DEVELOP A FRAMEWORK FOR PROJECT MANAGEMENT OF A SUCCESSFUL INTERIOR PROJECT

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Degree of Master of Science in Project Management

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Dissertation Submitted in Partial Fulfillment of the Requirements for
the Degree of Master of Science in Project Management

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ABSTRACT

This research aims to explore and identify the challenges faced by the project manager while managing an Interior Design Project to its Successful completion. This research would find these challenges and simultaneously focusing upon strategies in overcoming those challenges. The study would introduce and emphasize the theoretical tool as a core strategy that could be adopted by the project manager for the successful interior projects to manage the project and the study is to report on the results of a recent study that was conducted in an effort to test the importance of those factors that have long been believed to be critical to project success in interior projects. In order to achieve the following objectives were checked by using the following methods. To develop a work plan for the phases, to review and identify success and failure factors for project success, to investigate the practical challenges faced by project managers at each life cycle phase in interior projects.

The qualitative case study based research has been chosen for this study and literature related to theories and concepts have been collected and reviewed. Identifying common factors for project success during the phases will be done by analysing three different case studies by comparing each other with a semi-structured interview-derived through the previous literature. Finally explained the sample frames and limitations of interview and framework of the interview questionnaire also analysis and data presentation.

Therefore suggested a framework for successful project completion of an interior project is mainly considering to generate the spectacular framework for all characters who were involved for the projects. Since it is important to explore, the Project management in interior design the author has tried to achieve this topic to some extent since it had not been investigated.

Keywords: *Project Management Life cycle phases, Project Manager, Successful completion, Framework, Interior projects*

DEDICATION

This piece of research is dedicated to my beloved family…

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First and foremost I would be grateful to extend my sincere gratitude to every individual for offering their opinions, encouragement, knowledge about the subject related areas as well as for the encouragement and guidance provided to complete this as a successful project study.

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1.0 Introduction

Projects are characteristically defined by the need to complete a task on time, to a given budget with appropriate technical performance and a standard quality (Atkinson, 1999). Chan and Chan (2004) have defined the project success as achieving goal and objectives as specified in the project plan. A project is considered a success when it is complete prescribed time and cost (Desai and Desale, 2013).

In this context, interior design projects have changed dramatically since the sustainable design revolution of the 1990s (Bruckner, 2009). Interior design is all about how we experience spaces. It is a powerful, essential part of our daily lives and affects how we live, work, play and even heal (New York School of Interior Design, 2016).

Findeli & Bousbaki (2005) has explained three-dimensional stages in design research aesthetics referring to centeredness, logics referring to rational process and ethics evoke to build up the relationship between the user and their design experience. Therefore this state managing of the interior project from initiation to termination is not only confined where aesthetics are concerned rather it is burdened with constraints of a pre-constituted program, which thrives for successful execution of a project also ethics where the client or user is concerned.

Haddad R, (2014) has explained,

> "*What clients wanted from an interior designer fifteen or twenty years ago is different from what they are looking for today. At present, clients look first at the designer's experience with their type of project, then a firm's experience. They next evaluate the ability to complete the project on time and within a set budget and the accuracy in making estimates and specifications".*

The interior design project manager's role within the design of a commercial building structure can be of great importance for a client to achieve their desired design objectives and functions during the initial development phases and throughout the completion of the processes and phases of a project. Interior design project managers' roles may vary from project to project, but an outline of these roles can consist of overseeing the architectural design and construction efforts of involved parties and

trades, conducting market research and managing design reviews via planning meetings (Guzman, 2010).

Interior design itself is not a luxury ticket item, but actually a profession of skill sets that can improve the status of a commercial building type while being flexible to changes in the economy, technology, demographics, and overall business goals within a given organization; not to mention contribute to saving the client time and money (Lipner & Mazarella, 2010; Pulver, 2010)

The benefits of using an interior design project manager can be essential to the needs of select clients who are pursuing excellence with aesthetics, function, and construction ability of their desired building structure. Grube K, (2012)

The project manager and project team have one shared goal: to carry out the work of the project to meet the project's objectives. Every project has a beginning, a middle period during which activities move the project toward completion, and an ending (either successful or unsuccessful). A standard project typically has the following four major phases (each with its agenda of tasks and issues): initiation, planning, implementation, and closure. These phases represent the path a project takes from the beginning to its end and are generally referred to as the project "life cycle." Watt A, (2012)

Joslin (2016) stated that a project life cycle implies a series of phases that a project passes through from its initiation to closure. Each project has a predetermined duration with a definite beginning and an identifiable end. Its starting point is the time when the idea is conceived by the client, and its end marks the time when the mission is accomplished. The period between the start and completion of a project represents the project life cycle, which varies from few months to few years Chitkara, (2007).

Research in the area of critical success factors in project management implementation and closure has been conducted for several years. Many examples exist of both empirical studies aimed at determining critical success factors as well as conceptual research approaches which have developed theoretical frameworks or models listing several of those factors seen as critical to project success. As a result of the wide range of work on project critical success factors, it appears that consensus is beginning to develop on identifying those areas or dynamics critical for project implementation success. Pinto & Slevin (1988)

1.1 Research Problem

Davies (2002) has already been pointed out; project management success is not the same as project success. To bridge this divide, it is necessary to bring into play the interests of those who established the project (the stakeholders) and what it was that they hoped to achieve through the project (the benefits). Traditionally, there has been general agreement that any assessment of project success must include measures of budgetary and schedule adherence, as well as the confirmation of performance capabilities. In addition, it has been suggested that in order for the project to be considered successful, it must be technically valid. In other words, the project must work, and it must be a technically correct solution to the problem for which the project was initiated. In other words, the project to be implemented must "fit" the organization or clients for whom it is intended, and they must make use of it. Finally, the project to be implemented should result in some form of improved level of the product such as fine closure.

According to Munns and Bjeirmi (1996) for a project to be successful, there must, first, bean improved appreciation of the role of project management within projects, and this role must be placed within the context of a wider project alongside other outside criteria and long-term expectations. Second, the project manager must allow the client to contribute actively in the planning and production phases, and at the same time, the project team involvement has to be extended into the utilization phase. This would be accommodated properly in a project evaluation technique that examines not only the implementation processes but also the economic and financial performance.

Considering the interior design and project management related researches, it was noticed that there are few researchers have been done related to this topic. Therefore there is a need for a framework for project management to manage time, cost, quality constraints efficiently through project life cycle phases of Interior Design projects. Therefore finding project activities, challenges, barriers in interior projects are rare and very limited information within the industry, and this is an excellent opportunity to study the specific task. Interior design team receive the project at the latter part of the project every project where the architect, building contractor and engineer have used most of the time and little time left for the interior design and construction. Therefore time and cost is restricted. However, in order to achieve the project objectives

finishes and beautifying the building is depending on the quality of the end product of the interior.

Moreover, it should address cost, quality and time constraints at the end product. Finally, one must always bear in mind that successful project management techniques, common project activities will contribute to the achievement of projects, but project management will not stop a project from failing to succeed. Therefore project manager role is essential for this continuous process to control the all life cycle phases of the project.

The Purpose of the study derived by developing a framework for the project life cycle phases to manage Time, Cost and Quality constraints to complete the project successfully.

1.2. Research Aim

To develop a framework which can apply for interior design projects for successful project completion.

1.3 Research Objectives

1) To develop a work plan for the life cycle phases for interior design projects
2) To review and identify success and failure factors for project success for interior design projects
3) To investigate the practical challenges faced by project managers in interior projects
4) To suggest a framework through the identified common factors from case studies to manage the interior design projects successfully

1.4 Research Methodology

The qualitative case study based research has been chosen for this study and literature related to theories and concepts have been collected and reviewed. Identifying of project activities, success and failure factors for project success during the phases will be done by analyzing of three different cases, and the study will be done through the content analysis interview as semi- structured of three responsible people Interior designer, Project manager and Engineer for in-depth studies of the impact on project success. Gathered data from interview results will be analysed as a comparison will be done in tables and descriptive writings of three cases by developing the guideline tool as a final result of the study.

1.5 Scope and Limitations

Though there are several kinds of success and failure factors contribute towards in project success in interior projects study narrow down to the project life cycle phases Adherence to time, cost, quality, which have been derived through the literature review. According to the time frame, limited and selected literature was reviewed, and some projects details regarding the bill of quantities and personal communication have removed according to the confidentiality of the project requirements.

Evaluation semi-structured interview results will be shown in activity tables; analysis write up. The case studies only concern about success and failure factors in life cycle stages due to get the accuracy of the research and prepared the criteria.

CHAPTER TWO - LITERATURE REVIEW-THEORIES AND CONCEPTS OF PROJECT MANAGEMENT

CHAPTER TWO - LITERATURE REVIEW-THEORIES AND CONCEPTS OF PROJECT MANAGEMENT

2.0 Introduction

This chapter will first define the meaning of what is project management to identify the success and failure factors for project success for interior design projects and skills of a project manager to investigate the practical challenges and project life cycle phases. They are initiation, planning, implementation and closure in order to suggest a framework through the identified common factors from case studies to manage interior design projects.

2.1 What is Project Management?

Project management is the application of knowledge, skills and tools necessary to achieve the project's requirements, Kerzner (2011). Project management provides an organisation with powerful tools that improve its ability to plan, implement, and control its activities as well as how it utilizes its people and resources. Mantel (2012)

Project management is planning, organization, monitoring and control of all aspects of the project, with the motivation of all included to achieve project goals on the safe manner, within agreed schedule, budget and performance International Project Management Association (2006). In processing from initial planning to project completion, the typical job passes through successive and distinct stages that demand input from such disparate areas as financial organisations, Clough &Sears (2000). Project management is the planning organizing, directing, and controlling of company resources for a relatively short-term objective that has been established to complete specific goals and objectives, Kerzner (2011).

Many have attempted to define what is project management, and Oisen (1999) explained Project Management is the application of a collection of tools and techniques to direct the use of diverse resources toward the accomplishment of a unique, complex, one-time task within time, cost and quality constraints. The British Standard for project management BS60794 (1996) defined project management planning, monitoring and

control of all aspects of a project and the motivation of all those involved in it to achieve the project objectives on time and to the specified cost, quality and performance. APM (1995) which also defines project management as planning, organization, monitoring and control of all aspects of a project and the motivation of all involved to achieve the project objectives safely and within the agreed time, cost and performance criteria. Other definitions have been offered, Reiss (1993) suggests a project is a human activity that achieves a clear objective against a time scale, and to achieve this while pointing out that simple description is not possible, suggests project management is a combination of management and planning and the management of change. Lock (1994) view was that project management had evolved in order to plan, coordinate and control the complex and diverse activities of modern industrial and commercial projects, while Burke (1993) considers project management to be a specialised management technique, to plan and control projects under a strong single point of responsibility.

According to all theories project management defines the series of performances, techniques, tools, resources, constraints manage with the time to achieve the quality is a type of mission. Therefore this mission monitoring and managing are essential through the project manager at a given time.

2.2 Skills of a Project Manager

2.2.1 The relationship between Skills and Project Management

For a leader, it is necessary to know how to solve a problem, how to distinguish the source of the problem, identify practical solutions, and the last action is to implement it. Between the elements in problem-solving is included in the problems to be solved and decisions need to be made to solve the problems that have occurred (Odusami, 2002). Skills are the application of knowledge to project work that ensures the accomplishment of the work effectively and efficiently. The skill functions are those defined by the industry, project size, project complexity, and organizational perspective for projects.

2.2.2 Type of Project Management Skills

According to the nature of the skills; it can be defined as a combination of soft and hard skills. The soft skills are the people skills which involve behaviour, while hard skills are more technical. The soft skills include things like: interpersonal communication, commitment to success, negotiations, decision making, consensus, problem-solving, leadership, motivation, and ability to influence people. It is also possible to find in the literature these skills mentioned as "human" skills (El-Sabaa, 2001), "personal transferable skills", "interpersonal" sills (PMBOK Guide 2004), "micro-social" skills (Kendra and Taplin, 2004), or even "social" skills (Brandel, 2006). El-Sabaac (2001) refers to human skills as the ability to work in a team and to create co-operation among the team members; this is highly related to the person's perception about themselves and others. The way Project Managers view themselves, their colleagues and supervisors will have an influence on how they interact and in their ability to encourage cooperation

To Gardiner (2005) ironically the soft skills are a lot more challenging to master and use effectively because they are related to a person's Emotional Quotient.

The hard skills are the ones most training courses focus on; they refer to the mechanical and technical skills of planning, estimating, scheduling and controlling a project, for example (Gardiner, 2005), to El-Sabaa (2001) a technical skill is related to the understanding of a specialized activity that involves methods, processes, procedures, tools and techniques.

Skill can be defined as the learning capacity or talent to carry out pre-determined results often with the minimum outlay of time, energy, or both. It can also be described as the ability to translate knowledge into action (Farooqui et al., 2008)

Katz (1974) proposed a three-skill approach to understanding the skills of an effective administrator as a (1) technical-skill (2) human skill and (3) conceptual skill. He argues that the three-skill concept has implications for executive development and suggests that all Managers are all levels require the same competence in each of the three skills. Since Katzs proposition of the three-skill concept, many authors have expanded these

basic skills further to add more. Some of these skills apply to the commerce and industry in general, while some are peculiar to Project Management generally.

Fryer (1979) cited five important skills for Construction Managers as a judge be a sample of managers in construction firms these skills are (1) managing change; (2) recognizing opportunities (3) handling problems (4) decision making and (5) social skills. Further, it reveals that social skills turned out to be the most important one and managing change was rated as the least important.

Katz and Tumhain (1983) [cited in Kerzner (1989)] listed ten specific essential skills for Program Managers (1) team building (2) leadership (3) conflict resolution (4) technical (5) planning (6) organization (7) entrepreneurial (8) administrative (9) managerial support building and (10) allocation skills. Even though the Project Manager is mentioned in the description of the skills above, they are all applicable to Project Managers as well, especially on construction projects, as their roles are similar.

Goodwin (1993) identified important skills for an effective Project Manager (1) technical (2) human (3) conceptual and (4) negotiating skills. The last skill was the addition of what Katz (1974) already stated in his study. According to Goodwin, negotiating skills will assist the Project Manager in appreciating the various activities. It will also assist him in seeing how, for example, change in the design or scope of the project which will affect the budget, schedule, and overall performance. Goodwin remarked that, while there is no compelling necessity for the Project Manager to be a technical specialist, he/ she should have some degree of technical skills encompassing the technological discipline which the project based.

The required skills of the Project Managers have found from the three skills to twenty skills found by the Farooqui et al. (2008) are covered the all skills which were found in previously.

- Time Management
- Communication
- Decision Making
- Leadership and motivation
- Problem Solving
- Administration
- Listening
- Technical Knowledge
- Planning and Goal Setting
- Organising
- Quality Management
- Critical Path Thinking Path
- Creativity
- Negotiation
- Delegating
- Personal Adaptability
- Risk Taking
- Financial Management
- Ability to Follow Up
- Result Orientation

Rawlinson (1977) also believes that there is no need for a Project Manager who has specific project management knowledge for the small type of project. However, a large and complex project is essential for knowledgeable Project Managers.

2.3 Life Cycle Phases of the Projects

According to the different publishers and researchers, there are many statements that the life cycle of the project includes four phases and five phases and some of them are explained with six phases. Therefore as the first attempt of this research trying to define what are the different phases which can use to interior projects most appropriately. Therefore the first two topics will be deemed into theories of four phases and five phases of the Life cycle of the projects which authors have found.

Although the many authors and researchers project managers have explained about 4 phases of life cycle, there are some researchers who have examined about 5 phases of the life cycle as well.

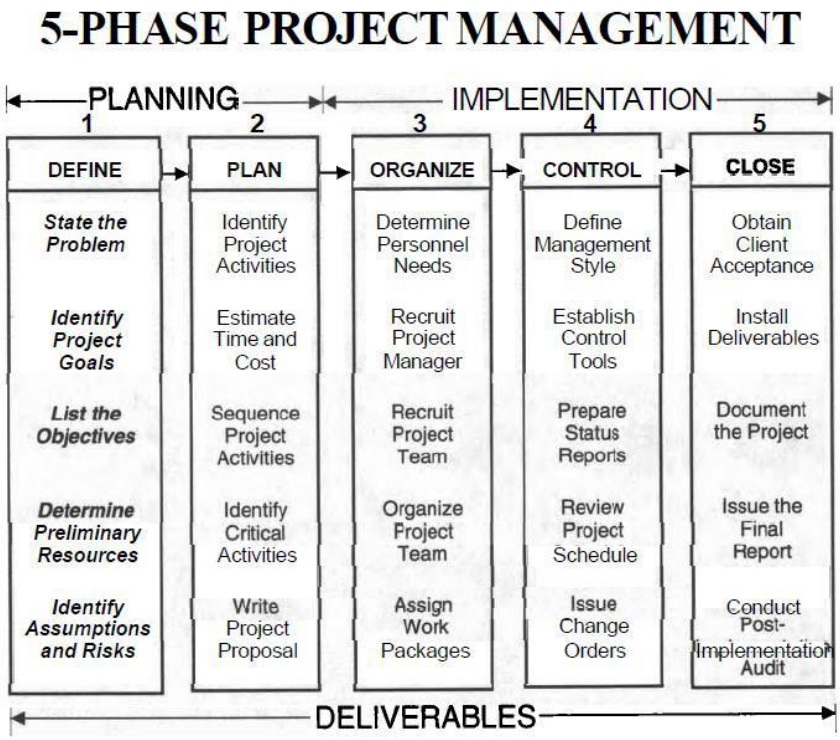


Figure 2.1: 5 Phase Project Management 01

Source: Weiss and Wysocki

Weiss and Wysocki (1992) have identified project life cycle consist of not only for four phases five phases as well. According to the 5 phase of the project life cycle, Planning involves the establishment of clear and precise objectives in order to reach a final, stated goal and organising includes the assembly of the necessary resource (manpower, materials, and money) for carrying out the work defined in the plan. It also involves the creation of the structure needed to execute the plan. Control also includes the definition and creation of a reporting structure at specified points through the project life cycle. Once situations have been discovered that require change, the project manager will have to institute that change.

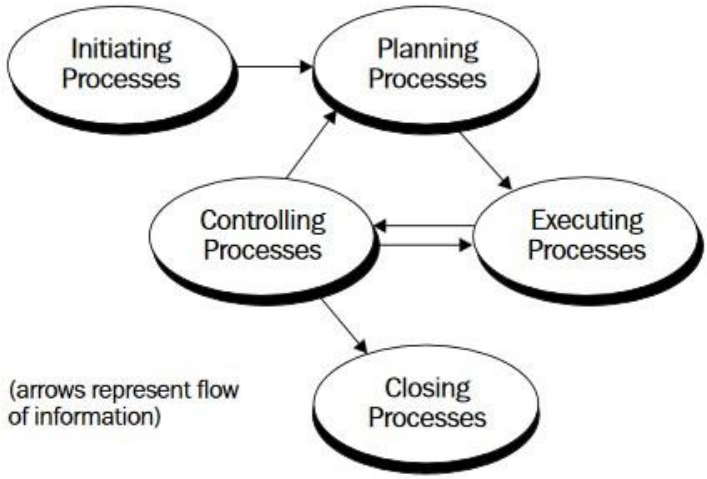


Figure 2.2: Linked 5 Phase

Source: Duncan, W. R. (1993)

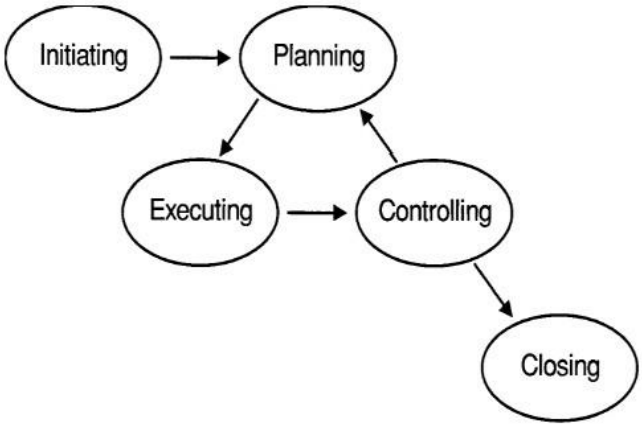


Figure 2.3: Basic Project Management Process

Source: Duncan, W. R. (1993)

As per the Duncan, W. R. (1993) explains about five phases of the basic project management process as initiation, planning, executing, controlling and closure .further he explains these processes are not discrete, one-time events, they are iterative and repetitive and occur at varying levels of intensity throughout the project

According to Pathak (2016) at the project initiation phase a project is formally started, named and defined at a broad level during this phase and the planning phase a project management plan is developed comprehensively of individual plans for – cost, scope, duration, quality, communication, risk and resources also a project deliverable is developed and completed, adhering to a mapped-out plan. Monitoring and control phase includes Scope verification and control occurs to check and monitor for scope creep, change control to track and manage changes to project requirement to prevent project failure.

Figure 2.4: 5 Phase Project Management 02

Source: Pathak R.

Closure defines a project is formally closed. It includes a series of important tasks such as delivering the product, relieving resources, reward and recognition to the team members and formal termination of contractors in case they were employed on the project. Joslin (2016) stated that project life cycle includes a series of phases that project passes through from its beginning to the end. Westland (2006) stated that the project life cycle implies skills, tools and management process which linked to each other.

These authors have described that these four phases of the project life cycle known as initiation, planning, implementation and closure.

The four-phased methods that will serve as a guide find the smaller scale interior projects more sufficiently and effectively without detailing into complicating. As projects become more complex, it is important to structure and define projects throughout the entire life-cycle. That is why more practitioners intend to choose a five-phase method to manage and organize the project.

a) Initiation

Table 2.1: Project Management Life Cycle, Initiation 01

Source: Stukenbruks

Concept or Initiation	**Growth or Organization**	**Production or Operational**	**Shut-down**
Management decides that a project is needed. Management establishes goals and estimates of resources needed. Management "sells" the organization on the need for project management. Management makes key appointments.	Organizational approach defined. Project plan and schedule for operational phase defined. Project objectives, tasks (WBS), and resources defined. Project team build-up.	The major work of the project accomplished (i.e., design, development, construction, production, testing, site activation, etc.).	Project terminated. Manpower, resources, and commitments transferred to other organizations.

As per Stuckenbruck (1981) explained this stage would decide the what project needs goals, estimates and key appointments and with a clear picture of the beginning should able to understand where the money goes further he explained.

As per Watt (2012) says during the first of these phases, the initiation phase, the project objective or need is identified; this can be a business problem or opportunity. An appropriate response to the need is documented in a business case with recommended solution options. A feasibility study is conducted to investigate whether each option

addresses the project objective and a final recommended solution is determined. Therefore at this stage determines should proceed with the project and what are the capabilities of delivering the project according to the initial requirements. Westland (2006) stated that during this phase a problem or opportunity is identified and a case providing various solution options is defined. Moreover, then move to a feasibility study is conducted to investigate whether each option addresses the problem, and a final recommended solution is then put forward. Once the recommended solution is approved, a project is initiated to deliver the approved solution. At this point objective, scope and structure and the project manager are finalised.

As per the Duncan, W. R. (1993) in his explanation of the basic process of project management explains initiation consist of Concept development describing the product of the project, documenting initial project objectives, and assigning a project manager. Further Chitkara, (2007) has explained that the first step in the development of a project is to analyse the needs of the client. This requires a critical examination of needs through feasibility studies.

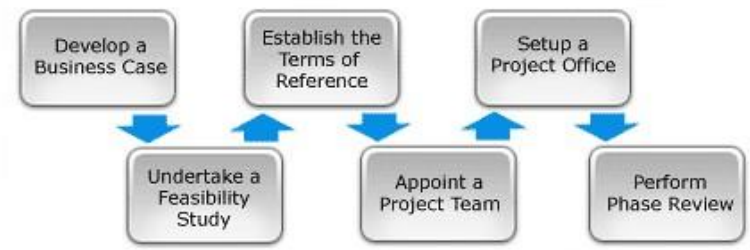


Figure 2.5: Project Management Life Cycle, Initiation

Source: *www.method123.com/project-lifecycle.php*

According to the researchers justified all this feasibility stage evaluates project potential by examining technical feasibility, economic viability and financial implications. This is a practical and accurate way of investigating the feasibility of

initiation phase and it act as a pre begin to the task. As soon as the appropriate and recommended solution is approved, the project is initiated in delivering the approved solution/option, and a project manager is appointed. As far as an interior design project is concerned, the interior designer will have to play the project manager's role starting from the very first phase of conception and initiation.

Table 2.2: Project Management Life Cycle, Initiation 02

Source: Author

	Activities	Struckenbruck	Watt	Westland	Duncan W.R	Chithkara
Initiation	Project objectives, Goals, Estimates	✓	✓		✓	✓
	Key appointments	✓	✓	✓	✓	
	Project objectives	✓	✓			
	Problem or opportunity			✓	✓	
	Feasibility study		✓	✓		✓
	Scope and structure		✓	✓		
	Concept				✓	
	Assign a project manager				✓	✓

According to the table, four authors have described project objectives, goals and estimates at the initial stage of every project. Key appointments also essential factor that could achieve in the initial stage. Project objectives problem or opportunity, feasibility study, scope and structure have addressed at the initial stage by each author. Concept and assign a project manager have shown by two authors. As a summary, all these authors have explained the importance of these factors at the beginning stage of each project.

b) Planning

According to Stuckenbruck (1981) planning involves growth or organisational approach and project plan and schedule for defined operational phase and build up the team which carry the project. Therefore it senses the direct meaning of early work program of the project is a vital factor within the planning phase to achieve the project goals effectively.

Table 2.3: Project Management Life Cycle, Planning 01

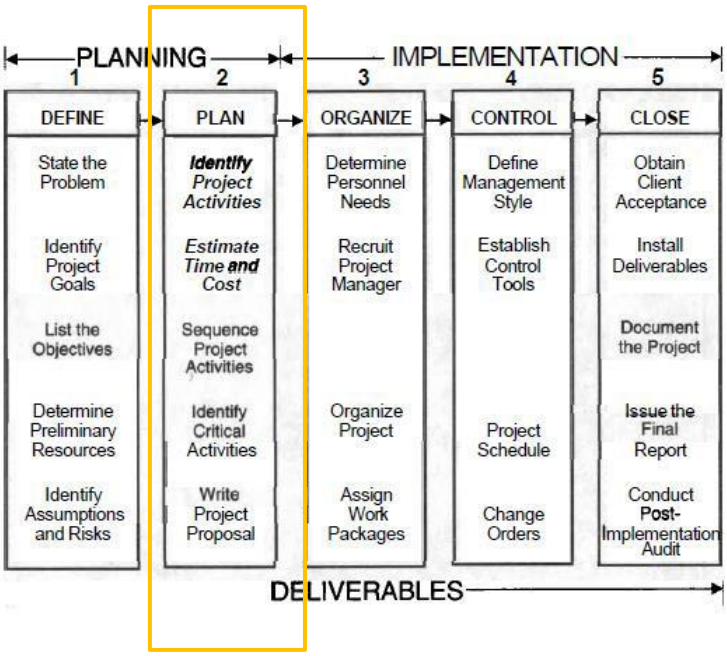
Source: Stuckenbruck

Concept or Initiation	Growth or Organization	Production or Operational	Shut-down
Management decides that a project is needed. Management establishes goals and estimates of resources needed. Management "sells" the organization on the need for project management. Management makes key appointments.	Organizational approach defined. Project plan and schedule for operational phase defined. Project objectives, tasks (WBS), and resources defined. Project team build-up.	The major work of the project accomplished (i.e., design, development, construction, production, testing, site activation, etc.).	Project terminated. Manpower, resources, and commitments transferred to other organizations.

And also the Watt (2012) has described the same planning phase is a crucial phase in which the project solution is furthermore developed and enhanced in detail to the very extents. This is also the phase where the directions and steps that are necessary to be adopted in meeting the project's objective are planned. During this phase, the project manager and the rest of the team identify all of the work to be implemented within the next phase.

Table 2.4: Planning Phase 02

Source: Weiss and Wysocki



As per Weiss and Wysocki (1992), planning involves the establishment of a clear and precise objective which includes the solutions for problems, and it should be different from the present situation. This also justifies the same condition which the project should start as an explicit objective as proof of other researches as well. Further explanation of Chitkara (2007) the composition of the team to prepare for the commencement of the project depends upon many factors such as size and nature of the project, project characteristics, and the time and cost objectives. Therefore this becomes the important objective as a planning stage which he defines further. Westland (2006) explained that once the scope of the project has been defined in terms of reference, the project enters the detailed planning phase and it includes and starts to investigate the project plan outlining.

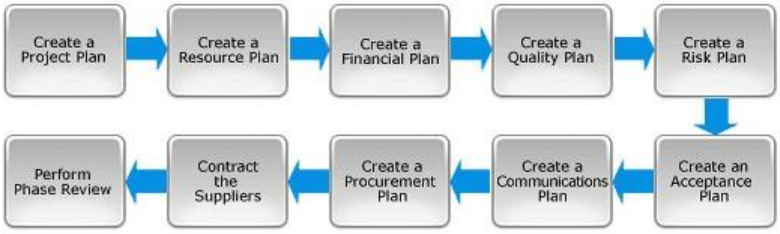


Figure 2.6: Project Management Life Cycle, Planning 01

Source: *www.method123.com/project-lifecycle.php*

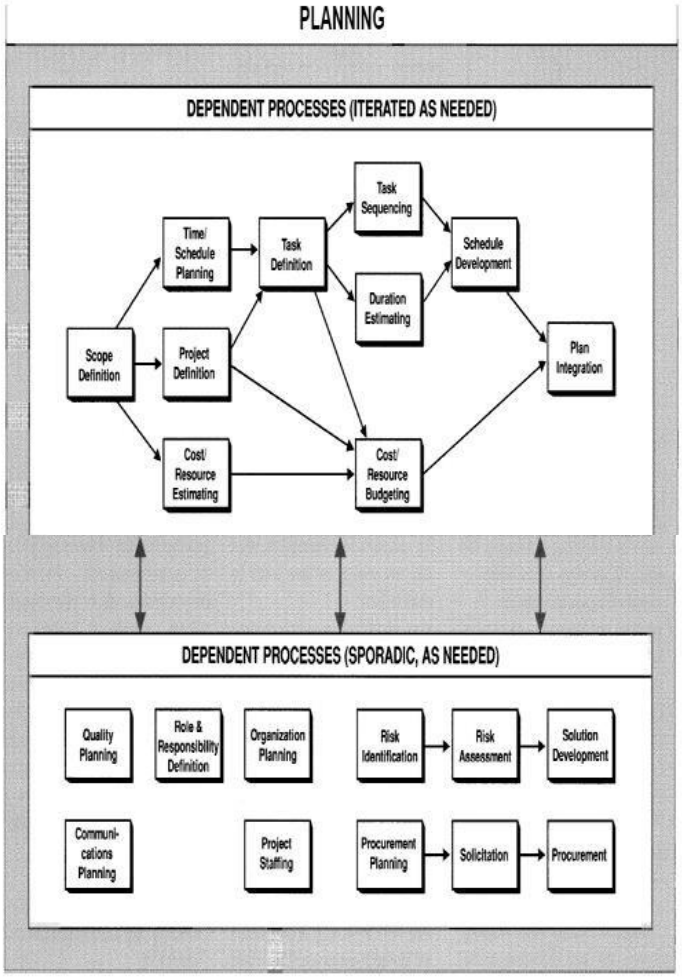


Figure 2.7: Detail process of planning phase

Source: Duncan, W. R

Duncan, W. R. (1993) Planning is of major importance on a project. As a result, there are relatively more detail processes in this section. These processes are subject to frequent iterations before completing the plan. Interactions among other planning processes are more dependent on the nature of the project.

Table 2.5: Summary of Planning

Source: author

	Activities	Struckenbruck	Watt	Westland	Duncan W.R	Chithkara	Weiss & wysocki
Planning	Project plan and schedule	✓	✓	✓	✓		
	Work program	✓	✓				
	Achieving project goals	✓	✓		✓		✓
	Time ,cost ,quality				✓	✓	
	Term of reference			✓	✓		

These authors explained the nature of project planning from the beginning regarding the project plan is created outlining the activities, tasks, dependencies, and timeframes which are main factors of the project and project manager coordinates the preparation of a project budget by providing cost estimates for the labour, equipment, and materials costs. While co-operating these events, the budget is used to monitor and control cost expenditures during project planning.

c) Implementation

Explanation of Cavendish and Martin (1982) pointed out implementation enable to manage and monitor contracts with identifying the problems and re-plan with the adjust targets.

Figure 2.8: Implementation 01

Source: Cavendish and martin

Watt (2012) describes in any project; a project manager spends most of the time in this step. During project implementation, people are carrying out the tasks, and progress information is being reported through regular team meetings. The project manager uses this information to maintain control over the direction of the project by comparing the progress reports with the project plan to measure the performance of the project activities and take corrective action as needed. Duncan, W. R. (1993) Project progress must be measured regularly to identify variances from the plan as well as to determine when the project is finished. Variances are fed into the control processes in the various knowledge areas. To the extent that significant variances are observed. Adjustments to the plan are made by repeating the appropriate project planning processes.

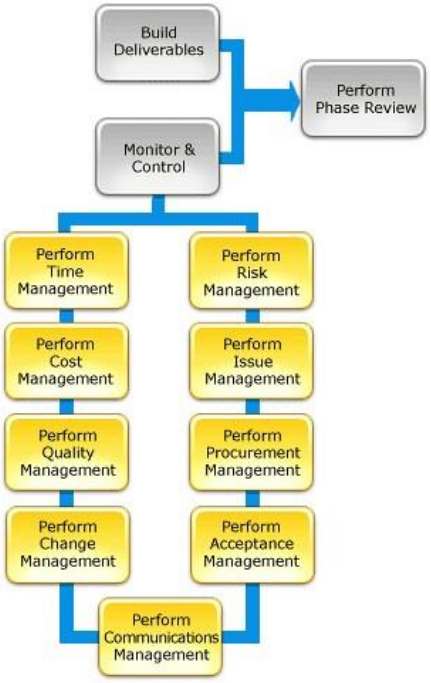


Figure 2.9: Project Management Life Cycle, Implementation

Source: *www.method123.com/project-lifecycle.php*

The processes are including managing time, cost quality change risks, issues, suppliers, customers and communication. Once all the deliverables have been produced, and the customer has accepted the final solution, the project is ready for closure.

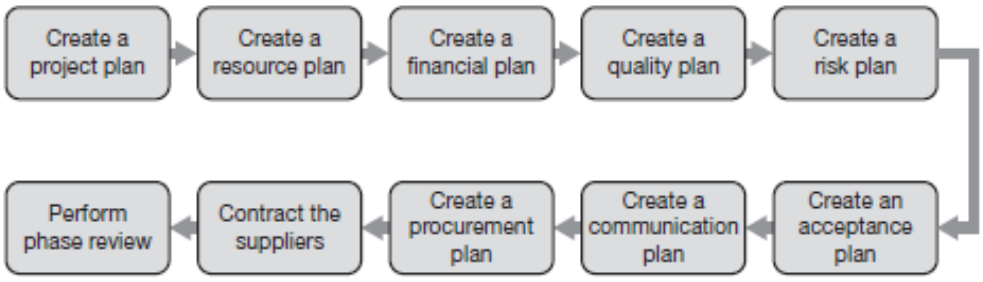


Figure 2.10: Implementation 02

Source: Westland

As per Westland (2006) this phase involves implementing the plans created during the project planning phase. While each plan is being executed, a series of management processes are undertaken to monitor and control the deliverables being output by the project. This includes identifying change, risks and issues, reviewing deliverable quality and measuring each deliverable produced against the acceptance criteria. Once all of the deliverables have been produced, and the customer has accepted the final solution, the project is ready for closure.

Table 2.6: Summary of Implementation

Source: Author

	Activities	Watt	Westland	Duncan W.R	Cavendish &Martin
Implementation	Manage and monitor contract	✓	✓	✓	✓
	Re-plan and adjust targets		✓	✓	✓
	Regular meetings	✓			
	Progress reports	✓		✓	
	variances	✓	✓	✓	✓
	Risk and issues		✓	✓	
	Client acceptance	✓	✓	✓	

According to the table, four authors have explained the manage and monitor the contracts. And re-plan, adjust the targets of the projects in the implementation stage. Watt has shown the importance of the regular meetings and variances during the implementation stage and risk and issues; client acceptance also has addressed during the implementation stage.

d) Closure

Westland (2006) explained this phase transferred the manpower, resources and commitments to the other organization and explained further this becomes the longest phase where the operational task would become the end, and he shows in his chart. To plan and execute a project using these principles have utilised a four-phase method. Each method contains specific steps that expand the general process into a detailed set of procedures as we described earlier with analyzing the previous research analysis and statements.

Table 2.7: Project Management Life Cycle, Closure

Source: Westland

Concept or Initiation	**Growth or Organization**	**Production or Operational**	**Shut-down**
Management decides that a project is needed. Management establishes goals and estimates of resources needed. Management "sells" the organization on the need for project management. Management makes key appointments.	Organizational approach defined. Project plan and schedule for operational phase defined. Project objectives, tasks (WBS), and resources defined. Project team build-up.	The major work of the project accomplished (i.e., design, development, construction, production, testing, site activation, etc.).	Project terminated. Manpower, resources, and commitments transferred to other organizations.

Westland (2006) further explained Project closure involves releasing the final deliverables to the customer, handing over project documentation to the business, terminating supplier contracts, releasing project resources and communicating the closure of the project to all stakeholders. The last remaining step is to undertake a post-implementation review to quantify the level of project success and identify any lessons

learnt for future projects. The Status reports documented during the implementation phase should always emphasize the anticipated endpoint in terms of cost, schedule, and quality of deliverables. It is important that each project deliverable produced should be reviewed for quality, also measured against the acceptance criteria. Once all of the deliverables have been produced, and the customer or the client has accepted the final solution, now the project is ready for closure, and it has reached the closing phase.

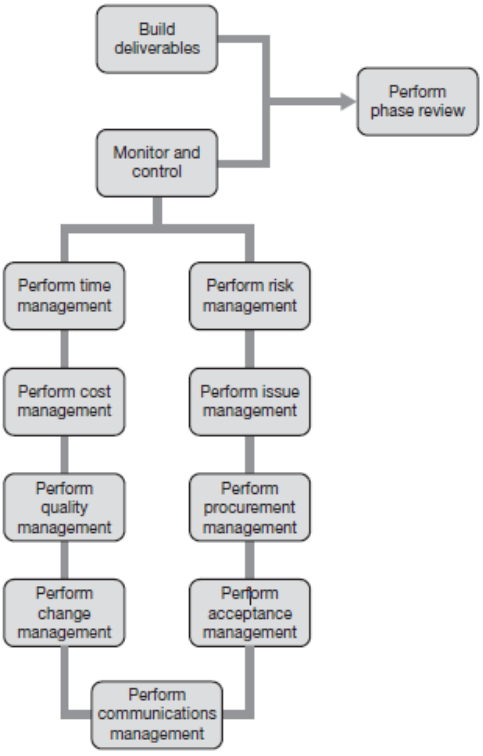


Figure 2.11: Project Management Life Cycle, Closure

Source: Source: *www.method123.com/project-lifecycle.php*

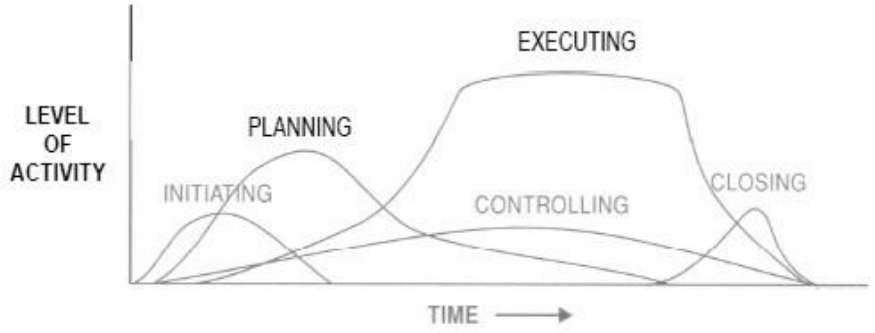


Figure 2.12: Level of Activity

Source: Duncan, W. R

This basic process includes the following detail processes. Duncan, W. R. (1993)Scope verification ensuring that the project deliverables have been completed satisfactorily and Contract close describes out the resolution of any outstanding administrative matters and archiving of contract documentation and project closure gathering and disseminating information to formalise project completion.

Table 2.8: Summary of Closure

Source: Author

	Activities	struckenbruck	Westland	Duncan W.R
Closure	Final deliverable to client	✓	✓	✓
	Releasing project resources	✓	✓	✓
	Satisfying client			✓
	Transfer manpower, resources, commitments	✓	✓	✓
	Quality of the product	✓	✓	✓

2.4 Project Management Success Factors and Barriers

Only a few studies in the project management literature concentrate on the critical factors that affect project success or failure. Whereas many of these studies generate lists of critical success factors, each list varies in its scope and purpose. The project team must be firm and agree with the customer that all critical success factors have been met. Confirmation of the project delivery, testing, and release must be agreed upon and signed off. The success factors are usually listed as either very general factors or particular factors affecting only a particular project. Many of these researches have suggested a new scheme that classifies the critical factors and describes the impacts of these factors on the project.

Performance on each phase. Emphasis is given to the grouping of success factors and explaining the interaction between them, rather than the identification of individual factors.

2.4.1. Identified Success Factors in Life Cycle Phases

The main difference concerns with linking project success with the result of evaluation of overall project goals achievement, while project management success relates to traditional measurements of time, cost and quality performance. Ika (2009).Project management is planning, organization, monitoring and control of all aspects of the project, with the motivation of all included to achieve project goals on the safe manner, within agreed schedule, budget and performance criteria. International project management association (2006). Project management success can be evaluated through already mentioned criteria of time, cost, quality, scope, resource and activity. Kerzner (2011). Project management success is one of the elements of project success because the latter is hardly achievable without it. Han (2012)

Pinto & Slevin (1988) has identified ten characteristics to success the project implementation through their research. The ten critical success factors can be briefly defined. Baker (1983) who assumed that the perceived project success or failure is not a function of time and cost. Kerzner (1995) identified six critical success factors

for successful projects and further Morris and Hough (1987) who listed twenty-two hypotheses for the success or failure of projects and Pinto and Prescott (1988) studied ten critical success factors over the project life cycle also Rosenau (1984) who suggested that the essence of successful project management consisted of satisfying the triple constraints of time, cost and performances not only that Nicholas (1990) who identified fourteen critical points and assumed three level structures for the cause of project failure. Morris & Hough (1986) would imply that the success of a project is dependent on having the above factors.

These factors would suggest that successful project management requires planning with a commitment to complete the project careful appointment of a skilled project manager spending time to define the project adequately correctly planning the activities in the project ensuring correct and adequate information flows changing activities to accommodate frequent changes in dynamic accommodating employees' personal goals with performance and rewards and making a fresh start when mistakes in implementation have been identified. Therefore these authors have identified common success factors, and it listed out in a chart as follows.

Table 2.9: Summary of Success Factors
Source: Author

Success factors	Pinto & selvin(1988)	Kerzner(1995)	Morris & hough(1987)
Project mission	✓	✓	
Project schedule/plans	✓	✓	✓
Client acceptance	✓	✓	
Communication	✓	✓	✓
Trouble shooting	✓	✓	✓
Defined goal	✓	✓	✓
Competition		✓	✓
Client satisfaction		✓	
Profitability		✓	
personnel	✓		✓
Implementation process	✓	✓	✓
Organizational adoptability		✓	✓
Planning and control			✓
Market availability		✓	
Technical task	✓		
Client consultation	✓		
Selection of Project manager			✓

2.4.2. Identified Failure Factors in Life Cycle Phases

Munns & Jeirmi (1996) has examined through their research the outcomes of project management success are many. They would include the obvious indicators of completion to budget, satisfying the project schedule, adequate quality standards, and meeting the project goal. The factors which may cause the project management to fail to achieve these would include, One of the most important findings arising from the survey was that the factors so far expounded could not explain the reasons why the same project could be considered as `successful' by one party, and be considered as `failure' by another.

This has led to the current effort in reexamining the understanding of the issues. Bienkowski (1989) also examined Anyone who has worked on a project has certainly had experiences that would attest to each of these causes and keep these causes in mind and continually ask yourself how they can be avoided that follow no method often fail for the following reasons.

Table 2.10: Summary of Failure Factors

Source: Author

Failure factors	Munns & jeimi (1996)	Bienkowski (1989)
Inadequate basis	✓	
Wrong person as project manager	✓	
Top management unsupportive		
Inadequate define task	✓	✓
Lack of management techniques		
Under budget	✓	✓
Lack of project plan structure		
Insufficient resources	✓	✓
Poor communication	✓	✓
Lack of project details	✓	✓

Therefore this chart shows the common failure factors which have been identified from the above researchers.

2.5 Identified Work Plan

Following work plan has identified as summarised literature through the literature review and these are the main activities which can be followed as work plan from four phases and it shows the success and the failure factors from previous literature as well. Therefore this will be considered as the part of the questionnaire in methodology as well.

Table 2.11: Identified Work Plan

Source: Author

Activities	Initiation	Planning	Implementation	Termination
Work plan	Need of the project Need of goals and resources Key appointments Terms of reference Setup a project office Feasibility study Appoint a project team Perform phase review	Identify project activities Estimate time and cost Sequences project activities Identify critical activities Write project proposals Create project plan Organization approach Schedule and operational phase Project team	Build deliverables Monitor and control Manage contracts Monitor Identify problems Adjust targets Subcontract management	Termination of the project Transfer of manpower, resources, commitments to other organization

2.6 Summary

This chapter was intended to presents what is project management in the first paragraph. The first phase in categorised into two stages. As the first stage, skills of a project manager and then it described further with the literature review. Then it was further described the type of PM skills with the professional skills of a project manager with the life cycle of the project.

As the second stage, it describes the project management success factors and barriers which derived through the literature survey, and it was identified the success factors and failure factors in life cycle phases. Then it structured the identified work plan which derived through literature review.

CHAPTER THREE- RESEARCH METHODOLOGY

CHAPTER THREE – RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes the research methodology adopted for the research study. It illustrates the research process and subsequently briefs the research approach, research techniques and data analysis in detail.

The qualitative case study based research has been chosen for this study and literature related to theories and concepts have been collected and reviewed. The research methodology was prepared to identify the project activities, success and failure factors for project success during the project life cycle phases.

3.1 Research Process

According to Patten & Bruce, (2009), research has to be systematic, and it should follow a series of steps to reach the objectives of the research, and it is known as the research process. Research process consists of a series of steps in the desired sequence that is necessary for the effective execution of research (Yin, 2003).

The research process for this research is illustrated appropriately in figure 3.1

RESEARCH PROCESS DIAGRAM

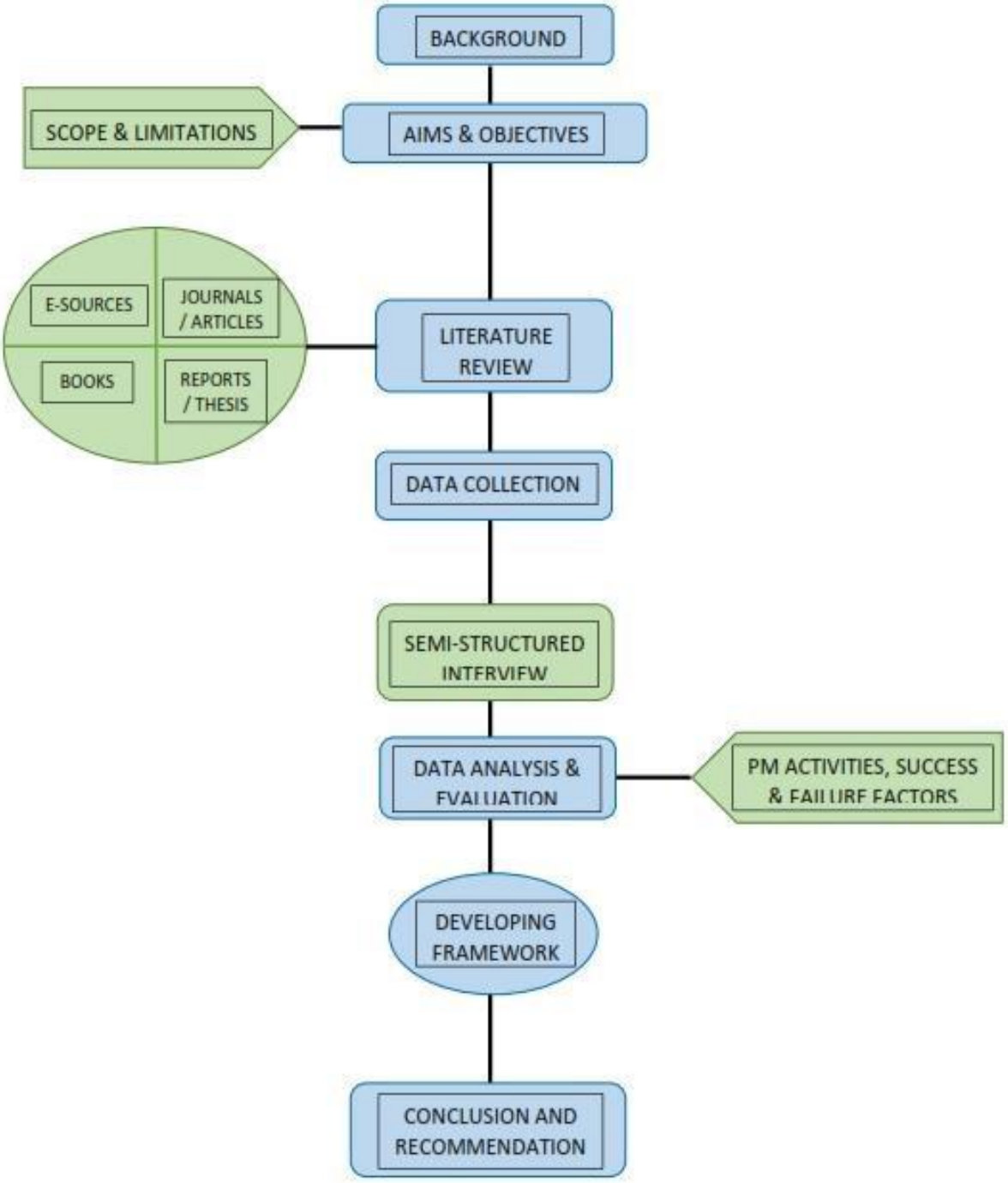


Figure 3.1: Research Process

3.2 Research Approach

Research approach can be construed as a general plan of how researches will go about answering the research question (Tan, 2002). Furthermore, Smith, Thorpe and Lowe, (2002) have stated that the research approaches guides is organizing the research activities to achieve research aims. Research approaches are often divided into three types: quantitative, qualitative and mixed approaches.

Quantitative research is 'objective' in nature (Naoum, 2007). Quantitative approach sock to gather factual data, to study relationships between facts and how such facts and relationships accord with theories and the findings of any research executed previously (Fellows et al., 2008).

Qualitative research is 'subjective' in nature. It emphasises meanings, experiences, often verbally described description and so on (Naoum, 2007). Qualitative Research is primarily exploratory research. It is used to gain an understanding of underlying reasons, opinions and motivations. The data gathered by qualitative approach may be unstructured, at least in their 'raw' form, but will tend to be detailed and hence 'rich' in content and scope (Fellows et al., 2008). Yin (2011) explained the advantages of this approach as the ability to focus on a specific set of people, in-depth study on broad topics, offer greater latitude in selecting topics and representing the views and perspectives of the people. Qualitative data collection methods vary using unstructured or semi-structured techniques. Some common methods include focus groups (group discussions), individual interviews and participation/ observations. The sample size is typically small, and respondents are selected to fulfil given quota.

Mixed research is a combination of both qualitative and quantitative approaches used together to eliminate drawbacks of both.

However, the qualitative approach is selected for this research as it is necessary to investigate project management activities in life cycle phases to its successful completion of the interior design project.

3.3 Research Strategy

This research inclusive of literature review and semi-structured interviews.

Accordingly, it was decided to carry out a semi-structured interview to find out the project activities for each life cycle phases of the interior design projects and success and failure factors of the project for its successful completion.

Semi-structured interview survey is designed to extend the findings of the qualitative approach is used exclusively. Semi-structured interviews were designed depending on the literature review could be initialised to draw an appropriate framework to develop a framework which can be applied for interior design projects for successful project completion. (Refer to the Annexure 01)

Table 3.1: Case study Research: Design and Methods 01

Source: Case study Research: Design and Methods, Robert. K.Yin, 2003

Strategy	Forms of research quesiton	Requires control of behavior events?	Focuses on contemporary events?
Experiments	How. Why	Yes	Yes
Survey	Who. What. Where. How many. How much.	No	Yes
Archival analysis	Who. What. Where. How many. How much	No	Yes/ no
History	How. Why.	No	No
Case study	How. Why	No	Yes

According to Yin (2003) case studies are preferred strategies when "how or why" questions are being posed, and the investigator has little control over events when the focus is on a contemporary phenomenon within some real-life context.

Table 3.2: Case study Research: Design and Methods, 02

Source: Case study Research: Design and Methods, Robert. K.Yin, 2003

Type of structure	Approach	Explanatory	Descriptive	Exploratory
Linear-analytic	Issue/ problem → literature review → methods → findings → conclusion → implications	X	X	X
Comparative	Repeats the same case-study two or more times comparing alternative descriptions or explanations	X	X	X
Chronological	Present case study evidence in chronological order. Best practice is to draft the case study backwards.	X	X	X
Theory building	Chapters follow theory building logic.	X		X
Suspense	Inverts the linear-analytic structure . Explaining the conclusions in chapters.	X		
Unsequenced	Sequence of chapters of no specific importance.		X	

According to (Yin, 1981) a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not evident. Therefore such as interior projects are generally low scaled projects which have many issues to investigate in actual context. Therefore selecting the comparative structure caused to state the new definitions and explanations related to the questions what we want to investigate in interior projects.

3.4 Case Study Design

According to Yin (2009), a case study is an "empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not evident". Ragin and Beker (1992 cited in Patton and Appelbaum, 2003) stated that case studies are based on analytic generalization rather than statistical generalisation. Case studies can involve either single or multiple cases, and numerous levels of analysis (Yin, 2009).

Especially in the case of study design, there are two aspects to be considered. Those are the unit of analysis and case selection. In the case of the study approach, the sample is a purposive sample where the researcher obtains a sample, and it should be uniquely suited to the intent of the study. The case study designing procedure including identification of a unit of analysis and selection of cases is emphasised below.

3.4.1 Unit of Analysis

Identification of 'unit of analysis' or the 'case' is of a primary important factor in any research design, and it is related to the way the initial questions have been defined. This can be an individual, an organisation, a process or a project (Yin, 2009).

This study aimed to develop a framework which can be applied for interior design projects for successful project completion. In this research unit of analysis considered as, project management process within interior design construction projects.

3.4.2 Case Selection

Case studies can be regarded as either single or multiple case designs (Yin, 2009). Multiple case studies allow the researcher to explore differences within and between cases. The goal is to replicate findings across the cases to draw comparisons (Yin, 2003). The evidence from multiple cases is often considered more compelling and the

the overall study is therefore regarded as being stronger (Herriott & Firestone, 1983). According to Yin (2003), a single case study can be adapted in situations like a critical test of the existing theory, a representative or typical case, a rare or unique circumstance, a longitudinal purpose and a revelatory.

Multiple case study design was selected for this study to increase the strength of the overall study. According to Ramanathan (2008), the minimum cases for multiple case study design should fall between two to four, and ten to fifteen as the maximum. Therefore, three completed commercial interior design projects were selected under the multiple case study design with time, cost and quality constraints and convenience. The reason is to select private sector projects rather than government sector projects because of the differences in the procurement process and payment methods.

CASE 01

The completed ten storied commercial building is located at a highly commercialized area in Colombo 07 which has 9800sqm in total building area. The semi-basement and first 02 levels include a car park, and remaining floors are offices the building designed according to green building concepts targeting to claim the LEED certification.

CASE 02

The completed 07 storied commercial building is located at in Colombo 08. The ground floor consists of a car park, and remaining floors are offices which have 2500sqm in total building area.

CASE 03

The completed 08 storied commercial building is located at in Colombo 08. The ground floor consists of a car park, and remaining floors are offices which have 3000sqm in total building area.

Table 3.3: Case study Details 01

Source: Author

Project	Case 01	Case 02	Case 03
Type	An Interior project	An Interior project	An Interior project
Project cost	25 million	18 million	22 million
Project duration	12 months	09 months	10 months
Project status	Completed	Completed	Completed
Procurement method	Measure and Pay	Measure and Pay	Measure and Pay
Nature of the client	Private sector	Private sector	Private sector

These comparative three different completed interior design projects were over 10 million budget commercial building projects which are ranked in commercial trade in the private sector.

3.5 Research Techniques

Research techniques comprise of data collection and data analysis methods. A variety of data collection techniques can be used in research such as questioner, document surveys, observations interviews, activities etc. (Patten & Bruce, 2009).

The data analysis techniques will be key to interpret the data collected and to achieve a conclusion. Statistical analysis, content analysis, pattern matching and cognitive mapping are commonly used data analysis techniques (Chandra & Sharma, 2013).

3.5.1 Data Collection Techniques

Data collection is the process of systematic gathering of data for a particular purpose from various sources including observing, recording and organising data to draw conclusions (Kumar, 2011).

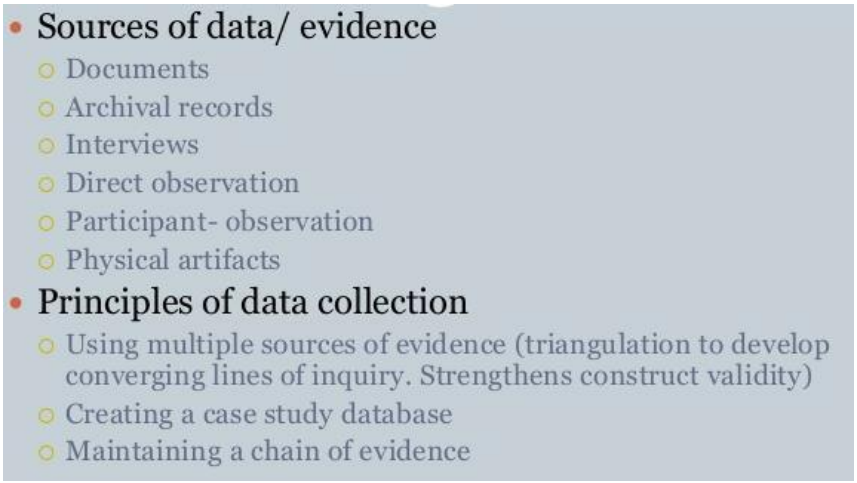


Figure 3.2: Case study Research: Design and Methods 03 Source:

Case study Research: Design and Methods, Robert. K.Yin, 2003(Cited in)
Soni.p, powerpoint presentations, IIM Bangalore

Under the case study approach, Yin (2003) identifies six sources to collect data: documents, archival records, interviews, direct observation, participant observation and physical artefacts. Among these techniques, interviews were selected as the main data collection tool, while archival records and observations are used where it is necessary.

3.5.1.1 Interviews

Interviews can be structured, semi-structured and unstructured depending on whether the interviewer is neutral or actively involved in the process (Sekaran, 2003). In this study, interviews were carried out in a semi-structured manner, as it allowed questioning appropriately, according to the circumstances, and thus any doubts could gather during the data collection phase. To maintain the confidentiality, actual names of the

selected organizations and the interviewees were not revealed in this report or any other document relating to this study. Semi-structured interviews were generalised under the following categories:

- General information about the respondent
- Project outline/ details
- Questions based on four project life cycle phases
    - What are the main project management activities in this phase?
    - What are the main success factors in this phase?
    - What are the main causes to generate failure situation of the project?

3.5.1.1.1 Objectives of Semi-Structured Interviews

The main objective of the interviews was to identify the common project activities through project life cycle phases, success and failure factors affecting the successful delivery in interior design projects in Sri Lanka. Finally, particular actions to be taken to fulfil the identified common factors gathered by the professionals in each case in order to add a more practical background to the research.

The interview guideline contains 03 main sections (*Refer to Annexure 01*). Section A is about General information about the respondent. Section B is about Project outline/ details. Section C is Questions based on four project life cycle phases.

3.5.1.2 Analysis of Interview Survey Findings

Interview survey findings were analysed using the content analysis and processed as qualitative information.

Qualitative data obtained through interview survey findings will be present as processed information using a coding system which could be easy to identify the findings.

Selection of Respondents

The sample was included with Project managers, Interior designers, Engineers who have involved with projects with their information gathered. The researcher was careful to segregate the survey sample according to the cases and availability of project involved people.

Table 3.4: Case study Details 02

Source: Author

Respondents Segment	Case 01	Case 02	Case 03	Total
Interior Designer	ID01	ID02	ID03	3
Project Manager	PM01	PM02	PM03	3
Engineer	ENG01	ENG02	ENG03	3
				9

The identified factors among the literature survey will be asses by the semi-structured interview with related to the case studies and these 09 respondents selected by the author which involved with the interior projects interior designers, project managers and engineers. Therefore nine semi-structured interviews will be developed to gather the information.

The survey designs include these types of categories who were involved with project management activities, and they were questioned according to the structured format of the interview.

Hence, the researches selected the following sample size to conduct the survey.

3.5.2 Data Analysis Technique

Qualitative data analysis comprises three major steps, i.e. data reduction, data displaying and conclusion drawings (Miles and Huberman, 1994). Data reduction is a process of selecting, focusing, simplifying, abstracting and transforming data that appear in written-up field notes or transcriptions. Data displaying is organized,

compressed assembly of information that permits conclusion drawing. Conclusion drawings are the interpretation of the researcher that will draw the meanings from displaying data (Miles and Huberman, 1994).

Content analysis is used as a data reduction technique for the study, and that is used to analyse the contents of data under the main themes that emerge from the responses given by the interviewees. Then cross-case analysis was executed to identify the interrelationship between the cases and to produce write-ups made by analyzing similarities of cases.

According to Miles and Huberman (1994), data displaying capabilities of content analysis is always a problematic issue, even though it enables better interpretation of qualitative data. To overcome this shortcoming of the content analysis techniques, data displaying techniques such as tables are used for this study. This displaying technique also helped to increase the effectiveness of the cross-case analysis.

3.6 Limitations

The case study will be done by referring to the documentation of each project which derived through the completed interior projects. The periods limited to the weekends and the survey was carried out according to the three-time periods to avoid the disturbances to the working context.

This study also limits the data collecting from the professionals who performed the project management role of each case studies such as case 01, case 02, and case 03 from the client's party. Each project managers who were involved in the cases provide the data, and they were directly worked with clients. Other data and information collected from the contractors and suppliers through ID and ENG. Therefore the study focuses on the details derived from the project managers only. These cases selected due to the period and the procurement methods which was completed at that time.

CHAPTER FOUR – DATA ANALYSIS & FINDINGS

CHAPTER FOUR - DATA ANALYSIS & FINDINGS

4.0 Introduction

The previous chapter describes the research methodology, the process of data collection. This chapter presents an analysis of the findings of the research. The findings from data collection relating to each objective are derived using analytical techniques. The data collection was carried out in two stages as professional semi-interviews and case studies. The findings which were gathered from the literature review were directed to a semi-structured interview in order to validate the data and modify data to relate to the research. The purpose of conducting expert interviews was to assess the applicability of the literature review findings to the Sri Lankan context while determining the best path to proceed to achieve the research aim. Then to validate expert interview findings, case studies were carried out selecting three cases on completed commercial interior projects, and further interviews are carried out within those case studies. After that, a thorough study was carried out to analyse the collected data in means above. The expected outcome of this chapter is to identify the common project management activities affecting the success and failure factors of interior design projects in Sri Lanka.

4.1 Findings and Analysis of the Interviews

Findings of the interviews were mainly focused on identifying the common project activities through project life cycle phases, success and failure factors affecting the successful delivery in interior design projects in Sri Lanka. Some common project activities through project life cycle phases, success and failure factors were discovered from the literature review and were used in the semi-structured interviews. The respondents' expertise was then used to develop a framework for interior project management activities and the success and failure factors affecting interior design project deliveries in Sri Lanka in order to achieve the fourth objective of the research.

These cases identify common factors which caused to success or failed the projects, and these selected three different completed interior projects were over 10 million budget commercial building projects which are ranked in commercial trade. Evaluation semi-structured interview results will be shown as tables were selected as appropriate methods to analyse the cases and study only concern about common factors in life cycle stages due to get the accuracy of the research and prepared the criteria.

Below discussed common project management activities, success and failure factors were discovered from the literature review and how each interviewee responds to those factors with their personal experience in the interior design project industry.

4.1.1 Project Management Activities in Life Cycle Phases

4.1.1.1 Initiation Phase

The table shown below is identified as common project management activities in the initiation phase, which are illustrated in Table 4.1 below. The Black text indicates project management activities derived from literature, and the Red text indicates those project management activities derived from respondents' answers.

Table 4.1 Activity Table – Initiation Phase

Source: Author

INITIATION PHASE														
	ACTIVITY	CASE 01				CASE 02				CASE 03				TOTAL
		ID 01	ENG 01	PM01	TOTAL	ID02	ENG02	PM02	TOTAL	ID03	ENG 3	PM03	TOTAL	
01	Discuss need of the project				**0/3**				**3/3**				**3/3**	**5/9**
02	Arrange regular meetings				**3/3**				**3/3**				**3/3**	**9/9**
03	Define Scope				**2/3**				**2/3**				**1/3**	**5/9**
04	Establish goals and resources				**2/3**				**2/3**				**2/3**	**7/9**
05	Establish key appointments				**1/3**				**0/3**				**1/3**	**2/9**
06	List down Terms of reference				**3/3**				**1/3**				**1/3**	**5/9**
07	Setup a project office				**0/3**				**0/3**				**1/3**	**1/9**
08	Initiate a Feasibility Study				**0/3**				**1/3**				**2/3**	**3/9**
09	Appoint a project team				**2/3**				**3/3**				**3/3**	**8/9**
10	Perform phase review				**0/3**				**0/3**				**0/3**	**0/9**
11	Identify project specification				**3/3**				**2/3**				**2/3**	**7/9**
		4/11	**6/11**	**7/11**		**6/11**	**4/11**	**6/11**		**5/11**	**5/11**	**9/11**		

As per Table 4.1, the activities identified in the initiation phase in literature was further confirmed by the professionals in three cases. Moreover, there were new activities that were mentioned by the professionals in their case.

- As per the first activity identified, **discuss the need for the project**, none of the respondents stated in case 01. Two respondents stated this activity in case 02, ID02 & PM02 specified activity, *discuss the main purpose of the project* during the initiation phase. Case 03, all three respondents identified this activity. ID03 & PM03 identified activity during initiation phase was to *discuss the main purpose of the project*. Case 03, ID03 stated, *"Initially it was a great challenge for us to win the project by competing with other designers and we worked hard on a conceptual proposal to present for the top management."* This statement further explains the purpose and how to serve the purpose through conceptual interior design which reflects the need for the project. In case 03, ENG03 explained, *"I was pressurized by the client when finalizing contract parties to start the project immediately since they wanted to move to the new building as they have to pay the rent beyond the time signed in the contract."* This shows the background discussion of the project need.

- **Arrange regular meetings** was the next activity. All three respondents in all three cases identified this activity during the initiation phase. In case01, ID01 noted this activity to attend regular meetings, ENG01 stated arranged regular meetings and PM01 specified, arranged weekly meetings. In case 02, ID02, ENG02 & PM02 stated this activity as arranged regular meetings in order to identify the requirement of the project. In case 03, the second identified activity which arranges regular meetings was identified by all three respondents. Most importantly this activity was derived from respondents' answers.

- Respondents emphasised their views on third activity **define scope**. Two respondents from case 01 identified this activity. ENG01 stated this activity as *identify the requirement* and PM01 stated this activity in case 01 as *prepare scope documents and finalizing the scope of work.* In case 02, two respondents identified this activity, and one of them was ID02 who specified this activity as, *identify the scope and discuss the time frame & rough budget.*

Case 03, PM03 was the only one respondent stated this activity as, *prepare time frame, a rough budget and define the scope and evaluate presentations.* This activity derived through literature review.

- **Establish goals and resource** is the third activity identified by literature was further confirmed by all three respondents in case 01. ID01 identified as, *set project goals.* ENG01 stated *identified project goal, tender call* and PM01 specifies as *identifying project goals and set resources accordingly.* ENG01 he emphasized, *"I assigned an internal team to prepare shop drawings to submit tender documents."* This further states that you establish goals and resources during the initiation phase. There is only one respondent stated this activity in case 02. ID02 specified as, *discuss material, colours & concept.* PM02 stated this activity as, *set up goals and list down resource.* In case 03, there are two respondents stated this activity. PM02 emphasized in case 02, *"This was an office extension, and I wanted to convince the staff with a minimum hurt when selecting who will work on workstations and cubicles and finalizing their positions."*

  PM02 was more concern in selecting the crowd with a minimum hurt to move the office extension. This was not a concern in the other two cases. ENG03 and PM03 listed activities as, *identified project goal and tender call.* This activity derived through literature review.

- **Establish key appointments** was identified only two respondents. PM01 in case 01 specified as *select appropriate parties to start the project*. In case 03, PM03 stated, *award the project to the selected parties* during the initiation phase. PM02 did not mention this activity in case 02. This activity derived through literature review.

- **List down terms of references** was identified as a fifth activity through literature review. Five respondents mentioned this out of the three cases. ID01 briefed activities were *brief & formulation concept, list down specification and tender call.* From the listed activities mentioned above, ID01 has stated that tender process in selecting contractors which were not mentioned by other interior designers.

ENG01 listed activities, *data collection and collect headcount, fix a budget plan* and PM01 stated, *gathered all requirements, work on the process of concept finalisation* were the activities performed during the initiation phase under list down terms of references.

Out of all three PM professionals PM01 highlighted, *"I used a different strategy to approach superiors directly to get confirmation for the headcounts, and that was the best way to avoid layout changes halfway through the project."* PM01 further explained the activity, list down terms of references by how he finalise the headcount in order to start with the layouts. Before start working on the furniture layouts, he collected the data from the department heads and got it confirmed by the top management. This fact was not appropriately addressed in the other two cases. Therefore, the interior designer has to change the furniture layouts several times.

Case 02, ENG02 further explained the activity list down terms of references by how he selected the officers moving to the new wing. He stated, *"According to the discussions held with the client I was asked not to disturb ongoing operations after shifting officers to the new wing. This was a challenge for me to convince them and finalise the headcount in order to process."* According to his explanation, it was a quite challenge to finalise the officers moving to the new wing without disturbing ongoing operations. Other engineers did not emphasise this.

In case 03, ID03 identified activities under list down terms of references such as *note down client's requirement, propose furniture layout, come up with a concept to present the client, prepare a presentation, regular site visits, take site measurements, changes in furniture layouts.* ID03 in case 03 further explained how challenging it was to win the project when compared to the other two cases.

- **Set up project office** was only mentioned by one respondent in case 03, PM03. According to other respondents, it was not a necessity to set up a project office.

- **Initiate a feasibility study** was only identified in case 02 & 03 by PM02, ENG03 and PM03. This refers to achieving the objectives of the business and check site conditions to increase power consumption.

- **Appoint a project team** was identified by most of the respondents. There are eight respondents out of three cases identified this activity during the initiation phase.

In all three cases, respondents who mentioned appoint a project team stated, *assigned a project team, select appropriate parties for the project and discuss the requirement with each party* were performed in general. In case 03, PM03 says, *"In order to select the interior designer I evaluated presentations done by interior competitors with the client. That was quite a challenge. We focused on the concept they presented."* According to PM03, it was a challenge to select the right contractor to fulfil the job while other two project managers in other two cases concern of the headcount to start the layout.

- **Perform phase review** activity which derived through literature review was not mentioned by respondents in any case in real projects.

- **Identify project specification** was the last identified activity which derived from respondent's interviews. This activity was mentioned in by seven respondents out of three cases. ID01 stated activities such as *budget/cost plan, changes in brief.* ENG02 specified activities as, *gather & identify the requirement, finalizing the sitting arrangement* and PM01 mentioned activity was, *discuss material specification.*

  ID02 explained in case 02, *"This was an office extension. I was a concern when designing the new wing while keeping the old wing concept."* According to ID02, case 02 was an office extension; therefore when designing it has to order to merge with the old wing. Other two interior designers did not mention this fact in their cases. PM02 itemized activity as *gather requirement and get rough budget approval.* In case 03, ID03 and PM03 stated activities under identifying project specification such as, *prepare a detailed description of construction, workmanship and materials of work to be done.*

4.1.1.2 Planning Phase

The table shown below is identified as common project management activities in the planning phase, which are illustrated in Table 4.2 below. The Black text indicates project management activities derived from literature, and the Red text indicates those project management activities derived from respondents' answers.

Table 4.2 Activity Table –Planning Phase

Source: Author

PLANNING PHASE														
	ACTIVITY	CASE 01				CASE 02				CASE 03				TOTAL
		ID 01	ENG 01	PM01	TOTAL	ID02	ENG02	PM02	TOTAL	ID03	ENG 3	PM03	TOTAL	
01	Identify project activities	●	●	●	**3/3**	●	●		**2/3**				**0/3**	**5/9**
02	Prepare time ,cost and quality		●	●	**2/3**	●	●	●	**3/3**	●		●	**2/3**	**7/9**
03	Follow sequences of project activities		●	●	**2/3**	●			**1/3**	●	●	●	**3/3**	**6/9**
04	Identify critical activities		●		**1/3**	●	●		**2/3**	●			**1/3**	**4/9**
05	Write project proposals				**0/3**				**0/3**				**0/3**	**0/9**
06	Create project plan	●		●	**2/3**				**0/3**				**0/3**	**2/9**
07	Organization approach				**0/3**				**0/3**				**0/3**	**0/9**
08	Schedule/ operational phase	●			**1/3**	●		●	**2/3**	●			**1/3**	**4/9**
09	Project Team	●	●	●	**3/3**	●	●	●	**3/3**	●	●		**2/3**	**8/9**
10	Coordinate with parties	●		●	**2/3**		●		**1/3**	●	●	●	**3/3**	**6/9**
11	Monitoring project specification	●		●	**2/3**	●			**1/3**			●	**1/3**	**4/9**
		6/11	**5/11**	**7/11**		**7/11**	**5/11**	**3/11**		**6/11**	**3/11**	**4/11**		

As per Table 4.2, the activities identified in the planning phase in literature was further confirmed by the professionals in three cases. Moreover, there were new activities that were mentioned by the professionals in their case.

- **Identify project activities** was the first activity derived through literature review. All three respondents in case 01 have identified this activity differently. ID01, ENG01 and PM01 specified as, *list down the work plan.* ID01 in case 01 stated, *"This project required to obtain LEED certification. Therefore all the material compiled is that and low power consumption."* ID01 was a concern all material should be compiled in order to obtain LEED certification were other two interior designers were not aware of this fact. This explains more about identifying project activities in case 01. Also, ID01 stated activities done during a tender process such as *issue tender, tender evaluation, client select the contractor and award of the contract.* In case 02, two respondents identified this activity, and in case 03 none of them have identified project activities during the planning phase.

- Second activity derived through literature was **Prepare time, cost and quality schedule.** In case 01, all three respondents have identified this activity. ID01 stated, *set up a timeline.* ENG01 stated, *prepare rough estimate before design starts, budget approval from the senior management with time consideration* were activities performed during the planning phase. PM01 explains activities such as, *follow targets and check submitted time, cost schedules are according to client's requirement.* In case 02, all three respondents have identified this activity. ID02 stated, *suggests materials to fix the estimated budget, prepare a bill of quantities for the finalised designs, revised bill of quantities (BOQ) couple of time to align with a given budget and request an advance payment after approving a submitted bill of quantities.* ENG02 listed activities such as, *send the interior bill of quantities for superior's approval, consider material usage, planning the minimum budget and prepare a schedule.* In Case 02, ENG02 stated, *"When it comes to the budget there were typical office floors which we had a minimum budget and a designer floor for marketing purpose which we wanted to spend more to get an out of the ordinary look and feel."* which is a concern of cost and quality before design during the planning phase except for the marketing floor which was not a concern of the other two engineers.

PM02 mentioned, *decide the minimum budget with the client and arrange a meeting to fine tune the timeline before commencing work.* In case 03, there are two respondents stated this activity. ID03 stated, *get cost plan approved by the client, prepare a timeline, material sample selection and prepare a bill of quantities.* PM03 mentioned activity as *check all submitted timeline and assist in cost and quality planning.*

- **Follow sequences of project activities** was identified as the third activity in the planning phase. In case 01, two respondents identified this activity. Out of all three engineers ENG01 highlighted, *"It was a challenge to manage the sequence of lighting and electrical wiring points along with proposed partition and ceiling by the interior designer."* According to ENG01, he did not want to mess up interior furniture and partition layouts with the proposed lighting positions. He further explained, when selecting some air conditions and the system he coordinated with the interior designer to decide the type of partition whether to go full height or half height. This fact was not mentioned by other engineers. PM01 mentioned activities as, *preparing detail drawings for tender, concern to obtain LEED certification, low power consumption and concern existing structure height.* In case 02, there is only one respondent identified this activity. ID02 stated activities performed under following sequence of project activities such as a *concept derived from matching the old wing, prepare layouts for furniture/ ceiling/ partition/ electrical & lighting, several presentations done, prepare detail drawings, revise furniture layouts due to the changes in the headcount of the departments and start 3D visuals.* ID02 says, *"They have not finalised the air condition system, and I had to revise my partition and lighting layouts accordingly."* According to ID02, complained that not finalizing an air conditioning system and it affected the furniture layout several times. This was not mentioned by the other interior designers. Case 03, all three respondents identified this activity, ID03 stated, *propose furniture layouts and details and specification preparation.* ENG03 listed activity such as *get approval from top management for furniture layouts and concepts.* PM03 mentioned, *discussions on ceiling heights and A/C systems.*

- **Identify critical activities** was the fourth activity derived through literature review. This activity was identified by only four respondents. ENG01, ID02 and ENG02 stated *concern in selecting and finalizing A/C control system before starting on the layouts. This effects the partition, ceiling and furniture layouts.* Also in case 01, ENG01 stated that *"I was concerned in selecting A/C control system before ceiling and partition layouts finalised to avoid changes in the layouts."* ENG01 had assigned an internal team in this phase in order to prepare tender documents before submitting. This unique activity was not found in the other two cases. In case 03, ID03 stated that *"We planned to import quality chairs and carpet and I wanted to finalise the designs in order to import and have them without any delay completion."* According to ID03, in order to import chairs and carpets, she had to select and get down samples for approval which was not mentioned by other two interior designers' scope of work.

- **Write project proposals and organization approach** activities derived through literature review was not mentioned by respondents in any case in real projects.

- **Create a project plan** was identified only two respondents in case 01 and 03. ID01 and PM03 mentioned that *create a project plan and follow targets during the planning phase was important.*

- Three respondents identified **schedule and operational phase**. This activity derived through literature review. In case 01 none of the respondents identified this activity. In case 02, ID02 listed, *communication among parties, control quality, prepare documentation and various special drawings, samples submitted to the client for approval prior order and select project team for interior construction.* PM02 stated *coordinate deadlines and went through drawings and samples submitted for approval prior order.* ID03 in case 03 stated activity as, *cost check how actual performance compares with the budget and the work complies with the technical requirement outlined in contract documents.*

- **Select a project team** was a common activity identified by most of the respondents in three cases. In case 01, ID01, ENG01 and PM01 stated, *selecting a reliable team of people for the project was a challenge.* In further discussion, ID01 stated, *"Contract was awarded to two interior construction parties in order to*

avoid delay in completion and to maintain a higher standard of the cooperate floor and ground floor entrance lobby interior compared to the typical office floor." According to ID01's statement, interior construction was done by two contractors to avoid delay in completion of the project which is a successful decision to be taken in initiation phase where other two interior designers have not thought of this fact. In case 02, all three respondents mentioned this activity. According to ID02, *selecting reliable sub-contractors for interior construction was quite a challenge in the planning phase.* ENG02 and PM02 also stated this activity in case 02. ID03 and ENG03 in case 03 stated, *selecting a project team* as an activity in the planning phase.

- **Coordinate with parties** was identified by five respondents in the planning phase. Most importantly this activity was identified by respondents' interviews. In case 01, ID01 stated, *coordinate services between MEP contractors.* PM01 mentioned, *coordination between interior construction parties most essential.* Case 01, PM01 specified that *"I always maintained a harmonised relationship between contractors to get the work done according to the timeline."* This explains he wanted to maintain a good relationship to get the work done by them on time was also mentioned by the project manager in their cases. In case 02, ENG02 stated, *coordination between MEP contractors before commencing work.* ID03 in case 03 stated, *organize teamwork.* ENG03 stated, *arrange MEP contractors to develop their drawings according to approved layouts* was initiated in planning phase under coordinate with parties. PM03 stated that, *held weekly meetings in order to coordinate all parties and cooperate with building and construction specialists.*

- **Monitoring project specification** was the last activity identified, and this was derived through the respondent's interview. This activity was identified by eight respondents from the three cases. In case 01, ID01 mentioned activity such as *design goals with continuation for improvement of proposed, designed solutions and testing them for the accuracy of safety and aesthetics.* ID02 stated, *monitor statutory approvals process by follow-ups with liaison consultants and reporting the progress, review of technical specifications and bill of quantities (BOQ).* PM01 stated activities performed under monitoring project specification such as, *put together the budget and*

negotiate cost estimates, choose the most efficient construction method and strategies. PM01 explained further, *"I looked into every detail when it comes to wiring points for workstations and other equipment. Therefore no need to break the partitions halfway through to draw cables for workstations."* PM03 listed activities as, *stay in touch with the clients for work or budget-related issues, discuss technical and contract details with workers and other professional parties.*

4.1.1.3 Implementation Phase

The table shown below is identified as common project management activities in the implementation phase, which are illustrated in Table 4.3 below. The Black text indicates project management activities derived from literature, and the Red text indicates those project management activities derived from respondents' answers.

Table 4.3 Activity Table – Implementation Phase

Source: Author

IMPLEMENTATION PHASE														
	ACTIVITY	CASE 01				CASE 02				CASE 03				TOTAL
		ID 01	ENG 01	PM01	TOTAL	ID02	ENG02	PM02	TOTAL	ID03	ENG 3	PM03	TOTAL	
01	Build deliverables	●		●	**2/3**	●		●	**2/3**	●			**1/3**	**5/9**
02	Organize project Monitor and Control	●	●	●	**3/3**	●	●	●	**3/3**	●	●	●	**3/3**	**9/9**
03	Manage Contracts		●	●	**2/3**	●			**1/3**			●	**1/3**	**4/9**
04	Identify Problems		●	●	**2/3**	●	●	●	**3/3**	●	●	●	**3/3**	**8/9**
05	Adjust targets			●	**1/3**		●		**1/3**	●		●	**2/3**	**4/9**
06	Manage Sub Contractors	●		●	**2/3**	●		●	**2/3**	●		●	**2/3**	**6/9**
07	Develop a work program		●		**1/3**	●	●	●	**3/3**	●	●		**2/3**	**6/9**
08	Control quality of materials	●	●		**2/3**	●	●		**2/3**	●	●	●	**3/3**	**7/9**
09	Supervision of site work	●	●	●	**3/3**	●	●	●	**3/3**	●	●		**2/3**	**8/9**
		5/9	**6/9**	**7/9**		**8/9**	**6/9**	**6/9**		**8/9**	**5/9**	**6/9**		

As per Table 4.3, the activities identified in the implementation phase in literature was further confirmed by the professionals in three cases. Moreover, there were new activities that were mentioned by the professionals in their case.

- **Build deliverables** was identified by five respondents in the implementation phase. This activity derived through literature review. In case 01, only one respondent stated this activity. Furniture sub-contractors were selected by the client's side. ID01 in case 01 stated, *"Relevant parties decided to import all office workstations. Therefore it was easy to get the sample approved by the top management before confirming the order."* ID01 more concerned selecting imported items and get down the samples for confirmation before placing the order. Since it takes time and it has to align with the given time schedule. Other two interior designers did not mention this fact where they manufacture furniture in Sri Lanka and buy readymade furniture. Therefore ID01 only provided the design. ID01 stated that activity, *prepare and check furniture details during manufacture* was done in the implementation phase. PM01 stated, *follow up details and check they are according to the submitted specifications* was performed during this phase. ENG01 has not mentioned this activity in case 01. In case 02, there are two respondents identified this activity. ID02 stated activities such as *installation of ceiling & partition work started during this phase, involved in selecting furniture purchase from outside, furniture installation planned floor by floor, check furniture manufacturing and coordinated furniture delivery floor by floor.* In further discussion, ID02 said, *"Client wanted readymade furniture for Manager Cubicles. We had issues in selecting readymade furniture to fit into the size and the proposed sides of the cubicles."* Somehow we managed to fit in available furniture to the proposed layout. PM02 also specified activity, *involved in selecting furniture purchase from outside.* In case 03, only one respondent identified this activity. ID03 stated activities such as *installation of ceiling and partition, bring deliverables to the site, furniture fixing at the site and continuous check of build deliverables according to the given details.*

- **Organise project monitor and control** was a common activity identified by all nine respondents. This activity derived through literature review. In case 01, ID01 and ENG01 stated, *attend weekly meetings.* PM01 mentioned activity, *follow the timeline.*

  In case 02, ID02 stated, *regular site visits, weekly meetings and followed the given timeline.* ENG02 mentioned activities such as, *follow timeline, monitor and control construction work at the site.* PM02 listed, *follow the given timeline and conduct weekly progress meetings under this identified activity.* In case 03, ID03 and ENG03 both stated activities such as, *attend weekly progress meetings and follow the timeline.* PM03 *listed work as, conduct weekly progress meetings.*

- **Manage Contracts** was identified through literature review and this was not commonly mentioned in three cases. There are only three respondents out of three cases identified this activity. In case 01, ENG01 stated, *kick-off meetings during the implementation phase.* PM01 performed, *notice to commence work, forward the advance payments to the management and communication procedures.* In case 02, ID02 stated, *request an advance payment before commencing work.* PM03 in case 03 listed activities such as *arrange requested advance payments and process payments to the client during the implementation phase.*

- **Identify Problems** is the most important part of the construction. Eight respondents identified this activity in three cases. In case 01, two respondents identified this activity. ENG01 and PM01 stated, *problem-solving when there are a variation and work according to the project plan.* ID02 stated *address variations* in case 02. ID02 stated, *"We could not start the ceiling work due to the delay in installation of A/C systems and aluminium window frames. That time it was raining, and the floors were flooded. Therefore we could not start the ceiling and partition work due to rainwater."* According to ID02 in case 02 that was a delay in installing windows and a/c lines. Therefore the ceiling and partition work had held until they fully seal the building because during rainy days floor was flooded with water and could not start ceiling and partition work at the site. This shows identifying problems at the site during the

implementation phase. ENG02 further stated that *"We decided to purchase readymade furniture for manager positions due to lack of time for production."* Also, ENG 02 stated, *"Readymade furniture orientation change due to the availability; therefore wiring positions had to change."* This shows there was an issue in orientation when purchasing readymade furniture for manager cubicles and had to change the sides of the wiring positions, which was not seen in the other two cases. In case 02, ENG02 decided with the client's approval to purchase selected furniture items from outside where this will make the project go fast. In case 01 they selected two contractors for furnishing to complete the project at the given time and this is an example of identifying problems early in the real world. ENG02 in case 02 stated, *manage when there is a lack of resources during the season.* In case 03, ID03 stated, *inform the variations to contract parties requested by the client.* ENG03 mentioned activity, *get approval for variations* and PM03 stated, *check site variations and get approval from the client.*

- Four respondents identified activity **Adjust Targets**. This activity derived through literature review. PM01 in case 01 identified this activity as, *follow targets and conduct weekly progress meetings.* In case 02, ENG 02 stated, *get approval for variations.* In case 02, PM02 stated that *"This was an office extension and at a certain point, customers were disturbed by the noise and dust due to the construction of the new wing."* The further explanation he said, *"Interior designer was asked to inform the contractors to work during night time to avoid the disturbance of the clients."* PM02 stated that it was not easy to carry on construction work without any disturbance to ongoing operations and most of the time he has requested to work at night to avoid the noise and dust. This was quite a task to achieve when there are a timeline and good to inform early construction to avoid delay in project completion.

  In case 03, ID03 stated, the *timeline changed according to the actual site. Therefore the target changed accordingly.* In further explanation, ID03 said, *"Delay in finishes of the building had a huge impact on finishing interior work as we have to clean the site before furniture installation."* During the discussion had with ID03 said that they could not start fixing furniture at the site as planned due to the delay in building contractor is finishing the site and had to adjust targets accordingly. PM03 stated, *follow timeline and targets according to the variations*

in the actual site.

- **Develop a work program** was identified only two respondents in case 01 and 03. ENG01 and ID03 mentioned that *note down variations and created a project plan in order to follow targets during the implementation phase were important.* This activity was not identified by respondents in case 02. Case 01, ENG01 says, *"After each and everyone submitted their time schedules, I put them together and check whether it's aligned with the timeline the client has given for project completion."* ENG 01 mentioned that the combined time schedules given by all parties to align with the client's date of completion. This was a successful method to check whether there are any activity overlaps during construction which is developing a work program.

- **Control quality of materials** was identified by most of the respondents in three cases. In case 01 all three respondents have identified this activity. ID01 stated, *through a quality check of materials, sample testing & approval, colour selections she maintained the quality of the products.* ENG01 stated, *get approvals from the client for the samples submitted from the responsible parties and check the quality of construction work.* In case 02, ID02 stated, *material selection and get approval, wall colour selections and check the quality of ceiling & partition.* ENG02 stated, *check the quality of the products.* In case 03, ID03 stated, *sample furniture to be approved by the client.* ENG03 specified *quality control of the deliverables.* PM03 stated, *check the quality of the build deliverables.*

- **Regular supervision** was a commonly identified activity. All respondents except PM03 in case 03 did not mention this activity. Everyone identified this activity as regular site visits and supervision throughout the implementation phase to drive the project fast to its completion.

4.1.1.4 Closure Phase

The table shown below is identified as common project management activities in the closure phase, which are illustrated in Table 4.4 below. The Black text indicates project management activities derived from literature, and the Red text indicates those project management activities derived from respondents' answers.

Table 4.4 Activity Table – Closure Phase

Source: Author

CLOSURE PHASE													
	ACTIVITY	CASE 01				CASE 02				CASE 03				TOTAL
		ID 01	ENG 01	PM 01	TOTAL	ID02	ENG02	PM02	TOTAL	ID03	ENG 3	PM03	TOTAL	
01	Prepare and go through check list				**0/3**				**1/3**				**2/3**	**3/9**
02	Handover deliverables and site to client				**1/3**				**3/3**				**2/3**	**6/9**
03	Maintain standards check quality of deliverables and finishes				**3/3**				**2/3**				**3/3**	**8/9**
04	Submit as built drawing for final payment				**2/3**				**0/3**				**1/3**	**3/9**
05	Satisfying client				**1/3**				**0/3**				**0/3**	**1/9**
06	Transfer manpower, resources and commitments				**2/3**				**2/3**				**2/3**	**6/9**
07	Testing and commissioning				**2/3**				**2/3**				**1/3**	**5/9**
08	Prepare and submit final payment document				**2/3**				**3/3**				**3/3**	**8/9**
09	Prepare maintenance manual and defects list				**0/3**				**0/3**				**0/3**	**0/9**
10	Site clean-up & final touchups				**0/3**				**2/3**				**1/3**	**3/9**

	ACTIVITY	CASE 01				CASE 02				CASE 03				TOTAL
		ID 01	ENG 01	PM 01	TOTAL	ID02	ENG02	PM02	TOTAL	ID03	ENG 3	PM03	TOTAL	
11	Take combine measurements of the work done				**1/3**				**2/3**				**2/3**	**5/9**
12	Issue payment certification for the contractors				**2/3**				**0/3**				**2/3**	**4/9**
		6/12	**5/12**	**5/12**		**7/12**	**6/12**	**4/12**		**8/12**	**6/12**	**5/12**		

As per Table 4.4, the activities identified in the closure phase in literature was further confirmed by the professionals in three cases. Moreover, there were new activities that were mentioned by the professionals in their case.

- **Prepare checklist** was identified by three respondents in closure phase. This activity was not identified by any respondent in case 01. Case 02, ID02 stated that *she went through the checklist many times during this phase to make sure all activities are completed.* In case 03, ID03 and PM03 stated this activity as, *prepare and go through the checklist.* ID03 further mentioned, *"It was easy that I have maintained a checklist. So I tick one by one before windup."* This explains how it was easy to maintain a checklist before completion of the project. This activity was not derived through literature but identified from respondent's interviews.

- **Handover site and deliverables to the client** activity was derived through a literature review. This activity was identified by six respondents in the closure phase. In case 01, ID01 stated as *handing over the project and regular inspection was carried throughout this phase.* Case 02, all three respondents stated this activity as, ID02 and ENG02 identified as, *handing over floor by floor.* PM02 stated as, *go through documents in order to hand over floor by floor to the client.* In case 03, ID03 stated, *regular site inspection and preparation to hand over the project.* PM03 identified as, *handover the site.*

- **Maintain standards check the quality of deliverables and finishes** activity was identified by eight respondents in the closure phase. Case 01, all three respondents identified this activity. ID01 stated as, *quality check.* ID01 further explained, *"I went through the specification with the deliverables. That was quite a task to achieve. "My concern was to ensure deliverables are in good condition and installed correctly,"* ID01 stated activity was checking the deliverables with the given specification and whether they are in good condition and properly installed in order to assure the quality of deliverables which is a common activity noted in the other two cases. ENG01 identified as *check the specification with deliverables and maintain standards.*

PM01 specified as, *check the quality of products and finishes, deliverables checked with the submitted and approved samples.* In case 02, ID02 stated as, *check the quality and finishes of manufactured products* ENG02 identified as, *check quality and finishes of wiring, partitions and ceiling.* In case 03, ID03 specified as, *quality check of products and finishes.* ENG03 stated as, *check quality and finishes, maintain standards and check the specification with deliverables.* PM03 noted as, *quality check of all construction work and deliverables.*

- **Submit an as-built drawing for final payment** was not identified by many respondents during the closure phase. This activity was identified by three respondents in the closure phase and was not derived through literature but identified from respondent's interviews. In case 01, ENG01 stated as *submit as-built drawing for final payments and issued a copy of as-built drawing for the client.* PM01 identified as *check deliverables according to the submitted bill of quantities.* Case 02 none of the respondents identified this activity. In case 03, ENG03 stated as *submit an as-built drawing for final payment.*

- **Satisfying the client** was identified only one respondent in case 01. ID01 mentioned that *she was a concern about the client's satisfaction.* All the other respondents did not mention this activity which derived through literature review.

- **Transfer manpower, resources and commitments** was a common activity identified by six respondents in three cases. This activity derived through literature review. All three cases except PMs, IDs and ENGs stated as, *with the preparation of site completion gradually transfer manpower and resources.*

- **Testing and commissioning** activity was identified by five respondents in the closure phase. This activity derived through literature review. In case 01, ENG01 stated as, *testing and commissioning carried out and certified by a charted engineer.* ENG01 further explains, *"Testing and commissioning was done in order to rectify defects at the end of the project."* According to ENG01, this was an important activity before handover the project. Where testing and commissioning take place and to rectify defects.

This was a common activity in the other two cases. PM01 mentioned, *testing and commissioning took place.* In case 02, ENG02 and PM02 stated, *testing and commissioning carried on during closure phase before completion of the project in order to rectify defects.* In case 03, ENG03 stated the same activity as in other cases. ENG03 further stated that *"I was involved in testing and commissioning and coordinating all parties towards the completion of the project."* According to ENG03, testing and commissioning took place and to rectify defects before completion of the project.

- **Prepare and submit final payment document** was identified through from respondent's interviews and commonly identified by eight respondents in three cases. In case 01, ID01 identified this activity as, *prepare documents before handing over the project.* PM01 stated, *check all submitted documents prepare them to release final payments.* In case 02, all three respondents identified this activity. ID02 stated, *prepare the final bill to request payments.* ID02 further explained, *"In order to prepare the final bill I had to go recheck the variations request by the client."* In case 02, ID02 mentioned variation check was done in order to prepare the final bill also a common activity in the other two cases.

  ENG02 identified as, *submit variations in order to prepare final payment documents.* PM02 specified as, *check and prepare documents to release final payments.* In case 03, ID03 listed as, *request payments, prepare documents before handing over the project to receive final payments and submit variations to get approved by authorized parties.* ENG03 stated, *submit variations of all contractors and prepare a document to release final payments.* PM03 mentioned, *check documents submitted final bills by contractors in order to release final payments.*

- **Prepare maintenance manual and defects list** derived through literature review was not mentioned by respondents in any case in real projects.

- **Site clean-up & final touch-ups** activity derived through from respondent's interviews. This activity was identified by three respondents. In case 01, none of them identified as site clean-up activity was performed by sub-contractors. In case 02, there are two respondents identified this activity. ID02 stated, *go through final touch-ups and started site cleaning floor by floor.* ENG02 explains as *getting*

contractors to prepare the site for completion. In case 03, ID03 stated, *final touch-ups and site cleaning carried on during closure phase before completion.*

- **Take combine measurements of the work done** is the method of payment which is called measure and pay. This activity derived through respondent's interviews. All three cases used this method of payment which is measure and pay. There are five respondents mentioned in their interviews. In case 01, PM01 stated, *payment method was measure and pay, and there was a join measurement undertaken before preparing final bills by contractors.* In case 02, two respondents mentioned this activity. ID02 stated, *take combine measurements to prepare a final bill* and PM02 specified as *check submitted variations with contractors and take combine measurements.* Case 03, ID03 and PM03 stated, *take combine measurements to prepare the final bill.*

- **Issue payment certification for the contractors** identified by respondents interviews. There are four respondents identified this activity in three cases. ID01 in case 01 stated, *issue payment certification for the contractors and announced a one-year defect liability period.* ENG01 noted *one-year defect liability period and kept 5% as retention from the total bill for one year as a defect liability period.* In case 02, none of the respondents mentioned this activity. In case 03, ID03 and ENG03 stated as *six months defect liability period.*

4.1.2 Project Management Success Factors in Cases

4.1.2.1 Case 01, 02 & 03

The tables shown below are identified success factors in case 01, 02 and 03 which are illustrated in Tables 4.5, 4.6 and 4.7 below. The Black text indicates success factors derived from literature.

Table 4.5 Success Factors Table – Case 01

Source: Author

	SUCCESS FACTORS	CASE 01												
		Initiation			Planning			Implementation			Closure			TOTAL
		ID 01	ENG01	PM01	ID 01	ENG01	PM01	ID 01	ENG01	PM01	ID 01	ENG01	PM01	
01	Clear Project Mission	●	●											**02/12**
02	Proper Schedule and Plans	●	●	●	●			●	●	●	●	●	●	**10/12**
03	Client's Acceptance				●	●	●	●	●		●	●	●	**8/12**
04	Effective/ Good Communication	●	●	●	●		●	●	●	●				**8/12**
05	Trouble Shooting					●		●		●				**3/12**
06	Well Define Goals	●	●	●			●							**4/12**
07	Competition													**0/12**
08	High Client's Satisfaction										●	●	●	**3/12**
09	Profitability	●	●								●	●	●	**5/12**
10	Personnel													**0/12**
11	Organizational adaptability		●	●	●									**3/12**
12	Proper Planning and control	●	●	●	●	●	●		●		●	●		**9/12**
13	Market availability of all Material				●	●								**2/12**
14	Client Consultation	●	●		●	●								**4/12**
15	Select efficient Project Team	●	●			●	●							**4/12**
		8/15	**9/15**	**5/15**	**7/15**	**6/15**	**5/15**	**4/15**	**4/15**	**3/15**	**5/15**	**5/15**	**4/15**	

Table 4.6 Success Factors Table – Case 02

Source: Author

	SUCCESS FACTORS	CASE 02												
		Initiation			Planning			Implementation			Closure			TOTAL
		ID02	ENG02	PM02	ID02	ENG02	PM02	ID02	ENG02	PM02	ID02	ENG02	PM02	
01	Clear Project Mission													**0/12**
02	Proper Schedule and Plans	●	●	●	●	●	●	●	●	●		●		**10/12**
03	Client's Acceptance	●	●	●	●	●					●	●	●	**8/12**
04	Effective/ Good Communication	●	●	●		●	●	●	●	●				**8/12**
05	Trouble Shooting							●	●	●				**3/12**
06	Well Define Goals	●		●										**2/12**
07	Competition													**0/12**
08	High Client's Satisfaction										●	●	●	**3/12**
09	Profitability				●		●							**2/12**
10	Personnel													**0/12**
11	Organizational adaptability					●	●							**2/12**
12	Proper Planning and control				●		●		●					**3/12**
13	Market availability of all Material				●				●					**2/12**
14	Client Consultation	●	●		●		●				●		●	**612**
15	Select efficient Project Team		●	●	●	●	●							**5/12**
		5/15	**5/15**	**5/15**	**7/15**	**5/15**	**7/15**	**3/15**	**5/15**	**3/15**	**3/15**	**3/15**	**3/15**	

Table 4.7 Success Factors Table – Case 03

Source: Author

	SUCCESS FACTORS	CASE 03												
		Initiation			Planning			Implementation			Closure			TOTAL
		ID03	ENG03	PM03	ID03	ENG03	PM03	ID03	ENG03	PM03	ID03	ENG03	PM03	
01	Clear Project Mission	●												**1/12**
02	Proper Schedule and Plans	●	●	●	●		●	●	●	●	●	●	●	**11/12**
03	Client's Acceptance	●	●			●	●	●		●	●		●	**8/12**
04	Effective/ Good Communication	●	●	●	●		●	●	●					**7/12**
05	Trouble Shooting					●		●		●				**3/12**
06	Well Define Goals	●	●	●										**3/12**
07	Competition													**0/12**
08	High Client's Satisfaction										●	●	●	**3/12**
09	Profitability											●		**1/12**
10	Personnel													**0/12**
11	Organizational adaptability				●									**1/12**
12	Proper Planning and control				●		●	●	●	●				**5/12**
13	Market availability of all Material				●									**1/12**
14	Client Consultation	●	●	●										**3/12**
15	Select efficient Project Team				●	●	●							**3/12**
		6/15	**5/15**	**4/15**	**6/15**	**3/15**	**5/15**	**5/15**	**3/15**	**4/15**	**3/15**	**3/15**	**3/15**	

As per the Tables 4.5, 4.6 and 4.7 success factors identified in case 01, 02 and 03 in literature was further confirmed by the professionals in three cases.

- **Clear Project mission** is identified through the literature review as a success factor of construction projects. In case 01 there are two respondents identified this fact during the initiation phase. ID01 and ENG01 stated clear mission guides the project toward achieving the goals and vision of the client. Therefore mission is successfully communicated among stakeholders and project team members for successful project completion.

  In case 02 this factor is not mentioned by respondents in any phase. This success factor is mostly discussed in the initiation phase, but none of the respondents identified this success factor in case 02.

  In case 03 project mission was clearly explained to ID03 in the initiation phase. None of the respondents identified this factor in the other three phases.

- This success factor **Proper Schedule and plans to develop the project** is commonly identified by ten respondents in all four life cycle phases. During the initiation phase, all the respondents mentioned this success factor as prepare proper schedules, and plans define the timeline of activities needed to complete the plan. Planning phase only one respondent identified this success factor. ID01 stated that *create a project plan and follow targets during the planning phase was important.* This explains by creating and developing proper schedules, and plans drive a project to its successful completion. ENG 01 explained in the planning phase as he combined time schedules given by all contract parties to align with the client's date of completion. This was a successful method to check whether there are any activity overlaps during construction which is developing a work program for successful project completion. In implementation and closure phases all three respondents identified this as a success factor.

  In case 02, proper schedule and plans to develop the project is commonly identified by ten respondents in all four life cycle phases. This shows they used plans and schedule in each phase and this was a success factor for successful completion. During the initiation and planning phases, all the respondents mentioned this success factor. In case 02, according to ENG02, the budget was planned early with the concern of cost and quality before design except for the marketing floor.

PM02 mentioned, *decide minimum budget with the client and arrange a meeting to fine tune the timeline before commencing work* and this explains it develop a proper schedule, and plans drive the project for its successful completion. During the implementation phase, all three respondents identified this factor, and in the closure phase, only one mentioned this as a success factor.

In case 03, as in the other two cases, this factor was commonly identified by eleven respondents. During the initiation phase, all the respondents mentioned proper Schedule and planned to develop the project as a success factor. In general, *create a project plan and follow targets during the planning phase was important.* This explains it develop a proper schedule and plans leads to successful project completion. During the planning phase, only two respondents identified this factor as a success to project completion. ID03 and PM03 in case 03 stated, *cost check how actual performance compares with the budget and the work complies with the technical requirement outlined in contract documents.* During implementation and closure phases all three respondents identified this as a success factor.

- **Client's Acceptance** is identified by eight respondents. This factor is not identified in case 01 during the initiation phase. Planning phase all three respondents identified this as a success factor in order to proceed with the work in the next phase which is implementation phase client acceptance for a submitted bill of quantities, material specification and design is essential. During the implementation phase, ID01 and ENG01 identified this as a success factor in order to get the client's acceptance for sample deliverables and materials. This factor is achieved by identifying the client's acceptance issues early in the project and maximize the client's confidence in the delivery of the project. In the closure phase, all three respondents identified this factor in order to ensure the client's satisfaction with the deliverables produced by the project as satisfaction for contract parties.

  In case 02, client's acceptance is identified by nine respondents. All three respondents identified this factor in case 02 during the initiation phase. During the planning phase, ID01 and ENG01 two respondents identified this as a success factor in order to proceed with the work in the next phase which is implementation phase client acceptance for the submitted bill of quantities,

material specification and design are essential.

During the implementation phase, ENG01 only identified this as a success factor in order to get the client's acceptance for variations. This factor is achieved by identifying the client's acceptance issues early in the project and maximize the client's confidence in the delivery of the project. In the closure phase, all three respondents identified this factor in order to ensure the client's satisfaction with the deliverables produced by the project as satisfaction for contract parties.

In case 03, client's acceptance identified by eight respondents throughout four life cycle phases. During the initiation phase, two respondents identified this as a success factor. In a project win client's acceptance mostly seen during initiation, planning and closure phase. Planning phase two respondents identified this factor, and during the implementation phase, all three respondents identified this as a success factor. During the first two phases, it is more important acceptance for the proposed concepts, designs and budget approval from the client. When it comes to implementation, there are changes to be done due to site condition in construction. Therefore the client's acceptance is more important in the fourth phase. During the closure phase, two respondents identified this as a success factor which is mostly importance before submitting final bills and close the project.

- **Effective and good communication** always leads to successful project completion. This factor identified in case 01 by eight respondents. Initiation phase all three respondents identified this activity. As a summary, all respondents stated that good communication is most important in the initiation phase to thoroughly understand the project. In the planning phase, two respondents identified this success factor. ID01 and PM01 stated that *effective communication is understanding the complete message.* In the implementation phase, all three respondents identified this as a success factor in order to successful project completion. The general idea of ID01, ENG01 and PM01 to decide what language to use and how to convey the message concerning tone, feeling and body language in the implementation phase. Efficient communication was not identified by any respondent in the closure phase.

In case 03, good communication is identified as a success factor by seven respondents. Communication plays a role in every life cycle phase in construction. During the initiation phase, all the respondents identified this factor towards successful project completion. Where effective communication played an important role in order to collect data for planning and design. During the implementation phase, two respondents identified this factor as effective communication helps to discuss and address issues that arise. During the closure phase, none of the respondents identified this fact as a success factor.

- **Troubleshooting** is called in other words problem-solving. This factor identified by three respondents in case 01. It was not mentioned by any respondent in the initiation phase and closure phases and but identified in the planning phase by ENG01. He stated, they finalised air conditioning system early, and it was easy to finalise furniture/ partition and ceiling layouts. In the implementation phase, ID01 mentioned this fact as *problem-solving when there is variation and adjust the work plan accordingly for successful project completion.* PM01 stated, *applied the best solution for occurred problems was explained as troubleshooting*. Any respondent did not identify troubleshooting in the closure phase.

  In case 02, troubleshooting is most needed when there are unforeseen variations requested by the client. It is called in other words problem-solving. This fact mostly identified by three respondents in case 02 during the implementation phase. It was not mentioned by any respondent in initiation, planning and closure phases. ID02 stated client, changed furniture layout a couple of times during implementation. Therefore she checked whether partition could be changed accordingly and manage to address the client's request. ID02 stated *address variations* in case 02. According to ID02 in case 02, there was a delay in installing windows and a/c lines. Therefore ceiling and partition work had held until they fully seal the building because during rainy days floor was flooded and could not start ceiling and partition work at the site and necessary actions taken to overcome this issue for successful project completion. PM02 stated, *applied the best solution for occurred problems was explained as troubleshooting*. Troubleshooting was not identified by any respondent in the closure phase.

In case 03, three respondents identified troubleshooting as a success factor. During the planning phase ENG03 mentioned an activity, *get approval for variations,* and during implementation phase ID03 stated, *inform the variations to contract parties requested by the client.* In further explanation, ID03 stated that they could not start fixing furniture at the site as planned due to the delay in building contractor's finishing the site and had to adjust targets and take necessary action in order to stick to the submitted timeline. During closure phase PM03 stated, *check site variations and get approval from the client.* PM03 stated, *revise follow timeline and targets according to the variations in the actual site.* This explains by adjusting according to the issues that arise during construction helped the project for successful completion. Troubleshooting was not identified by any respondent in the closure phase.

- **Well defined goals** prioritize what to focus next. This was identified as a successful factor by four respondents. All three respondents identified in the initiation phase. Where goals defined at the beginning of a project. ID01, ENG01 and PM01 specified this success factor as, *identifying project goals and set resources accordingly during the initiation phase.* None of the respondents identified this factor in the other three phases.

  In case 02, well-defined goals are guidelines that explain what to achieve in the project. This was identified as a success factor by two respondents in case 02 during the initiation phase. PM02 stated this fact as *set up goals and list down resource.* PM02 was more concern in selecting the crowd with a minimum hurt to move the office extension was the main goal of the project, and it was successfully achieved. This activity derived through literature review. This fact was not identified in the other three phases.

  Well defined goals identified only in the initiation phase in case 03. All three respondents identified this fact. None of the respondents identified this factor in the other three phases. In case 03 initiation phase ID03, ENG03 and PM03 listed activities as, *identified project goal.* Which explains when goals are defined clearly project leads to successful completion. This activity derived through literature review.

- **Competition & Personnel** derived through literature review was not mentioned by respondents in any case in real projects. In case 02 and 03 respondents identified this as a success factor in any of the life cycle faces.

- **High Satisfaction of the Client's** appears at the latter stage of the project. In case 01, none of the respondents identified this success factor in the first three phases but in the closure phase. All three respondents identified this success factor in the closure phase. Increase the client's level of satisfaction comparing the experience with previous experience and expectations of the deliverables was explained by this success factor.

  In case 02 none of the respondents identified high client's satisfaction as a success factor in the first three phases but the closure phase. All three respondents identified this success factor in the closure phase. Increase the client's level of satisfaction comparing the experience with previous experience and expectations of the deliverables was explained by this success factor.

  In case 03, client's satisfaction to the fullest shown from client's comments on the final interior. This fact identified indeed during the closure phase by all three respondents. In case 03 client satisfaction achieved by, *effective communication, a better understanding of the problems, evaluation progress towards the goal and monitoring and reporting accomplished results and changes.*

- **Profitability** measures the financial aspect of the project. This was identified in both initiation and closure phases by five respondents. This fact identified by ID01 and ENG01 in initiation phase while discussing project proposal and budget with the client. In the closure phase, all three respondents stated this success factor when submitting final payments and get necessary approvals.

  In case 02, profitability measures the financial aspect of the project. This was identified only during the planning phase in case 02. There are two respondents identified this as a success factor. This fact identified by ID02 and PM02 in planning phase while discussing project proposal and budget with the client. Respondents in the other three phases did not identify this fact.

  Profitability was identified as a success factor in case 03. This was identified by one respondent in the closure phase. By making more effective use of resources this success factor achieved by ENG03 in case 03 during the closure phase.

None of the respondents identified this as a success factor in other life cycle phases.

- **Organizational Adaptability** is a strategy of staying flexible in decision making and usage of resources. This fact identified by two respondents in the initiation phase and one respondent in the planning phase.

  In case 02, organizational adaptability was identified by two respondents in the planning phase, and none of the respondents identified this fact in initiation, implementation and closure phases.

  In case 03, this fact identified by one respondent during the planning phase and none of the respondents identified this fact in initiation, implementation and closure phases.

- **Proper Planning and Control** was identified as a success factor in the literature review. There are nine respondents identified this success factor. During the initiation phase, all three respondents identified this factor towards the success of project completion. ID01, ENG01 and PM01 stated, *plan financial estimates, negotiate sub-contractor agreements.* In the planning phase, all three respondents stated this factor identified as a success to project completion. ID01, ENG01 and PM01 stated activities performed during the planning phase as, *plan-out work schedules and handle transactions with suppliers* in fulfilling this particular success factor which is proper planning and control. In the implementation phase, there is only one respondent identified this success factor. ID01 stated conduct regular meetings and supervision resolve personal conflicts and correct mistakes at the site. In the closure phase, two respondents identified this factor. ID01 and ENG01 stated, *monitoring work progress and check whether projects can be completed on time within the budget.* Therefore to have proper planning and control over activities in each phase drove them to successful project completion.

  In case 02, proper planning and control were identified by three respondents as a success factor. During the initiation phase, none of the respondents identified this factor. In the planning phase, two respondents and implementation phase one respondent stated this factor as a success to project completion. ID02, ENG02 and PM02 stated activities performed during planning phase as, *regular site visits, weekly meetings and follow the given timeline, follow*

timeline, monitor and control construction work at the site and conduct weekly progress meetings under this identified activity. These activities explain proper planning and control during the planning, and implementation phases led to successful project completion.

In case 03, this fact identified as a success factor by five respondents in the planning and implementation phases. None of the respondents identified this success factor in initiation and closure phases. During the planning phase, two respondents identified this fact as, *attend weekly progress meetings and follow the timeline.* During the implementation phase, all three respondents identified this fact as, *conduct weekly progress meetings.* Proper planning and controlled the project to successful project completion.

- **Market Availability of all Material** used for construction was another success fact discovered through literature review. This fact identified only during the planning phase by two respondents. During the planning phase in case 01, ID01 and ENG01 stated, *material selection and availability were checked.* These activities further explain that it was a success factor to check the availability of materials before construction.

  In case 02, market availability of all material identified during planning and implementation phases by two respondents. During these two phases in case 02, ID02 and ENG02 stated that *material selection and availability was checked.* These activities further explain that it was a success factor to check the availability of materials before construction.

  In case 03, market availability in materials was considered during the planning phase. Only ID03 identified this fact towards the success of the project when finalizing materials of the deliverables. Therefore it was a plus point to decide and confirm all the materials during the planning phase which are freely available in the market.

- **Client Consultation** was another success factor identified in the literature review. Four respondents identified this during the initiation and planning phases but not in implementation and closure phases. ID01 and ENG01 in initiation phase emphasised that client consultation was needed most when deciding on materials, finalizing budget and discussion of time frame, appoint contract parties

soon.

Another success factor derived through literature review was client consultation in case 02. This was identified by six respondents during initiation, planning and closure phases but not in the implementation phase. ID02 and ENG02 stated during initiation and planning phases, the client 's consultation was needed most when deciding on materials, finalizing budget and discussion of time frame, appoint contract parties so on. During the closure phase, client's consultation needed most for variation budget approval and confirmation for final payments.

In case 03, client's consultation was a must in order to start the project. There are three respondents identified this fact towards success during the initiation and planning phases. All three respondents in the initiation phase identified this fact. ID03, ENG03 and PM03 generally stated that client's consultation played a role in, finalizing the budget, plans, design concept and confirmation of contractual parties during the initiation phase.

- **Select Efficient Project Team** members with the right set of skills who are fully committed to project success. There are four respondents identified this fact as a success. Initiation phase in case 01, ID01 and ENG01 stated, *selecting a reliable team of people for the project was a challenge.* In further discussion, ID01 stated, *"Contract was awarded to two interior construction parties in order to avoid delay in completion and to maintain a higher standard of the cooperate floor and ground floor entrance lobby interior compared to the typical office floor."* According to ID01's statement, interior construction was done by two contractors to avoid delay in completion of the project which is a successful decision to be taken in the initiation phase in selecting an efficient project team. During the planning phase, there are two respondents stated this fact as a project success. According to ENG01 and PM01 stated, *selecting reliable sub-contractors for the interior construction was quite a challenge in the planning phase.* This factor was not identified in the implementation and closure phases because the project team is assigned at the beginning of a project.

  In case 02 there are five respondents identified select efficient project team as a success factor. Initiation phase in case 02, ENG02 and PM02 stated, *selecting a reliable team of people for the project was a challenge.* During the planning phase, all three respondents stated this fact as a project success.

According to ID02, *selecting reliable sub-contractors for the interior construction was quite a challenge in the planning phase but led for successful project completion.* This factor was not identified in the implementation and closure phases because the project team is assigned at the beginning of a project. Selecting an efficient team for the construction project in case 03 was identified as a success factor by three respondents in the planning phase. Other three phases none of the respondents identified this fact. ID03, ENG03 and PM03 stated commonly that, selected reliable project team supported for successful project completion.

4.1.3 Project Management Failure Factors in Cases

4.1.3.1 Case 01, 02 & 03

The tables shown below are identified failure factors in case 01, 02 and 03 which are illustrated in Tables 4.8, 4.9 and 4.10 below. The Black text indicates failure factors derived from literature, and the Red text indicates those failure factors derived from respondents' answers.

Table 4.8 Failure Factors Table – Case 01

Source: Author

	FAILURE FACTORS	CASE 01												
		Initiation			Planning			Implementation			Closure			TOTAL
		ID 01	ENG 01	PM01	ID 01	ENG01	PM01	ID 01	ENG01	PM01	ID 01	ENG01	PM01	
01	Inadequate quality standards													**2/12**
02	Wrong person as project manager													**0/12**
03	Top management unsupportive													**0/12**
04	Inadequate define task													**3/12**
05	Lack of management techniques													**3/12**
06	Under budget													**1/12**
07	Lack of project plan structure													**1/12**
08	Insufficient resources													**0/12**
09	Poor communication													**0/12**
10	Lack of project details													**0/12**
11	Unable to achieve time targets													**3/12**
12	Challengeable project scale													**3/12**
		2/12	**2/12**	**2/13**	**1/13**	**1/13**	**2/13**	**2/13**	**2/13**	**213**	**0/13**	**0/13**	**0/13**	

Table 4.9 Failure Factors Table – Case 02

Source: Author

	FAILURE FACTORS	CASE 02												
		Initiation			Planning			Implementation			Closure			TOTAL
		ID02	ENG02	PM02	ID02	ENG02	PM02	ID02	ENG02	PM02	ID02	ENG02	PM02	
01	Inadequate quality standards													**0/12**
02	Wrong person as project manager													**0/12**
03	Top management unsupportive													**0/12**
04	Inadequate define task				●	●	●	●	●	●				**6/12**
05	Lack of management techniques													**0/12**
06	Under budget									●				**1/12**
07	Lack of project plan structure	●		●				●						**3/12**
08	Insufficient resources						●							**1/12**
09	Poor communication								●	●				**2/12**
10	Lack of project details													**0/12**
11	Request extension of time										●	●	●	**3/12**
		1/11	**0/11**	**1/11**	**1/11**	**1/11**	**2/11**	**2/11**	**2/11**	**3/11**	**1/11**	**1/11**	**1/11**	

Table 4.10 Failure Factors Table – Case 03

Source: Author

	FAILURE FACTORS	CASE 03												
		Initiation			Planning			Implementation			Closure			TOTAL
		ID03	ENG03	PM03	ID03	ENG03	PM03	ID03	ENG03	PM03	ID03	ENG03	PM03	
01	Inadequate quality standards													**0/12**
02	Wrong person as project manager													**0/12**
03	Top management unsupportive													**0/12**
04	Inadequate define task													**1/12**
05	Lack of management techniques													**0/12**
06	Under budget													**2/12**
07	Lack of project plan structure													**0/12**
08	Insufficient resources													**0/12**
09	Poor communication													**1/12**
10	Lack of project details													**0/12**
11	Unnecessary involvement of other parties													**2/12**
12	Poor performance													**3/12**
13	Request of extension of time													**2/12**
		1/13	**0/13**	**2/13**	**1/13**	**0/13**	**1/13**	**1/13**	**2/13**	**1/13**	**0/13**	**1/13**	**1/13**	

As per the Tables 4.8, 4.9 and 4.10 failure factors identified in case 01, 02 and 03 in literature was further confirmed by the professionals in three cases.

- **Inadequate quality standards** refer to the defects based on material and system failure. In case 01 this factor was identified as a factor towards failure during the planning phase by only two respondents. ENG01 and PM01 found that inadequate quality standards are proposing low-quality standard materials. During progress meetings, PM01 was able to recover by reviewing materials and select the most suitable materials. Other three phases none of the respondents identified this factor towards failure. This factor was not identified in the other two cases by any respondent.

- Respondents did not commonly mention **the wrong person as project manager, top management unsupportive and lack of project details derived through literature review** in case 01, 02 and 03.

- **Inadequate define task** appeared during the initiation phase due to undefined tasks and goals in case 01. All three respondents identified this fact as a failure factor. In case 02, six respondents identified this fact during the planning and implementation phases and in case 03, one respondent identified this fact during the initiation phase as a fact towards failure. In order to prevent inadequate tasks, the project manager carefully asked the right questions in order to establish and communicate clear goals from the start.

- **Lack of management techniques** was identified all three respondents in case 01 during the implementation phase. This problem occurred due to quality checks carried out by untrained and less experience labour and supervisors. Lack of management techniques addressed by hiring additional skilled workers who have the right skills matches with project demand. This failure factor derived through literature review was not mentioned by respondents in case 02 and 03.

- **Under budget** was identified by one respondent in case 01 during the planning phase. ID01 mentioned this affects to do a quality design when the client is not willing to spend on the interior. In case 02, one respondent identified this fact. PM02 mentioned during the implementation phase, due to variations requested

by the client changes lead to cost over budget. This issue mitigates through discussions to have fewer changes and a way of doing at a low budget while does not affect the quality of construction. In case 03, two respondents identified this fact during initiation. ID03 and PM03 mentioned during a further discussion with the client about the budget they felt there is a budget concern in this project. Therefore the design was done in a way cost will not affect the project and without any quality drop.

- **Lack of project plan** was identified by one respondent in case 01 during the planning phase. PM01 mentioned this failure factor during the planning phase due to team members are not taking responsibility for their goals and activities. Then PM01 provided the necessary leadership to mitigate this issue and direct the team towards the goal laid out in the plan. In case 02, there are three respondents identified this fact as a failure factor. During the initiation phase, two respondents who are ID02 and PM02 stated this factor, and in the implementation phase, one respondent identified this fact towards failure and took necessary actions to overcome in order to receive a successful project completion. Any respondent did not identify this failure factor during four phases in case 03.

- **Insufficient resources** were only identified in case 02 by one respondent during the planning phase. ENG02 stated to reduce the risk of not having enough resources to finish the project, he created a resource management plan and list down how many of each need and schedule them to meet the deadlines. Other two cases in 01 and 03 none of the respondents identified this factor towards the failure of the project.

- **Poor communication** was not identified in case 01. In case 02 and 03 there is respondent identified this fact as a failure in certain situations. Poor communication was identified during implementation in case 02 by two respondents. ENG02, PM02 and ENG03 poor communication was addressed keeping communications and feedback open between upper management and team leaders, as well as other stakeholders.

- **Unable to achieve time targets** were identified in case 01 and 02. In case 01 all three respondents identified this factor during the implementation phase. According to ID01, ENG01 and PM01, it was impossible to meet deadlines with the client's requested variations. Therefore the project manager responds and negotiates more time for a realistic deadline. In case 02, all three respondents in the closure phase identified this fact. Their reason was similar to case 01. In case 03, there are two respondents identified this fact due to targets are set without considering the volume of work that needs to be done to ensure delivery on time.

- All three respondents identified **challengeable project scale** during the initiation phase in case 01. Their reason towards challengeable project scale driven towards time, cost quality of the project. When the project is large and overrun time, it will affect the budget. Therefore during the initiation phase, all the respondents planned out in such a way to stick to the given time and budget. This fact was not identified in case 02 and 03 throughout four phases.

- **Involvement of other design parties** was only identified in case 03 not in case 01 and 02. There are two respondents identified this factor during the planning phase. ID03 and PM03 stated there was a conflict between the architect and designer regarding the scope of work where the architect wanted to overrule the design during the planning phase. This situation was mitigated by PM03 explaining their scope of work.

- **Poor performance** was only identified in case 03 not in case 01 and 02. All three respondent during implementation phase identified this fact towards the failure aspect. This caused by factors identified as, *poor project team performance due to insufficient project resources and slow procuring material for construction.* This was resolved by the project manager for successful project completion.

4.2 Discussion of Findings of the Interviews

The first research objective is to develop a work plan for life cycle phases for interior design projects. A work plan for interior design projects drawn from the analysis of the case studies in chapter four and which relates to the first objective. Although three cases which data was gathered, the researcher thinks that the result provides a work plan for interior design construction projects through four life cycle phases.

The in-depth interviews revealed that activities in an interior design construction project are different from a normal construction project. The discussion is carried out through four project management life cycles phases such as initiation, planning, implementation and closure.

Initiation phase, Watt (2012) explained, during the first of these phases, the initiation phase, the project objective or need is identified. Respondents during the in-depth interviews revealed that the objectives of the project and need to be discussed in an interior construction project as *arrange regular meetings with a client in order to identify client's requirement and discuss the main purpose of the project, data collection fixed, identify project goal and prepare scope documents.* As per the Duncan, W. R. (1993) in his explanation of the basic process of project management explains initiation consist of concept development describing the product of the project, documenting initial project objectives, and assigning a project manager. Through respondents interviews, there are interior construction project management activities identified during initiation phase such as, *arrange site visits and take site measurements, discuss materials/colours & concept, identify scope, brief & formulation concept, work on the process of concept finalisation and propose furniture layouts.*

The researcher argues that there are a different set of activities identified during the initiation phase in interior design construction projects compared to normal construction projects.

Planning phase, according to Stuckenbruck (1981) planning involves growth or organisational approach, project plan, the schedule for defined operational phase and build up the team which carry the project. Respondents identified in three cases, create a project plan and follow targets, design goals with continuation for improvement of proposed, designed solutions and testing them for the accuracy of safety and aesthetics during the planning phase.

As per Weiss and Wysocki (1992), planning involves the establishment of a clear and precise objective which includes the solutions for problems, and it should be different from the present situation. Activities identified as, identify project activities, estimate time and cost, sequence project activities, identify critical activities and write a project proposal. Respondents in their interviews specified activities in this regard as, list down the work plan, issue tender, tender evaluation, client select the contractor and award of contract, set up a timeline, coordinated services between MEP contractors, concern to obtain LEED certification, low power consumption, concern existing structure height and selecting A/C control system. Further explanation of Chitkara (2007) the composition of the team to prepare for the commencement of the project depends upon many factors such as size and nature of the project, project characteristics, and the time and cost objectives. During the in-depth interviews identified work plan during the planning phase from respondents such as, manage the sequence of project activities ceiling/ wiring & partitioning, the involvement of the project team.

Therefore the researcher argues that the authors identified work plan is appropriate for a common construction project in general. When it comes to an interior design construction project these activities discussed in depth.

Implementation phase, explanation of Cavendish and Martin (1982) pointed out implementation enable to contribute manage and monitor contracts with identifying the problems and re-plan with the adjust targets. Respondents in their interviews specified activities during implementation such as, prepare and check furniture details during manufacture, follow up details and check they are according to the submitted specifications, installation of ceiling & partition work started during this phase, involved in selecting furniture purchase from outside, furniture installation planned floor by floor, check furniture manufacturing and coordinated

furniture delivery floor by floor. These activities are well defined in interior construction project compared to a normal construction project. As per Westland (2006) this phase involves implementing the plans created during the project planning phase. While each plan is being executed, a series of management processes are undertaken to monitor and control the deliverables being output by the project. This includes identifying change, risks and issues, reviewing deliverable quality and measuring each deliverable produced against the acceptance criteria. During the in-depth interviews identified work plan during implementation phase from respondents such as, conduct kick-off meetings, send notice to commence work, contract parties request an advance payment before commencing work, project manager forwards the advance payments to the management and communication procedures. However, activities in the implementation phase explained in depth by respondents in their case interviews.

Closure phase, Westland (2006) explained Project closure involves releasing the final deliverables to the customer, handing over project documentation to the business, terminating supplier contracts, releasing project resources and communicating the closure of the project to all stakeholders. The last remaining step is to undertake a post-implementation review to quantify the level of project success and identify any lessons learnt for future projects. Respondents identified this phase as handing over the project, and regular inspection was carried throughout this phase. Check the specification with deliverables and maintain standards, deliverables checked with the submitted and approved samples and submit an as-built drawing for final payments and issued a copy of as-built drawing for the client were some of the activities identified by respondents interviews in this phase. Duncan, W. R. (1993) scope verification ensuring that the project deliverables have been completed satisfactorily and Contract close describes out the resolution of any outstanding administrative matters and archiving of contract documentation and project closure gathering and disseminating information to formalize project completion. During the in-depth interviews during closure phase respondents stated activities such as, with the preparation of site completion gradually transfer manpower and resources, testing and commissioning was done in order to rectify defects at the end of the project, prepare the final bill to request payments, go through final touch-ups and started site cleaning floor by floor, payment method was measure and pay

and they were a join measurement undertaken before preparing final bills by contractors, issue payment certification for the contractors and announced one year defect liability period and kept 5% as retention from the total bill.

Many authors' discussions of work plan reviewed in the literature provided some common guidelines. However, the model frameworks were developed to get an idea of how to manage a normal construction project. The development of an applicable work plan is specific for projects management of interior design construction.

Table 4.11 shows below the developed framework for interior construction project activities, success and failure factors through the project life cycle phases.

Table 4.11 Developed Framework for Interior Project Activities & Success and Failure Factors

Source: Author

	INITIATION	PLANNING	IMPLEMENTATION	TERMINATION
WORK PLAN	• Define Scope • Discuss need of the project • Arrange regular meetings • Initiate Feasibility Report • Identify Project Specification • Establish goals and resources • Establish key appointments • Appoint a project team • Set up a project office • List down terms of reference	• Identify project activities • Prepare time, cost schedules • Follow sequence of project activities • Identify critical activities • Create a project plan • Schedule/ operational phase • Assign a project team • Coordinate with other parities • Monitoring project specification	• Build Deliverables • Organize Project Monitor and Control • Manage Contracts • Identify Problems • Adjust Targets • Manage Sub-Contractors • Develop a work program • Control quality of targets • Supervision of site work	• Prepare and go through check list • Handover deliverables and site to client • Maintain standards check quality of deliverables and finishes • Submit as built drawing for final payment • Satisfying Client • Transfer manpower, resources and commitments • Testing and Commissioning • Prepare and submit final payment document • Site clean-up &final touchups

	Initiation	Planning	Implementation	Termination
SUCCESS FACTORS	• Clear Project Mission • Proper Schedules and Plans • Client's Acceptance • Efficient/ Good Communication • Well Define Goal • Organizational adaptability • Client Consultation • Select Efficient Project Team	• Proper Schedules and Plans • Client's Acceptance • Efficient/ Good Communication • Trouble Shooting • Well Define Goals • Technical Tasks • Client consultation • Select Specific Project Team • Proper Planning & control • Market Availability • Technical Tasks	• Proper Schedules and plans • Client's Acceptance • Efficient/ Good Communication • Trouble Shooting • Good Implementation Process • Proper Planning & control • Client Consultation	• Proper Schedules and plans • Client's Acceptance • Client's Satisfaction • Client Consultation • Profitability

	Initiation	Planning	Implementation	Termination
FAILURE FACTORS	• Inadequate Define Task • Lack of Management Techniques • Challengeable Project Scale • Lack of project plan structure • Under Budget • Challengeable Project Scale	• Inadequate quality standards • Under Budget • Lack of project plan structure • Inadequate Define Task • Insufficient resources • Involvement of other design parities • Unnecessary involvement of other parties	• Lack of management techniques • Unable to achieve time targets • Insufficient resources • Poor performance • Involvement of other design parities • Under Budget	• Request extension of time

The above table sums up the project management activities, success and failure factors affecting the successful delivery of interior design construction projects. By practicing developed work plan will help for a successful completion of interior design projects.

CHAPTER FIVE-CONCLUSION

CONCLUSION

Throughout the study, the author has tried to explore the project aim which is to find out the project management activities to develop a basic guideline with project management activities derived through case studies which can apply on interior design projects for successful project completion. Therefore the author causes the four project objectives, first as develop a work plan for the life cycle phases for interior design projects. Secondly, review and identify success and failure factors for the interior project, and thirdly to investigate the practical challenges faced by project managers in interior projects and fourthly, to suggest a framework through the identified common factors from case studies to manage the interior design projects successfully. These objectives were analysed through the literature review which is related to each life cycle phase and identified project management activities for four life cycle phases.

These derived project management activities have been established to do a semi-structured interview, and it further continues to merge with the life cycle of the actual situation in case studies to find out the project management activities specific for interior construction projects. Therefore each life cycle phase Initiation, Planning, Implementation and Closure have fifteen common project management activities to initiate the project. In the Initiation phase, there were three common factors which were defined scope, initiate a feasibility study and identify project specification. In the planning phase there were prepare time, cost and quality, follow the sequence of project activities, project team, coordinate with partners and monitoring project specification were identified. In the implantation phase also there were four common factors were identified which were build deliverables, organize project monitor and control, control quality of targets, releasing project resources, communication management. In the closure phase there were three common factors such as handover deliverables, transfer manpower, resources and commitments, and testing and commissioning were identified.

Apart from the above common factors in each phase, there are activities identified through the completed interior construction projects by author such as arranging regular meetings, and identify project specification, the material used according to the time cost and quality and initial discussion of payment method.

In the planning phase there was concept development, prepare cost estimates and time schedule, layout finalized and got the approval from the client was important. During planning phase it is important to coordinate the bill of quantities (BOQ) of each suppliers and make the coordination plan together before the implement the project, coordination among contract parties, monitoring project specification, budget approval from the client and requesting for advance payment and signing the contract agreement is most important of the project.

In the implementation phase prepare detail drawings, approvals for material and colours, specification approval and especially coordination of two types of variations such as variations requested by the client and variation due to site changes. Product insulation, sample product approval also has identified through the actual situations. In the closure phase, it is important to go through the checklist and site lean up and handover the project phase by phase, make adjustments were identified.

In closure phase, prepare and go through checklist, maintain standards check quality if deliverables and finishes, submit as-built drawing for final payment, prepare and submit final payment document, site clean-up and final touchups, take combine measurements of the work done and issue payment certification for the contractors were identified project management activities in interior projects.

According to identified common success factors such as, proper schedule and plans, client acceptance, effective/ good communication, well define goals, client's satisfaction, troubleshooting and proper planning and control which derived through the case study analysis were the applicable common success factors which can apply for the interior projects as a basic parameter to complete the project successfully. Except for these factors, it was important to recognise the barriers and challenges of the actual project which project managers can avoid the situation in the practice of interior projects. Inadequate quality standards and define a task, lack of project plan structure, unable to achieve time target, and challengeable project scale were the major common barriers identified by the author. Therefore suggested a guideline for successful project completion of an interior design construction project is mainly considering to generate a spectacular framework for all characters who involved in projects.

Since it is important to explore project management activities in interior design, the author has tried to achieve this topic to some extent since it had not been investigated.

In order to achieve the project management activities to develop a framework with common factors derived through case studies which can apply on interior design construction projects for a successful project completion the study open out to the society to explore the new theories for interior projects such as material used for successful interior project, sustainability of an interior project and energy efficiency of an interior project for successful completion can be discussed in future studies.

5.1 Recommendations

1. Choose any topic in interior design and discuss how it has been influenced by contemporary design
2. Provide a list of benefits in a discussion of how interior design is an impressive career choice
3. Explain how the design of a building affects the mental health of those using it from time to time
4. Discuss how new designs have influenced trends all over the world
5. Explain how office plants can help in improving the productivity and morale within the workplace
6. Explain how to manage distractions within the workplace through good design
7. Discuss the concept of interior design on a tight budget
8. A Comparative Study of Workstation Partitions in an Existing Side-Lit Open Plan Office with Daylight Results Using Annual Climate-Based Simulations

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ANNEXURE 01

SAMPLE QUESTIONS FOR SEMI STRUCTURED INTERVIEW

Purpose of this semi-structured interview to identify the critical success and failure factors over the different life cycle, stages of interior projects. Each phase of the work plan previously identified through the literature review. Therefore this will be a practical technique to identify critical success and failure factors of the practical issues, solutions of interior design projects.

SECTION - A

1. Respondent's position
   - Client ☐
   - Contractor ☐
   - Designer ☐
   - Engineer ☐
   - Architect ☐

2. Name of the interviewee (optional)……

3. Date of the interview…….

4. Experience in interior design projects
   - 0-5 years ☐
   - 6 -10 years ☐
   - 11-15 years ☐
   - 16-20 years ☐
   - More than 20 ☐

SECTION - B

1. Was there a need for a Project Manager for this interior design project? Explain?
2. Was there a project manager for this interior design project?
   a) If Yes,
      i. Who did the PM role?
      ii. Do you think that was the most suitable party to perform this role?
   b) If No, in your opinion who is the most suitable stakeholder to perform PM duties in project phases?
3. What is your opinion on how this project was managed?

SECTION - C

These questions are based on four phases of the project life cycle. These four phases of the project life cycle known as Initiation, Planning, Implementation and Closure.

- Initiation

  What project needs goals, estimates and key appointments and with a clear picture of the beginning should able to understand where the money goes. Feasibility stage evaluates project potential by examining technical feasibility, economic viability and financial implications. This is a practical and accurate way of investigating the feasibility of the initiation phase, and it acts as a pre begin to the task.

  1. What are the main project management activities in this phase?
  2. What are the main success factors in this phase?
  3. What are the main causes to generate failure situation of the project?

- Planning

  The planning phase is a crucial phase in which the project solution is furthermore developed and enhanced in detail to the very extents. Planning involves the establishment of a clear and precise objective which includes the solutions for problems and it should be different from the present situation. The project plan is created outlining the activities, tasks, dependencies, and timeframes which are main factors of the project and project manager coordinates the preparation of a project budget by providing cost estimates for the labour, equipment, and materials costs.

  1. What are the main project management activities in this phase?
  2. What are the main success factors in this phase?
  3. What are the main causes to generate failure situation of the project?

- Implementation

  This phase involves implementing the plans created during the project planning phase. While each plan is being executed, a series of management processes are undertaken to monitor and control the deliverables being output by the project. The processes are including managing time, cost quality change risks, issues, suppliers, customers and communication.

  1. What are the main project management activities in this phase?
  2. What are the main success factors in this phase?
  3. What are the main causes to generate failure situation of the project?

- Closure

  Closure involves releasing the final deliverables to the customer, handing over project documentation to the business, terminating supplier contracts, releasing project resources and communicating the closure of the project to all stakeholders. Scope verification ensuring that the project deliverables have been completed satisfactorily and Contract close describes out the resolution of any outstanding administrative matters.

  1. What are the main project management activities in this phase?
  2. What are the main success factors in this phase?
  3. What are the main causes to generate failure situation of the project?

Compare to normal construction projects are there specific challenges or issues for a project manager for interior design projects?