



The Impact of Resources Planning on Short-term Projects

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Author Note

There is always a chance to progress in any field. We need to keep research going to find better ways of doing things.

THE IMPACT OF RESOURCES PLANNING ON SHORT-TERM PROJECTS

Abstract

This study aims at analysing whether there is an impact of resources planning on short-term projects. To do so, factors such as the influence of the sponsor, project manager role, customer satisfaction, and team contribution were measured to test their causal contribution. Non-empirical and empirical research methods were used in exploring the research question which was: What is the impact of resources planning on short-term projects? The results showed that there is a positive impact of resources planning on short-term projects, even though some of its factors carry a negative influence. The recommendations include changing the project management method to include more flexibility, particularly in the resources planning phase.

Keywords: Resource planning, project management, short-term projects, project planning.

Definitions

PMI – Project Management Institute

PMO – Project Management Officer

H₀ – Null Hypothesis

H_a – Alternative Hypothesis

P – Probability

VoIP – Voice Over Internet Protocol

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Preface

Project management is often confronted with different forms of challenges, which all require planning and strategizing. However, history has shown that some projects fail due to failing to plan. Added in a practical and existential context: the larger the project, the larger the effect of failing to plan manifest (Meadows, 1968).

In methodologies which are recommended to project managers, such as PMI, Prince 2, Six Sigma, and Agile, the first base of managing a project includes planning. However, planning is a large focal point, which requires dissection and precision. Moreover, considering that the timespan of each project is unique and bound to different budget scales, the process considers not only the end-goal but also the resources required to complete the project. Therefore, it is with this basis that this thesis focuses on the question: What is the impact of resources planning on short-term projects?

The imposed question allows the thesis to explore the impact of resources planning or its lack-there-of. Thus, confronting assumptions often made by managers with regards to this aspect in the workplace.

CHAPTER 1: INTRODUCTION

This chapter intends to introduce the study and to explain the problem underlying the choice of the essay topic. The research issues addressed in the study are presented and the purpose, target group and most important research contributions of the study are defined. The section also contains information that is important for the continued reading of the report, such as concept definitions and outline.

1 Background

Resources planning is a topic that has been relevant since organisations started to realise some of the causes of failure in projects; thus, doing so to lessen poor results. At the same time, many projects have already been carried out with successful results when its resources were accounted for. Resources planning is defined as a process in which the capacity and availability of resources are measured through the allocation of non-human assets and workers (James & Lee, 1971).

What characterizes the process are the scaling and industrialization of the project, which includes cost-setting and scope alignment. More so, other external factors are considered. These factors often include competitors, suppliers, and customers. Although this process is adhered to, projects continue to fail (Wang, Walker, & Redmond, 2007). Additionally, there is a lack of data relating to the extent of the failure even though its severity can be approximated based on the monetary losses (Meadows, 1968).

Several companies opt to select a dedicated department which focuses mainly on planning. They use specialists to ensure the delivery of successful projects. The seriousness and recognition of this process have been pursued in the United States' financial industry decision-makers who pursued to use vigorous planning to solve its failed megabanks, which in turn were to boost Wall Street. The costs of remedying the failed or neglected ideas can increase to billions depending on the industry and the scope (Wilmarth Jr, 2015).

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Timing also plays an important aspect in which this thesis aims at exploring. If planning or its remedial activities are not done on time, the intensity of the project will deteriorate which in turn reinforces additional losses. Neglected plans are also futile from an economic point of view perspective. All the resources including time are wasted when a team begins to plan but abandons those plans during the process.

1.1 Problem description

There is a lack of information relating to the impact of resources planning on short-term projects. Since projects have a specified duration, some organisations tend to ignore resources planning for projects to which they allocate a small quantity of time. Even though theory provides data regarding resources planning in general, seldom does it put the focus on the short-term ones. Researchers tend to focus on large-scale projects which tend to require lengthier time. As seen in big economical events such as the 2007/2008 Global financial crisis, not having enough data leads to failure (Helleiner, 2011).

1.2 Research question

The research is led by the question: What is the impact of resources planning in short-term projects? The question is formulated with the purpose to give insight into the impact. The expected result should highlight whether there is an impact; and if so, is it negative or positive impact?

1.3 Purpose

The purpose of this work is to carry out previous studies relating to resources planning, however with a specific focus on short-term projects. This effort will provide underlying information and basic conditions for what should be kept in mind when running such projects. The results will contribute to the project management field as also a reference for furthering this knowledge. Although the findings are targeted primarily at project management professionals, others can also benefit. Such information would avoid repetition of past mistakes, which in turn would make projects more cost and time effective.

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1.4 Research Outline

The first chapter focuses on describing the aims of the research and its background. The chapter forms the basis for the content of the thesis. Chapter 2 reviews the already existing literature on the subject. The review is based on defining resources planning, short-term, and project management. This chapter will focus on exploring the work of other researchers as well. Chapter 3 focuses on empiricism. Due to the involvement of the researcher in a similar process, this allows the author to reflect on non-empirical data. Additionally, the chapter discusses the design approach in depth. Chapter 4 gives details of the results, followed by Chapter 5 with recommendations, limitations and conclusion.

Table 1: Quick review of the study outline

Introduction	Yes
Literature review	Yes
Empiricism	Yes
Analysis of findings	Yes
Limitations	Yes
Recommendations	Yes
Conclusion	Yes

1.5 Conclusion

The introduction stated the purpose of the study, the research problem, and the origin of the need to complete it.

CHAPTER 2: LITERATURE REVIEW

The theory chapter intends to explain the subject areas that the study concerns. The theory aims to provide necessary information about resources planning, a general description of projects as an organizational form, a general description of project management and the qualities of what is deemed as short-term projects. In all cases where subject-specific concepts are used in the study without any other specified description, they are based on theories found in this section.

2 Short-term projects

There are studies unrelated to projects that study short-term processes, often related to fields such as medicine; nevertheless, they do not define the term “short-term”. This leaves a gap for interpreting the term as seeing fitting to the subject and the context. Closely enough, Druskat and Kayes (2000) whose analysis focused on project management completed a study in which they compared learning to performance in short-term projects. They produced concrete results; however, they did not define the term concerning their study.

From observations, short-term can be defined in terms of duration, budget, or scope. Short-term projects in the context of this thesis refer to the duration starting from 1 week to 6 months. These projects are executed across all fields; from law to commerce. They can be in the form of data analytics, filing documents, training, or testing software. Regardless of their origin, they tend to be planned, executed, monitored and controlled and closed within the specified short span.

2.1 Project

According to PMI (2013), a project is taken temporarily to produce a unique product. Projects, as a working method, have become a very common way of accomplishing the goals of the organisation. They ensure that the resources are in use for a specified and limited period to be available to achieve other goals. The increased uncertainty in the labour market is one of the major reasons for the increased number of project organizations in various activities, partly because companies nowadays need an organization that can change and act quickly.

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Figure 1 shows a summary of the definition of a project. A project is not only temporary but must have a specific set start and end date. This allows the project manager and stakeholders to know when to expect the end-product (PMI, 2013). Moreover, this indicates when and how many resources will be required in the course of the project. The project must also aim at delivering a unique product or service. Uniqueness can refer to characteristics, design, budget, or technicalities. Lastly, it must be executed to achieve a certain goal within a specific time (Globerson & Zwikael, 2002).

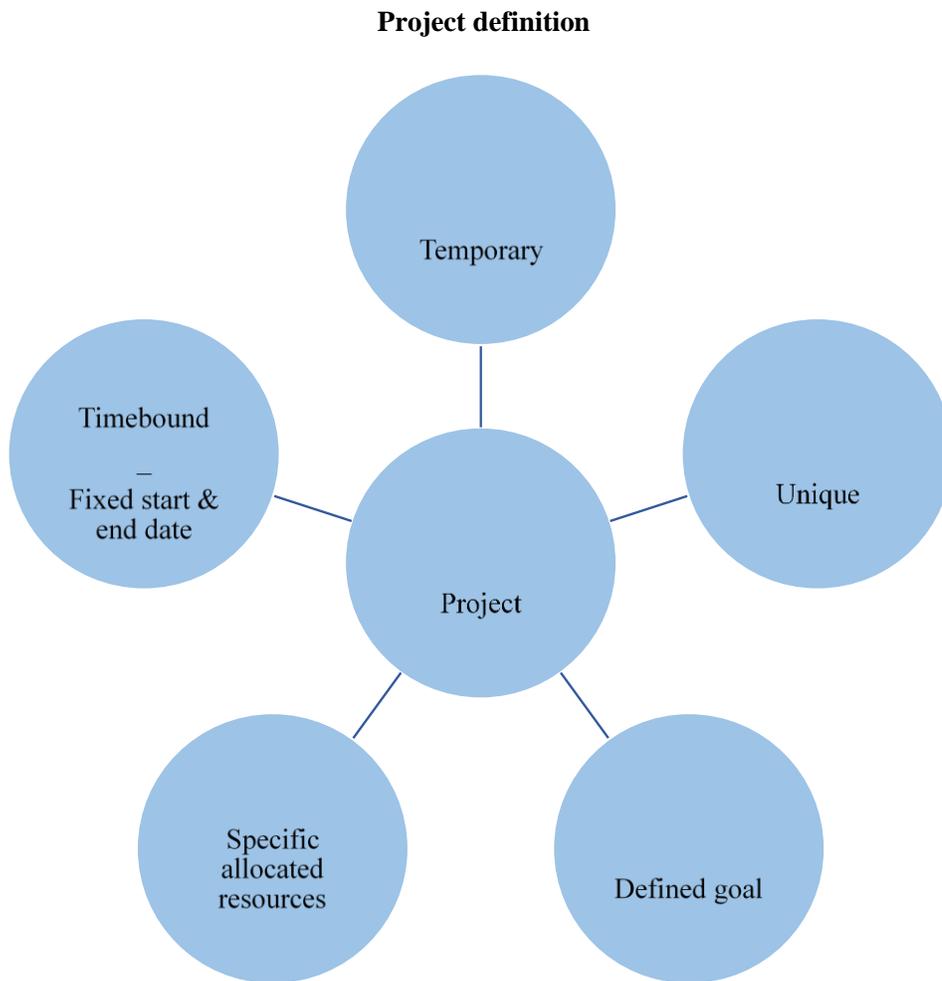


Figure 1: Project definition

1: Project definition

2.1.1 Projects as means to organise work

Projects are considered as a way of organizing work that is right in time and it is often regarded as an effective way of organizing specific and complex tasks. According to the traditional description of projects, which is found in much of the project management literature, the definition conveys the image of projects as closed systems, broken out of their context and without any significant connections to other contemporaneous events outside the project (Ford & Randolph, 1992). For example, the project literature emphasizes that projects, to be effectively managed, should be an isolated task because all environmental impacts are often seen as negative disturbances that should be avoided.

When a company conducts an individual project activity it is initiated most often the project to perform a task in addition to the company's regular activity. Projects are thus regarded as an exception to the rule, as a complement to the company's ordinary activities and as a buffer between the parent organization and the environment. The project literature emphasizes the individual and separate project and the discussion has mainly been about complexity and problems in the implementation of projects in addition to regular operations.

There are currently only a few empirical and theoretical studies of multi-project activities, especially those focusing on how industrial companies use the project work form and lead work on projects. However, a reversal can be discerned because of the interest for the use of projects now also include, for example, control of project portfolios implementation of multi-project activities and knowledge and learning between projects. The reality for many companies is characterized by turbulence and rapid unpredictable changes. If the use of projects is then a way for the company to deal with this uncertainty, the number of projects is easily multiplied. This means that many companies implement one of their activities as project-based.

2.1.2 Projects as means to complete operations' activities

For companies with operations that carry out several projects simultaneously, it is the task and responsibility of company management to focus on management and the management of the project portfolio's implementation, while responsible for the management of the individual project falls on the project manager. The trend towards widespread use of project work methods as well

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the lack of empirical descriptions in the project literature of multi-project activities, emphasizes the need for studies around; how multi-project activities work, what characterizes them and how they are led and controlled.

2.2 Project model

Generally, the different parts of a project can be described with the phases of pre-study, planning, implementation and completion. These are specifically divided into five stages as depicted in **Error! Reference source not found.** The cycle begins with initiation, followed by planning, execution, and monitoring and control, with closing as the last stage (Globerson & Zwikael, 2002).

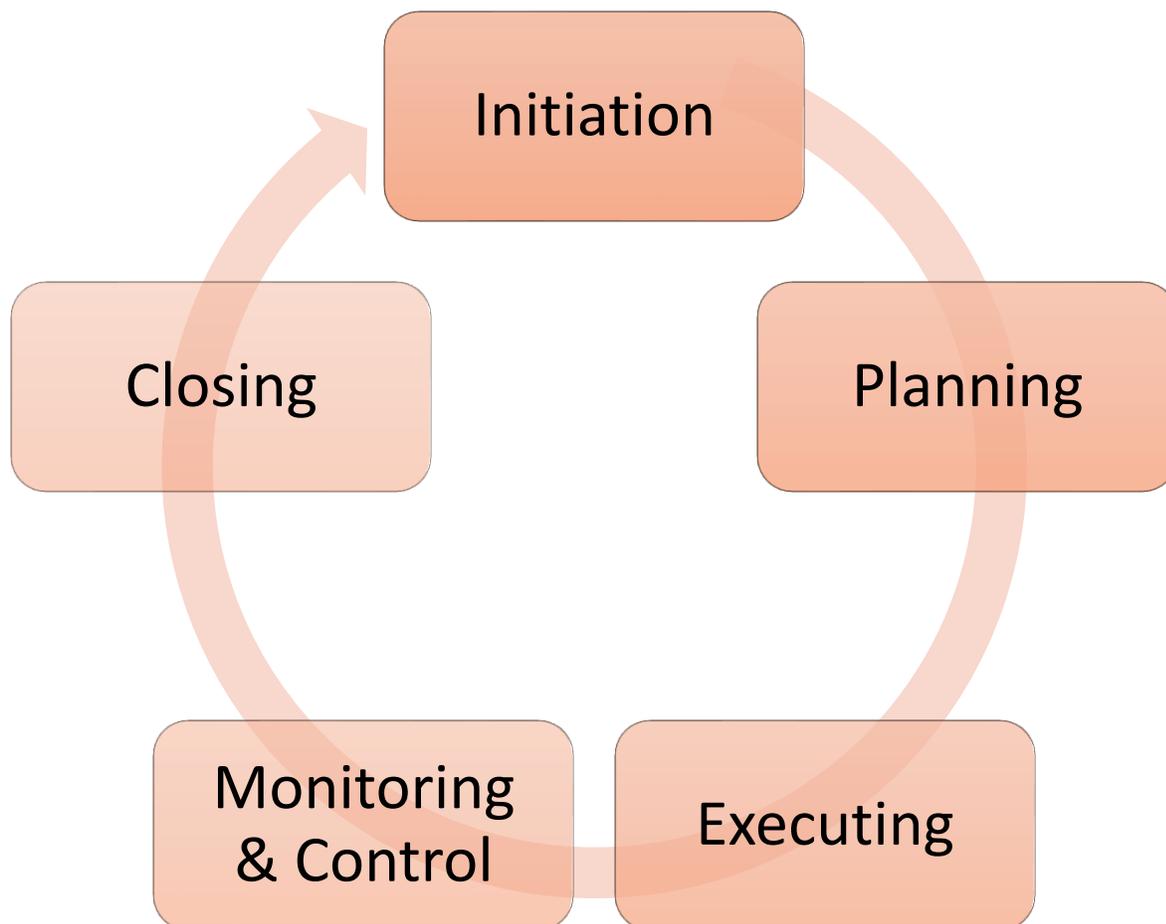


Figure 2: Project cycle (Globerson & Zwikael, 2002)

2.2.1 Planning

During the planning phase, the remaining implementation of the project is structured. Here, among other things, time estimates, budgeting, and risk analysis are carried out for the project implementation. And there are also several internal tasks within the project here; like designing the project organization (Fui-Hoon Nah, Lee-Shang Lau, & Kuang, 2001). According to The Standish Group (2015), planning adds value to the success of the project. They give report that where IT projects lacked plans, they had 28% of the low-value process. This is relevantly high since it proves that some companies who do not have plans waste their resources (see Figure 3). Similarly, 12% of IT executives admitted to having no plans in place to measure their cost or benefit.

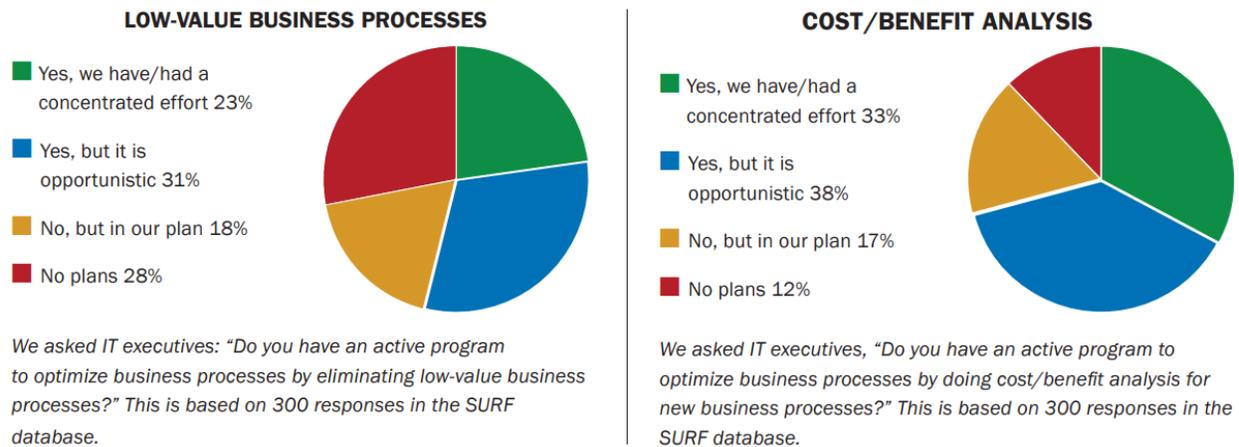


Figure 3: IT Planning vs value ((The Standish Group, 2015)

2.2.2 Planning cycle

There are four stages in the planning phase of a project, namely: Plan, Do, Check, Action. According to studies this cycle was invented in Japan and was based on the Deming Wheel (Platjie, Seidel, & Wadman, 1994). Figure 4 is a representation of the planning cycle discussed in Platjie, Seidel and Wadman’s 1994 report. It illustrates that the manager is the middle of the process; however, bound to take orders from the sponsor of the project. The cycle shows that all stages in this process are interlinked. This means that one cannot exist without the other.

Deming Cycle

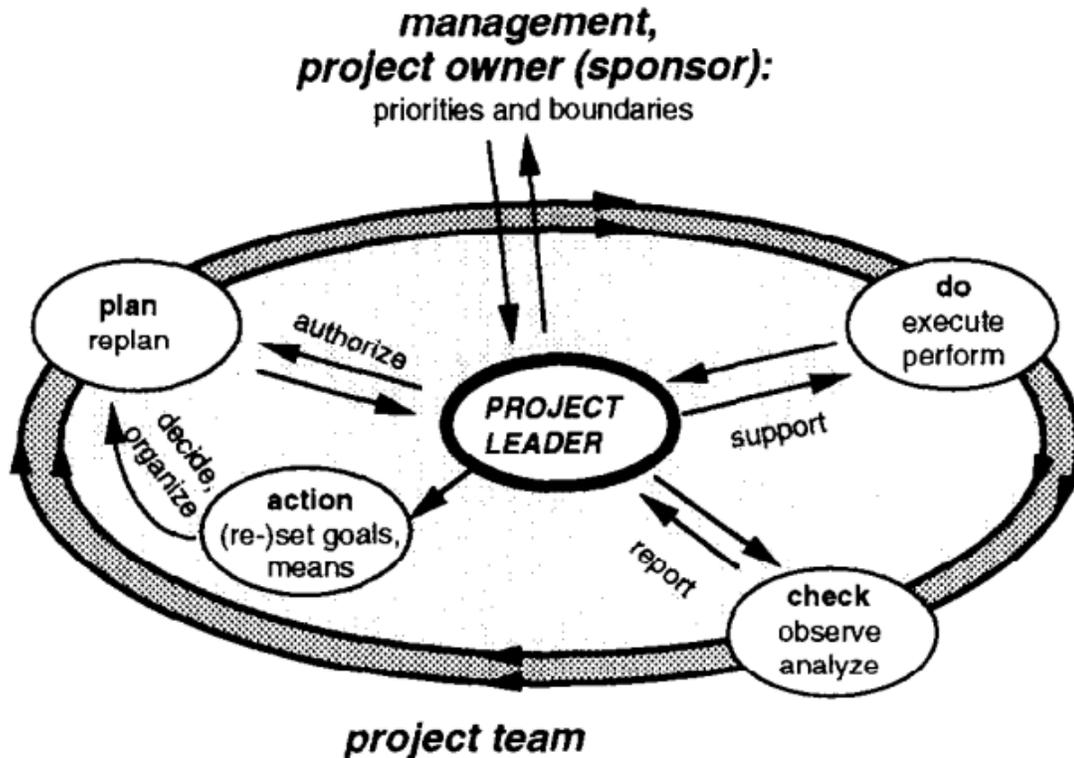


Figure 4: Planning cycle of individual projects ((Platjie, Seidel, & Wadman, 1994)

2.3 General project management

A project manager's main task is to achieve a result that can be delivered to the project's client and to do this, the project manager must be able to lead the project group. Several factors play into the ability of a project manager to lead his project group. Many researchers state that an important factor in being a competent project manager is that there is a genuine interest for people at the project manager (Kuprenas, Jung, & Fakhouri, 2000). Project managers often work with very close contact with other people, both within the project group and externally, and it is important to have the ability to communicate in a way that all parties feel seen and heard. A general good social ability and an interest in people facilitate the leadership of a project manager, but in the end, it is the fallibility of being able to deliver good results that count (Anantatmula, 2010).

2.3.1 Project manager as a specialist

Whether a project manager should be a specialist in the field from which the project is running is still yet to be determined. The literature has yet to reveal if a project manager should have a technical background when executing technical projects, and a commercial background when running a commercial project (Neuhauser, 2007). Even if this could be determined to be a requirement, historical cases have proven that specialisation in the field is not required if though desired. For example, Kim Kardashian, an American celebrity who has become globally known for being a socialite has since been leading successful law-related projects with no prior law background or specialisation, which have resulted in a few prisoners being pardoned by Mr President Donald Trump who is the sitting President of the United States of America (McKenzie, J-M, 2018).

Generally, some believe that a competent project manager can manage projects regardless of the type of activity and that the number of project managers certified in decontextualized project management is increasing rapidly. On the other hand, experience from previous projects is often needed for a project manager to successfully manage such a type of project. Because of this, the management work is sometimes divided into two different roles; a technical project manager and an overall project manager. In these cases, the overall project manager has the ultimate responsibility for the project administrative side, while the technical project manager works closer to project goals and other areas that require technical expertise (Ford & Randolph, 1992).

Based on the points that PMI (2013) considers when defining a project manager's tasks, the project manager's tasks include both planning of time and resources and ensuring that project goals are achieved, which are precisely the attributes that The Standish Group International (2015) defines whether a project is successful. Thus, the project manager has the opportunity to make a big impact on the results of the project and ensure that a project is managed in a planned way from the start. Many researchers report that it can be difficult for project managers to plan and manage a project if the project manager has not experienced similar projects before. Inadequate knowledge of the project manager's tasks within a certain field can thus make it more difficult to plan and manage project work, which increases the risk of a project failing.

2.4 Resources planning

Resources planning is the task of identifying and selecting required the resources that are required to complete the project. This process accounts for resources such as the budget, people, and time. All resources are considered interdependent unless otherwise this is restated (Parolia, Jiang, Klein, & Sheu, 2011). The project manager is one of the key resources in this process he manages the distribution of others. However, the project manager works with other specialists who are most affected by the allocation of certain resources (Pinto & Slevin, 1987). For example, when it is a concern of allocating human resources, a human resources manager will lead the activity in conjunction with the project manager. Where finances are concerned, a financial manager will lead in collaboration with the project manager.

2.4.1 Resource planning origins

Resources planning originates from as early as the era of kings, where trade was performed in exchange of tangible resources as compared to financial, and has since gone under various variations and forms, particularly when the technology became advanced (Bown, 2010). Today, projects revolve around a philosophy where all work done should add value to the product, and where all other work is seen as redundant and should be eliminated to the greatest possible extent. The new thinking of being more productive and less wasteful of resources branched from Lean manufacturing (Seddon, O'Donovan, & Zokaei, 2011). The term was introduced by John Krafif in 1988.

This resource planning thinking has been transferred to the system development industry where it has become a working method based on principles such as eliminating waste, making decisions as late as possible, delivering as quickly as possible, and strengthening the development team to be a self-driving team (Seddon, O'Donovan, & Zokaei, 2011). Furthermore, it enables the project manager to identify which resources can be duplicated in activities, and for which systems.

2.4.2 Resources planning today

In the commercial industry, a lot of resources are spent on streamlining work methods and finding the optimal way to manage projects; particularly in areas such as IT where there is a constant challenge (Harding, 1994). Today's organizations are also in a situation where the market places a

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demand on reduced costs but at the same time a higher level of support and service. From this, a wealth of different working methods and associated tools have been generated, all of which aim to structure or streamline the system development process. (Motahari-Nezhad, Stephenson, & Singhal, 2009).

Since resources planning often involves developing a customized schedule, it rarely fits into routine work, therefore requiring many of the resources to be put aside and free from operations' activities. There is also a great deal of communication between stakeholders when accomplishing the process which affects how a project manager works best to increase the success factors in a project.

2.4.3 Challenges in resources planning

However, the process of planning resources is not without challenges. The project manager's efforts can be challenged in some areas and it can be complicated to accomplish the planning; particularly where the amount of information is limited. Due to the miscommunication and other challenges, resource planning which is exerted inefficient way can result in financial losses (Boykin, 2001). On the other hand, effective planning of resources, such as time, has increased the success of projects by at least 13% and gaining confidence by 24% in projects launched in the USA, and the confidence increased by 15% in projects realised in Europe (Cordova, Dolci, & Gianfrate, 2015).

Failure has been a common factor in project management, and with experience, some managers predict it in advance. The Standish Group International (2015) reports that from the period 2011-2015, only 44% of projects were on a budget, and only 40% were on time (Figure 5). According to their research, many projects go through similar failures. However, no one has provided a solution to this performance. The Standish Group is a group that performs intensive research in software-related projects. Even though their research is specialised, it is best to take into consideration when assessing other projects as well.

CHAOS Database: Performance v Resources

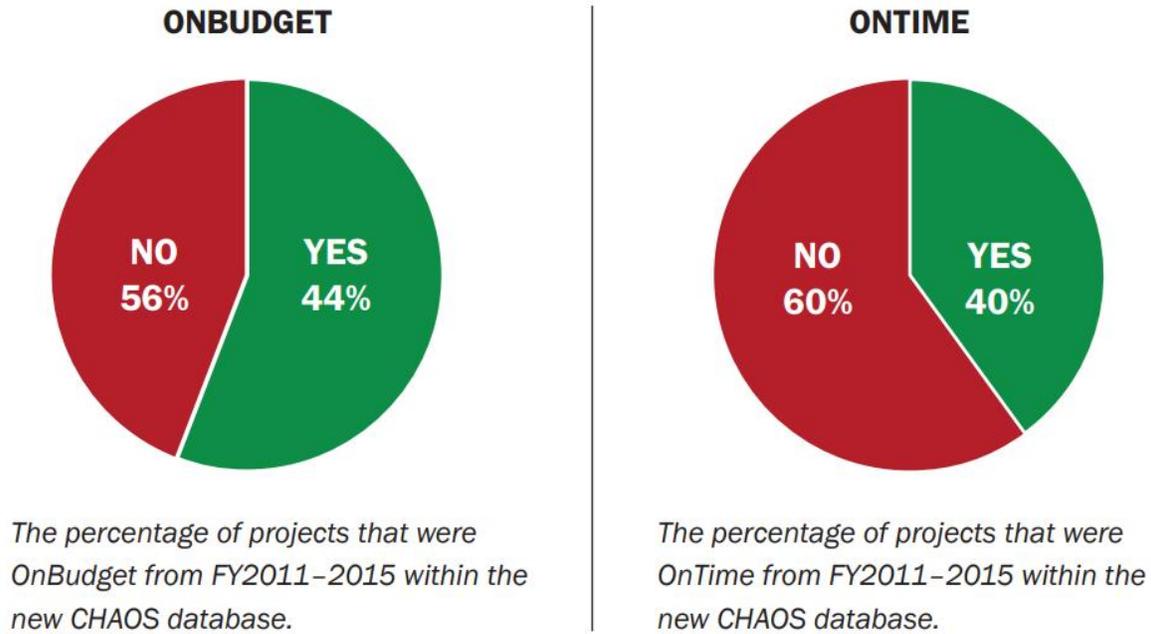


Figure 5: Project performance-to-resources (The Standish Group, 2015)

Even though this failure is high on record, it is not in comparison to the general 50-70% project failure (Jenner, 2015). In Figure 6 there is a margin of error of 10% which is produced to show the different range in measurement in the current literature. However, many researchers agree that most projects fail, and fail due to poor planning.

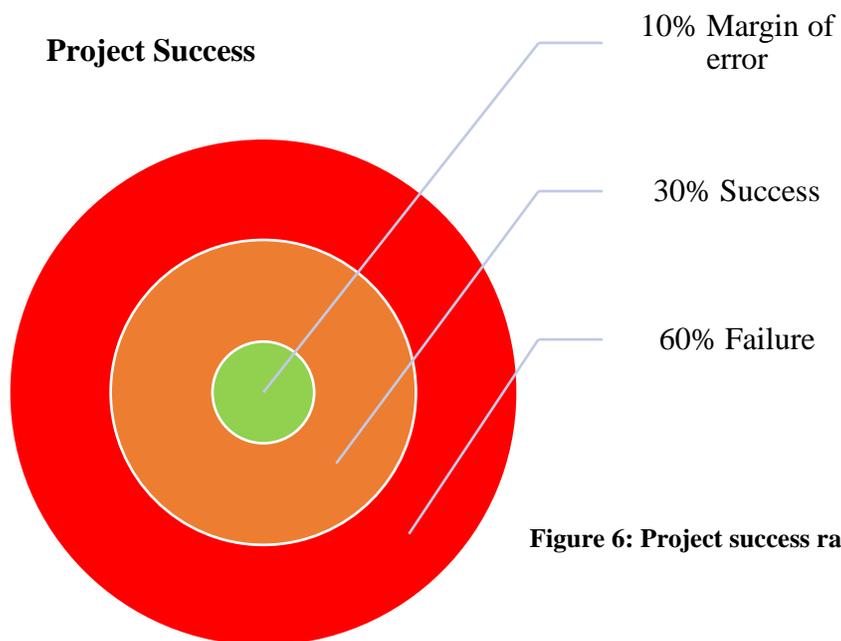


Figure 6: Project success rate

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The low proportion of successful projects drives many organizations to streamline their development work and try to find new ways of working that can increase the number of successful projects (Fui-Hoon Nah, Lee-Shang Lau, & Kuang, 2001), and the pursuit of a more efficient way of working has recently created an increased interest (Boykin, 2001). Resources planning is largely about creating a systematic format where no one is confused about the objectives, and at the same time develop the team to work better in the future.

There is much less information to be found that aims comparing the success rate in terms of industries. This information is desirable for the accurate measurement of project success. However, the construction industry is reported to have a higher success rate (Hughes, Tippett, & Thomas, 2004). The most common related information available describes how the managers together with the organization should ensure how teams should operate, among other things by providing the tools and support they need. What is rarely discussed at length is what a project manager's work looks like within an organization that has introduced resources planning.

2.5 Measurement of factorial impact in projects

In this study, the impact is measured by the success rate of short-term projects concerning resources planning. There are some factors that contribute to the impact of activity in a project's success as Lagerberg, Skude, Emanuelsson, Sandahl, and Ståhl (2013) argue, factors such as knowledge sharing. Development of communication is another important aspect in causing either a positive or a negative impact or no impact at all. A more subtle factor is competitive streak which contributes to resource planning in a way that other organisations, departments or teams are used as a benchmark. A benchmark is a point of basis (Odgaard, Stoustrup, & Kinnaert, 2009). These factors bring a dynamic attribute that further marks a project as a unique endeavour.

2.5.1 The customer as a measure of an impact

According to business, customers' satisfaction, or lack thereof, decides whether the process of the organisation is working or not. Thus, the ultimate measurement of the impact of any process is the

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response of the customer (Krafcik, 1988). Moreover, it is important to always focus on the customer's needs. There is a general term that the market has formulated which states that “the customer is always right” (Richmond & Roberson, 1995). This means that the impact will be positive if the customer is satisfied regardless of the amount of profits the project accumulates.

It is therefore beneficial to include the customer in the process to obtain feedback. However, the feedback should not be limited to the customer. Everyone who is most knowledgeable about a problem, usually those who work with the product to be improved or replaced, and together with teams must have continuous feedback, learning can be enhanced, and which will give insight into what the problem is and what needs to be resolved. or evolving again (Ford & Randolph, 1992).

2.5.2 The team as a point of measure

Feedback should also be applied internally within the team. In the past, it was common for resources planning to be a sequential process, a so-called waterfall process, where the work went through different phases such as different kinds of analysis and design, implementation and then execution. In such a process, there is not much room for feedback and change in cases where new knowledge came into the process (Jenner, 2015). It is therefore important to have a process that constantly allows plans to be modified and re-examined.

Researchers argue that traditional project managers often consider that the process of constant feedback is risky as it can affect the original plan too much. According to this reasoning, the task of a project manager is to plan the scope, cost and schedule of the project before start-up. This is often done at the expense of feedback from the team as they may not always contribute their knowledge during the planning phase.

Resources planning is something that facilitates the creation of a good feedback process. By dividing the project into shorter sub-periods, the work for each individual period can have its repeated phases such as analysis, implementation, testing and integration. In this way, the project team knows from every iteration to iteration that what has been done works and it is possible to

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adjust further development based on the knowledge that has been created in previous iterations where needed (Anantatmula, 2010).

2.5.3 The project manager's impact

The impact of the environment on project implementation is assumed as a dimension that is often overlooked in traditional project literature. When initiating projects, the goal, the desired outcome, is often specified by the management, while the design of the implementation should be done by the person in charge of the assignment. The company's management makes the project manager responsible for the implementation of the task, the project and allocates resources in the form of personnel, time and financial means. The focus is on the project manager and how she or he is, in the best way, the most effective will lead the project towards goals. The starting point is thus made up of the project manager who, with the help of project management methods and tools, will carry out the project (Anantatmula, 2010).

2.6 When to complete resources planning?

Taking a decision early in the development phase can prove to have major consequences later in terms of both time and money. It is, therefore, better to make decisions as late as possible as the team then has a greater knowledge of any foreseeable influential factors. However, this does not mean that the project team should be idle while waiting for the final plans. Instead, the resources planning should be conducted in such a way that there is room for change in the areas that are believed to be subject to change and places the greatest focus on those areas where the team based on previous knowledge has greater certainty about the outcome.

It can be about trying to see the whole of the allocation of resources first and focusing on the parts that may later cause problems or implement the most important functions first (Ford & Randolph, 1992). For example, the project manager officer referred to as the PMO hereon can simulate a resources' schedule before finalising on it.

2.7 **Management and control**

The word control is mainly used to describe the functions represented by the project literature's methods and tools, in terms of project models, planning methods, control group functions, decision points and more. These methods and tools are often rational, and general in that they are designed to be able to be used regardless of the type of project that is implemented in the project operations. The word management, on the other hand, describes other functions than the control functions, mainly because they are designed according to needs that are specific to the type of business or project being carried out (Globerson & Zwikael, 2002).

2.8 **Conclusion**

In this chapter, the researcher explored available data regarding resources allocation, planning, project management, the role of the project manager, and other influential factors such as communication. It discussed the relevancy of the study to the industry.

CHAPTER 3: METHODOLOGY AND DESIGN

The method section describes and justifies the scientific methodology used in the study to collect information and process it to answer the research question presented in Chapter 1. The study follows a mixture of non-empirical approach and empiricism. Empirical approach reviews previous research on the study and form judgement based on this (Lipsey & Wilson, 2001); whereas, non-empirical study is formed based on indirect or direct observations by the researcher (Zhang, Hall, & Baddoo, 2011).

3 Design and methodology

This section discusses the assumptions that were made before the study began, and its hypotheses. Hypotheses are perceptual and have a direct link to the assumptions. Wolf and Bassler (1980) explain that hypotheses are testes to report any increases or decreases in the results, to accept or reject any samples chosen from a population.

3.1 Assumptions and hypotheses

This study relies on assumptions to simplify the statistical approach. One of the reasons for allowing assumptions is due to that project management is a big field which has different phases and stages. Further, it has cycles that define its processes. Therefore, without assumptions, the study will not be applicable in some field and produce ineffective results.

3.1.1 Assumptions

This dissertation assumes that the implementation of a project is both managed and controlled since the functions complement each other. The second assumption is that the phrase ‘short-term projects’ refers to the duration, and not budget or scope. The third assumption is that ‘short-term’ is connected to and dependent on the general state of a project, which is that a project is a temporary endeavour. Lastly, it assumes that there is a dependency on factors that influence the impact of

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resources planning. For example, there must be factors such as team relations, project manager's influence, customers' satisfaction which form the basis of dependence to the result.

3.1.2 Dependencies and connections

The word dependency is used to show that the implementation of the individual projects is affected by other events, either internal or external to the project. The dependencies produce effects in the implementation of projects that cannot always be controlled by the project manager. To establish that dependencies exist, there must look at the effects, symptoms of problems and difficulties in implementation and possible causes for this. The concept of connection, on the other hand, illustrates that the definitions in this thesis are interconnected to the global definition of a project, that they are united because of the dependencies.

3.2 Hypotheses

A hypothesis is defined as a statement of an assumed or estimated relationship between factors introduced in the study (Ingham-Broomfield, 2014). The hypothesis is constructed from the problem question.

H₀: There is an impact on short-term projects, which results from resources planning.

H_a: There is no impact on short-term projects resulting from resources planning.

Statistical equation

H₀: $p = 1$

H_a: $p \neq 1$

Where p is the probability.

To test the p-value, the researcher used the data explained in detail in chapter 4; where a set of key factors was identified as variables. These variables include the influence of the project manager, the sponsor's influence in resources, a team's contribution, and competitors. The researcher then inflated the effect factors by adding indicators to increase the normal distribution curve. This was done to avoid much irregularity in results.

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The α was set to be at 0,05, which allows a small margin of error. The significance level was set at 95%. Lieber (1990) argues that researchers should choose a small marginal error. By opting for a small margin, the researcher avoids making a Type I error. A type I error occurs when a researcher rejects the Null hypothesis even though it is true.

3.2.1 Problem Question

The question to be answered in this dissertation is two-fold and reads: What is the impact of resources planning in short-term projects? The purpose of this dissertation is to demonstrate that there can be interdependencies between the project results, which affect the financial aspect of the business, and the processes that are taken when completing projects. It is based on the non-empirical evidence while referencing to the empirical data.

3.3 Analytical method

Regarding the method of analysis, there is no universal predefined method that is directly applicable to all qualitative empirics or quantitative data. Instead of focusing on any specific methodology, researchers are often advised to simply do what it takes to extract sensible information. No one else can perform an analysis better than the researchers who conducted the study and are therefore intimately linked to the study by empiricism.

Instead of complete analysis methods, in the study examples are given to assist the analysis in constructing a more comprehensible and understandable report. It forms part of one of the structures that are recommended to compare frame empirical data based on a set of categories derived from literature or previous research experience. In addition to increase the structure, the researcher also often gains increased understanding by analysing the empiricism based on solid categories (Lipsey & Wilson, 2001).

Analysing against given categories means that facts are often tested against different categories, read about, moved around to another category, and finally checked one last time to ensure that a good categorization has been achieved (Zhang, Hall, & Baddoo, 2011). This process, therefore, means that the researcher has revised all empirics several times and the acquaintance and understanding of emergent empirics are increasing.

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In this study, the analysis was performed by making empirical evidence about the project managers' planning concerning a theoretical presentation of a traditional project manager's tasks. During the analysis, the study's empirical data formed the basis and the theoretical description of the traditional project manager's work whose tasks were subsequently provided to be compared with the non-empirical data. The reason this has been done is that there is an enormous amount of general information about project management both in specialist literature and within research articles, but to theoretically submit descriptions that cannot be related to any empiricism can never contribute to the study's results.

3.4 Participant observation

The description of participant observation is defined as a way that involved the researcher in partaking in the setting of the research while observing the process and the results of the experiment (Jorgensen, 2015). The participating observer also collects supplementary data, for example through informal conversations and observations. Jorgensen also explains that this allows the researcher to get a picture of the reality that is characterized by human life, based on real experience and empathy. While the participatory observation as a research method has the potential to contribute very vivid and unique information, there are at the same time relatively significant risk factors in conducting this type of study at a company.

In this study, the researcher identified several assumptions with this method, and these have been used in this study as guidelines in the choice and evaluation of the method. By using participant observations, the opportunity to collect information offered supplementary data for the study. In addition to the primary empirical evidence, which focuses on how a phenomenon works and is treated in practice, the researcher was able to work on an acceptable confidence level.

3.4.1 Risks of participant observations

One of the biggest risk factors in the participant observation is those that the researcher cannot influence himself, the external factors. These include, for example, problems that may arise internally in the company that make it difficult for researchers to continue their observations. It is largely up to the company being studied that enables what kind of involvement is possible by the

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researcher. In addition to the external risk factors at the company, there are also several noteworthy points related to the researcher himself. Among other things, the social position of the researcher towards the employees of the company may play a role regarding the results of the study. For example, if the researcher's class affiliation, education or ethnic background differs from the employees of the studied company, this can cause problems. Most often these problems, then, appear in the form of the researcher not being socially accepted as an employee, thereby preventing the researcher from assuming the role of a natural participant in the business (Jorgensen, 2015).

Another risk factor of the researcher is that this person becomes blind at home and finds it difficult to find different angles of approach in the work than those already explored. A suggested remedy for this is to allow the researcher conducting the participant observations to be reviewed by another researcher who does not participate in the culture of the studied company. Those researchers themselves cannot always control the risks since this method must always be approached with some caution. At the same time, there is no doubt that, in the successful execution of the method, it can provide information at a very detailed level. However, one of the most decisive reasons for the method being chosen in this study is that it is well suited as the studied phenomenon is relatively unknown by both the public and the research community (Jorgensen 2015), which is in good agreement with the subject area of the study.

3.5 Primary data and secondary data

The non-empirical material has primary data obtained from observation and secondary data of parties unrelated to the study. The bulk of the material in this study is secondary empirical material; the combination allows the researcher to obtain as large a knowledge base as possible. Primary data is defined as raw and direct data whereas secondary data represent research results that have been conducted in the past by other researchers (Jorgensen, 2015).

3.6 Target group

This report is aimed at anyone who has an interest in projects who wants to have a deeper understanding of the impact of resources planning. Since the information in the subject is very

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sparse both in the professional literature and in scientific articles, the study should be of interest to both researchers and businesses that use or are otherwise interested in projects inspired working methods.

3.6.1 Selection

In the selection of this method in the study, an assessment was made of the most crucial risks and how these may affect the collected data that the method generates. That the company has both a certain interest in the study and an understanding of the research process to contribute knowledge on the project management process in its field. Furthermore, the selection also refers to the secondary data chosen to explore the results. The secondary data was required to substantiate the study. The type of data that was used is nominal.

Selection of the company

The contact company selected for the study was primarily selected in terms of its experience, the opportunity to be actively involved in the study, and accessibility in terms of resources and from a time perspective. The experience of the contact person has been deemed to be extremely important, as it is important for the study that they have a knowledge of the subject that enables them to be able to deliver comprehensively. Another interesting matter was the difference of industry as opposed to common organisational scope.

Regarding the risks related to the social position of the researcher and how these affect the interaction with other employees, the assessment was made that the participating researcher fits well with the company. The company has many employees who have higher training than the researcher, and this has been considered positive since the researcher then shares from a knowledge base that is vast and informative. No other significant social hierarchy was conceived that could affect the researcher's ability to participate in work at the company.

Since the significant risks associated with the method have been met and treated, together with the fact that the researcher was aware of the ambiguity that existed with the method, it was judged to be a sufficient theoretical approach to include the method in the study in an impeccable way.

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Since an external critical review was performed continuously by the non-participating researcher in the study, the risk of the participating researcher was also minimized. The participatory observation made at the company in the role of the project manager is still ongoing. Participation has been going on for four months and the research project that has been studied is in its current form. This means that participation has been ongoing while the project has been in full swing, and neither the start-up nor the completion of the project has been studied. However, there has been no specific end to the project as it is an ongoing project. The focus has therefore been on investigating how resources planning has been perceived in practice within the project.

Information that can ultimately generate relevant results

Priority was given to the diversity of the overall experience of the contact persons at the same time as a strong connection with external stakeholders was considered a must for all. In addition to experience aspects, it was also considered important to maximize the spread among the work situation to create a variety in terms of reporting. Consequently, the ambition was to include a company that has different methods from PMI methodologies to learn other ways of conducting projects. Also, a definition of company size was used to ensure the relevancy of the tasks or responsibilities of the researcher.

3.6.2 Procedure

The method choices made in the previous section affect the selection of the literature and the collection of empirics. A fundamental part of the study approach is flexibility, which forms a typical characteristic of a mix of qualitative and quantitative studies (Wolf & Bassler, 1980). The literature and theory selection have been made continuously during the study. Knowledge gathering began with a general search of databases and libraries to create an overview of resources collection. Information was then collected in parallel for the project management section and the part about building results, first with a wide selection and then narrowing it down.

3.7 Validity and Reliability

The validity and reliability of the study influence how the data is perceived by its receptors, as well as its usability post the research.

3.7.1 Validity

Validity refers to whether the study provides the information it is intended to measure (Zhang, Hall, & Baddoo, 2011). The study focuses on a few objects but applies to several. In this case, the project has been studied with a unique approach, even though there are similar studies in fields such as medicine. The validity, in general, proves that the study can be used in other comparisons. The author of this study considers that the study has high validity, as this has allowed the study to include own observations. The details of the study are also accurate enough for others to relate to it and explore it further.

The non-empirical data collection has been carried out in observation and informal questioning, which increases the validity of the study. The choice to maintain the questioning informally was because some opinions did not prove relative to the study, thus would not contribute to the results but important to know. This was also to ensure that the researcher was not limited to obtaining information. Furthermore, the participants had an opportunity to redirect the conversation towards the information they thought was relevant at any time.

3.7.2 Reliability

Reliability shows how reliable the study is. To show this should be two different studies with the same method and purpose give the same results. If the same result is obtained, the study has high reliability (Lieber, 1990). In this case, the reliability of the study is enforced by using two methods: non-empirical and empirical. Therefore, can be proved but in a limited extent due to the assumptions considered.

Another constraint that affects reliability comes from the statistical section. The researcher added dummy variables, also known as indicators, to afford normalisation of the distribution curve. The reason for this is to avoid irregularly in the calculation since without indicators the sample would be too small to produce any results to work on. In other words, catalysts were introduced in the resting of the hypothesis. It must be noted that reliability indicates that the researcher was consistent in the measures, regardless of the actual result. If the researcher selects a certain estimate, the study becomes reliable if those measurements or type of processing methods are kept consistently.

3.8 Presentation of data

As most of the questions asked in the course of the observation were intended to allow different interpretations of these by the respondents and thus there are major differences among the types of information that emerged during the observation. The company's experience in project management is vast, also varies greatly in scope and has given rise to different focus areas.

Because information obtained varies widely, it is not presented in any standardized way for all companies. The presentation of the empiricism thus does not focus on what each respondent has given for answers to the questions but on the activities and processes of the company. An exception to the presentation of the empiric has been made in the presentation of the result of the participatory observation. The information collected through participant observation has been selected to be presented separately from the information collected through the statistical analysis of secondary data. This has been done so that it is clear to follow the information that has emerged from the participant observations, to be able to relate these to the problems and risks associated with the method.

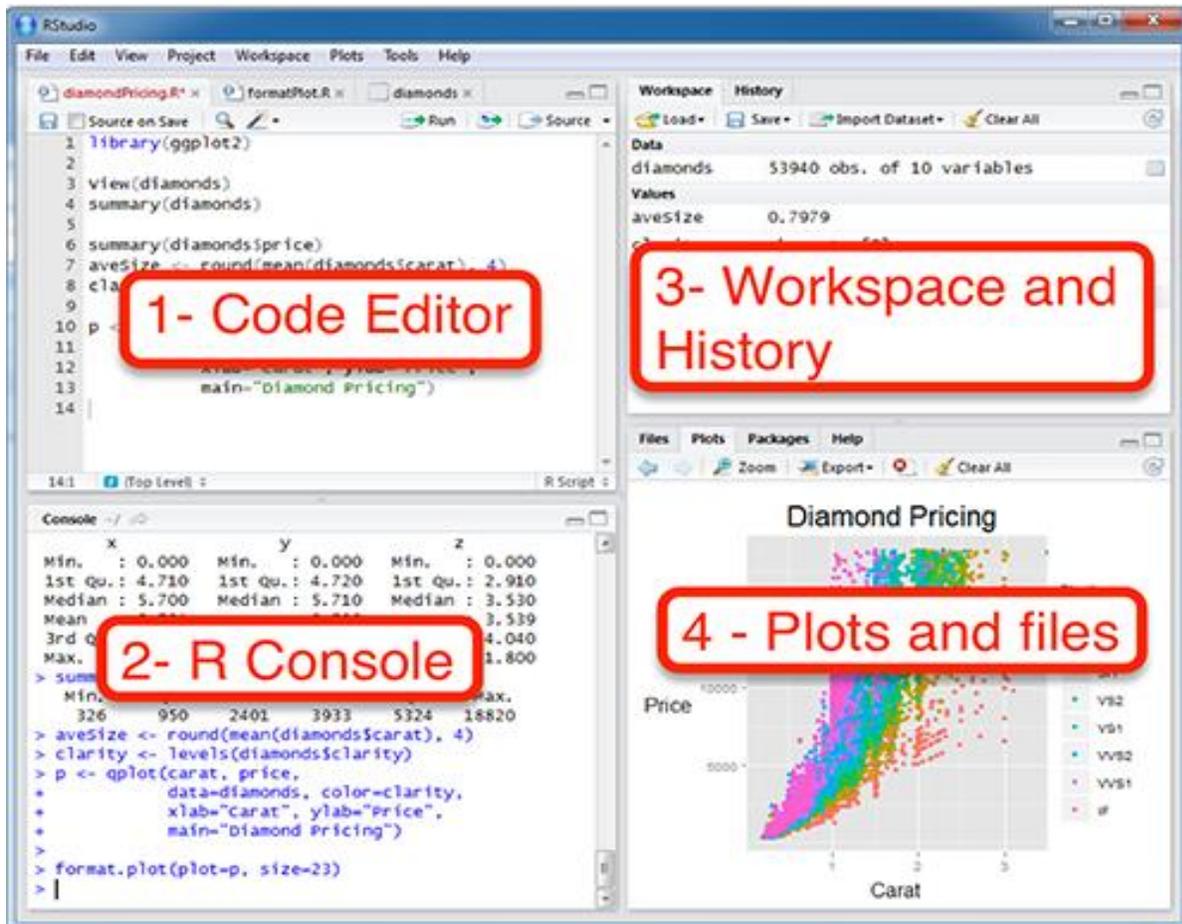
3.9 Systems and tools

The researcher used programmes and tools to complete the research. The aim of using these was to analyse the data or process it.

3.9.1 R Programme

R programme is a statistical computational programme which is downloaded from the internet. It has been used in companies, particularly to assess the statistical data of the organisation (Ramakrishna, 2017). The researcher has used to manipulate the data and obtain valuable results. The programme itself requires that the user clean the data before it uploaded. The researcher cleaned the data; this step required the user to assemble columns and rows of the data in a readable way.

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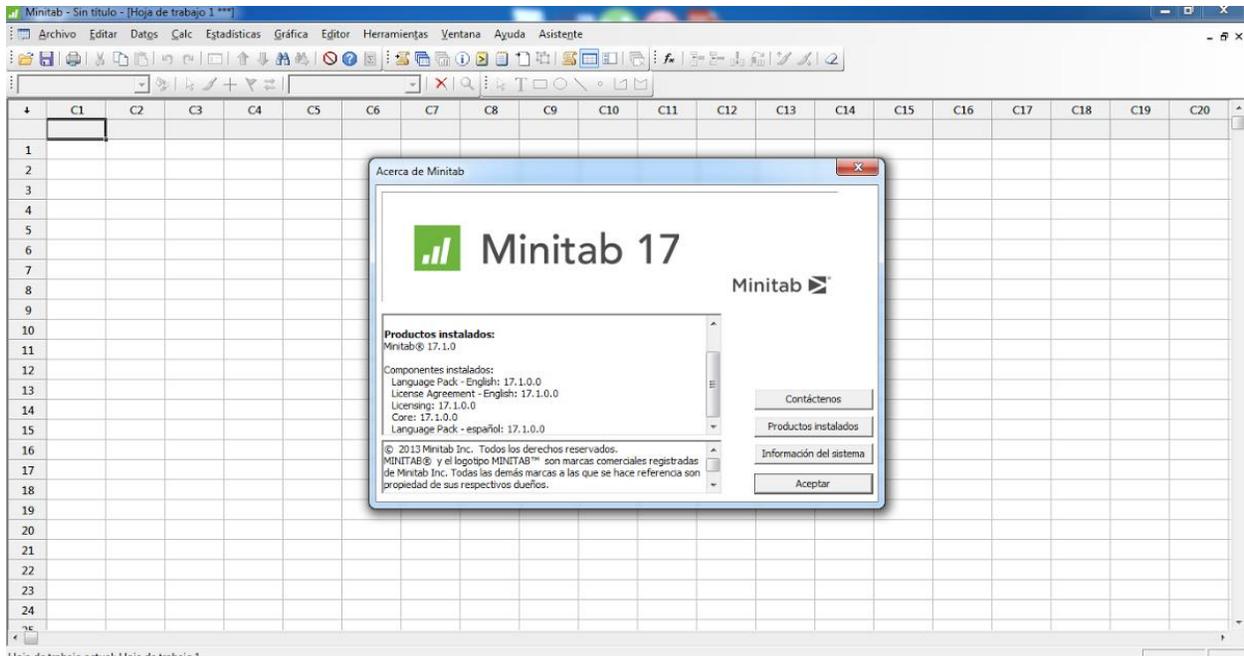
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Figure 7: R Programme

3.9.2 Minitab

Minitab was useful in capturing and storing the initial data. Minitab is defined as a complete general statistics tool which covers a large variety of processes that relate to statistics. It is most useful graphically presenting data and is mostly used by professionals who enjoy flexibility in data presentation (Prvan, Reid, & Petocz, 2002).

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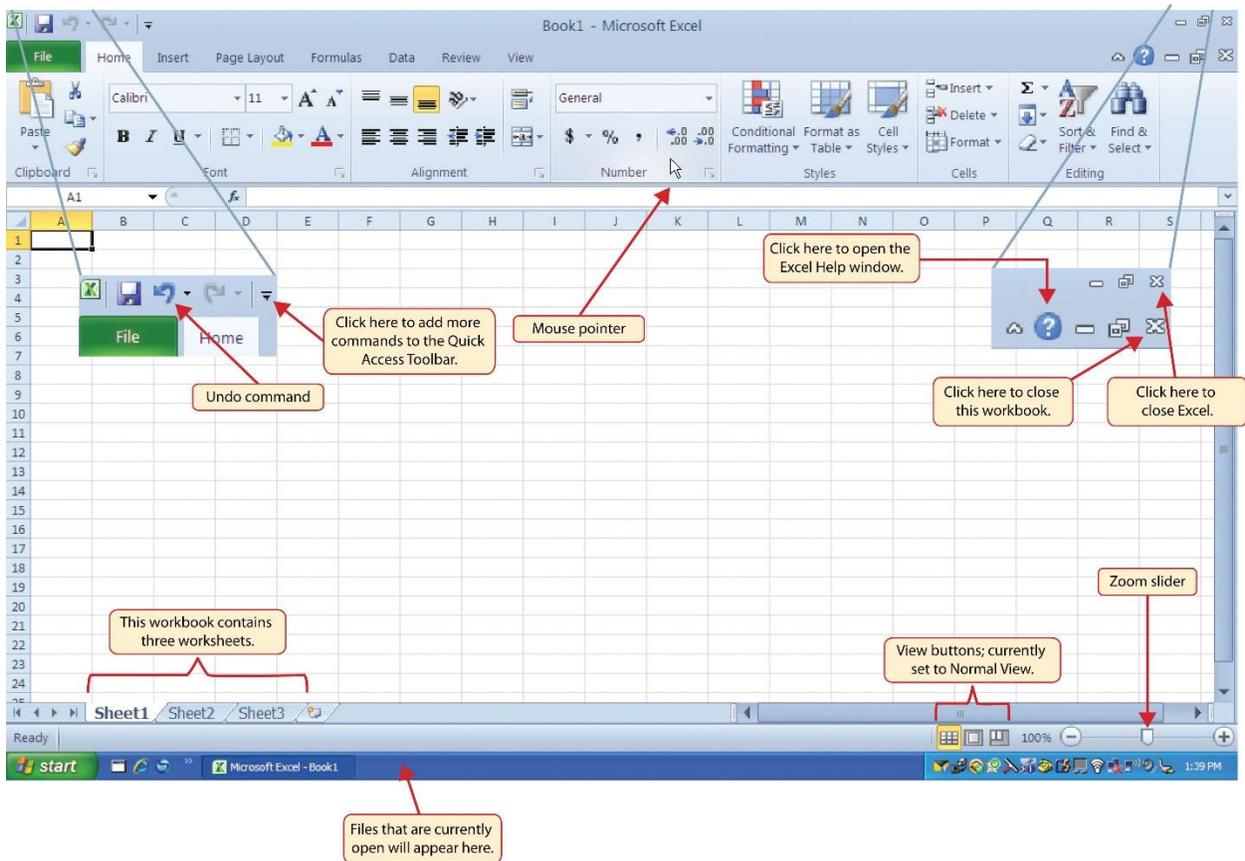
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Figure 8: Minitab illustration

3.9.3 Microsoft Excel

The researcher also used excel to share information with the hosting company. The use of excel assisted in sharing of data with those who did not have the Minitab programme. Excel, which is in the form of a spreadsheet, allowed an easy manner to communicate. Microsoft Excel forms part of the software programme that is globally used in various industries and schools (Aravind, Rajgopal, & Soman, 2010).

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Figure 9: Microsoft Excel illustration

3.9.4 SKYPE

SKYPE was the most common form of communication due to geographical constraints between the researcher and other stakeholders to the study. It is VoIP software which was launched in 2003 by the developer KaZaa. It is also widely used in corporate as well as schools (Baset & Schulzrinne, 2004).



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Figure 10: SKYPE illustration

3.9.5 Emails and phone calls

Generally, team members communicate via emails or phone calls. It has been a standard since the inventions of phones and computers. Similarly, the researcher made use of these tools to communicate with the team and other stakeholders. Emails are in the form of electronical text.

3.10 Confidentiality

The study respects the confidentiality of the company from which the researcher was based. Extending the confidentiality to the school as well.

3.11 **Limitations**

The study was limited in reference literature since the majority of the existing literature studies projects that run over six months. The observational period was also limited to four months. The duration of the study is not sufficient to provide undisputable results.

3.12 **Conclusion**

The chapter discussed methods that the study intended to follow, target audience, and data analysis processes. This chapter considered the ethical obligation through declaring confidentiality, as well as admitting some of its limitations.

CHAPTER 4: ANALYSIS AND DISCUSSION

In this chapter, non-empirical evidence from observation, and secondary data extracts are compared with the theory detailed in the literature. The analysis aims to extract the important aspects of the empirical data that are relevant to the study and can ultimately be related to the overall question. The analysis has been carried out according to the method described in the methodology section and is presented below concerning the categories used during the analysis.

4 Non-empirical, and empirical: statistical and mathematical data

The information in the study has been gathered through participant observation at a non-profit based company within a fundraising department. The involvement in this process gave the first-hand insight into the depths of project management. The challenges are above those which commercial project managers face. Additionally, it is an isolated industry.

4.1 Non-empirical data

In the non-profit industry, a lot of resources are spent on streamlining work methods and finding the optimal way to execute and manage projects is a constant challenge. Today's organizations are also in a situation where the market demands reduced costs but at the same time a higher level of support and service. From this viewpoint, it has a wealth of different working methods, and associated tools have been generated, all of which aim to structure or streamline the system development process. However, these tools come with their challenges.

In this industry, work is often done in project form and having a competent project management is often one of the factors behind a successful project. For a project manager to be able to lead the project to success, one must have a good idea of how things run regarding to other external factors, such as donors. It is easier to complete resources planning when all resources are available.

4.1.1 Challenges in the availability of resources

There is a critical challenge when the availability of some resources is dependent on external factors. Industries that do not run like commercial organisations have longer waiting periods for resources. This trait cause management to extend the duration of the project or can cause it to fail. Lack of availability negatively affects the planning either financially or in scope. Therefore, the efficiency in this regard is challenged.

4.1.2 Challenges in approach due to different industries

A project manager of a non-profit industry cannot use the PMI methodology. Some of its information does not cover certain aspects relating to the industry, such as dealing with donors. In the PMI method, it is assumed that there is already an existing sponsor. This complexity introduces a factor that should be noted for future studies. Comparison of practical actions in both methods highlights a gap in the literature and practicality.

By comparing collected data on a project manager's tasks in projects with the traditional project manager's tasks as these are described in the literature, several differences have been demonstrated. Project managers in profit-oriented companies show a much closer collaboration to their funders, as the funders expect a return on their investment. On the contrary, in a non-profit organisation, there is a more intensive involvement in projects on the part of the project manager, and seldom the funders as they do not receive a quantifiable return on investment.

4.1.3 Ensuring that project goals are achieved

To be able to ensure that a project stayed within the plan needed the project manager to continuously monitor the project result and compare it with the remaining budget or schedule. Often it was necessary to look both forward and backward in time to be able to assess the amount of work that remains in the project. Traditionally, a milestone plan is included in the feasibility study, and although it does not need to be detailed. Similarly, in this case, it gave a good overview of the project. It was the milestone plan that was used as a basis for monitoring the project and assessing the current status of a project.

Well-defined goals and clear priorities are two points that are considered extra important to be able to lead a project well. Without defining goals clearly, there is a risk that they will work

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more than necessary because they are difficult to determine when a goal is met, and it may also be a problem at the end delivery that all goals have not been achieved. Similarly, unclear priorities can lead to work where it is difficult to focus on the essentials and the risk of suffering a shortage of time increases.

4.1.4 Involvement of all stakeholders

It was discovered that all stakeholders should be involved in the resources planning for the maximum value of the process. Without everyone's input, the process fails to satisfy everyone's needs. Figure 11 explains the relevance and importance of stakeholders in the resources planning process.

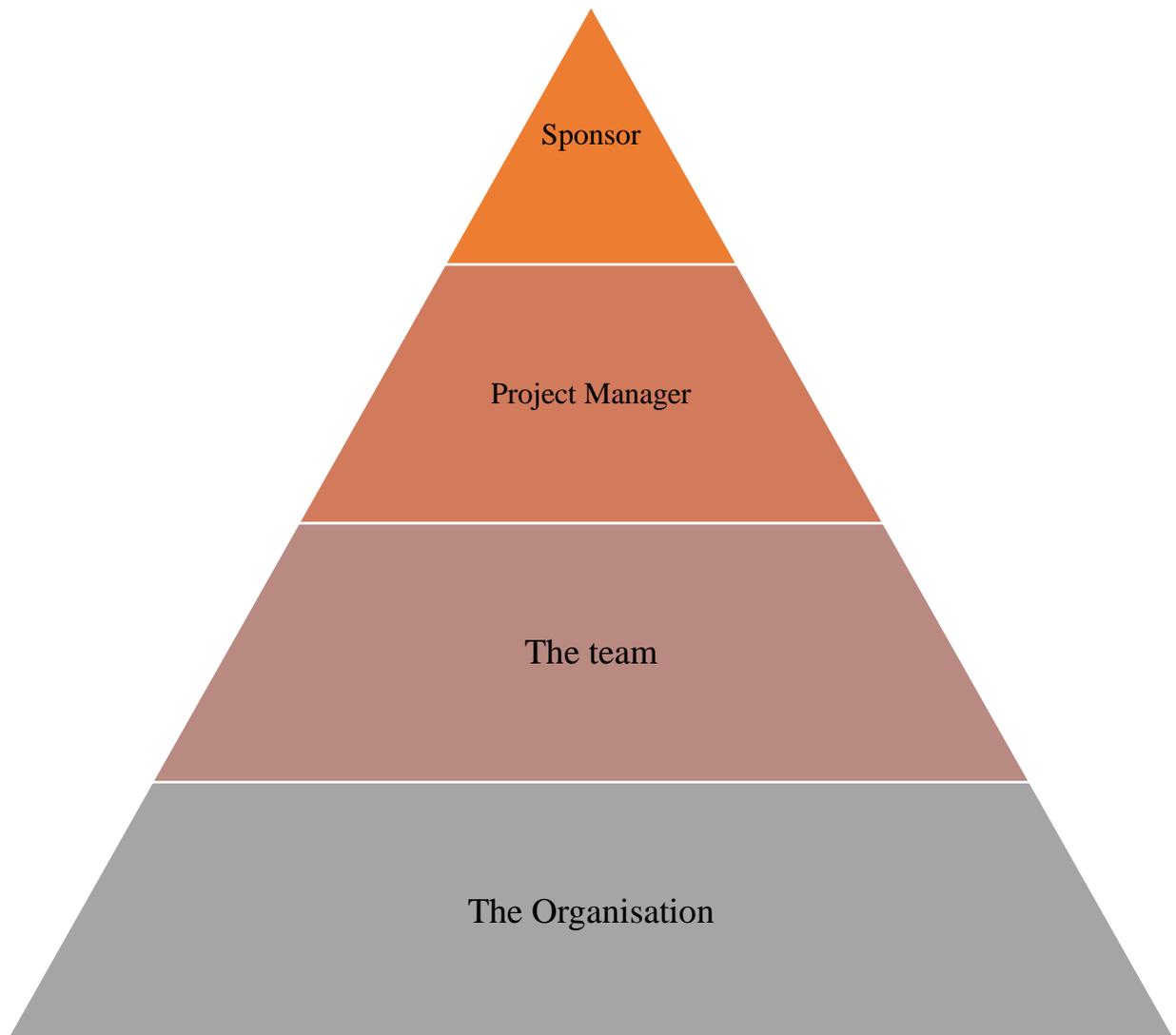


Figure 11: Importance in resources planning

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Role of a sponsor

In resources planning, the sponsor provides financial resources to the project.

Role of project manager

The project manager must identify key team leaders whose specialities are required in the project. By doing so, the project manager can identify which resources are required, how they are required, when they are required, who will use them, and their availability. The project manager identifies the quantity, availability and quality of resources during the planning. Planning and organizing the project remained in the initial phase. The project manager's most important task was to ensure that all planning is done.

The most common type of planning performed was detailed time and resources plans, cost estimates, organization of work and risk analyses. The project manager delegated as much of the planning as possible, as the quality of the planning was increased. The participants in the project were selected according to their expertise and the project manager was rarely expected to know everything in the smallest detail.

The team

The team is there to raise the resources requirements of the different department that they represent. In this way, they also offer information on the availability of their resources such as time, which are critical to the planning of the entire project.

The organisation

The organisation's interest in resources planning is vital to the process since the organisation is inclusive of the customer. Customers benefit from the process as the product is intended for them. According to Beckett-Camarata, Camarata, and Barker (1998), customers can be internal, such as departments or employees or be external such as the end-user. The customer is not always involved in the process regardless of being a priority on the order which is a flaw of the waterfall project approach.

4.1.5 Team must be motivated

A mature organization focuses on effective learning and giving the right to make decisions to employees. This is what is usually referred to as strengthening or making their team cross-functional; that the team should be able to push themselves and dare to make their own decisions. Since most of the knowledge in a project is with the team, it is important to let them make the important decisions themselves. It is also a matter of letting the employees decide for themselves how to perform their work while at the same time testing and finding out the best way to do the work.

Allowing the team to plan and make decisions changes the role of the project manager from being the distributor and talks about how the work should be done to be a more helpful hand. For example, the team can ask the project manager to notify other departments if the team needs specific help or if they need to notify the customer of something. It is also on the project manager's role to defend and look after the team in all situations for the team to be assured of their contribution to the project.

4.1.6 High standard of quality

The project manager must promote the team to maintain high quality combined with the right functionality, usability and reliability of the services or product in production. With combined efforts, they must ensure that not only they do what is expected, but also to do it well. In this manner, the user feels that the team knows exactly what they want. However, this confidence requires a very high exchange of information internally in the team and externally together with the customer.

4.1.7 Communication is important

Success in resources planning is about being open to change and having a good feedback cycle where the team is always ready to change their approach in the meantime and not blindly go after decisions made in the beginning. It is important to have a good process from start to finish where the work can be dynamic between the different project phases such as identifying and executing require an extensive engagement.

4.1.8 Continuous communication and feedback

Something also important to the entire researcher's project team was the ability to quickly rethink. In a profit-oriented organisation, there limits since they use a waterfall method which can be confining. All tasks are well defined right from the start and are were always detailed descriptions around what who would develop and how. With the transition to a flexible approach, the projects become more dynamic and things became possible to change and change tracks during the development.

This meant that it was very important to have continuous feedback between all parties involved, to communicate and explain in a good way why the development plan looked like it did and possibly why it has changed since the last reconciliation. To manage this continuous communication is something that took more time by the project manager, but it is time that was earned on that the developers who are on the teams may be more focused on solving their task best way and not constantly need to adapt to a predetermined plan.

Accepting or rejecting a plan

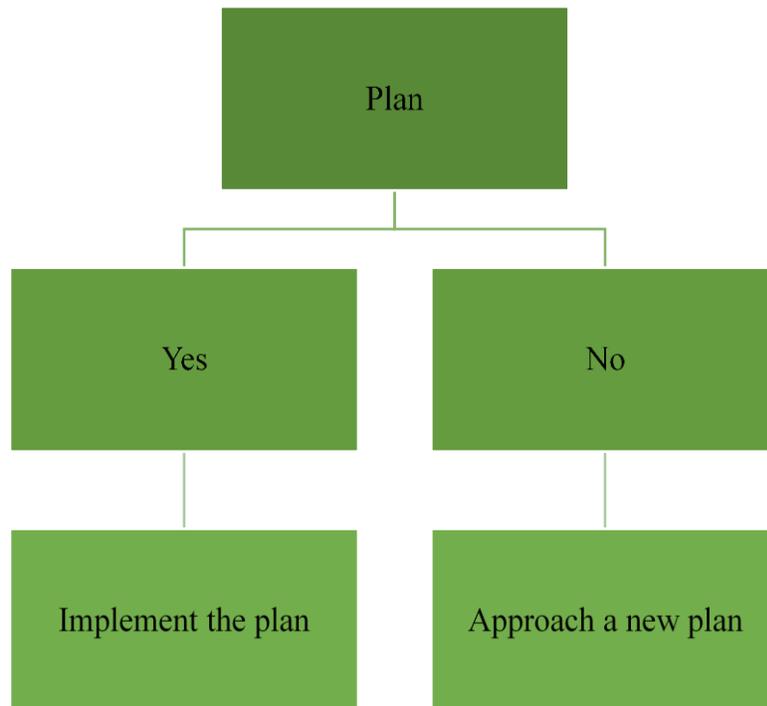


Figure 12: Accepting/rejecting a plan

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Figure 12 shows the acceptance or rejection of a plan. If a plan is accepted, the team moves forward with implementation. However, should there be other suggestions which automatically decline the first plan, then modifications or a new approach must be considered.

The Continuous communication changes through a flexible approach meant less pre-arranged meetings and instead focuses more on casual meetings such as over SKYPE. The main idea was to increase communication as much as possible and to try to make sure everyone was involved. However, it was entirely up to the project manager to manage the external communication between, for example, the potential donor and the CEO. The communication allowed an easier planning because it was performed in a flexible way, as opposed to the rigid waterfall approach.

External communication is often a complicated process, especially when it was moving about changes in a project. All changes had to be made in writing and with the approval of all interested parties, which made it a reliable process. This kept the projects dynamic and responsive to change. Processes are easier to implement when everyone agrees.

4.1.9 Delegate and follow up activities

Contextually, a project manager must always consider that delegation should not mean giving the project team more work, but it should result in the project team getting better work tasks. Delegation should be used as motivation and never as a punishment. It is also important for project managers to be aware that responsibility can never be delegated. In the end, it is always the project manager who has the ultimate responsibility and must be able to be held accountable to the steering group and the client.

Throughout the life of the project, the project manager engaged in verification, where the aim was to ensure that the project delivered the results that corresponded to the goals. Before implementation, the project plan was reviewed to identify any deficiencies, and in cases where the project manager could revise the plan, it was done so. However, as seen in literature, this should be done before the project commences.

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During the implementation of the project, among other things, the working method was examined to ensure that the workflow was constant in the manner that had been determined. Much of the other follow-up that was done during implementation intended to ensure that the project goals are achieved. Finally, the results were still outstanding by the submission of this report.

4.1.10 Indication to change to flexible methods

The transition from a waterfall-based way of working to a flexible working method can be well-defined within the methods and structures of the organisation depending on how a project would go, and there were should be rules set up for regular meetings between teams to follow-up on milestones. The agile method used mostly in IT is preferable even though less structured. This approach is desirable because things are not always clear and defined and predictions are limited. Researchers recommend continuous quality review since in the previous works there could be problems that come up later in the period.

Planning and prioritizing of resources could constantly be changed, particularly when working in more flexible projects. To be able to produce profitable results, it is also required that the organization be aware of what it wants to achieve. It could be problematic for many parties to move from a well-structured way of working where everything is managed in the same way time and time again for a more free and dynamic way of working. Therefore, it is important for project managers to be able to communicate within the organization and make sure people are aware of what is happening and what it is supposed to be the result.

In the absence of a well-defined plan at the beginning of a project, one can easily deter clients who are accustomed to this, and at these times, the project manager can present the benefit and effect of working in a flexible approach and prove that resources planning should continue throughout the cycle of the project due to its short duration. It increases the responsibility of the project manager to be able to communicate with customers and the teams about exactly what it is working on the team.

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4.2 Statistical and mathematical data

The researcher used identified factors to challenge the p-value to accept or reject the hypothesis.

The researcher used the R-programme to manipulate the data and obtain the correct p-value.

H₀: $p = 1$

H_a: $p \neq 1$

H₀: There is an impact on short-term projects, which results from resources planning.

H_a: There is no impact on short-term projects resulting from resources planning.

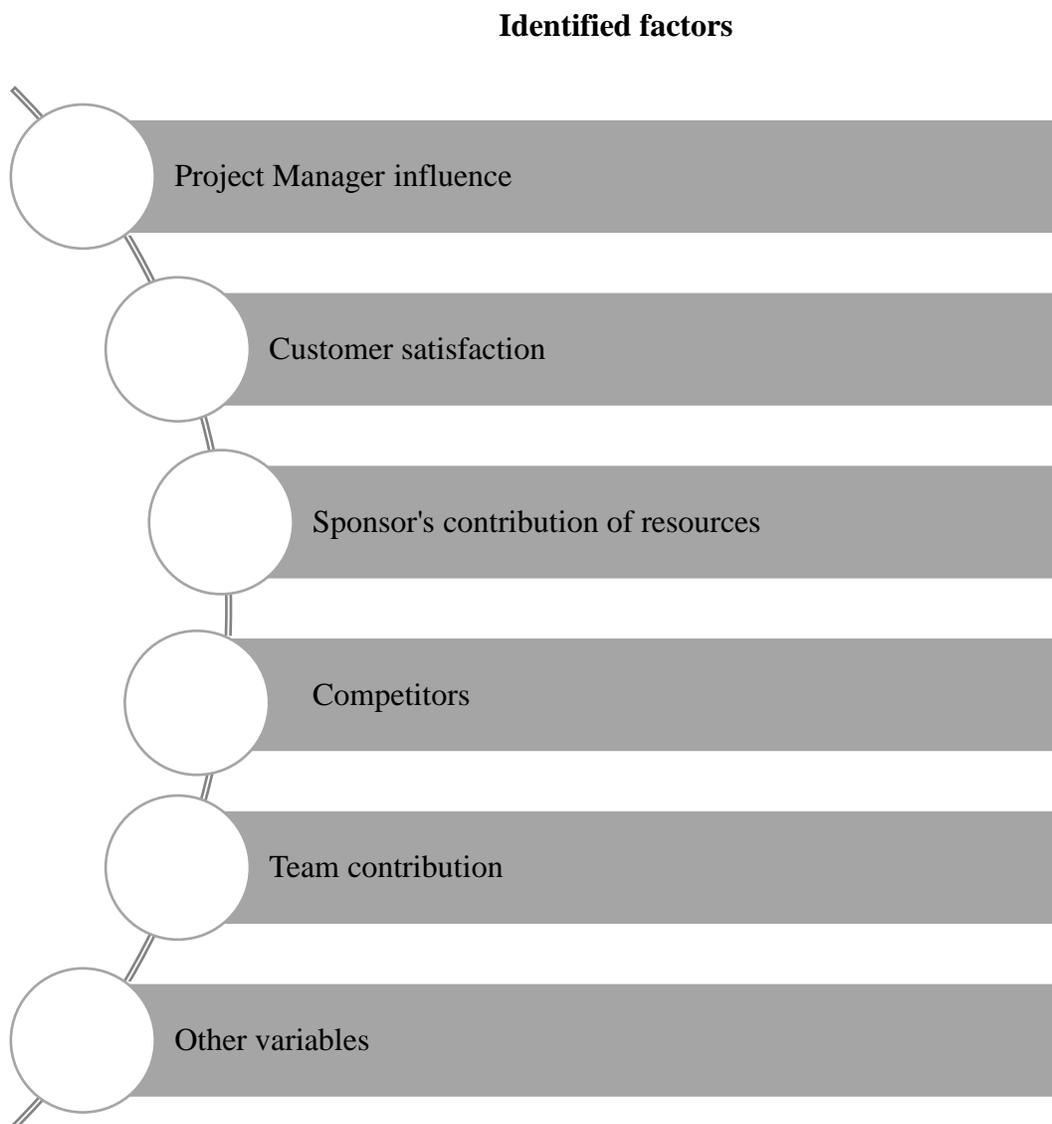


Figure 13: Influential factors

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The identified factors are the independent variable, which means that they have a causal effect. Whereas, the impact of resources planning is the dependent variable. Additionally, the constant variable is time. One of the key conditions the process of statistical manipulation had to endure is that time is not changeable due to its nature of moving forward. We cannot change or manipulate time. The fact concerning time being a non-changeable matter was proven by scientist and has been affirmed by Orlikowski and Yates (2002).

4.2.1 Mathematical argument

This format follows a simple mathematical equation of $y=mx+b$ which can be used in testing causal relationships between variables. Where there is no relationship between the variables, the impact will be zero, also if the time is at zero. As argued above, time cannot stand still, thus it cannot be at zero. Consequently, from a mathematical sense, this proved that there is an existing impact. The independent variables are represented as x , and the dependent variable is represented as y . Time is showed in the value of b , and m remains the gradient to show the extent of the effects of the independent variables. In a graphical description, m shows the slope of the graph.

4.2.2 Statistical argument

For the equation to work, the researcher had to numeric the variables. The equation was pursued with an interest to test the impact of resources planning on a short-term project in each effort/day of the 4-months project. To change the data to numeric the data the following assumptions were given:

$b = 8$; the represented effort hrs per day of work

$m = 4$; the fixed duration of the project = fixed time

x = calculated on a scale of influence of 1-5= variable's influence

mx = gradient = Change per influence

y = Impact

Whereas, the sponsor maintains the maximum influence regarding the continuity of the project. In a way, the sponsor plays a customer of a different product. The researcher needed to consider

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other factors such as competitors as they influence the planning of resources. For example, when hiring human resources, the manager must note competitors who might also be interested in the employee. Some factors could not be specifically identified since the industry can be volatile; however, a margin for it was set.

Results (extract) – Scenario 1

Impact	Change /slope	Fixed time	Influence	Variable
24	16	8	4	PM's role
28	20	8	5	Sponsor's influence
28	20	8	5	Customers' satisfaction
20	12	8	3	Team's contribution
16	8	8	2	Competitors
12	4	8	1	Other factors

Figure 14: Numeric data of mathematical testing of independent v dependent variable 1

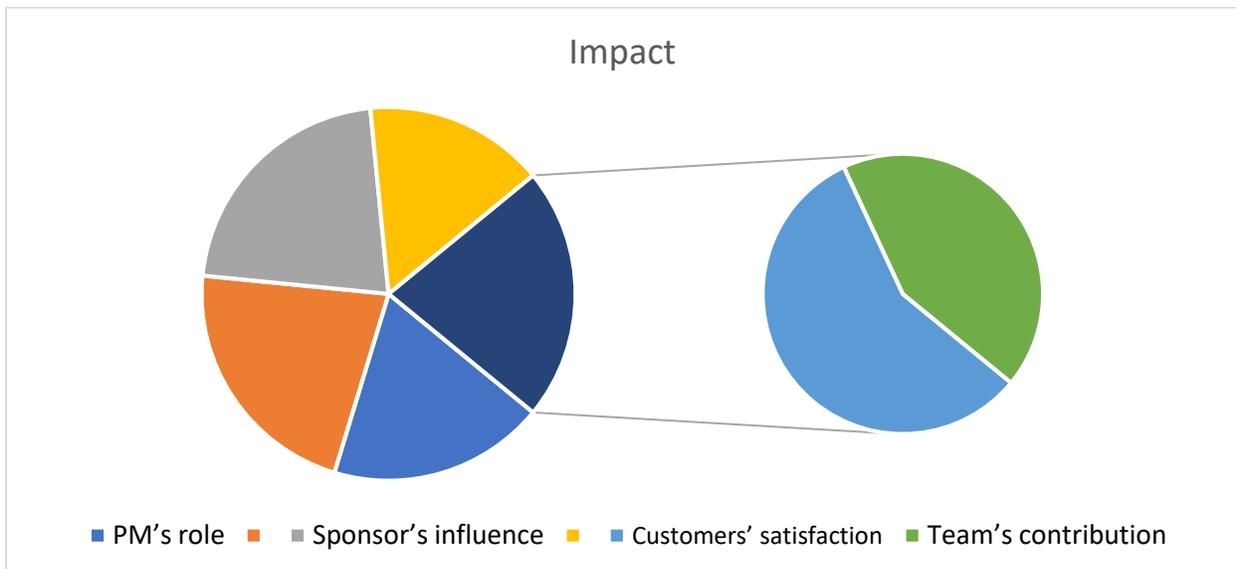


Figure 15: Resources planning impact 1

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Figure 14 is a simulation data that was used to numeric the theoretical data to enable the researcher to estimate the impact in a graphical way. It shows that variable b, which is time, remains constant and unchangeable. It also shows that, as expected, the effort of the sponsor and project manager is highly influential to the impact of resource planning. Interestingly, competitors' influence is showing to be a waste of time in the planning of resources. Even though its consideration is positive in the overall project, it proves to have a negative overall influence on the gradient of the results. This could indicate that the team should be aware without wasting time on it.

Results (extract) – Scenario 2

Impact	Effort per variable	Time	Variable
28	20	8	Sponsor

Figure 16: Numeric data of mathematical testing of independent v dependent variable S2

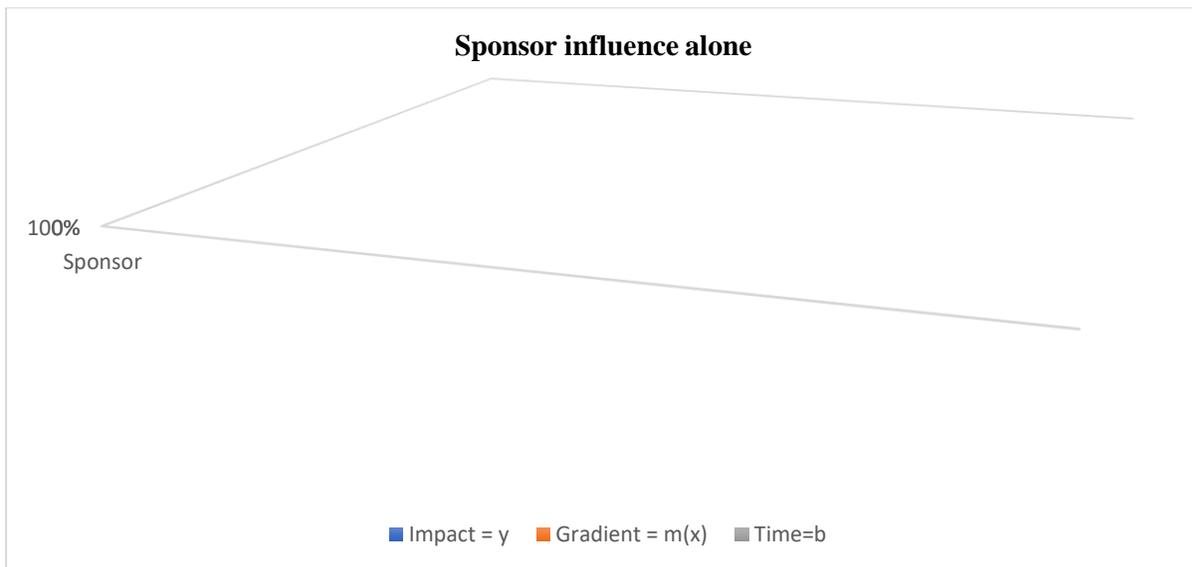


Figure 17: Resources planning impact 2

Scenario 2 proves that even though the sponsor has financial resources; there cannot be an existing project without the rest of the factors. The sponsor alone cannot have a project running even if the resources are there. This then eliminates the impact of resources planning when there are missing key factors, such as the project manager. The impact is absent on a project; clearly since there is simply no project running in this scenario.

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Results (extract) – Scenario 3

Impact	Effort per variable	Time	Variable
24	16	8	PM's role
28	20	8	Sponsor's influence

Figure 18: Numeric data of mathematical testing of independent v dependent variable 3

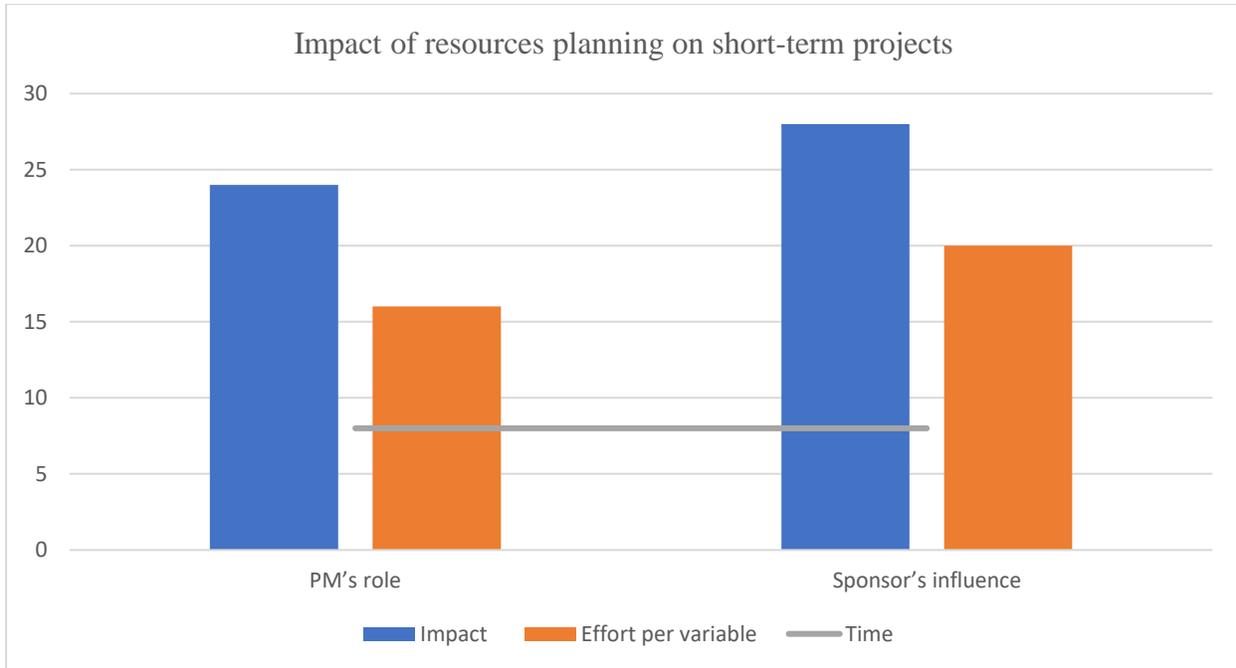


Figure 19: Resources planning impact 3

When the sponsor recruits a project manager to use available resources, as shown in scenario 3, the project initiates, and the impact of resource planning becomes positive. The influence of the sponsor remains higher than that of the project manager. The impact is high; however, it would demand much of the effort for the project manager to deliver on the goal.

Results (extract) – Scenario 4

Impact	Effort per variable	Time	Variable
24	16	8	PM's role
20	12	8	Team's contribution

Figure 20: Numeric data of mathematical testing of independent v dependent variable 4

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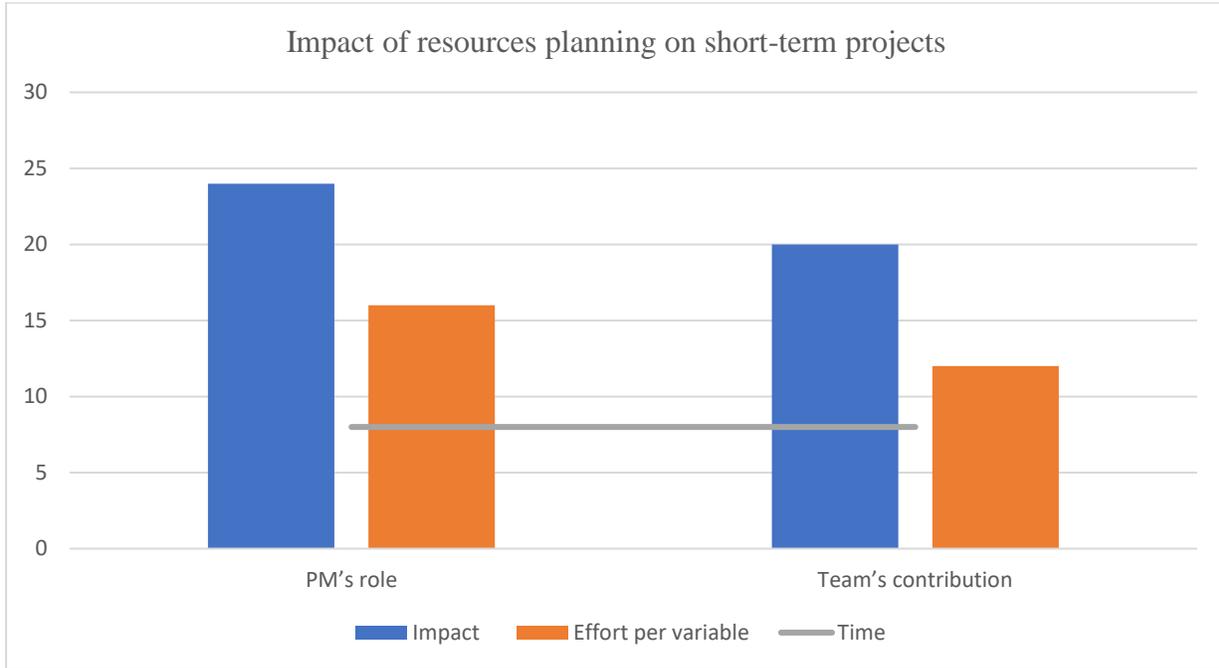


Figure 21: Resources planning impact 4

Scenario 4 shows that even though there is no sponsor, the project manager, with the help of a team could still form a project. However, it means that the project manager will be expected to work harder in finding funds that will keep the project going. This then requires more effort from him in resources planning. The impact will be high but mostly from effort rather than finances.

This scenario represents the practicality of a non-profit organization.

Results (extract) – Scenario 5

Impact	Effort per variable	Time	Variable
28	20	8	Sponsor's influence
20	12	8	Team's contribution

Figure 22: Numeric data of mathematical testing of independent v dependent variable 5

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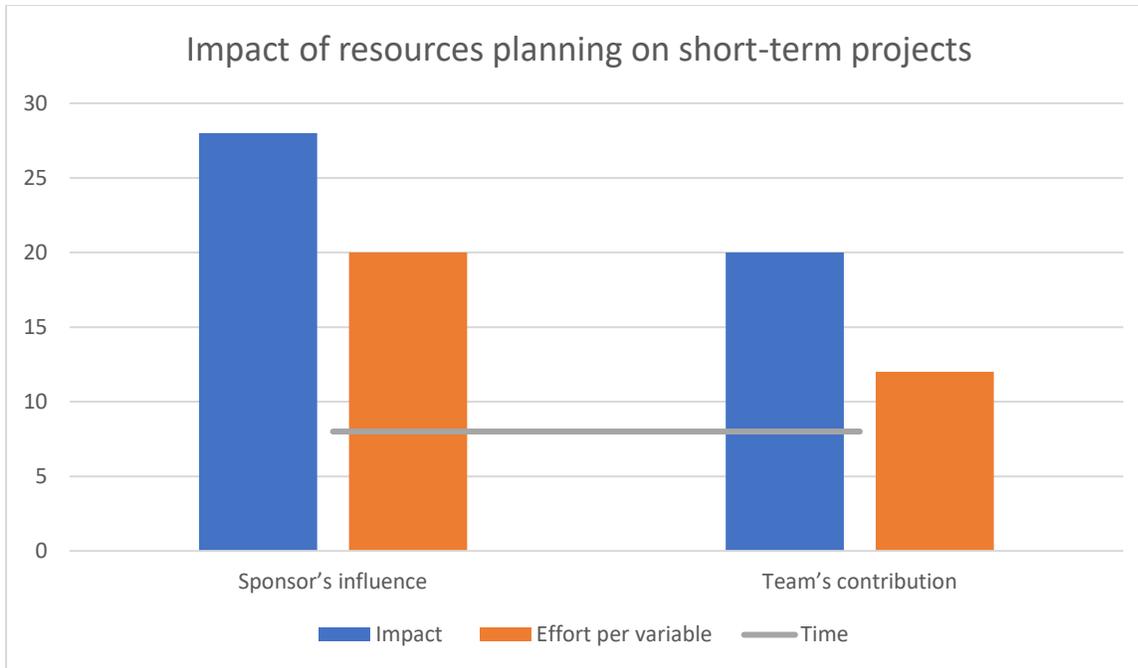


Figure 23: Resources planning impact 5

The impact is high in scenario 5; however, much would not be accomplished. Such a project is likely to be delayed or to be a loss to the sponsor. Unless one of the team members could take the role of a project manager.

Results (extract) – Scenario 6

Impact	Effort per variable	Time	Variable
20	12	8	Team contribution
16	8	8	Competitors
12	4	8	Other factors

Figure 24: Numeric data of mathematical testing of independent v dependent variable 6

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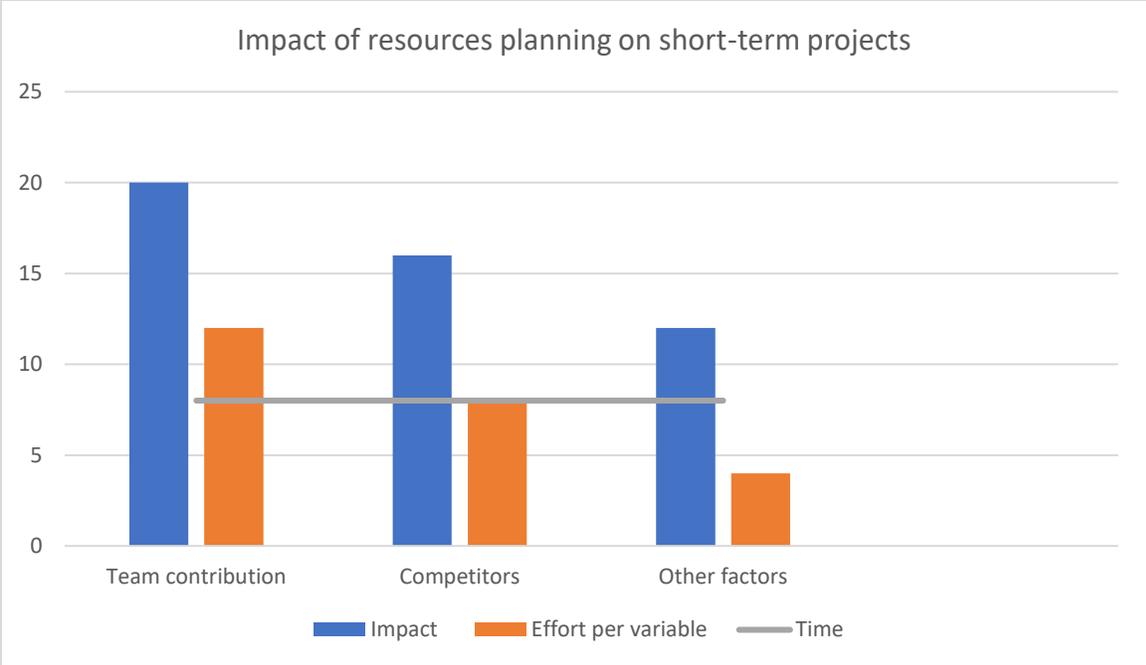


Figure 25: Resources planning impact

Scenario 6 shows that other factors have a minimum to, negative or no influence in the resources planning process.

These summaries show that in every project, there must be someone or a group of individuals who are willing to provide resources. However, at the same time, there must be a team that is willing to execute the project to its fullest form. Different stakeholders hold a different weight in influencing the need to plan resources on short-term projects.

4.2.3 'Other factors' details

The study includes other factors which are not names. The reason for not naming these is that they can be anything and can rise from any activity during the project. Additionally, they can be industry-related and not the same for all projects. An example is conflict. Some projects teams can experience conflict. The conflict can also rise in the form of external members such as suppliers. Should materials from a supplier be late, the process gets delayed and the team morale decrease, which in turn decrease team contribution to the project. Another example is of a scope creep. A scope creep is defined as any matter, activity or growth that is uncontrolled (Kuprenas & Nasr, Controlling design-phase scope creep., 2003).

4.2.4 Testing the probability of the hypothesis

To test the p-value, the researcher used the data shown above and inflated it with other variables to increase the normal distribution curve. This was done to avoid much irregularity in results. The significance level, the alpha was set to be at 5%: $\alpha = 0,05$, which allows a small margin of error as detailed in chapter 3. The confidence level was set at 95% and the

Scenario 1: all variables were introduced

p -value = 0,097

Scenario 2: Only the sponsor variable was introduced

p -value = 0.0004

Scenario 3: The sponsor influence and project manager influence were introduced

p -value = 0.058

Scenario 4: The contribution of the team and sponsor influence were introduced

p -value = 0.071

From this p-value, it shows that in relation to the data above; scenario 1 – 4, there is a relevant impact. However, the impact is not significant or existing in scenario 2, and this scenario should not be considered going forward.

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The testing of the hypothesis requires that the researcher accept it if the p -value is greater or equal to the significance level. For the Scenario 1, which includes all variables, and which this study considers, the p -value is 0,097 which is greater than 0,05. Since the p -value is greater, the researcher accepts the Null hypothesis which states that there is an impact of resources planning on short-term projects.

4.3 Conclusion

This chapter has shown that there is a positive impact of resources planning on short-term projects. It has shown that some variables have no effect on the process and competition has a negative impact. The impact was proven through theoretical, statistical and mathematical methods.

CHAPTER 5: RECOMMENDATIONS AND CONCLUSION

This chapter concludes the study by providing recommendations to the relevant industry decision-makers. It provides alternative approaches in conducting resources planning.

5 Recommendations and conclusion

5.1 Recommendations

The two methodologies offer specific favourable circumstances to resources planning regardless of the length of the project, recommending that the issue isn't one of just choosing the duration. A key issue concerns responsibility. However, stakeholders must be versatile in administration and planning. They must advocate for open-minded viewpoint and acknowledge when planning has not been completed in an effectively.

Any methodology can offer more prominent progression for clarifying the available data; however, with more advancement, a more approach will be apparent. When conducting resources planning, there must be enough flexibility to allow members to revert to the initial plan and modify if necessary, or if there have been new developments. Time for rigid planning, such as it is the case in some projects, is not effective in today's rapidly moving industry.

Lack of theory in this regard has proven not to be an issue in completing the research, and there are no recommendations in this regard. This resolves the issues highlighted in the literature review as the results have proven that resources planning is required. However, further exploration of the topic in measuring the impact is recommended if new factors can be introduced to manipulate the data and produce a different outcome. Factorial manipulation is beneficial when identifying the causes and the impact of the cause of the subject matter.

It must be noted that theories that enforce waterfall methods will not be effective in some industries or, sometimes, within shorter periods. This requires the organisation to pre-study its industry, needs, and resources availability. In other instances, there will be a need for a research

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project before the actual project takes place. It will require some investment; however, research can reduce losses in the actual project.

5.1.1 Introducing new processes

With the introduction of new processes in resources planning, all employees and their working methods are affected. This also applies to project managers and their duties. With a great focus placed on the teams to introduce information relating to resources, this can take much of their planning and working methods in improving delivery. Another point is that the role of the project manager changes from being a chairman to being more involved in the team's everyday life. As the literature has implied, the role of the project manager was often to divide work and delegate tasks, while it is now instead of the team that does this and allows the project manager to focus on the problems and deviations that arise.

Instead, they have an approach where project managers should always work with solutions to problems and would like to see them as solution-oriented rather than problem-oriented. A clear advantage of having the project manager as one in the team in resources planning is that the project manager's transparency in the project increases. Instead of only occasionally checking how the work should progress, the project manager is where things happen. This allows other project members to have regular and better interactions together with the project manager.

The work on the follow-up of projects should change significantly. Previously, very high formal requirements were set for follow-up, which often led to a very specific follow-up that also affected the team's working methods. Now, as other companies such as Google have started doing, the requirements that follow-up should be done regularly based on needs, usually through a daily check of resources in the project and that the quality is maintained within the schedule.

5.2 Conclusion

The introduction of this analysis focused on giving the background to the problem using the problem question: What is the impact of resources planning in short-term projects? The discovery was of that the impact is determined by many factors which include the customer satisfaction, team contribution, availability of resources, sponsor influence, and the project manager role. Even though it has been determined that it cannot be exactly quantified; its influences were realised. Furthermore, it was discovered that the impact of resources planning on short-term projects is positive.

The thesis has explored the literature that exists and dissected the meaning and role of a project manager in terms of resources planning. Moreover, the discussion identified key factors that have an influence on the outcome of resources planning, or lack thereof. In this instance, the complete picture of when and how resources planning should be conducted was detailed. It was also discovered that when some factors are taken out of the equation, such as the commercial industry, the planning differs to some extent.

The statistics and mathematical arguments have shown that there is a positive impact of resources planning on short-term projects. It has shown that some variables have no effect on the process and competition has a negative impact. Furthermore, because the research gains a favourable p-value, the hypothesis was accepted at a significance level of 0,05 and confidence level of 95%.

The findings were based on observations and quantitative data. Additionally, the short-term duration was defined based on the interest of the study, since the literature did not produce a concrete definition of a short-term project. Necessary recommendations have been detailed for the attention of the target group.

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