

An Assessment of ICT Project Success/Failure in Botswana

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Abstract - The purpose of this study is to assess Information and Communication Technology (ICT) project success/failure in Botswana using project metrics models. The study is confined to ICT Senior managers in the southern part of Botswana, in the city of Gaborone. The study adopted a qualitative research design. Random sampling is used to select the participants. A metrics model tool is developed and used to analyze, and interpret the data. The results of the study shows that majority of ICT/IT projects in Botswana could be successful in functionalities and best acceptable. Unfortunately when these projects are evaluated against theoretical success models and success evaluation criteria available in the literature they are not up to their full potential, hence unsuccessful. The study also reveal that senior managers are aware of the factors contributing to the project success/failure in their organizations, and are keen to deliver functional systems. Therefore they tend to forget or choose to ignore other fundamental areas of project management profession which they regard as not beneficial. The study suggests that Botswana ICT projects would succeed if top managers provide support to all technological and non-technological project initiatives within IT based organizations. Therefore, senior management should not sabotage or abandon some projects for being deemed low priority or not important to the benefits of the organization. The study thus, recommends that Botswana ICT/IT senior managers need to reassess their project evaluation and delivery framework by putting more emphasis on developing top management support adequate training of the personnel and project managers experience. The abstract should summarize the content of the paper. Try to keep the abstract below 150 words. Do not have references or displayed equations in the abstract. It is imperative that the margins and style described below be adhered to carefully. This will enable us to maintain uniformity in the final printed copies of the Journal. Papers not made according these guidelines will not be published although its content has been accepted for publication. Paper form is a necessary condition for its publication, as well as its content.

Keywords - *ICT Project, Project Management, Metrics, Assessment Model, Success/Failure.*

1. Introduction

ICT deployment in any domain aids human capital empowerment, and improves the quality of life. In Botswana, government's ICT policy aims to create enabling environments, provide universal service and access to information and communications facilities, and to make Botswana a regional ICT Hub (Republic of Botswana, 1997). To actualize the noble aims of the policy, government embarked on a number of ICT project in its E-government programme in the domains of Agriculture, Communication, Education, and Health to mention but few. Some of these noble projects however, were reportedly unsuccessful due to factors associated with neglecting to apply appropriate project management principles and techniques.

In this paper, we examine Botswana government's ICT policy, and analyzed documents relating to executed ICT projects in order to determine if those projects had been successful or unsuccessful, and subsequently evolved a project management measure to critically assess ICT projects success/failure in the context of Botswana.

1.1 Statement of the Problem

The concept of Software project management practice in Botswana towards fulfilling national ICT policy mandate is based on a wide range of critical success factors used in other countries. However, the inability to realize the main factors contributing to project success/failures embedded in organizations in Botswana has resulted in some numerous projects experiencing implementation

challenges and eventually failing (Mokgoabone, 2004; Tabane, 2011; Ontebetse, 2013). Therefore, if this scenario persists, the mandate enshrined in Botswana government's ICT policy vision 2016 may not be actualised. It is against this background that a research on assessment of ICT/IT project success/failure in Botswana is conducted.

1.2 Study Objective

The major aim of this study is to determine the main factors contributing to project success/failure in ICT projects in Botswana, and to make appropriate recommendations to inspire project successes in Botswana.

The specific objectives of this study are as follows;

- a) To establish a measure and the ranking of the dominant critical factors contributing to success of ICT projects in Botswana
- b) To establish a measure and the ranking of the dominant factors contributing to failure of ICT projects in Botswana
- c) To ascertain whether project manager experience affects the success or failures of ICT projects in Botswana
- d) To ascertain whether top management support affects the success or failures of ICT projects in Botswana

1.3 Study Hypotheses/Research Questions

This paper poses 4 vital questions namely:

- a) What are the dominant critical factors contributing to the success of ICT projects in Botswana?
- b) What are the dominant critical factors contribute to the failure of ICT projects in Botswana?
- c) How does project manager experience affects the success/failure of ICT projects in Botswana?
- d) How does top management support affects the success/failures of ICT projects in Botswana

The rest of the paper counts of 5 sections. Section 2 presents a review of the literature. Section 3 presents the methodology of the study and metrics development approach. Section 4 examines Botswana ICT projects success/failure. Section 5 presents the summary, recommendations and conclusion of the study

2. Literature Review

Kaur & Aggrawal (2013) discussed the types of failures that can be seen in Information Systems from the project manager's point of view regardless of organizations. McNurlin, Sprague and Bui (2009), also showed that the changing environment of Information System (IS)/Information Technology (IT) involve numerous issues that strategists must consider as they make IS decision. This suggests that it is a requirement for all organizations to have an experienced IT project manager and an information technology system which provides accurate and timely information beneficial for IS strategic decisions.

A recent Chaos report by Standish Group International (2013) revealed a gradual and promising escalation in IT project success rates (see Table 2. The report provided a global view of project statistics with heavier concentration on the United States, Europe and the remaining represented the rest of the world. The CHAOS report emphasizes that IT projects are classified into three distinct outcomes (resolutions):

- Resolution Type 1 is a project success when IT project are completed on time and within budget, with all features and functions as specified. Only 39% of projects fell in this category.
- Resolution Type 2 is project challenged when IT projects are completed, but are over cost, over time, and or lacking all of the features and functions that were originally specified. 43% of all studied projects fell into this Resolution Type 2 (Challenged) category.
- Resolution Type 3 is a project impaired/failed. when projects are abandoned or cancelled at some point and thus became total losses. A disturbing 18% of all studied projects fell into this category. Table 1 below illustrates the CHAOS resolutions of IT success trends.

Table 1. The Chaos Resolutions It Success Trends

RESOLUTION					
	2004	2006	2008	2010	2012
Successful	29%	35%	32%	37%	39%
Failed	18%	19%	24%	21%	18%
Challenged	53%	46%	44%	42%	43%

Project resolution results from CHAOS research for years 2004 to 2012.

Source: Standish Group International (2012)

According to Standish Group International (2012) the increase in success is due to the following factors: Improved project environment of processes, effective project methods, skilled personnel, effective project costing, tools, decisions, optimization, addressing of the project internal and external influences and effective team chemistry.

Goatham (2013) pointed out that an IT project is successful if it falls in one of the following categories of project success;

- Tier 1 – The project is a success if it delivers all or most of what it said it would do (the scope), regardless of schedule or budget performance
- Tier 2 – The project is a success if it delivers what it said it would do, on schedule and/or within the agreed budget
- Tier 3 – The project is a success if it delivers what it said it would, on schedule, within the agreed budget and to the expected quality standards
- Tier 4 – The project is a success it delivers on all agreed project objectives, be they scope, schedule, budget, quality or outcomes based (i.e. goals to be achieved or strategic positions to be attained)
- Tier 5 – The project is a success if the product produced by the project creates significant net value for the organization after the project is completed.

Brocke *et al.* (2009) made an in-depth analysis and summary of various sources from the literature. Findings from their study suggest that the top 4 most critical success factors includes : effective top management support, effective project management, change management and effective project team communications as shown in Table III.

Furthermore, the Standish Group International (2010) cited the top ten (10) most contributing factors towards project success to be; top Management support, user Involvement, clear business objectives, emotional maturity, optimization, agile process, project management expertise, skilled resources, tools and good IT infrastructure. Moreover, top management support has been shown to be the important factor for IT project success (Coley, 2007; Boettcher, 2007; Young & Jordan, 2008).

IT project failure occur when the IT system does not deliver what is required, in line with expectations, within the expected time and expenditure (Standish Group

International, 2013; Beals, 2012). Other indicators of failure are (Flowers,1996):

- When the system as a whole does not operate as expected and its overall performance is sub-optimal;
- If, on implementation, it does not perform as originally intended or if it is so user-hostile that it is rejected by users and underutilized;
- If, the cost of the development exceeds any benefits the system may bring throughout its useful life
- Or due to problems with the complexity of the system, or the management of the project, the information system development is abandoned before it is completed.

The key reasons for ICT project failure includes; lack of project management expertise, ineffective leadership style, lack of support from the IT department, changed user requirements, and the project size and complexity (Huang et al. 2004; Gottschalk and Karlsen 2005).

Coley (2007) pointed out the three most critical failure factors which they believe contribute to IT project management failures to be as follows;

- Planning and Estimation factor
This factor refers to initial cost and schedule estimates are not revised when more information becomes available as a project progresses. Also plans are not used correctly or used to guide the project forward, thus causing the project to fail.
- Implementation factor
This is caused by project scope changes, incorrect use of project methodology, major changes in the requirements and testing, and/or inspections are poorly done.
- Human factor
Project managers are not trained to acquire the necessary management skills. Also, some managers are not able to apply and put the theory of project management into practice. Poor communications are also one of the human factors that cause a project to fail.

Al-Ahmad (2009) suggested that the root causes of IT project failures could be categorized in to 6 generic types:

- Project management factors
- Top management factors

- Technology factors
- Organizational factors
- Complexity/ size factors.
- Process factors

Ibrahim *et al.* (2013) categorized IT project failure factors as follows:

- Factors related to project: Size and value, Uniqueness of project activities, Density of a project, Life cycle and Urgency.
- Factors related to the project manager: Inability to delegate authority, inability to trade off, inability to coordinate, Perception of his role and responsibilities and incompetent Commitment.
- Project team members: poor technical background, poor communication, weak trouble shooting and Commitment
- Factors related to the organization: Lack of top management support, weak project organizational structure, lack of functional managers' support and Project champion.
- Factors related to the environment: Political environment, Economic environment, Social environment, Technological environment, Nature, Client, Competitors and Subcontractors.

Furthermore, project failure factors can be associated with the following “Early Warning Signs (EWS) (Kappelman *et al.*, 2006) :

- People related: This include
 - Lack of top management support,
 - Weak project manager,
 - No stakeholder involvement and/or participation,
 - Weak communication of project team,
 - Team members lack of requisite knowledge and/or skills
- Process related: This include:
 - Lack of documented requirement and/or success criteria,
 - No business case for the project,
 - No change control process,
 - Ineffective schedule planning and/or management,
 - Communication breakdown among stakeholders and resources allocated to a higher priority project.

According Bentley and Whitten (2007), the most critical factors that could harm the IT project outcome must belong to some of the following factors:

- Lack of top management commitment to the project,
- Poor user commitment,
- Inadequate user involvement,
- Requirements not well understood, failure to manage the expectation of users,
- Changing scope,
- Lack in skills, new technology,
- Insufficient Staffing,
- Lack of organizations' commitment to a systems development methodology,
- Poor estimation techniques,
- Inadequate people management skills,
- Failure to adapt to business change and failure to manage the plan.

3. Methodology

In the present study, we employed a qualitative research method in the selection and interview of at least 20 IT managers who had previously participated in ICT projects executed and completed in Botswana between 2010 and 2014. Some of the projects were adjudged very successful while some were not. The selected participants were involved in at least one of these IT projects from the beginning to the end. This is meant to get their experiences, beliefs and feelings about the success or failures of Botswana ICT projects. We restricted the survey to a population of IT senior managers, thus, IT chief officers, IT project managers, IT team leaders drawn from ICT industries based in Gaborone- the commercial hub city and capital of Botswana; and hence the locality of major IT companies in the country.

The participants were interviewed using the same research tool regardless of being public or private sector. However, the organizations selected had genuinely perceived the significance of integrating IT systems both in their business processes and the way they deliver their services and products. The fact that the study is qualitative makes it essential for reliability and validity tests of the interview instrument. An initial pilot test is done using 8 participants from the department of Computer science to ascertain the readability, flow and the aim of the instrument. The second pilot test is done using 3 industry practitioners. Finally, valuable feedback

from this pilot studies were employed in the design and structuring of the interview instrument.

4. Botswana ICT Project Success/Failure Factors

A contemporary dispensation of project management takes into account issues of procurement, ethics, stakeholder expectations, communication, integration, and other equally important parameters that all add up to what could be termed "project critical success factors". Botswana aspires to implement a set of project critical success factors in order to address the completeness within which government-funded projects (Maruapula, 2007).

Nkwe (2012) suggested that the government of Botswana should play a leading role in developing the ICT infrastructure as this is a requirement for successful e-government implementation. This will insure that the nation's internet backbone and the International Gateway are managed effectively. Further, the government supports the development of fibre-optic network for efficient broadband communication, and hence reduce the rates for internet access through ISPs (Alshehri & Drew, 2010). This way, the government is creating an enabling environment for the adoption of ICT in everyday lives of its citizens as this is the start-point of e-government.

Apart from the already outlined project success factors, it is suggested that crucial project rationalization and optimization be done from the start. This should entail the realistic planning and anticipation, coordination, communication and leadership attributes of chief project leaders and the project management structures adopted by the organization to nature ICT project success (Maruapula, 2014).

To achieve successful implementation of IT projects in Botswana, Nkwe (2012) suggests that the project must be acknowledged and supported by all stakeholders for successful implementation. Busani (2015) further suggested that the contributing factors which are key to the success of any project in Botswana include proper project planning and risk management.

There are a number of cases of failed IT project in Botswana. One of such cases is the MALEPA system. MALEPA system is a web based examination programme intended to process and release the Botswana General Certificate of Secondary Education (BGCSE), Junior Certificate Examinations (JCE) and Primary School Living Examination (PSLE). MALEPA system

experienced technical problems and quality is compromised to keep alignment to the product schedule constraints. The 'contraption' is installed only two months prior to the release of the candidate results (Kayawe, 2012). Hence the consultant, who designed the programme, allegedly skipped the testing stage and went on to the implementation stage (Ontebebe, 2013).

According to Ontebebe (2013) the new web based system is riddled with errors which could have been detected at the testing stage. This resulted in Botswana Examination Council paying the consultant more than P40 million to "fix the system now and again" instead of the P1.7 million that it had budgeted for the tender. The reason behind the MALEPA system failure factors is all articulated to the poor estimation techniques, poor project planning, poor project consultancy and failure to manage the changing scope.

Another failed project is the Livestock Information Technology System Agricultural project (LITS). The failure is attributed to poor understanding of user requirements, and poor management factors. The contractor hired to maintain the equipment used for LITS activities such as bolus insertion, cattle movements and change of ownership permits did not deliver the required quality service to Botswana government. Serviced equipment is not accompanied by a test report, making it difficult to establish if the repaired equipment is fully functional (Tabane, 2011). The consequences of the failed project is a critical loss in government revenue from Beef. Botswana Meat Commission projected a half billion Pula loss in revenue for the first three quarters of 2011 and an almost 50 percent drop in throughput from 187,000 head in 2010 to less than 100,000 head in 2011. According to Tabane (2011) government value for money is a concern after another P137 million and a P23 million is spent on the development budget and pilot project, respectively. The Department of Veterinary Services management is blamed for the LITS IT project's failure

Furthermore, Botswana Telecommunication Communication (BTC) billing system is a failed project due to improper project planning techniques and failure to adapt to business change factors (Mokgoabone, 2004). The BTC group lost market share due to the subsequent entry of mobile operators in 2000 and the billing system introduced created doubts which also tarnished the BTC image. According to Mokgoabone (2004), the appointment of the IDI consultancy firm followed the purchase of the controversial P60 million billing system, which led to customer exodus and the substantial losses that the company experience. The market share losses were

exacerbated by the liberalisation of the telecommunication industry in 1998, which led to the entrance of two mobile phone operators in the market. This compelled the BTC group to adopt a multi-million pula restructuring exercise,

which involved the retrenchment of about 600 employees from the corporation. . Tables 2, 3 and 4 show the summary of factors responsible for project success and failures respectively.

Table 2. Summary of Issues of project management success

Issues	Description	Activities
Project focus	Time, budget and quality.	Focused on achieving these broad goals.
Planning	Engage in planning – detailed and systematic.	Planning and re-planning
Sense of urgency	Limited time, money, and other resources.	Regular status checks, meetings, and reminders are essential.
Use a time-tested, proven project life cycle	Use standard models to build into project plans.	Identify the best project life cycle.
Visualised and communicated in vivid detail	Avoid vague descriptions.	Focused in the same direction.
Evolve gradually to succeed	Involvement of users in cost and time estimation and risk Management	Maintain a controlled evolution.
Clear approvals and sign-off by Sponsors	Clear approval points.	Examine and approve.
Fight for time to do things right	Do it right the first time.	Demonstration and why it is necessary?
Matched by equivalent authority	Project outcomes.	Acquire and coordinate resources, request.
Project sponsors and stakeholders must be active participants, not passive customers	Most project sponsors and stakeholders rightfully demand the authority to approve project deliverables, either wholly or in part.	Helping to define deliverables. Keeping the project moving.
Acquire the best people	Get the most skilled, experienced and best qualified	Identify the right team members.
Actively set priorities	Strategies, establishes criteria	Choose the right leader to prevent multi-project log jams.

Source: (Coley 2007; Boettcher, 2007)

Table 3. Summary of critical success factors in IT projects

Success Factor / Reference	(Thite 2000)	(Hyväri 2006)	(Turner 2004)	(Collins 2007)	(Baccarini et al. 2004)	(Teo and Ang 1999)	(Ashrafi and Hartman 2002)	(Legris and Colletette 2006)	(Tesch et al. 2007)	(Kauppinen et al. 2004)	(Nah and Delgado 2006)	(Loonam and McDonagh 2005)	(Kappelmann et al. 2006)	(Fui-Hoon Nah and Lee-Shang Lau 2001)	(Mendoza et al. 2006)	(Plant and Willcocks 2007)	Sum
Top management support				X	X	X	X	X	X	X	X	X	X	X	X	X	12
Project management			X				X			X	X	X	X	X	X	X	9
Change management							X		X		X	X	X	X	X	X	8
Communication			X			X	X				X		X	X	X	X	8
Management of requirements				X				X	X	X			X		X	X	7
User training, education and support						X		X		X		X			X	X	6
Project team composition, skills, & commitment									X		X		X	X	X	X	6
Resources								X	X			X	X			X	5
Business process reengineering										X		X		X		X	4
Stakeholder involvement										X			X		X		3
Project champion												X		X		X	3
Management of expectations					X				X							X	3
Software development, prototyping and testing				X										X			2
Business plan and vision											X			X			2
Commitment		X														X	2
IT function capabilities						X					X						2
Technology and technical issues					X										X		2
Use of consultants												X				X	2
Cultural change										X							1
Leadership style	X																1
Cooperation																X	1
Vendor capabilities																X	1
Security strategy															X		1
Outsourcing management															X		1
Implementation strategy															X		1
Sum	1	1	2	2	3	4	4	4	6	7	7	8	8	9	12	15	

Source: Brocke et.al (2009)

Table 4. Summarized IT failure factors from literature

Iyer & Jha, (2006)	Tsun Chow & Dac-Buu Cao (2007)	Yeo (2002)	Wong & Scarbrough (2005)	Yongyi Shod & Ying Ying, (2005)	Kaur; Aggarwal & Singh (2004)
Conflict Among Project Participants	Lack of executive sponsorship	Underestimate of timeline	ERP system misfit	Weak definition of requirements and scope	Poorly stated project goals
Project Manager's Ignorance	Lack of management commitment	Weak definitions of requirements and scopes	High turnover rate of project team members	Reactive and not proactive in problem solving	Poor project team composition
Hostile Socioeconomic Environment	Organizational culture too traditional	Inadequate project risk analysis	Poor consultant effectiveness	Poor or lack of business process reengineering	Lack of project management and control
Owner's Incompetence	Organizational culture too political	Incorrect assumptions regarding risk analysis	Poor IT infrastructure	Underestimate the gap between technology and ability	Little technical know-how
Indecisiveness of Project Participants	Organizational size too large	Ambiguous business needs and unclear vision	Poor knowledge transfer	Unrealistic expectation of the information system	Poor technology base or infrastructure
Harsh Climatic Condition at Site	Lack of agile logistical arrangements	Lack user involvement and inputs from the onset	Poor project management effectiveness	Ineffective internal communication	Lack of senior management involvement
Project Specific Factor	Lack of necessary skill-set	Top down management style	Poor quality of Business Process Reengineering	Involvement of high degree customization	
Project manager's ignorance and lack of knowledge	Lack of project management competence	Poor internal communication	Poor quality of testing	Organizational rigidity and bureaucracy	
Aggressive competition during tender stage	Lack of team work	Absence of an influential champion and change agent	Poor top management support	Insufficient authority of the project manager	
	Resistance from groups or individuals	Reactive and not pro-active in dealing with problems	Too tight project schedule	Lack of support from middle-level function managers	
	Bad customer relationship	Consultant/vendor underestimated the project scope and complexity	Unclear concept of the nature and use of ERP system from the users perspective		
Ali-Mohammad (2007)	Nasir & Sahibuddin (2011)	Winters (2003)	Marchewka T. (2006)	Garg, (2010)	Umble (2003)
Lack of commitment from organizational top management to support IS/IT projects	Support from top management	Lack of User Involvement	Incomplete requirements	Lack of top management commitment	unclear Goals

General senior management's lack of knowledge about structures and functions of IS/IT	User/client involvement	Long or Unrealistic Time Scales	Lack of user involvement	Poor middle management commitment	top management commitment
Conflicting decentralized decision-making systems in organizations for IS/IT projects	Committed and motivated team	Poor or No Requirements	Lack of resources	inadequate functional requirements	poor Project Manager
Cultural issues in acceptance and making proper use of IS/IT systems in organizations	Unclear requirements and specifications	Scope Creep	Unrealistic expectations	Over-reliance on heavy customization	Organizational resistance
Lack of expertise in terms of project management and IS/IT knowledge & techniques	Unrealistic schedule	No Change Control System	Lack of executive support	Inaccurate data	inadequate training
Conflicting goals and miscommunication between department managers and project managers	Unfrozen requirement	Poor Testing	Changing requirements & specifications	Poor quality of testing	poor team
Overlaps of planning, design, implementation, controlling and operation phases in IS/IT projects	Inadequate resources		Lack of planning	Poor consultant effectiveness	wrong Data
Dysfunctional implementation & operation phases in IS/IT projects	Poor quality management		Didn't need it any longer	Poor IT infrastructure	technical difficulties
Long term investment to reach economic efficiency	End-user training provision		Lack of IT management	Users' resistance to change	
Lack of expertise in terms of project management and IS/IT experience	Supporting tools and poor infrastructure		Technology illiteracy	High Attrition rate of project team members Inadequate resources	

Source: Ibrahim *et al.* (2013)

5. A Framework for Assessing ICT Project Success/failure in Botswana

IS = Procedures | Data | Network | Hardware | Software | People | Organization (1)

A model for an Information System (IS) is defined in Mphale (2016) as:

Equation (1) may be refined to

$$IS = \text{Information} \{ \text{Procedures} + \text{Data} \} + \text{Network} + \text{Hardware} + \text{Software} + \text{People} + \text{Organization} \quad (2)$$

Incorporating other IS components in equation (2):

$$IS = \text{technology} \{ \text{Information} + \text{Network} + \text{Hardware} + \text{Software} + \text{People} + \text{Organizational issues} \{ \text{Organization} \} + \text{Human resource} \{ \text{People} \} \} \quad (3)$$

Using this model, a metric model is developed in Mphale (2016), and a framework for assessing ICT project success based on the model is shown in figure .

6. Result and Discussion

6.1 Factors Contributing to ICT/IT Project Success in Botswana (research question a, b)

The respondents indicated the project success factors embedded in IT projects they have been involved in to be;

- The ability to address technological and technical issues
- The IT capability or functionality
- Effective implementation strategy
- The ability of the IT to solve the problem it is intended to solve
- User training, education and support
- Effective project team commitment
- Empowerment
- Requirements management

The participants strongly believed that the factors are important and valid factors for the success of Botswana IT projects. Respondents views above agree with success factors already suggested by Wateridge, (1995); Thomesett, (2002); Horine, 2005; Hastie, 2006; Standish Group International, (2010); Nkwe, (2012). However some of the studies outlined high impact factors that contradict critical success factors (Zink, Steimle and Schroder; (2008)

It should be noted that most of the dominant success key factors established in the context of Botswana are not on the managerial side, but most of them come from the technical perspective. The results could be closely related to the success factors identified by Nkwe (2012).

6.2 Factors Contributing to ICT/IT Project Failure in Botswana (research question a, b)

Respondents indicated that the prime failure factors in project include:

- IT system inability to solve problem(s) that is intended to solve
- Use of consultants
- Poor project management
- No commitment
- Lack of top management support
- Violated budget constraints
- Poor leadership style
- Lack of stakeholder involvement.

These agrees with the suggestions of Bentley & Whitten, (2007); Al-Ahmand, (2009); Nasir and Sahibuddin, (2011) . The other prime failure factor that all respondents were in agreement with is the lack of commitment from the project team. Respondents indicated that lack of commitment from the project team and senior management had been the main factor contributing to failures in their projects recently. In addition, the use of consultants also is a principal factor that contributes to project failures in most organisations. Although this contradicts views concerning failure factors outlined in literature, some studies in Botswana have poor consultancy among the failure factors (Tabane, 2011; Ontebetse, 2013).

The findings of this study clearly indicate that the respondents are fully aware of the project failure factors; but fulfilling other projects requirements is not that important in their opinion. Most of the participants agreed that the product should be developed according to users' and not to customer's requirements. Hence, the negligence of fundamental elements by the project management society in Botswana could be an indication of the fact that this society has forgotten altogether the principles of the profession. If this turns out to be the case, a revolutionary movement is required to change the entire mind-set of project management profession in Botswana.

6.3 Project Managers Experience on the Success or Failure of ICT Projects in Botswana (research question c)

During interviews, participants from all the organizations agreed that project manager's experience is one of the principal factors that can inspire the project success or

failure outcome. When emphasizing on successful projects, respondents indicated that a successful project manager should have acquired technological skills, domain expertise, and vast experience – including overall IT experience as well as project management experience. The findings of this study clearly suggest that project managers who are less experienced, and who have not been involved in the a good number of projects, and have relatively spent few years in senior management position are likely to deliver less successful projects. This is affirmed by Ibrahim *et al.* (2013) in their studies that project failures are associated with lack of requisite knowledge and experience by project managers.

It is also commonly agreed by participants that most of the unsuccessful IT projects are the ones that were allocated big budgets and a run for a longer period of time. This is beyond most project manager's level of experience and hence a main contributor to project failure. Interviews also revealed that participants found it difficult to categorize a measure of success. Their stated value of project success is different from the metric model success value. In this case senior managers affirmed that they did not use any measuring tool but relied on the project metrics of time and budget to evaluate the success measure.

The researcher is quick to note that this could not be used to criticize the project management expertise nor the experience of the project manager in delivering successful/failing projects. Nevertheless, it is due to lack of consensus in the use of a common value of the success/failure measure which clearly signified that the existing system for evaluating and measuring the value for the success/failure of IT projects is ineffective. Therefore it needs further development and improvement.

6.4 Top Management Support on the Success or Failure of ICT projects in Botswana.(research question d)

Respondents agree that top management support can positively inspire IT project success (research question d), this is not so evident in most of the successful projects in Botswana. However, most participants stated that even though top manager's support is not much of an influence, other project management success strategies like fostering team commitment, developing project management procedures and empowerment support processes projects needs and requirements. Examining top management influence towards the failed projects (research question d), participants indicated that lack of top management support is the key factor that contributed

to the failure of most projects they had been involved in. For instance, the cases where the top management did not see the benefit of the IT system to the organization/business gave such projects low priority in terms of resource allocation. McKeeman and Zhang (2006) also found similar results in their study when they argued that top managers can become an ultimate project failure factor.

In general, participants are aware of the effect of top management support towards project success/failure outcome. However, most of them preferred to ignore it, but depended on other supportive processes they believed could lead to the project success. Therefore, this resulted in most of the ICT/IT project failing.

6.5 Conclusion and Recommendation

Based on the findings of this study, the following recommendations and framework are suggested for successful ICT projects:

- Top management support when/where necessary.
- Definition of clear, realistic project goals
- Top management should have an insight in applying different top management support processes to a particular industry and culture.
- Project Managers must be adequately trained to deliver more successful IT projects
- Users must be involved in every stage of the project life cycle.
- There is need for project managers to understand and apply metric tools in assessing and evaluating project outcomes.

6.6 Future work

The future scope of this study should include:

- Conducting a similar study with larger samples involving more ICT/IT projects in Botswana, and increasing the number of professionals to be interviewed
- Conducting similar study in different industrial projects (other than ICT/IT projects) in order to understand the impact of project management in Botswana across multidiscipline.
- Expanding the features and functionalities of the project metric model to include graphics and prediction capabilities

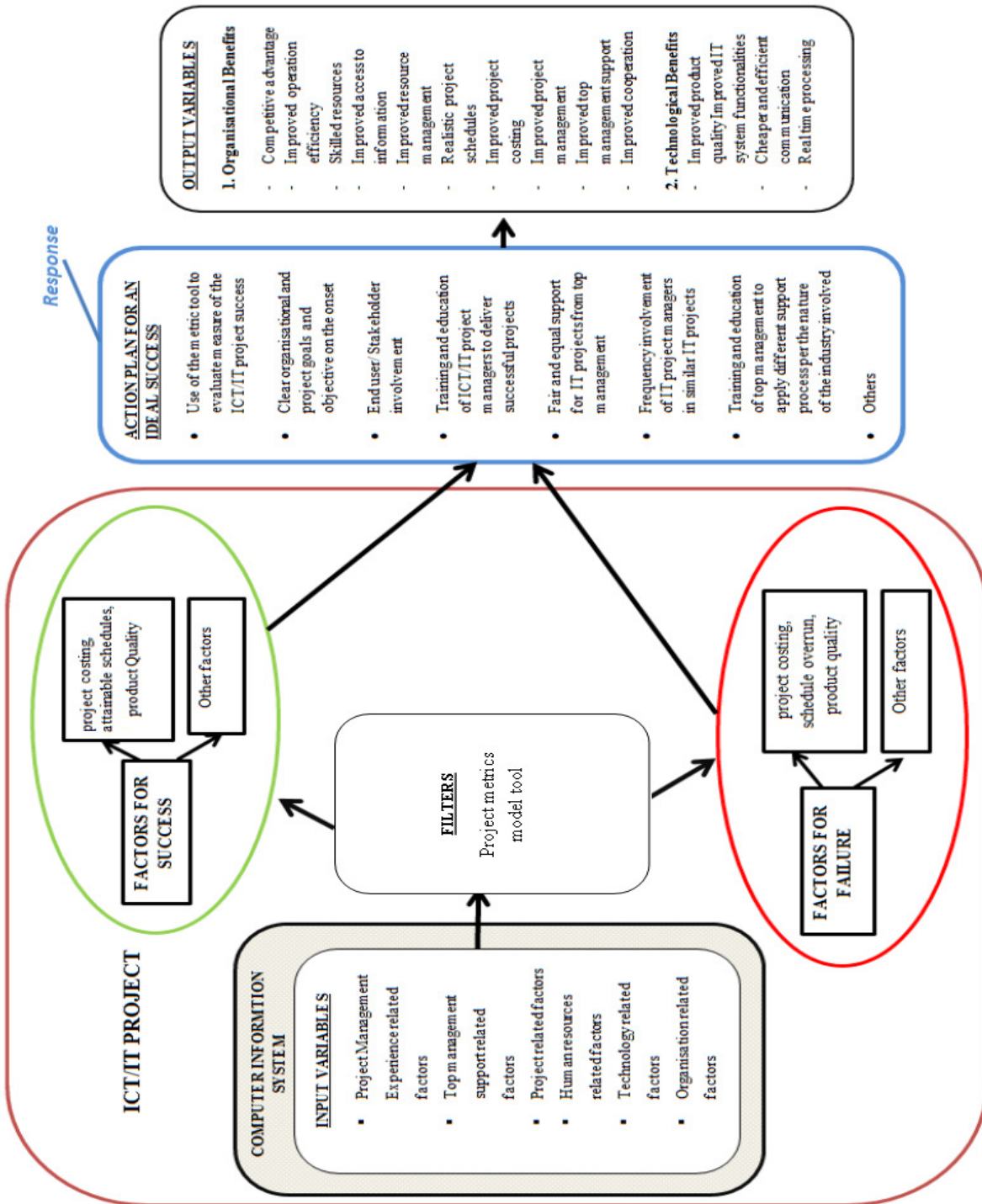


Fig. 1: A Framework for ICT/IT project success in Botswana

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