Redesign" is supported by 64.4% of participants. This principle highlights the importance of learning from past failures and using that knowledge to improve project governance, fostering a culture of continuous learning and improvement. The principle of "Educate and be Educated" is agreed upon by 64.4% of stakeholders. This principle emphasizes the importance of continuous learning and knowledge exchange in project governance, ensuring that governance practices are aligned with emerging trends and best practices.

Findings from Interviews

The respondents of this study provided feedback in the interview, addressing ways to mitigate the challenges of ICT project governance implementation in public sectors. Based on their responses, the following considerations are made as solutions mitigate these challenges.

Ensure involvement of all stakeholders

Regarding the lack of stakeholder involvement as a challenge of ICT project governance implementation in public sector, various participants aired out their views on how it can be mitigated.

The first respondent from the interview emphasizes the importance of conducting a comprehensive stakeholder analysis to identify and engage all relevant stakeholders in the project. The participant highlights the need to consider both internal stakeholders (government officials, project managers, IT teams) and external stakeholders (end-users, citizens, other organizations) and understand their interests, needs, and expectations. On this, the participant was quoted saying:

Conduct a comprehensive stakeholder analysis to identify and engage all relevant stakeholders in the project. This analysis should include both internal stakeholders (such as government officials, project managers, and IT teams) and external stakeholders (such as end-users, citizens, and other relevant organizations). Understand their interests, needs, and expectations to ensure their involvement and active participation throughout the project lifecycle. (Interviewee 1)

During another session, another participant in line with the same challenge aired out that:

There is a need to develop a robust communication and engagement strategy that targets different stakeholder groups. This can be through the use of multiple communication channels, such as meetings, workshops, newsletters, and online platforms, to disseminate project information and gather feedback. Tailor the messaging and content to be clear, concise, and accessible to stakeholders with varying levels of technical expertise and familiarity with ICT projects. (Interviewee 2)

From this quotation, the respondent clearly highlights the need to establish a structured framework for stakeholder participation which allows them to air out their opinions regarding how best the ICT project should be implemented and governed.

Provide ICT Literacy Training Programmes

The respondents of this study have proposed various measures to tackle the challenge of insufficient ICT literacy and awareness in the implementation of ICT project governance in public sectors. In the first instance, the interviewee was quoted saying that:

Developing and implementing targeted education and training programs to enhance ICT literacy and awareness among stakeholders is paramount importance. These programs should cater for
participants with varying levels of ICT knowledge and provide practical insights into the benefits and applications of ICT projects in public sectors. Moreover, there is a need of offering workshops, seminars, or online courses to improve stakeholders’ understanding and confidence in utilizing ICT tools and solutions. (Interviewee 5)

Findings emphasize the need to develop and implement targeted education and training programs to enhance ICT literacy and awareness among stakeholders. These can be achieved through structured classes or seminars. On the same aspect, another participant said:

*Awareness campaigns to promote the value and importance of ICT projects in public sectors are important. These can highlight successful case studies, benefits, and potential impacts of ICT initiatives to garner support and increase stakeholders’ understanding of their role in governance. Moreover, this can be achieved through utilization of different communication channels, such as social media, websites, and public events, to disseminate information and raise awareness about ICT projects.* (Interviewee 3)

The findings provide the importance of launching awareness campaigns to promote the value and importance of ICT projects in the public sectors. This can be achieved through various communication channels such as social media, websites, and public events.

**Resistance to change**

It is hard for people to change from their comfort zones. However, participants when interviewed how resistance to change can be mitigated in ICT projects. In the first session, the interviewee highlights the need to develop a comprehensive change management strategy. She said:

*It is hard for people to change. However, there is a need to develop a comprehensive change management strategy that acknowledges and addresses the resistance to change. This can be through identifying the reasons for resistance and clearly communicate the benefits and rationale behind the ICT project and involve stakeholders in the decision-making process to increase their sense of ownership and reduce resistance.* (Interviewee 4)

In support of this, another participant was quoted saying:

*There is a need to engage stakeholders early in the project lifecycle and involve them in the planning and decision-making processes. This can best be achieved by encouraging open and transparent communication to address concerns and fears related to the change, seek their input, feedback, and ideas to make them feel valued and included and actively involve stakeholders in piloting and testing phases to provide them with hands-on experience and a sense of ownership.* (Interviewee 7)

Similarly, another participant on the aspect of resistance to change said that:

*With strong leadership support and sponsorship for the ICT project, leaders should effectively communicate the vision, benefits, and importance of the project to stakeholders. Their visible commitment and active involvement in addressing resistance can have a significant impact on motivating stakeholders to embrace change. They can achieve this if they lead by example and demonstrate their willingness to adapt to the changes brought about by the ICT project.* (Interviewee 4)

In general, findings emphasize the importance of having a change management strategy, involving stakeholders from the initial stages of the project and having strong leadership that communicate the need and importance of change.

**Finance issues**

During interview sessions, several measures have been proposed to tackle finance issues. Their responses are quoted one after the other. In the first session an interview suggested that:

*If we develop a comprehensive budget plan that accounts for all the financial aspects of the ICT project, including hardware and software procurement, infrastructure development, training, and ongoing maintenance costs such problems might not persist.*

In support of this, another participant said:
There is a need to conduct a thorough cost-benefit analysis to demonstrate the value and return on investment (ROI) of the ICT project, highlight the potential benefits, such as increased efficiency, cost savings, improved service delivery, and enhanced decision-making capabilities, to justify the financial investment required. This analysis can help secure funding and support from stakeholders and decision-makers. (Interviewee 6)

Another one added that: When you foster partnerships with private organizations that can provide financial support or resources for the ICT project, private entities may have a vested interest in the project’s success and be willing to contribute financially or offer in-kind support. (Interviewee 8)

Moreover, another participant said:

It can be mitigated by establishing robust monitoring and reporting mechanisms to track the financial progress of the ICT project. Regularly review and analyses of financial performance, identifying potential cost-saving measures, and addressing any budget variances or financial risks. Transparent reporting and accountability can help build trust and confidence among stakeholders and ensure effective financial management throughout the project lifecycle. (Interviewee 4)

The interview respondents generally emphasized the importance of having a comprehensive budget, conducting cost-benefit analysis, promoting partnership and monitoring systems. They provide that these once in place can mitigate financial related challenges in the ICT projects.

**ICT policy and leadership**

Policy and leadership issues are a challenge in the ICT related problems. They pose managerial challenges. During interview sessions participants proposed various solutions that can be used to mitigate the challenge. Such solutions are quoted as follows:

There is a need to establish clear and comprehensive ICT policies that outline the strategic direction, objectives, and guidelines for ICT project governance in public sectors. These policies should align with national ICT strategies and address key areas such as data privacy, security, standards, procurement, and project management and be regularly reviewed. (Interviewee 3)

During another session another participant added:

We should ensure strong leadership support and commitment to ICT project governance implementation. Leaders should champion the use of ICT in public sectors, promote a culture of innovation, and provide the necessary resources and support for successful project implementation. They should encourage collaboration between ICT and non-ICT departments to ensure that ICT initiatives are integrated into the overall organizational strategy. (Interviewee 9)

Contributing on the same issue, another one was quoted saying:

There is a need to invest in building the capacity of leaders and decision-makers in ICT-related areas through training programs and workshops on ICT governance, project management, emerging technologies, and policy development. This will enhance their understanding of ICT and enable them to make informed decisions regarding ICT project governance. (Interviewee 2)

Moreover, another one opined that: Robust monitoring and evaluation framework to assess the effectiveness of ICT policies and project governance, regular review of project outcomes, measure key performance indicators, and solicit feedback from stakeholders to identify areas for improvement. Use this feedback to refine policies and governance practices and ensure continuous alignment with organizational goals. (Interviewee 7)

Findings generally indicate that respondents emphasize the need to establish clear and comprehensive ICT policies that outline the strategic direction, objectives, and guidelines for ICT project governance in the public sectors, strong leadership support and commitment to ICT project governance implementation, building the capacity of leaders and decision-makers in ICT-related areas and the implementation of a robust monitoring and evaluation framework to assess the effectiveness of ICT policies and project governance.

**ICT culture and digital divide**
In participants' opinion, ICT Culture and digital divide can be mitigated. They proposed various strategies as quoted in the subsequent paragraphs. In the first interview session, the first participant opined that:

Create awareness among stakeholders about the importance and benefits of ICT in the public sector through training programs and workshops to enhance digital literacy and skills, ensuring that all stakeholders have the necessary knowledge and capabilities to effectively utilize ICT tools and systems. Provide training on basic computer skills, digital technologies, and specific software or platforms used in the ICT projects. (Interviewee 9)

Supporting this, another respondent was quoted saying:

Identifying and addressing factors contributing to the digital divide, develop strategies to bridge the gap by expanding access to ICT resources in underserved areas and providing affordable or subsidized access to the internet. Collaborate with telecom providers, NGOs, and other stakeholders to ensure equitable access to ICT resources for all citizens. (Interviewee 1)

On the same issue, another participant was quoted saying that:

Foster an ICT-friendly culture by promoting the adoption and use of ICT tools and systems in daily operations might mitigate the challenge. This can be through encouraging stakeholders to embrace digital transformation and integrate ICT into their work processes, showcase successful ICT projects and share best practices to inspire others and highlight the potential benefits of ICT adoption. (Interviewee 7)

General findings emphasize the need to create awareness among stakeholders about the importance and benefits of ICT in the public sector, identifying and addressing factors contributing to the digital divide and the importance of fostering an ICT-friendly culture in the public sector.

Principles and Actions to Avoid Project Governance Failure

Based on the feedback received through the questionnaires, the respondents of the interviews for this study have identified certain principles and actions that can be implemented to prevent project governance failure in public sectors. They are presented one after the other.

Involving senior managers

In involving senior managers, participants had opinions on how it can be achieved. Their responses are quoted in the subsequent paragraphs. In the first session, an interviewee said:

Clearly define the roles and responsibilities of senior managers in the project governance framework, outline their specific contributions, decision-making authority, and accountability to ensure that they have a clear understanding of their involvement and the impact it has on project success. (Interviewee 4)

The participant’s opinion revolved around defining roles and responsibilities of managers, sharing with them project information, ensure effective communication with senior managers and seek help from them for issues that aren’t clear.

In another session another one said:

Keep senior managers informed about the project progress through regular updates and reports. Share relevant project information, milestones achieved, challenges faced, and upcoming decisions that require their input. This keeps them involved and enables them to provide timely guidance and support. (Interviewee 1)

Interview responses highlights the importance of keeping senior managers informed about the progress of the project. This can be through periodic updates and status reports.

During another session, another interviewee emphasizes the need to establish effective communication channels as quoted:

Establish effective communication channels between project teams and senior managers. Provide opportunities for project teams to directly
communicate with senior managers, seek their feedback, and address any concerns or risks. Regular communication helps build trust and ensures that senior managers are well-informed about project progress and challenges. (Interviewee 5)

Proper communication between project teams and senior managers can yield valuable outcomes. Thus, creating platforms can facilitate information exchange.

Moreover, another participant was quoted talking about tapping expertise and experience. She said;

*Tap into the expertise and experience of senior managers to overcome project governance challenges. Seek their guidance in areas where they possess specialized knowledge or have faced similar situations in the past. Their insights can help mitigate risks and make informed decisions throughout the project lifecycle.* (Interviewee 4)

Interview responses highlight the value of tapping into the expertise and experience of senior managers and also emphasizes the role of senior managers in helping to overcome project governance challenges. This suggests that their insights and guidance can contribute to addressing issues related to project governance.

**Prioritize governance goals actions**

Findings from interview sessions provide different solutions as quoted in the subsequent sections. During the interview, one participant talked about articulating the governance goals that:

*Clearly define and articulate the governance goals for the project. Ensure that the goals are aligned with the overall objectives of the public sector organization and the specific needs of the ICT project. By having well-defined goals, you can provide a clear direction and purpose for the project.* (Interviewee 3)

In another session the participant said:

*Identify the key stakeholders involved in the project and assess their needs, expectations, and priorities. Understand the perspectives and requirements of different stakeholders, such as senior managers, project teams, end-users, and other relevant parties. This analysis will help in prioritizing governance goals that address the most critical needs and concerns.* (Interviewee 2)

In the same vein, another participant emphasized the need to assess the feasibility of each governance goal. On the issue the quote goes as:

*Assess the feasibility and potential impact of each governance goal. Consider factors such as available resources, time constraints, organizational capacity, and potential risks. Prioritize goals that are realistic, achievable, and have the greatest potential to positively impact the project outcomes.* (Interviewee 1)

In general, participants talk about clearly defining and articulating the governance goals for the project, the need to identify the key stakeholders involved in the project and the importance of assessing the needs, expectations, and priorities of the identified stakeholders and the need to assess the feasibility of each governance goal.

**Assign ownership and accountability for project governance**

Based on the input from the respondents of this study, recommended actions have been suggested to appropriately allocate ownership and accountability for project governance in order to prevent the failure of ICT project governance in public sectors. In the interview a number of responses are presented in the following paragraphs. In one of the sessions, a participant was quoted saying:

*Clearly define the roles and responsibilities of individuals or teams involved in project governance and assign them specific roles such as project sponsor, project manager, steering committee, and other governance-related positions. Ensure that each role has well-defined responsibilities and decision-making authority.* (Interviewee 6)

Adding on this, another one said:

*Develop a comprehensive governance framework that outlines the structure, processes, and mechanisms for project governance which clearly define the governance objectives, decision-making processes, communication channels, and reporting...*
requirements. This framework provides a clear structure for ownership and accountability. (Interviewee 9)

Interview responses underlines the need to clearly define the roles and responsibilities of individuals or teams involved in project governance and the importance of assigning well-defined responsibilities to each role, and mention the development of a comprehensive governance framework.

In other sessions, quotations emphasize the significance of appointing a project sponsor who holds ultimate ownership and accountability for the project’s success and the need to assign a project manager responsible for day-to-day project execution and governance. This underscores the importance of selecting a project manager with the necessary skills, authority, and resources to effectively manage the project. The following verbal quotes support the findings.

Appoint a project sponsor who will have ultimate ownership and accountability for the project’s success. The project sponsor should be a senior-level executive who has the authority, influence, and resources to support and drive the project forward. The project sponsor plays a crucial role in providing strategic direction, securing resources, and resolving escalated issues. (Interviewee 1)

Assign a project manager who will be responsible for day-to-day project execution and governance. The project manager should have the necessary skills, authority, and resources to effectively manage the project and ensure adherence to the governance framework. Empower the project manager to make decisions and take appropriate actions within their defined scope of responsibility. (Interviewee 5)

During another session, participants emphasized the importance of establishing reporting mechanisms and communication channels and mention the creation of a culture of accountability within the project and the wider organization. The following verbal quotes support the findings.

Establish reporting mechanisms and communication channels that enable timely and transparent reporting on project progress, issues, and risks. Ensure that there is a clear flow of information between project teams, governance bodies, and senior management. Regularly communicate governance-related updates and seek feedback and input from stakeholders. (Interviewee 7)

Create a culture of accountability within the project and the wider organization. Set clear expectations regarding individual and collective responsibility for project outcomes. Encourage open and honest communication, and hold individuals and teams accountable for their actions and decisions. Recognize and reward achievements that demonstrate strong ownership and accountability. (Interviewee 1)

**Design governance at the portfolio, program, and in project levels**

Based on the feedback the interviews responses highlight the establishment of governance mechanisms at the portfolio, program, and project levels and the importance of aligning governance with organizational goals and priorities. The following verbal quotes support the findings.

Establish governance mechanisms at the portfolio level to oversee multiple projects and programs. This involves setting strategic objectives, prioritizing projects, allocating resources, and monitoring the overall performance of the portfolio. Define clear criteria for project selection and ensure alignment with organizational goals and priorities. (Interviewee 1)

Implement governance structures and processes at the program level to coordinate and manage related projects. Establish program governance committees or boards to provide oversight, make strategic decisions, and resolve interdependencies and conflicts between projects. Define program-level performance measures and reporting mechanisms to track progress and ensure alignment with program objectives. (Interviewee 8)

The interview responses mention the need for governance committees, boards, or steering committees to provide oversight and make strategic decisions. Also, the interviews highlight
the importance of establishing performance measures and reporting mechanisms.

*Develop project-level governance frameworks that outline the roles, responsibilities, and processes for individual projects. This includes establishing project governance boards or steering committees that are responsible for project oversight, decision-making, and ensuring adherence to project objectives and timelines. Define project-level governance documents such as charters, plans, and risk management frameworks.* (Interviewee 6)

*Ensure alignment and integration between portfolio, program, and project-level governance. Establish communication channels and reporting mechanisms that facilitate the flow of information between different levels of governance. Align goals, objectives, and performance measures across the different levels to ensure consistency and coordination.* (Interviewee 1)

In other sessions, findings mention the importance of clearly defining decision-making authority and escalation processes and the significance of allocating the necessary resources as quoted:

*Credibly define decision-making authority and escalation processes at each level of governance. Identify the types of decisions that can be made at each level and specify the thresholds for escalating decisions to higher levels. This helps to streamline decision-making, empower project teams, and avoid bottlenecks or delays in the governance process.* (Interviewee 7)

Another participant on the same issue added that:

*Ensure that the necessary resources, including human resources, budget, and technology, are allocated to support effective governance at each level. Adequate resources enable proper oversight, monitoring, and reporting, and facilitate informed decision-making.* (Interviewee 1)

Another supplemented that:

*Regulate review and assess the effectiveness of the governance structures and processes at the portfolio, program, and project levels. Solicit feedback from stakeholders and adjust as needed to enhance governance practices and address emerging challenges or opportunities.* (Interviewee 5)

**Ensure transparency**

During interview sessions, participants highlighted issues related to open and transparent communication, for ensuring transparency during ICT project implementation. Participants were quoted saying:

*There is a need to establish open and transparent communication channels that allow for the sharing of project information, progress updates, and decision-making processes. Use appropriate communication tools and platforms to ensure that relevant stakeholders have access to project-related information in a timely manner.* (Interviewee 1)

Adding on that, another participant said:

*Maintain clear and accessible project documentation that outlines project goals, objectives, plans, and progress reports. Make these documents easily available to stakeholders, including project team members, senior management, and external parties. This transparency helps build confidence and understanding of the project's progress and status.* (Interviewee 3)

Similarly, to the above findings, participants further noted that the presence of regular project progress reports and project risks using visual aids and metrics can be used to enhance understanding and facilitate effective communication. The following verbal quotes support the findings.

*Develop regular project progress reports that highlight achievements, challenges, and upcoming milestones. Present this information in a clear and concise manner, using visual aids and metrics to enhance understanding. Share these reports with relevant stakeholders, including senior management, governance bodies, and project team members.* (Interviewee 4)

*Be transparent about project risks and issues by openly acknowledging and addressing them. Maintain a risk register that identifies and assesses project risks, along with mitigation strategies. Communicate any significant risks or
issues promptly to stakeholders and provide updates on the actions taken to mitigate them. (Interviewee 1)

Moreover, the use of external auditors, and stakeholder involvement are of paramount importance. For instance, involving external perspectives adds transparency, accountability, and helps identify areas for improvement. Moreover, relevant stakeholders, including project team members, senior management, and external parties, should have access to project-related information and be included in communication channels and documentation sharing. The participant was quoted saying that:

Consider engaging external auditors or independent reviewers to conduct periodic audits or reviews of project governance and performance. This external perspective adds an additional layer of transparency and accountability and helps identify areas for improvement. (Interviewee 9)

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**Learn, then adopt any redesign**

To prevent project governance failure in public sectors, it is important to follow the principle of learning and subsequently adopting any necessary redesign. This means that lessons should be learned from previous experiences, and if required, adjustments and improvements should be made to ensure better project governance.
governance outcomes. During the interviews, responses suggest ways to avoid project governance failure in public sectors,

it is important to learn from previous experiences and then adopt any necessary redesign. By learning from past failures, adopting effective redesign strategies, and implementing robust project governance practices, public sector organizations can mitigate the risks of failure and enhance the overall success of their projects.
(Interviewee 1)

**Educate and be educated**

To prevent project governance failure in public sectors, one of the key principles is to prioritize education and continuous learning. This involves not only providing education and training to project stakeholders but also fostering a culture of continuous learning and knowledge sharing. During an interview session, a participant had this to say: By prioritizing education, fostering a learning culture, and staying informed about best practices and emerging trends, public sector organizations can equip themselves with the knowledge and skills necessary to avoid project governance failures and drive successful project outcomes.
(Interviewee 2)

**Framework for ICT Project Governance Implementation**

Using data gathered from questionnaires and interviews, the researcher develops a comprehensive project governance framework specifically designed for ICT projects in the public sector in Tanzania. This framework considers the challenges identified, strategies to overcome them, and the principles and actions necessary for a successful implementation of ICT project governance in public sectors.

Based on the challenges and principles identified in the study, the following is a suggested framework design for ICT project governance implementation in public sectors in Tanzania.

**Governance structure:** This clearly defines the governance structure for ICT projects, including roles, responsibilities, and reporting lines and establishes a project governance board or committee composed of senior managers and key stakeholders to provide oversight and strategic direction.

**Stakeholder engagement:** This involves the development of a stakeholder engagement plan to ensure active involvement and participation throughout the project lifecycle and implement mechanisms for regular communication, feedback, and collaboration with stakeholders to address their concerns and align project goals.

**ICT literacy and awareness:** Conduct training programs and workshops to enhance stakeholders' ICT literacy and awareness and provide educational resources and support materials to improve stakeholders' understanding of ICT concepts and technologies.

**Change management:** Develop a change management strategy to address resistance to change and communicate the benefits and rationale for the project to stakeholders and provide support and training to facilitate a smooth transition.

**Transparency and accountability:** This involves the fostering of a culture of transparency by providing regular project updates, progress reports, and performance metrics and establish mechanisms for accountability and ensure that project outcomes and deliverables are clearly defined and measurable.

This framework provides a structured approach to address the identified challenges and implement the principles necessary for successful ICT project governance in public sectors in Tanzania. It promotes stakeholder engagement, effective communication, transparency, and continuous improvement, thereby enhancing the likelihood of project success and positive outcomes.

**Validate the Framework**

To obtain the validity and acceptability of the designed framework the researcher presented the proposed project governance framework to key stakeholders and seek their feedback and input to evaluate the acceptability and feasibility of the framework through focus groups, and make revisions and adjustments based on the feedback received.

The framework was designed based on a combination of literature research, experts'
interviews, experts’ judgement and logic reasoning. Accordingly, an attempt was made to validate the design, in order to judge its usability and validity in practice. According to Yin (1994) validation of the framework can be done in two ways, first with the help of a group of experts, secondly by executing a comparative case study. In this dissertation the researcher validated the designed framework with the help of a group of experts. Four experts with experiences in the field of ICT project governance were interviewed to validate the designed framework. With the first group of experts’ interviews, the experts asked the questions regarding the first draft of the designed framework, and the second group of experts’ interviews, the experts were consulted to reflect on the final design.

In the interview, several themes emerged from the discussion with the group of experts regarding the validity and clarity of the designed framework, as well as suggestions for its improvement. The following quotes support these themes:

Regarding validity of the framework, the group of experts said that

all constructs in the framework are considered to be useful so the framework is valid in practice. (Interviewee 7)

This quote indicates that the group of experts acknowledged the usefulness of all the constructs included in the designed framework. Their agreement on the usefulness suggests that the framework is seen as valid and applicable in real-world scenarios.

With respect to clarity of the framework, experts also commented that

the designed framework shows clearly dependent and independent variables used, so the relationship between these two variables are visible in the designed framework. (Interviewee 2)

This quote demonstrates that the experts found the designed framework to be clear and well-structured. They specifically highlighted the clarity in identifying the dependent and independent variables and how their relationship is evident in the framework. This clarity helps in understanding the cause-and-effect dynamics within the framework.

Regarding suggestions for improvement, one of the experts suggested to the researcher to have something included. The expert was quoted saying:

Include in the designed framework technical and non-technical challenges that would influence ICT project governance failure in public sectors in Tanzania. (Interviewee 1)

This quote reflects the suggestion provided by the group of experts to enhance the designed framework. They recommended the inclusion of both technical and non-technical challenges that could potentially impact ICT project governance failure in the public sectors of Tanzania. This suggestion aims to make the framework more comprehensive and encompassing of a broader range of factors.

Overall, the interview highlighted the perceived validity and clarity of the designed framework by the group of experts. Moreover, their suggestions for improvement emphasize the importance of considering technical and non-technical challenges in the framework to enhance its effectiveness in addressing ICT project governance failure in the public sectors of Tanzania.

Conclusions

Regarding challenges of ICT project governance, the researcher concludes that ICT projects will always fail if and only if challenges facing project governance are lifted. It crystal clear that public funds will continue to be wasted in form of ICT project implementation, but project targets will never be attained. It is unless there is an effective and applicable project governance that projects will yield the intended outcomes.

While findings have made it clear that there are serious principles to avoid project governance failure, none of the identified principles is new. However, because these principles are never implemented and remain in writings, it becomes difficult for ICT projects to be smoothly implemented. The research concludes that, the
value of these principles will only be observed when their implementation seriously takes place. This will facilitate ICT projects to run smoothly and deliver the intended services.

The successful formulation of the ICT project governance framework is a turning point in ICT projects. It will facilitate project realization of project goals and objectives. In the situation that the framework works as intended it can be borrowed to monitor and govern other projects in other spheres.

References


