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ICT Project Failure in Government Sectors: Factors from Vendors Perspective

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Abstract: The aim of this study is to look at what causes the failure of ICT projects pursued by governments. As governments are working on implementing ICT projects to take advantage of the benefits that Information and Communication Technologies affords to organizations, there have been cases of such ICT projects failing to take off due to several factors and at times blowing the allocated budget.. This study will analyze the failure from the perspective of the vendors who are charged with developing and implementing these ICT projects. The study will make use of primary data from a number of vendors and the existing literature concerning the topic to establish the main factors resulting in these failures. A total of 20 respondents representing 10 ICT Vendors have been interviewed. Future research direction on developing business and technical user requirement for tenders with the customers and vendors prior to tender advertisement are discovered in this research.

Key words: Government's ICT Project · ICT Project Failure Factors · ICT Project Evaluation

INTRODUCTION

ICT is transforming how businesses operate, how organizations are run and managed; the adoption of ICT has evolved from being a preoccupation of the private sector to becoming a key strategy in ensuring efficient running and management of public organizations and the government collectively. As such there is a need for governments to successfully implement various important Information and Communication Technologies (ICT) projects which will help them facilitate their transformation in today's interconnected world. This research aims to investigate the failure of governments to implement ICT projects from the perspective of the vendors who are charged with supplying the various systems of ICT to be used by the government agencies with the objective of making the projects more successful and to improve its success rates and increase the value of the ICT investment.

The study will undertake an analysis of the implementation of ICT projects based on customer needs and involvement from project inception all the way to its implementation and what causes such projects to fail in their eventual implementation.

A case example of the failure of Government ICT project is the National Health Service (NHS) in the UK, which abandoned an ICT system that cost the taxpayers more than £10bn. This is just an example of some of the failed government ICT projects that happen across the world resulting in huge losses of money. By understanding why Government ICT projects fail, especially from the perspective of those charged with implementing and delivering such projects chances of avoiding such failures in future will be increased.

The study adopted the failure definition used by the Standish Group in CHAOS Report 2009. The Standish Group categorizes projects into three resolution types which are;

Successful: The project is completed on time and on budget, with all features and functions originally specified;

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Challenged: The project is completed and operational, but over-budget, over the time estimate and with fewer features and functions than initially specified; and

Failed: The project is cancelled before completion or never implemented [1] further categorize different levels of project failure as below.

Total Failure: An ICT project which has ended up as not being implemented, or a new project that has been implemented, but eventually abandoned;

Partial Failure: Major goals of the ICT project have not been attained or significant undesirable outcomes are experienced. A reasonably clear form of partial failure is sustainability failure where a project succeeds initially, but then fails after a year or so; and

Success: An ICT project attains its major goals and does not experience significant undesirable outcomes[2-17].

Literature Review: Many ICT projects pursued by governments tend to fail. As established by [18] more than 31% Information Systems projects could not be delivered on time and within the set budget resulting in failure, this is despite project managers putting great efforts in the development and implementation of methodologies, models and standards of managing the ICT projects.

There are a number of reasons as to why ICT projects fails. For example, [12] in their study of the requirements of ICT systems determined that the vendors and the contracting government/agency never understood each other, though vendors in most cases pretended that they understood what was required of them. This resulted in the various customer needs not being met. This was as a result of the vendors not making use of better techniques of getting requirements and could not ensure seamless integration with future systems.

In a study of Government failure in implementing ICT projects done in Malaysia by [2], they established six factors that contributed to ICT project failure. The main factors seemed to stem from project process and management. There was also the issue of limited ICT knowledge among the management personnel in government sector and they were charged in deciding the projects to be pursued and how such would be developed? [2]; this resulted in misunderstanding between the government as an ICT customer and the vendor in implementing an ICT project.

The reasons for failure of Government cover a number of areas from the vendor, changing user needs and also the agency itself. The question of why is it that globally, Government ICT projects keep on failing, even after learning and taking note of previous mistakes. Can we learn from the failures witnessed in various failed projects? As shown by [6] among the key reasons why many ICT projects fail is due to poorly written code, ambiguity from the sponsors, changing and to some extent confusing requirements by the contracting agency, inadequate resources or skills and lastly, a poor system design. In yet another explanation of why Government IT projects fail, [1] enumerates 12 points which when well addressed, success will be achieved. These reasons are but not limited to:

- Poor business case,
- No clear expected outcomes,
- Senior management not buying -into the project,
- Broken communication,
- Not adequately engaging the shareholders,
- Conflicting interests,
- Bias during assessment of the project,
- Not looking at the big picture and
- Decision-makers being narrow minded.

Most government ICT projects tend to fail due to the requirements of the project being vague or at times open. This means that the vendor is left to come up with the best solutions, increasing the possibilities of failing [3]. Most ICT customers including government assume that the vendor is well experienced and fail to provide specific requirements. [11] observed that in most cases however the vendors were not sure what most of the requirements of the project meant, especially if the area of the project is relatively new to the vendor. In addition, the vendor may miss out on what exactly constitute the customers' needs from the requirements of the system.

[4] established that the inability of vendors to tell the customer that a particular requirement is wrong during the development of the project is another reason most ICT projects end up in failure. Most vendors will carry on with the project even after they view that the requirements of the customer is wrong or obscure. In some cases, vendors fail to show customers their weaknesses on the specifications and tell them how they perceive their needs. Vendors in most cases would not want to offend the customer.

According to [13] there is the issue of the vendor not having a working solution and despite this they go ahead with the project implementation. This would work if the vendor has a solution, but when they are no solutions available, chances of the project failing will be high. Due to the short time frame required to formulate the proposal, in most cases vendors are never able to have a solution in place as some solutions take months or even years to develop hence most vendors resort to improving on the COTS rather than developing totally new systems. Furthermore, most vendors submit proposals which resort to submit proposals most vendors resort to only furnishing the customer with only strategies and statement of intent and never the actual solution [13].

On his part, [4] notes that inadequate acquisition process is also another reason why most projects end up in failure, which is not only attributed to requirements. Among the problems tied to acquisition is the issue of excess user participation, this results in alteration of business goals which creates unsuitable use cases. For a project to succeed there is a need for a small manageable team instead of a big and always changing team. [4] adds that excessive user participation results in the vendor not focusing on the big picture and delivering the project on time.

It was observed by [12] that customer involvement is also critical to a successful project especially during the deployment phase of the project, there should be an unassailable cooperation between the vendor and the customer for a project to be a success, this cooperation should be from the time of project inception and implementation all the way to when it is eventually deployed. Most customers underestimate the impact their staff has on making a project a success especially when it is being deployed. There is a need to have parts that are specific to the customer and developed with customer involvement throughout the project. Most customers never have the power and resources to have their staff in taking part in the development of the project and they would rather have the vendor providing progress report on issues after a number of days, months or on set dates.

Project Management also plays a key part in success or failure of a project. As shown above, missing on user requirements was a common issue faced by most vendors [19-23]. Lack of user involvement is the main reason why most vendors miss on user requirements and in most cases, the customer falls short of providing vendors the staff who can facilitate on user involvement. In the event that users were involved, the project gets different user officers taking part in the same module and this becomes a major challenge, as the vendor is unable to get consistent cooperation which forms the key for any project to succeed.

The issue of projects' risk management is also important when investigating project failures. The ability to manage and control risks can result in successful implementation of a project. Failure to manage risks until such risks metamorphoses into a problem is the main reason many government ICT projects results in failure. In addition to lack of risk management, there is also the issue of underestimating how complex a project is, especially as it pertains to the activities and tasks involved and this can result in more resources being used than it was anticipated, which further opens up the project to failure. In addition, the issue of poor planning can result in delaying the implementation of the project, this can result in the project being poorly designed and outdated making it prone to failure [10].

To make an ICT project a success there are a number of practices that should be followed as shown by [8]. These practices include: i) Not underestimating the complexity in implementation of ICT programs. ii) Formulate a project that will greatly benefit your needs. iii) The need to retrain government employees in anticipation of upcoming ICT changes. iv) Use the correct and easy to implement technologies. v) Knowing how the technology will fit into the government's processes and where necessary undertake a process re-engineering.

To analyze failure of government ICT projects there are seven dimensions and called the ITPOSMO in acronym which gives a good model to use in understanding the gap between reality and design of the ICT projects as shown in [7]:

- Information.
- Technology.
- Processes.
- Objectives and values.
- Staffing and skills.
- Management structures and systems.
- Other resources: (for example, money and time).

Focusing on the above dimensions and the notion of gaps, results in a model that comes in handy if one is to understand the reasons why Government ICT projects end up in failure.

Another model that tries to explain reasons why government ICT projects end up in failure is the classic contingency model by [17] and this model does not focus on one blueprint on failure of government projects. According to this model there a number of factors that determine whether a project will either succeed or fail. Contingency focuses on how government agencies will adapt to limit mismatch and create match, these agencies should be able to create a match between its internal structure and the outside environment. Government ICT projects are implemented in a set environment and through adapting to such environment ICT Projects can result to success.

Similarly, [19] in her journal explains that government ICT project failures can be explained using systems approaches model. Indeed, a number of previous studies [15, 16], have established themes that directly relate to ICT government failure.

Using the systems approaches, the most applicable finding is that big ICT implementations are complex and failure is caused by multiple causes. [19] Explains that small failures in these big and complex systems are pandemic and usually results in unforeseen crisis that becomes difficult to manage. [15] in his Normal Accidents Theory asserts that technological systems will always be unsafe; it's normal for accidents to occur because understanding fully how the systems operate is not hard. Risks are inherent in technological systems.

MATERIALS AND METHODS

The proposed study made use of qualitative and quantitative methods. In analyzing the factors that result in failure of ICT projects from the vendors' perspective, three steps were followed as shown below:

Literature Review: The study used secondary review of literature to look at government ICT project failures from the vendors' perspective. The literature review focusing on ICT project failure in governments were analyzed and found how to mitigate such failures.

Interview: The study interviewed 20 respondents representing 10 different ICT vendors. These respondents had different ranks within their organizations where some were project managers, Assistant Technical Managers and Project Director. These respondents were asked a number of questions relating to the implementation of ICT projects for government. Among the questions asked were, whether the organizations took part in the tendering process of government ICT projects and these among other questions were asked-which aimed at investigating failure of government ICT projects when they were eventually implemented.

Table 1: Research Framework

STEPS	PURPOSE	OUTCOME
Literature Review	Investigate and identify factors resulting in government ICT Project failures from Literature.	Identify failure factors from secondary review of literature.
Interview	Gather data from respondents.	Raw data from the respondents.
Data Analysis	Ranks the various factors that result in failure of Government ICT projects.	Identify factors that result in failure of Government ICT projects

Data Analysis: From the data collected from interview of respondents and these various responses were classified and analyzed using SPSS and Microsoft Excel to show descriptive statistics about why Government ICT projects end up failing, The data from the analysis was also linked to those from the review of secondary literature that focused on failures of ICT projects from the perspective of the vendor.

RESULT AND DISCUSSION

The result of the research identifies a number of factors that in one way contributes to the success or failure of Government ICT projects. The results are as shown below:

Discrepancies in Understanding Tender User Requirements: More than 50% of the respondents agreed that there were discrepancies in understanding the needs of the customers, over 38% also strongly agreed on that. This results (Figure 2) in most of the projects not being delivered on time and if they are, they end up not meeting the set requirements.

Changing User Requirements During Implementation: From the interview 47.62% of the respondents agreed (Figure 3) that there were always a change in user requirements and the same number also strongly agreed and the remaining strongly disagreed on the same. As shown in [4] among the problems tied to acquisition is the

Fig. 1: Factor A

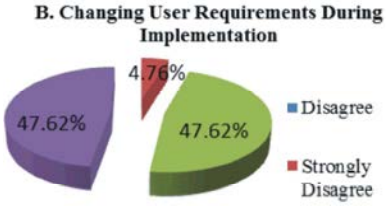

Fig. 2: Factor B

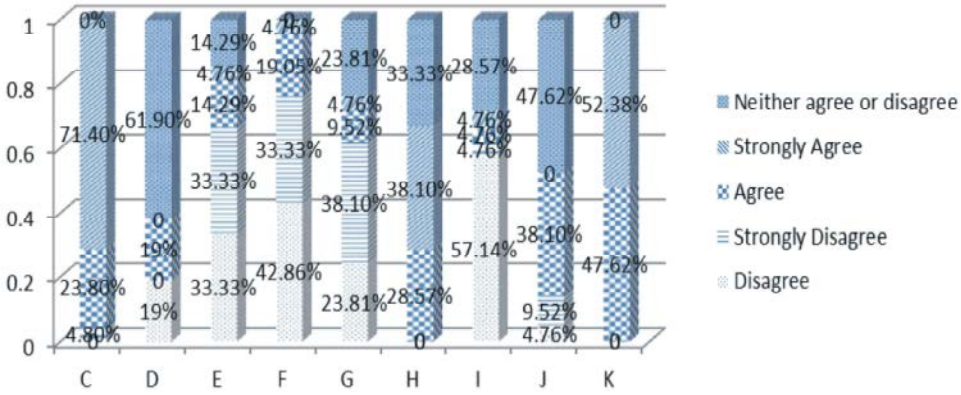

Fig. 3: Factors C, D, E, F, G, I, J, K

issue of excess user participation, this results in alteration of business goals which creates unsuitable use cases. For a project to succeed there is a need for a small manageable team instead of a big and always changing team and this will result in changing user requirements which may inhibit the delivery of the project on time.

Participation in ICT Tenders: When the respondents were asked whether their organizations participated in ICT tenders advertised by the governments, 71.4% strongly agreed that they participated, compared to 4.8% who strongly disagreed, the remaining respondents were in agreement.

Understanding Customer Requirements: Understanding customer requirements is the key for the vendor, in order to fulfill customers' expectation.. As shown in the study by [12] vendors and the contracting government /agency never understood each other, with vendors in most cases pretending that they understood what their customers required. From the study almost 62% of the respondents neither agreed nor disagreed that they understood what the customers required completely from the tender documents.

Lacking in a Project Plan: Most of the respondents disagreed that there was lack of a project plan; these numbered 33.33% in addition the same number strongly disagreed on there being no project plan. Process Factors as shown in the literature review above plays a great role in ensuring the success of a project. In some cases ICT projects are given without undertaking any feasibility study and also some of the projects are done on as needed basis without establishing it on any project or government masterplan. Lack of plan in most cases affects the success of the project [9].

Lack of Skills and Knowledge in Project Management: From the respondents 42.86% disagreed on there being lack of skills in project management, with 19.05% agreeing on there being lack of skills in project management. As shown from the review of literature among the reasons of

projects ending up in failure is when either of the parties fails to meet their contractual obligation. In most cases most project managers from the customers tend to lack skills of project management which coupled with lack of a background in ICT and consecutively results in poor management of the ICT projects. Other project managers despite having IT backgrounds never became better project managers [10].

Inadequate ICT Background for Project Managers: More than 38.10% of the respondents strongly disagreed on project managers having inadequate background, with 9.52% agreeing on there being inadequate ICT background for project managers. As shown in the study by [14] the factors resulting in ICT project failure were determined to be those factors dwelling on project management and the issue of limited ICT knowledge were also key concerns that made most of the projects to fail.

Adequate Mitigation of Project Risks in Projects: In the study 28.57% of the respondents agreed that there was adequate mitigation of project risk and a further 38.10% strongly agreed, with the remaining neither agreeing or disagreeing. The issue of risk management is also important when investigating project failures. The ability to manage and control risks can result in successful implementation of a project. Failure to manage risks until such risks metamorphoses into a problem is the main reason many government ICT projects results in failure [10].

Design and Technology Used During Implementation Not in Line with the Current Technology: On whether the design and technology used in project implementation was in line with current technology, 57.14% of the respondents disagreed with a further 4.76% strongly disagreeing and this was the same number of those that agreed and strongly agreed and the remaining which was 28.57% neither disagreed nor agreed. As shown [6] among the key reasons most of the ICT projects end up in failure is due to poorly written code in addition to poor system design which results in use of outdated technologies among others[20-23].

Feasibility Study Before Drafting the Requirement for the Tender Document: In regard to whether a feasibility study was undertaken, 38.10% of the respondents agreed while 47.62% neither agreed nor disagreed. As shown in [14] process factors play a great role in ensuring the success of a project. In some cases ICT projects are given without undertaking any feasibility study and also some of the projects are done on as needed basis without basing it on any project or government plan.

Involvement of End Users: Data from the user interview showed great involvement of end users, of which 47.62% agreed and 52.38% strongly agreeing. As shown by [11] most vendors hardly know what the end users want as such involving them, is key in ensuring success of a project.

CONCLUSION

From the results and discussions above despite most of the vendors agreeing that their organizations actively took part in Government tender process, with more than 70% being in agreement, many of the vendors were not sure whether they understood what the customers' need based on the tender documents, which could be the reason why most government ICT projects fail. In addition, involving end users who change user needs makes it challenging for the vendors to deliver the project on time. Avoiding failure of Government ICT projects calls for enshrining the best project management practices and this calls for the project managers from both the vendor and customer working on improving their skills in matters of project management and issues of ICT. Finally, a Business and Technical User Requirement document for the tender must be developed together with the customer and interested vendors prior for the tender to be advertised. A pre-tender workshop would define the specific requirements and this consultative engagement will get the requirements correct from the beginning. In this study, future research direction is proposed on developing business and technical user requirement for the tender with the customer and vendors prior to tender advertisements.

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