

THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

Effect of Resource Management on Implementation of Projects in Telecommunication Companies: A Case of MTN Foundation Project in Rwanda

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Abstract:

This study aimed at ascertaining how resource management influences implementation of projects in the telecommunication companies in Rwanda with a deliberate focus on the Global System of Mobile Communications (GSM) companies in Rwanda. The study specifically sought to assess the effect of the four facets of resources (Human resources, financial resources, time and technology) with regards to project management in telecommunication companies in Rwanda and to reveal the influence of appropriate resource management on successful project implementation. The four main objectives of the study were to determine the influence of human resource management, financial management, time management and technology management on implementation of projects in telecommunication companies in Rwanda. The study adopted a descriptive survey design. The target population for this study comprised of 110 respondents which included 12 project managers, 30 engineers, 26 IT managers, 3 finance managers and 36 project team members from MTN involved in the day to day running of projects. Stratified random sampling was used to determine the sample size whereby 86 project team members were selected. The study used both primary and secondary data, where questionnaires was used for data collection. The questionnaires were hand-delivered to the respondents within reach and emailed to those who could not be reached within the appointed time. The responses were collected and emailed at an agreed date. Instrument's validity was checked by use of content validity and research instrument's reliability done using split half technique that obtained a coefficient of 0.869. Data was analyzed through organizing responses in the themes as per the objectives of the study. Descriptive statistics was used to show the trend between the variables. Frequency tables, Chi square tables and percentages were used to describe, organize and summarize collected data. The variables were subjected to correlation analysis and the Software Package for Social Sciences (SPSS) was used to analyze data. The ethical issues related to the study were addressed by maintaining a high level of confidentiality of the information given by the respondents. The study found that awareness on importance of resource management is carried out among telecommunication companies in Rwanda and that the four facets of project resource management (Human, Financial, Time and technology) to a great extent influence. All the factors had a significant p-value ($p < 0.05$) at 95% confidence level. The significance values for relationship between Human resource management, Technology management, Financial resource management and time resource management were 0.018, 0.031, 0.024 and 0.046 respectively. The study also revealed that technology is still poorly managed as a great percentage of the respondents indicated that databases are managed manually and project management software are put to little use. The study recommended that the management should be realistic about the project scope, timelines and resources and in turn offer their support throughout the project life cycle to ensure projects succeed. The study also recommended that telecommunication companies in Rwanda invest more in project management software and also offer quality training to turn around the success rate of projects to admirable levels.

Keywords: Resource management (human, financial, time and technology), global system of mobile communications (GSM)

1. Background

Globalization of market economies has urged corporations in all sectors to concentrate on maintaining a sustainable competitive edge which is directly related to the upkeep of quality both in terms of services as well productivity (Kumar et al. 2014). This is only possible if an organization engages in operations or produces products that are able to effectively compete in the market. Bearing in mind the nature of the current market is characterized by ever stiffening competition and ever changing customer expectations and demand, an organization must come up with unique competitive strategies and produce goods and services that continuously meet and

exceed these demand and expectations (Salaheldin, 2008). One of the management approaches that can be used to achieve successful implementation of project is resource management. It is the coordination of efforts directed at improving customer satisfaction, increasing employee participation, strengthening supplier partnerships, and facilitating an organizational atmosphere of continuous quality improvement (Pride, Hughes, and Kapoor 2009, 181).

Project Management Institute (PMI) through their Project Management Body of Knowledge (PMBOK) methodology of project management defines Resource Management as the efficient and effective deployment and allocation of an organization's resources when and where they are needed. Such resources may include financial resources, human skills or information technology (Oktaba, 2008). Resource management is a key element to activity resource estimating and project human resource management (Gruneneboom, 2012).

In most developed countries, many organizations like Vodafone in the United Kingdom use professional services automation software tools to make resource management tasks more efficient and effective. The automated tools may include timesheet software and employee time tracking software, which calculate skill sets, experience and workload in selecting the most skilled employee in an organization to handle any specific project. The use of automated tools in efforts to effectively and efficiently manage resources has put Vodafone ahead of many Global System of Mobile Communications (GSM) companies globally as this has enabled the organization to forecast future staffing requirements prior to project implementation (MTN, 2012).

Morris (2002) suggested that a research carried out at Oxford and in the USA in the 1980s showed that many of the factors that cause projects not to meet their schedule or cost targets are not covered by the PMBOK type model. He went on to say, "Much of the PMBOK material is helpful in managing projects, but is not sufficient to manage them successfully. This should be no surprise as focusing on execution alone, without due consideration to context and strategy, will invariably lead either to inappropriately selected objectives or in optimal strategies for accomplishing them. The Standish Group 2004 Report indicated that the main reason for project failure (in developed countries) is not the absence of general resources or financial resources, but the lack of Project management capability (Malan et al, 2007). Further, in the developed countries external conditions such as market & politics are less important for the success of projects (Torp, Austeng, & Jekale, 2004).

The GSM community in Africa is still struggling with best practices to be adapted for effective and efficient management of resources as the benefits associated with it are slowly penetrating the African market. With reference to ilearn module (2010), Mobile Telephone Network (MTN) Nigeria which is one of the leading GSM companies in Africa pointed out that poor resource management was one of the leading causes of massive project failure during their major rollout in 2003. This forced them to undergo a major organization change and system overhaul in order to manage their rollout projects better. The trend has since not died as many organizations are slowly considering the use of professional services automation software tools to make resource management tasks more efficient and effective and MTN Rwanda is not an exception.

Projects in developing countries are highly influenced by their external environment (Jekale, 2004). Moreover, the project environment in many developing countries is unstable and characterized by rapid change of markets, shift of funding sources, frequent change of government policies and the business environment. In addition, projects in those countries are affected by prevalence of corruption, war, drought and governments political priorities (Alutu & Udhawuve, 2009). For example, in Nigeria, the cost of construction materials was reported to have shown a 400% increase over a period of two years because of change in government policies (devaluation of its currency and inflation) (Sonuga et al, 2002). The presence of only three PMI chapters in Africa countries attest to the value and attention given to project management in developing countries. Further, according to (Nguyen, 2007), many of the efforts to transfer project management knowledge and technology to developing countries were not successful mainly due to: lack of support of senior management and a perception that project management methodology is not applicable in developing countries.

Technology is a major force in this radical transformation that has led to breaking the geographical, legal and industrial barriers and has created new management tools and services (Hibberd, 2007). Resource management has equally been part of the technological transformation in efforts to plan, schedule, and control costs, manage budgets and human resources. The telecommunication industry which the GSM companies are a part of is always at the center of these technological changes, hence projects in GSM companies have in the past frequently encountered highly uncertain and changing environment. To deal with environment change projects have had to be rescheduled dynamically, and related resources rearranged according to the changing environment in order to achieve the ultimate target of the project (MTN 2012). For this reason, there is an increasing demand for proper resource management to achieve project objectives hence the increasing research and investment in resource management.

The deliberation of seeking solutions of resource management and heavy investment in proper ways of managing resources have also been driven by a worrying trend of failing projects especially among GSM companies that in turn waste resources and leave companies with great losses. Idoko (2008) noted that many projects in developing countries encounter considerable time and cost overruns, fail to realize their intended benefit or are even totally terminated and abandoned before or after their completion"

The number of project failure cases frequently far exceed that of successful cases (Frimpong et al. 2003). One of the major causes for project failure is inability to control and manage the project resources as this usually leads to project delay and cost overrun. The interest of this research in the telecommunication industry was motivated by the industry's significant contribution to the economy of many developing countries and the critical role it plays locally in the Rwandan economy. Many factors have been proposed to influence successful implementation of projects in the telecommunication industry with little attention given to the contribution of resource management. Recent research however suggests that the majority of projects still fail. As projects are increasingly being implemented widely in the telecommunication industry, it is therefore vital to identify how proper resource management can contribute to the successful implementation of projects.

MTN Foundation is a programme that spearheads projects under the MTN umbrella. It is through this programme that various development projects are funded. MTN foundation has got projects that are designed to spearheads the corporate social responsibility in the society. The project was inaugurated in 2010, and has been operational since then enabling many people to adopt ICT in Rwanda. Ever since inception the resource management has been an issue and that led the researcher to carry out the research on the influence of resource management on the implementation of telecommunication companies in Rwanda.

1.1. Statement of the Problem

Implementation of most projects in developing countries is amalgamated with normal operational undertaking in functional organizations that have low project management capacity (Jekale, 2004). Further, corruption has become a challenge complicating project management in those countries (Andersen, 2008). The current knowledge on this subject is inadequate in relation to understanding the factors enabling the success of projects in different organizational conditions. Companies increasingly use projects in their daily work to achieve company goals. There is a growing need for competent project management in various business organizations, (Crawford *et al.*, 2006).

Jekale, 2004 summarized that "Poor support infrastructures, low level of technology, low capacity of implementing institutions, unreliable communication, poor and protracted documentation, high turnover of leadership and workmen, low level or absence of accountability and transparency, and long and tedious formal decision making procedures are typical conditions in developing countries which complicate project management. To date, there are still many examples of projects exceeding their budgets, running late or failing to meet other objectives (Frimpong *et al.* 2003). Zwikael and Globerson (2006) also pointed out that project failure is still very high and called on project managers to act on specific areas of failure to enhance project success.

In Rwanda project implementation has been an issue most especially where resources are allocated but projects end up not implemented on time as noted by Wanderi *et.*, al 2015. In MTN Rwanda, MTN foundation was started to benefit the society but the projects don't meet deadlines with implementers indicating mismanagement of resources. In year 2012 the project under MTN foundation to provide laptops to school was halted due to mismanagement of resources (MTN, 2012). In an attempt to find a solution to this excruciating problem, this research aims to fill the gap by presenting results from surveys undertaken in the telecommunication industry and specifically the GSM companies regarding the contribution of resource management. This study therefore, seeks to identify how resource management influences project implementation. The framework is expected to be tested empirically using data from MTN in Rwanda namely which have been in operation for a considerable number of years.

1.2. Objectives of the Study

1.2.1. General Objective

The general objective of the study was to investigate the effect of resource management on the implementation of projects in telecommunication companies in Rwanda.

1.2.2. Specific Objectives

The specific objectives of the study were:

1. To determine the influence of human resource management on implementation of projects in telecommunication companies in Rwanda.
2. To establish the influence of financial management on implementation of projects in telecommunication companies in Rwanda.
3. To investigate the influence of time management on implementation of projects in telecommunication companies in Rwanda.
4. To assess the influence of technology management on implementation of projects in telecommunication companies in Rwanda.

2. Literature Review

2.1. Conceptual Framework

Mugenda and Mugenda (2003), define a conceptual framework as a hypothesized model identifying the concepts under study and their relationships. In this framework, there are certain facets of resource management that influence implementation of projects in telecommunications companies in Rwanda. For this study, five facets; Human resource, financial resource, Time resource and Technology resource are considered as the independent variables. Successful Implementation of Projects in telecommunications Companies in Rwanda is the dependent variable that is affected by the independent variables. The resource management facets influencing implementation of projects in telecommunications companies in Rwanda have been reflected as illustrated in Figure 1:

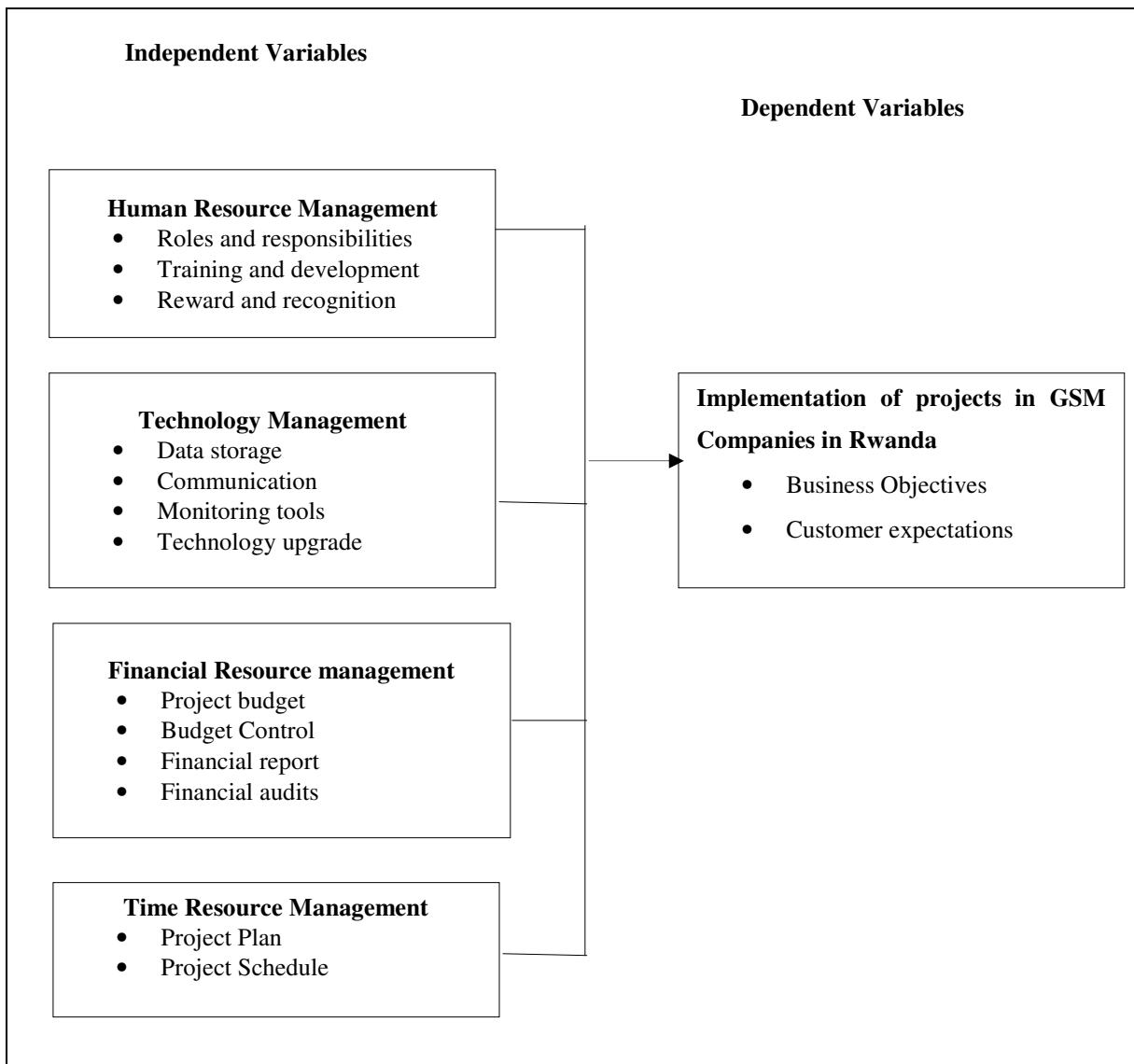


Figure 1: Conceptual Framework

3. Research Design

This study adopted descriptive research design. A descriptive study is a study concerned with describing the characteristics of a particular individual or of a group (Kothari, 2004). This design method squarely fits the topic at hand by describing the influence of resource management and its impact on implementation of projects among telecommunication companies in Rwanda. According to Mugenda and Mugenda (2003) the purpose of descriptive research is to determine and report the way things are and it helps in establishing the current status of the population under study. The design was considered for this study due to its ability to ensure minimization of bias and maximization of reliability of evidence collected. Furthermore, descriptive survey design raises concern for the economical completion of the research study. The method is rigid and focuses on the objectives of the study (Gay, 2011).

3.1. Target Population

Population is defined as the total collection of elements about which we wish to make inferences (Cooper & Schindler, 2003). Mugenda and Mugenda, (2003), explain that the target population should have some observable characteristics, to which the researcher intends to generalize the results of the study. The target population of this study comprised of 110 respondents from MTN Rwanda.

3.2. Sample Size and Sampling Procedure

Sampling is defined as the process of selecting a number of individuals for a study in such a way that they represent the larger group from which they are selected (Mugenda & Mugenda, 2003). A sample size of 86 respondents was determined from a total population of 110 individuals using the formula by Yamane (1967). Stratified random sampling technique was used to select the project team members. Stratified random sampling technique ensure that different groups of a population are adequately represented in the sample. Stratified sampling divides the population into homogeneous groups such that the elements within each group are more alike than the elements in the population as a whole (Nachimas & Nachimas 2008).

$$n = \frac{N}{1 + N(e)^2}$$

Where n = the desired sample size

e= probability of error (i.e., the desired precision, e.g., 0.05 for 95% confidence level)

N=the estimate of the population size.

$$n = \frac{110}{1 + 110(0.05)^2} = 86$$

The sample size of included 10 project managers, 23 engineers, 26 IT managers, 5 finance managers and 28 project team members from MTN involved in the day to day running of projects. The sample frame for this study is shown in the Table 1

Area of Operation	Population	Proportions
Project managers	12	10
Project team	36	28
Engineers	30	23
IT managers	26	20
Finance managers	6	5
Total	110	86

Table 1: Sampling Frame

4. Research Findings and Discussion

4.1. Human Resource Management and Project Implementation

Project management involves the allocation of various resources including people, materials, equipment, knowledge and time resources to achieve the project objectives. This is a team work activity and the researcher sought to find out the influence of human resource management on implementation of projects in telecommunication companies in Rwanda. To achieve this, people (an essential element which forms a major concern of project management) and their roles, appointments, responsibilities, trainings, motivations and performances were assessed. The findings are presented as follows.

Factor	Variable	Frequency	Percentage
In MTN foundation projects awareness on importance of Human resource management is considered essential	Yes	73	91.3%
	No	7	8.7%
In MTN foundation projects appointments are done based on skill requirements	Certain extent	57	71.7%
	Large extent	23	28.3%

Table 2: Importance of human resource management and extent to which role appointments are based on skill requirements of the project position

Table 2 shows that most of the respondents agreed on the existence of awareness on importance of human resource management at 91.3% (73) while a mere 8.7% (7) were not in agreement on the same. 71.7% (57) indicated that role appointments are to a certain extent done based on skill requirements of the project position while 28.3% (23) specified that it was done to a large extent.

Since resources are typically limited, resource allocation plan is always important in managing the scarce resources effectively to achieve the project's objectives. The recognition of people (project team) as the important resource to a project is not in vain.

This is because projects sometimes usually require expertise depending on the milestones to be delivered. Proper management of this resource, in tandem with other resources such as time is critical to the overall success of the project. It is usually said in project management that the people and not the processes and techniques are critical in the successful implementation of projects.

Factor	Variable	Frequency	Percentage
In MTN foundation projects roles and responsibilities of project team members clearly defined and communicated	Strongly disagree	7	8.7%
	Neutral	5	6.5%
	Agree	68	84.7%
In MTN foundation projects members usually receive adequate and relevant training aligned to market needs	Disagree	5	6.5%
	Neutral	10	13%
	Agree	65	80.4%
Existence of incentive plan to motivate members is always a key consideration in MTN foundation projects	Disagree	26	32.6%
	Neutral	21	26.1%
	Agree	33	41.3%
In MTN foundation projects performance of team members are tracked regularly and feedback provided	Yes	56	69.6%
	No	24	30.4%

Table 3: Human resource factors

Table 3 shows that majority (84.7%) of the respondents agreed that the roles and responsibilities of project team members are clearly defined and communicated. 8.7% (4) strongly disagreed while 6.5% (3) were neutral. It was also found that many respondents (80.4%) agreed that members received adequate and relevant training aligned to changing needs of business and market.

On whether there exists incentive plan to motivate members were varied as 41.3% agreed, 26.1% were neutral while 32.6% disagreed. 69.6% of the project team members agreed that the performance of team members was tracked regularly while 30.4% disagreed.

Chi-Square Tests	Value	Df	Asymp. Sig. (2sided)
Pearson Chi-Square	11.778	4	.019
Likelihood Ratio	13.780	4	.008
Linear – by – Linear Association	2.096	1	.148
N of Valid Cases	80		

Table 4: Tracking Human resources contribution to successful completion of projects

There was an association between regular tracking of team members' performance and the extent to which human resource management contributed to successful completion of projects i.e.

$$x^2 = 11.778, p < 0.019$$

4.2. Technology Management and Project Implementation

Project management involves various cycles and the use of the right technology can go all the way to ensuring that there is speed to meet the set deadlines. Technology can help improve communication given the fact that project management is team bound, help in risk assessment, controlling scheduling among other uses. The researcher therefore sought to understand the contribution of technology management on implementation of projects in telecommunication companies in Rwanda. The results are as shown in the tables below. The study sought to know how the project database is managed and whether project management tools or software were being used within the organizations and the results are shown in the Table 5 below.

Factor	Variable	Frequency	Percentage
In MTN foundation projects the project database is managed manually or electronically	Manually	61	76.1%
	Electronically	19	23.9%
Usage of project management software's is important in MTN foundation projects	Yes	37	45.7%
	No	43	54.3%

Table 5: Management of project database and whether any project management software's are in use

It was found that 76.1% of the respondents used manually managed project databases while 23.9% used electronically managed databases. It was also realized that 45.7% of the project team members used project management software's while 54.3% didn't employ the usage of any of the tools. The use of these software's is very important especially in planning projects, managing tasks, sharing and collaborating on documents, managing issues, tracking time among other uses.

The respondents suggested on various project management software's that could be used and these included Microsoft project, Base camp, Central Desktop, Dream Team among others. These tools are used depending on the primary needs of the project teams. Then the study investigated the extent to which project management software's were effective in implementing projects and the following were the findings.

Factor	Variable	Frequency	Percentage
Extent to which above software's are effective in MTN foundation projects	Little extent	12	15.2%
	Some extent	14	17.4%
	Great extent	35	43.5%
	Very great extent	19	23.9%
Total		80	100

Table 6: Extent to which project management tools are effective in implementing projects

Table 6 shows that 15.2% of the respondents indicated that the project management software's were effective to a little extent, 17.4% indicated the tools were effective to some extent, 43.5% specified they were effective to a great extent while 23.9% revealed they were effective to a very great extent in implementing projects. Generally, the software's were effective in implementing projects as they lead to decrease in costs and more adaptability. The study then assessed whether the project teams embraced new technology and the following were the results.

Chi-Square Tests	Value	Df	Asymp. Sig. (2sided)
Pearson Chi-Square	30.904	9	.000
Likelihood Ratio	32.561	9	.000
Linear – by – Linear Association	1.169	1	.280
N of Valid Cases	80		

Table 7: Technology advancement Vs Project success rate

The Table 7 shows that the association between advancement of technology and the overall success rate of projects is significant i.e. $\chi^2 = 30.904, p < 0.000$

The project team members suggested other factors contributing to the high success rate of projects in the organizations which included automation of organizational processes, adoption of best practices, clear scope and procurement process, availability of equipment and other resources, financial commitment, proper planning by all stakeholders, risk management, senior management support, implementation of staff motivation measures among others.

4.3. Financial Management and Project Implementation

Factor	Variable	Frequency	Percentage
The frequency of financial planning leading to project budget generation is done in MTN foundation projects.	Never	7	8.7%
	Rarely	21	26.1%
	Sometimes	23	28.3%
	Often	17	21.7%
	Always	12	15.2%
Effort are always made to control Project budget to ensure money is spent appropriately in MTN foundation projects	No effort	7	8.7%
	Little effort	5	6.5%
	Not sure	7	8.7%
	Just enough effort	31	39.1%
	High effort	30	37%

Table 8: How often financial planning is done and effort to control project budget

Table 8 reveals that 8.7% of the respondents indicated that they never do financial planning to control project budget, 26.1% rarely did the same, 28.3% did sometimes, 21.7% did most often while 15.2% always did. 39.1% of the respondents indicated that just enough effort to control the project budget to ensure that money is spent appropriately as planned and with proper authorization, 37% indicated the effort was high, 8.7% were not sure while 6.5% specified that little effort was put. The goal of project budget management is to control project costs within the approved budget and deliver the expected project goals. The budget control mechanisms help to achieve this goal and that only the appropriate project changes are included in the budget baseline hence manage the budget.

Chi-Square Tests	Value	Df	Asymp. Sig. (2sided)
Pearson Chi-Square	41.506	12	.000
Likelihood Ratio	50.383	12	.000
Linear – by – Linear Association	.613	1	.434
N of Valid Cases	80		

Table 10: Financial planning and completion of projects within budget

A significant relationship existed between how often financial planning is done and likelihood of completing projects within budget as proved in the table 4.20 with i.e. $\chi^2 = 41.506, p < 0.000$

4.4. Time Management and Project Implementation

In addition to human and financial resources, there's need to also manage the project schedule which outlines when the work is expected to be completed. The project manager has to ensure the available time is allocated to the work appropriately. The study therefore investigated the time resource factor and the findings were as follows.

Factor	Variable	Frequency	Percentage
In MTN foundation projects there is awareness on importance of project time Management	Yes	80	100%
In MTN foundation projects schedules and plans are used	Some extent	7	8.7%
	Great extent	42	52.2%
	Very great extent	31	39.1%

Table 11: Awareness on importance of project time management and extent to which project schedules and plans are used

Table 11 shows that all the respondents who are part of project teams in the telecommunication companies in Rwanda agreed that there’s awareness about the importance of project time management in their various organizations and project management teams. This shows dedication exists among the project team members to ensure timely completion of projects. It was also revealed that project schedules and plans are used to a very great extent (39.1%) and great extent (52.2%) in their (respondents) organizations. Only a mere 8.7% indicated that project schedules and plans were used only to some extent. The study then sought to know how often network scheduling methods are being used and revealed the following.

Factor	Variable	Frequency	Percentage
How often network scheduling methods are used	Never	17	21.7%
	Rarely	12	15.2%
	Sometimes	30	37%
	Often	14	17.4%
	Always	7	8.7%

Table 12: How often network scheduling methods are used

Table 12 shows that 21.7% of the respondents indicated that network scheduling methods are never used, 15.2% indicated they are rarely used, 37% specified that they are used sometimes, 17.4% specified that they were used most often, while 8.7% indicated that the network scheduling methods were used always. This is an indication that the methods are employed sparsely in the management of the projects. This might be due to the expertise skills required to make use of them and the availability of other methods other than the network scheduling methods. Most of these methods are used in determining the durations of the various activities involved in the management of the project.

Other scheduling methods used apart from the ones given above as specified by the respondents include expert knowledge, Gantt charts and Prince II templates developed by Central Computer and Telecommunications Agency (CCTA) in UK among others.

Chi-Square Tests	Value	Df	Asymp. Sig. (2sided)
Pearson Chi-Square	33.638	12	.001
Likelihood Ratio	37.387	12	.000
Linear – by – Linear Association	4.486	1	.034
N of Valid Cases	80		

Table 13: Effectiveness of project plans and schedules vs likelihood of successful completion of projects

The association between the effectiveness of project schedules and plans and likelihood completion of projects is significant; that is $\chi^2 = 33.638, p < 0.001$

4.5. Correlation Analysis

To quantify the relationship and strength of the relationship between the variables, the study used Karl Pearson’s coefficient of correlation. The Pearson product-moment correlation coefficient (or Pearson correlation coefficient for short) is a measure of the strength of a linear association between two variables and is denoted by *r*. The Pearson correlation coefficient, *r*, can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association, that is, as the value of one variable increases so does the value of the other variable. A value less than 0 indicates a negative association, that is, as the value of one variable increases the value of the other variable decreases.

	Implementation of projects	Human Resource Management	Technology Management	Financial Resource management	Time Resource Management
Implementation of projects (r) (p) Sig. (2 tailed)	1.000				
Human Resource Management (r) (p) (2 tailed)	0.847** 0.018	1.000			
Technology Management (r) (p) Sig. (2 tailed)	0.925** 0.031	0.804** 0.047	1.000		
Financial Resource management (r) (p) Sig. (2 tailed)	0.941** 0.024	0.977** 0.019	0.980** 0.047	1.000	
Time Resource Management (r) (p) Sig. (2 tailed)	0.914** 0.046	0.945** 0.029	0.968** 0.0464	0.953** 0.014	1.000

**Correlation is significant at the 0.01 level (2-tailed).

Table 14: Correlation matrix

According to the Table 14, there is a positive relationship between factors that influence implementation of GSM projects in Rwanda; Human resource management, Technology management, Financial resource management and time resource management (0.847, 0.804, 0.980, and 0.953) respectively. This is because the p-value in all the relationships was 0.000 which is less than the alpha value (level of significance) 0.01.

The positive relationship indicates that there is a correlation between factors that influence implementation of projects in MTN foundation. This despite, all the factors had a significant p-value ($p < 0.05$) at 95% confidence level. The significance values for relationship between Human resource management, Technology management, Financial resource management and time resource management were 0.018, 0.031, 0.024 and 0.046 respectively.

5. Conclusions

The study found that resource management influenced the implementation of projects in telecommunication companies in Rwanda. The study concluded that Human resource management greatly influences implementation of projects. There was a significant relationship between role appointments based on skills and clear definition of roles and responsibilities. The study also concluded that financial management has a significant contribution to effective implementation of projects. The study further concludes that technology management prominently influences implementation of projects. Proper time management has also been proven to contribute immensely towards effective implementation of the projects ensuring business objectives and customer satisfaction are achieved.

5.1. Recommendations

From the study, it's proven that human, financial, time and technological management factors influence implementation of projects. Therefore, the researcher would like to recommend the following to ensure proper arrangement and deployment of resources available to a given project.

1. The management team should be realistic about the project scope, timelines and resources required to carry out the project activities and offer support throughout the project life cycle to ensure projects succeed.
2. There is a great need for telecommunication companies in Rwanda and Africa at large to invest in project management software with due diligence in order to offer globally competitive services.
3. There should be clear and consistent objectives which align to the organizations goals and strategy to minimize the risks of project failure. These will ensure project team members understand their roles effectively and remain focused on achieving the goals and objectives of the project hence increasing the chances of success of the projects.
4. Project organizations should have an effective change management process for the inevitable "just one more thing" discussions, which will limit or postpone changes until after project delivery, the single biggest reason for cost overruns.
5. There is need of quality training and motivation for the entire project management fraternity to equip the teams with more skills to turn around the success rate of projects to admirable levels.
6. Project organizations should consider setting up a business council to define priorities, control resources, oversee projects, and measure (and communicate) project success across business units. This group must, of course, have the courage to cancel projects when that becomes necessary; not everything that starts must finish. In addition to this, put together a technical council to develop guidelines and principles for technology standards and practices.

5.2. Areas for Further Research

1. Project management is an essential endeavor in today's world as it is designed to produce unique products, services or results undertaken to meet unique goals and objectives, that bring about beneficial change or added value. This study focused on four facets of resources (human, financial, time and technological resources) influencing implementation of projects in order to bridge the knowledge gap that existed. More research should be undertaken to unearth other factors influencing success rate of projects other than resource management and the common triple constraint of scope, cost and time.
2. This study also recommends that in future similar researches should be replicated in other organizations across the country other than the telecommunication companies in Rwanda in order to develop generalizations of the study findings. The findings may be enlightening by pointing out the importance of effective resource management leading to effective implementation of projects thus adding value to the business.

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