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An Inquiring Framework for Changing Project Management Practice: A Qualitative Method Study

by
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Declaration

I hereby certify that this material which I now submit for the assessment on the programme of study leading to the award of Doctor of Philosophy is entirely my own work, that I have exercised reasonable care to ensure that the work is original and does not in the best of my knowledge breach any law of copyright and has not been taken from the work of others and to the extent that such work has been cited and acknowledged within the rest of my own work.

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Ethics approval

The research work conducted in this thesis has been granted Ethics approval by the Sheffield Business School Ethics Committee.

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Abstract

This research is designed to advance the theoretical and practical knowledge in the area of project management through the development of an inquiring, integrative project management framework.

The methodological framework used in this work is based on an interpretivist philosophy using grounded theory building within a systems thinking framework. This research is based on a qualitative methodology resulting in an in depth analysis of data provided by interviews.

The data collected and analysed in this research shows that project management is a very complex and multifaceted issue, context dependent and in a continual state of flux.

People are a major cause of complexity and the case for an inquiring approach is introduced by a study of project management literature and supported by the results of the analysis of the data sets acquired in this work.

The research is concerned with the development of an inquiring, integrative project management framework that allows for a high degree of contextualization to take place during its application to reflect the real world nature of projects. The concept of a project system is used to underpin the framework. The project system used to underpin the framework, supports the dynamic, contextual and iterative nature of project management.

A comparison of the framework with the real world view of project management practitioners was carried out (validation), resulting in some refinements of the framework, increased confidence that it has practical applicability and some future directions for research.

A claimed methodological contribution is the use of grounded theory for construction of new knowledge within a systems thinking framework.

The inquiring, integrative project management framework developed in this work contributes to project management practice and a user guide is provided to support its application.

The framework, which represents the outcome of this research, can be seen as a useful instrument to aid project management practitioners.

The framework can be utilized to carry out inquiry with varying levels of detail and it offers the flexibility necessary for contextualization of projects to support decision making.

Project management is treated as a human activity, where the central idea is that people and context are key to the success of the project and not, for example, the project management method.

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List of Abbreviations

APM - Association for Project Management

BCS – British Computer Society

IS - Information Systems

NHS - National Health Service UK

PERT - Program Evaluation Review Technique

PM Today – Project Management Today

PM3 - Project Portfolio Management

PMBOK - Project Management Body of Knowledge

PMI - Project Management Institute

PMIRS - Project Management Inquiry and Resolution System

PROMSG - Project Management Specialist Group

Special Interest Group - SIG

SSM - Soft Systems Methodology

1. Introduction

1.1. Purpose of this research

Project management is challenging, as demonstrated by the significant proportion of projects that are not fully successful on one, or more, dimensions, with many actually failing (Anthopoulos et al., 2016; Brookes and Locatelli, 2015; Cavaleri et al., 2012; Keil et al., 2002; Mitchell, 2006; Zhang et al., 2003). The consequences of this are that the costs incurred by organisations due to unsuccessful or unrealized project are very significant, running into tens of billions of pounds (Ojiako et al., 2008).

The researcher's personal experience in the area of project management, stemming from his professional background, is that all of the projects that he has been involved with suffered from difficulties. The motivation for this research comes from a desire to contribute to the project management agenda by developing a novel, integrative approach to project management, that considers people and the complexities that they introduce in projects.

Whilst much research is already available in the area of project management, the researcher will make the case for this new exploration, based on evidence (discussed in the next section), that project failures are still commonplace.

This research will be looking into the state of knowledge in project management and seeks to add to the body of knowledge in this area. It will propose an inquiring, integrative project management framework. The novel framework provides an approach to project management based on including the complexities posed by people, as elements of the project management framework, through a process of inquiry.

This research should provide useful reading for those academics and practitioners that are interested in furthering their project management knowledge and access to supporting frameworks. A new project management theoretical framework which underpins a practical inquiring project management framework is developed.

The evidence that justifies this research is given in the next section, which provides support for the need for further research in this area.

1.2. Background and justification of this research

A broad range of literature is available that illustrates current issues with projects and project management, with a focus on the high rate of project failures (Anthopoulos et al., 2016; Brookes and Locatelli, 2015), especially in relation to large projects.

One of the project dimensions that is typically not met in a project is that of cost (Cantarelli et al., 2012a), with a high degree of variation in terms of cost overruns that occur, for example, in construction projects worldwide. Project management suffers from many problems related to cost and delays (Cavaleri et al., 2012), especially where, for example, market conditions have changed significantly from the original conditions that gave rise to the project in the first place. Cost overruns are one of the most common causes of project failure in industries such as IT and construction (Doloi, 2011), with overruns averaging over 200% in relation to the original estimates. Evidence of projects not being delivered on time or having failed in the construction industry is shown in Naaranoja and Uden (2007).

Typically the majority of projects will exceed their initial cost budget (Jørgensen and Wallace, 2000) due to poor estimation of cost factors. Over 75% of the IT projects investigated failed on one or more criteria (Keil et al., 2002), with cost overruns of 90% and schedule overruns of 120% being common. Other reports (Ojiako et al., 2008) show that 20% to 30% of projects could not meet stakeholders specified criteria and resulted in wasted yearly spending of approx. £75 billion in the US and £70 billion within the EU. US data shows that public sector IT projects tend to be wasteful and not meeting expectations on a range of factors (Rosacker and Rosacker, 2010) with yearly figures of over $25 billion in expenditure that is locked into poorly performing projects.

Furthermore, even when only considering projects on their three classical dimensions of time, cost and quality specification, only a minority can be

considered fully successful (Kutsch et al., 2015). Some authors put the failure rate of projects at 78% (Lee and Hirshfield, 2006), which represents a worrying figure and correlates well with other literature consulted here.

Discussing success rates in the IT industry further reveals that only 28% of projects are successful (Lierni and Ribière, 2008), while 49% are challenged (partially delivering on time, on budget and to specification) and 23% have failed (never having been implemented). Similar data shows that only 26% of projects have been finalized on time and in budget, 28% of projects have failed and 46% of projects were challenged on one or more criteria (Saleh and Alshawi, 2005; Smith and Keil, 2003).

Data presented by Mitchell (2006) shows the rate of partially successful IT projects standing at 49%, with large time overruns being common while the completion rates show a downwards trend.

A look at historical figures of project management failure (Zhang et al., 2003) shows that the trends of project success are not encouraging and that the amount of money overspent on projects is on the increase.

An interesting, though worrying, aspect of how projects may evolve consists of a range of projects that continue to waste valuable resources while not delivering any business benefits (Montealegre and Keil, 2000). Therefore, not only is there a problem in terms of high rates of challenged or failed projects, but also a persistence in terms of failed projects that continue to escalate in the face of overwhelming evidence that they should be stopped (Burström and Jacobsson, 2012; Lenferink et al., 2014; Montealegre and Keil, 2000).

A review of a number of high profile UK based failed projects is discussed by White and Fortune (2009) who argue that the most well-known project management methods are not sufficiently anchored in the complexities and uncertainties emerging from the project's own environments.

Traditional project management is reliant on closed systems perspectives of organisations and this may be one of the contributing factors to the high rate of

project failures (Gomes et al., 2008). Many projects have an element of innovation attached to them, but conventional project management methods fail to capture the multidimensionality of these projects resulting in high failure rates (Kapsali, 2013).

Failure to recognize or acknowledge the reality of a project's given state and ability to deliver its scoped outcomes results in irrational and erroneous behaviour where more resources are poured into failing projects (Guah, 2008). This seems to be the case in large IT projects within the National Health Service UK (NHS) for example (Guah, 2008). The challenges in recognising that problems arise in projects and what is the nature of such problems is one of the most common reasons for the large numbers of project failures (Dalcher, 2012; Keil and Robey, 1999; Pan, 2005).

An indication that people's interactions with projects may not be understood well is emerging. People's behaviour when engaged in project activity is complex and potentially needs investigating further (Aubry et al., 2012; Kapsali, 2013; Kerzner, 2013). As illustrated by Kerzner (2013), project management is a human based organisational, social activity. Aubry et al. (2012) go as far as to consider project management as an organisational function and as such, there is a role for embedding project management research into wider management research, where aspects related to complexities introduced by people are considered.

There is evidence that a significant amount of project management research is theory free or not sufficiently embedded in theory (Morris, 2010) and as such it will provide variable results in practice. From a practising project manager's point of view, this will be confusing and frustrating, as s/he is left with a choice of theoretical frameworks to choose from that may produce different outcomes (Carvalho, 2013; Hällgren and Maaninen-Olsson, 2009).

Although the origins of project management can be traced to engineering, in the last few decades there has been a continuous diffusion of project management ideas in all industry sectors and there is a noticeable trend towards professionalizing project management, partly through the efforts of various

national and international bodies (Muzio et al., 2011). This is evidence of the growth of the project management area, which therefore warrants more research efforts to support its evolution. Most project management knowledge is derived from general management or engineering management (Walker et al., 2008), with little evidence that the project management community is actively involved in the production of project management frameworks, tools or techniques. This gives justification for more engagement with the project management community to elicit new knowledge in this area.

It is estimated that approximately 30% of the global economy uses project-based management (Parker et al., 2013a) and this gives a strong justification for sustained research in this area.

A number of ideas, which help to focus the direction of this research, emerge from this preliminary examination of the project management literature:

- there is significant evidence that project failures are stubbornly high over time and that their organisational impact is significant (Ojiako et al., 2008);

- project management methods are perhaps not sufficiently able to capture complexities, including people related issues, emerging from the project's environments further (Aubry et al., 2012; Kapsali, 2013; Kerzner, 2013);

- a significant amount of project management research is not underpinned sufficiently by theory (Morris, 2010).

These points give a justification and a starting point for the researcher to explore the possibility of producing a project management framework that is able to capture project related complexities and is well anchored in theory.

1.3. Personal motivation and experience informing this research

Whilst the view that there is a need for further research in project management has formed in the researcher's mind, this is not sufficient in itself for further work to take place. The researcher has a personal interest in the project

management area and this is what is driving the research, supported by the evidence from the literature.

A first person account of the researcher's motivation is given in this section, to allow the readers to better understand the personal drive that led to this work. My background is technology related, in the area of Information Systems (IS). I have been part of a number of projects, mainly IS, but with estate and other business processes implications. My involvement in project work started during employment with British Steel and then Cap Gemini where I had helped to plan and deliver multi-technology and multi-site projects.

One of the recurring themes during my involvement with project work was (and still is) related to what one might refer to as the "complexity" surrounding project work. This complexity can be found at all levels of project work, including the planning stage, the implementation stage and the benefits assessment stage. This latter stage seems to cause most problems to project workers and senior stakeholders and could be related to difficulties related to defining and articulating what the project is actually supposed to deliver in the first place. My view is that people (who are different from project to project) and their relationship with projects need further investigation.

Another aspect worth mentioning here is that, particularly in a business commercial environment, things move fast at times. The implication of this is that a lengthy project may deliver on goals that were valid at the start of the project, but may no longer be as relevant as time goes by. This could be one of the reasons why, in my personal experience, it is so difficult to deliver a fully successful project. A project is always delivered in a certain organisational and broader environmental context and during lengthy projects the organisation and its priorities may change whilst the external environment (particularly in very fast-moving areas such as information technology driven activities) may have overtaken and rendered obsolete the core elements / deliverables of a given project.

One important idea for me is that projects are a human activity and as such, they are entirely dependent (including defining project success or failure) on the

view of the project stakeholders. As mentioned earlier, project stakeholders may change over time (or indeed their views and priorities may change) and therefore ensuring project robustness to stakeholder changes is difficult to achieve, constant updating of understanding is needed.

One of the important aspects of a project is the time required to deliver it. Whilst some variability is possible in as far cost and quality aspects of the project deliverables are concerned (in both directions, for example cost or quality increases/decreases), my personal experience is that as far as the time dimension is concerned this variability seems to lead to time increases in most cases. In other words, it is very difficult to reduce timescales due to time lost on staff sickness, competing priorities, just underestimating productivity or even due to many “unknown unknowns” occurring during the delivery of a project. All of this leads to the possibility of unsuccessful projects due to a lack of understanding of key project drivers and underestimating the amount of time required for their completion. A process of inquiry into these issues could help.

All projects that I have worked on suffered from a range of issues and this has seeded the idea that perhaps project manager professionals and stakeholders don’t fully understand the complexities associated with project planning and implementation and therefore take too much of a reductionist approach to projects. This results in overreliance on technological tools such as Microsoft Project or methods such as Prince 2 and I had observed attitudes such as “well since I am using Microsoft Project, if the project fails, it is not my fault!”. It seems that a transfer of responsibility seems to be happening, from the project manager and stakeholders to various support tools.

I had also observed that inevitably (and perhaps understandably) project stakeholders are drawn towards a mechanistic approach to managing projects (for simplicity), whilst ignoring the very significant complexities introduced by the numerous human project stakeholders. This suggests the need for frequent project actualization that goes beyond the updating of the aspects of the project that can be easily quantified, such as costs, timescales, etc.

I had experienced first-hand just how difficult it is for project stakeholders to articulate what a project is supposed to achieve. Whilst it is easier (for example in a construction project) to articulate some project deliverables (such as a production line), it is much harder to articulate the longer-term impact or business benefit of such deliverables. Since my experience is mainly in IS projects, I had noticed that the more physically intangible the deliverables of a project are, the harder it is to articulate what the project is supposed to achieve and how this can be measured (for example in business benefits terms). It was apparent to me that whilst projects are clearly supposed to deliver an outcome – this outcome is not always easy to articulate or define. Therefore, an extensive exploration of what might be the goal of a project is necessary, indeed this could be key to ensuring that a project is in fact successful.

The involvement of project beneficiaries in defining what a project is supposed to achieve was poor. For example, end users of the project deliverables were rarely involved in specifying what these deliverables were or in defining its success criteria in the researcher's experience. This means that the very goal that a project is supposed to achieve is frequently set without the involvement of the people who are supposed to benefit from said goal, giving support for the need to understand better all of the views of the people related to projects.

A personal belief that current methods and practice are not sufficient to capture the many dimensions of a projects had led me to question whether I could make a contribution in this area, to allow for a better understanding of project management theory and practice. I had first hand evidence that projects that I had been involved in suffered many difficulties, with the inevitable outcome that they were delivered late, or with extra costs (not originally considered) that were incurred, or that indeed some of the project deliverables have changed since the start of the project.

After working in business for a while, I moved into academia. My initial role was that of an IS project manager. However, as I had then become part of an academic institution, a new range of ideas and resources were then available to me. This strengthened my motivation for trying to improve the state of

knowledge and practice in the area of project management and had eventually led to this research.

In this thesis my focus is to produce a project management framework that will attempt to contribute to knowledge and practice by exploring an inquiring, integrative approach, that allows complexities introduced by people to be captured and represented through its application.

1.4. Research aim, question and objectives

The discussions so far indicate that while project management and project work is widespread, the challenges associated with project management are also increasing. High rates of project failures are common (Anthopoulos et al., 2016; Brookes and Locatelli, 2015), the financial implications of such failures are significant (Ojiako et al., 2008), and this evidence shows that there is further need for project management research in the context of the increased use of projects by organisations.

The researcher's personal interests and motivation have led him to attempt to advance the project management agenda through the research presented in this thesis.

This work proposes a further exploration of project management to contribute to the state of knowledge and practice in the discipline.

Hällgren et al. (2012) conducted a critical review of project practice and education and argue that there is a broken connection between the models used to represent project management and the actual practice in this area. This suggests that project management theories become idealized descriptions of reality that fail to capture the complexities of everyday actions and situations. The question then inevitably becomes how much value is there in basing project management practice only on methods and tools which are in fact stripping the complexity of reality down to some generic issues that may be found commonly across a range of projects, while contextual experiences are removed entirely.

Whilst it can be argued that a wide range of project management methods and tools already exist, it can also be argued that their application is not having the desired effect, as the rates of project failure previously illustrated demonstrate.

Based on these considerations, there is a need to establish a way forward that can contribute to improvements in project management theory and practice. There is also a need to expand on the three classical project management dimensions of time, cost and quality specification to ensure the capture of the true complexities that exist in a project.

This thesis develops a contribution to knowledge and practice by proposing a novel project management framework. It is quite important therefore to establish the research aim, question and objectives at this stage. These will determine the current literature to be consulted, the methodology to be adopted and the research process that will be carried out in this work.

Given the context provided by Churchman (1972) and the researcher's personal interests and beliefs, the idea that has formed in the researcher's mind at this stage is that this work will contribute to the strengthening of the theory around models used to represent projects and project management activity by providing an integrative project management framework based on an inquiring approach. What is meant by an inquiring framework is the possibility of allowing for a mechanism to capture the complexities of project management, including those complexities related to people. This mechanism will be a process of inquiry.

The aim of this research is:
To contribute to the state of knowledge and practice in project management by developing a theoretical and practical tool.

The research question to be explored in this thesis is:
Is it possible to produce an inquiring, integrative conceptual project management framework that has the potential to improve project management theory and practice?

The inquiring aspect of the framework emerges from the need to understand a project's given state, particularly given that projects involve human participants, which, as will be discussed in Chapter 2 and Chapter 3 of this thesis, are not deterministic in the way in which an object might be.

The need for an integrative approach, that looks at all parts of the project management process, emerges from the insights obtained from the literature which provide evidence that much of the research work carried out in project management is taking a limited view of projects, focusing on specific aspects.

To answer the research question, research objectives have been developed:

1. To examine possible gaps and areas of interest in project management;

2. To develop, design and validate an integrative project management framework for theoretical and practical use;

3. To identify key components of a project management framework;

4. To explore the role of inquiry in a project management framework.

A process of refinement had taken place to arrive at the research question and objectives as stated. This process of refinement and the relationships underpinning it are shown in Figure 1.1.

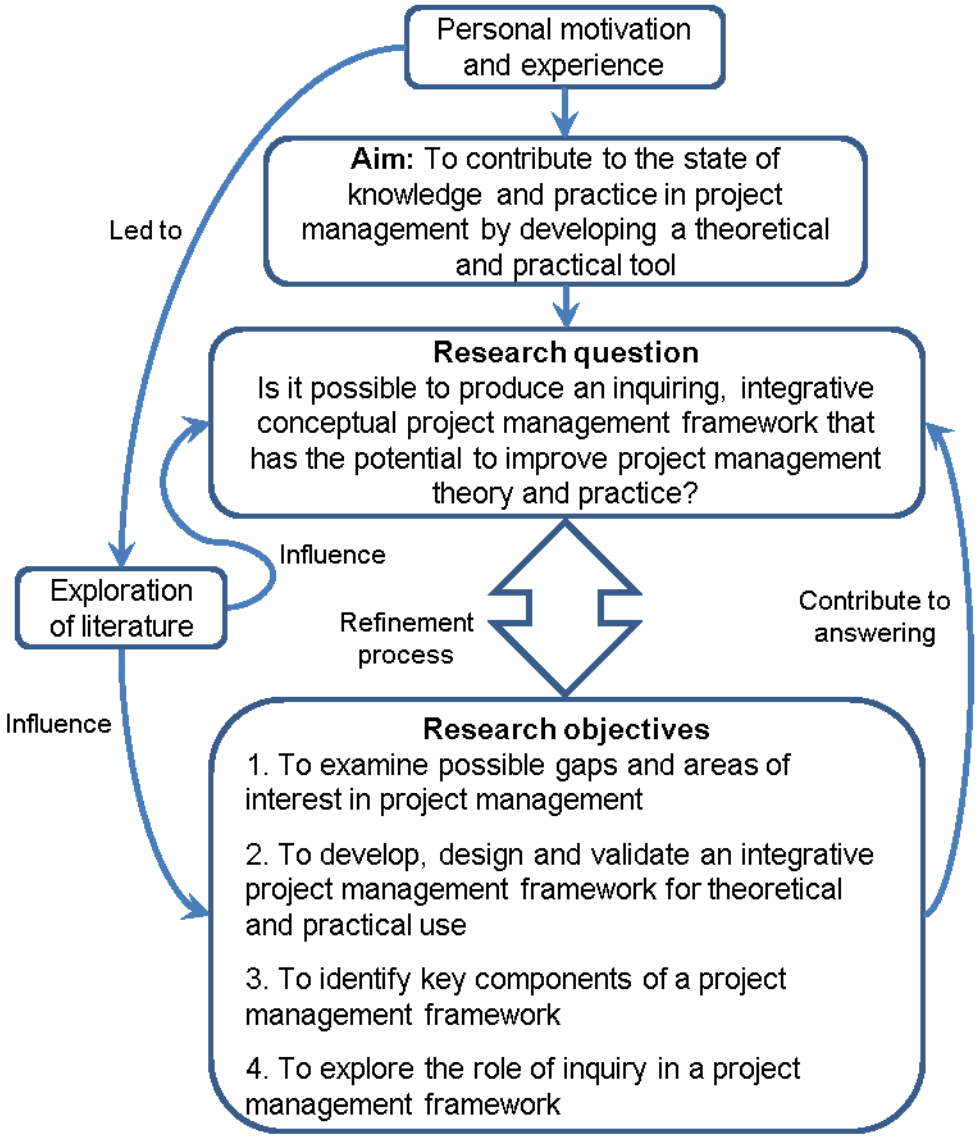


Figure 1.1: The process of determining the research question and objectives

1.5. Some literature and methodology considerations

As previously stated, project management is essentially a human activity with a range of social dimensions that usually take place within an organisational setting.

Projects are goal driven activities and a range of definitions of projects is given in the literature. The Project Management Institute (PMI) gives project management the following definition (Brill et al., 2006, p.116):

> *"the application of knowledge, skills, tools, and techniques to project activities to meet project requirements"*

and characterizes:

“high quality projects [as those that] deliver the required product, service, or result, within scope, on time, and within budget”

Kerzner (2013, p.2) defines projects as:

"a series of activities and tasks that have specific objectives to be completed within certain specifications, have defined start and end dates, have funding limits, consume a range of resources and are multifunctional"

Successful project management is defined (Kerzner, 2013, p.3) as:

"having achieved the project objectives within time and cost, at desired performance level, while using the assigned resources effectively and efficiently and having been accepted by the customer"

However, such definitions give a limited view of the world as they largely ignore one of the most important components of projects and project management – the stakeholders.

Some ideas emerge at this stage, principally that projects are goal driven, that they are likely to be complex and that the stakeholders could be seen as playing a key role in projects. These ideas will be followed up in the literature to try and relate them to the research question and objectives stated earlier in this chapter.

The theoretical basis for analysing project management needs to be extracted from a range of literature focused on the current state of project management theory and practice and this will be explored in Chapter 2 of this thesis.

Given the multidimensional nature of project management, with an important role to be played by people, the methodology used for this research must be suitable to address the complexities and open nature of the area and should be able to provide components for producing an integrative framework.

The concept of system and the use of systems thinking can be seen as appropriate (Crawford et al., 2003; Ishino and Kijima, 2005; Sheffield et al., 2012) for dealing with project management complexity. The use of the concept of system may be useful for research into project management as both projects and systems are goal driven. However, one of the criticisms of systems thinking in project management is that it fails to provide an adequate level of detail and guidance to be useful to practitioners (Kapsali, 2013), as well as using a too

high level of thinking, that could be a barrier to practical implementations. Therefore, a greater level of detail and specificity is required to produce a genuinely useful project management framework, one that can be used to advance theoretical knowledge in the field as well as to provide practical support for project management practitioners, through an integrative approach, based on a broad range of components. To achieve such a level of detail and specificity in this research, new data is required. To identify project management issues, a good source of such data will be the project management practitioners themselves, with relevant experience in a range of industries to ensure a good level of generalizability of the results.

The issue of specificity when using systems thinking in project management is addressed in this work through the provision of a detailed project management framework.

Having established that project management is a people driven, business activity, the identification of an appropriate research methodology must be sought. A deterministic approach does not appear to be the best way forward at this stage, having established the importance of people in projects. Given the complexities introduced into projects by people, it would appear that to take account of this, an interpretative methodological approach is needed.

Grounded theory is seen as suitable for engaging with business-related research (Douglas, 2006; Oliver et al., 2005; O'Reilly et al., 2012) and provides the basis for a detailed understanding of the factors that occur in projects and project management. Grounded theory provides a unique engagement with a phenomenon from the perspective of the people living that phenomenon (Corley, 2015) and it is widely used to provide new theory that emerges from such an engagement (Dai et al., 2015; Douglas, 2005).

The level of rigour achievable by the use of grounded theory (Kaufmann and Denk, 2011) justifies its selection to provide the level of theoretical detail required by this research and this will be discussed in Chapter 3.

Integrating a grounded theory approach with systems thinking is argued here as an appropriate way forward for producing a detailed project management framework and it provides a methodological innovation in this work. A review of over 420 research papers in the area of project management and associated research methodologies reveals only one paper (Rose, 1997) that mentions the possibility of such a combination of methods, but no actual application of this combination has been found.

Thus, a combination of systems thinking with a detailed underpinning from results provided by a grounded theory approach will be used in this research to generate a novel approach to developing an inquiring, integrative project management framework.

1.6. Thesis outline

In the following, a narrative is given of how this thesis is structured to contribute to achieving the research aim, question and objectives. How the aim, research question and objectives were achieved is mapped to the various chapters and a view of the thesis chapters is given in Table 1.1 and Table 1.2.

Table 1.1: Mapping the research question and objectives against the thesis chapters

Research aim		
To contribute to the state of knowledge and practice in project management by developing a theoretical and practical tool		
Research question	**Research objectives**	**Mapped to chapter(s)**
Is it possible to produce an inquiring, integrative conceptual project management framework that has the potential to improve project management theory and practice?	1. To examine possible gaps and areas of interest in project management	1 and 2
	2. To develop, design and validate an integrative project management framework for theoretical and practical use	2, 3, 4, 5, 6 and 7
	3. To identify key components of a project management framework	2, 3, 4, 5 and 7
	4. To explore the role of inquiry in a project management framework	2, 3, 5 and 7

The structure of the thesis emerges from the research question and objectives.

To understand relevant issues in project management a literature review was carried out.

A selection of an appropriate research methodology was necessary to ensure that new data could be collected to advance theory and practice.

Data was collected and analysed, constituting the basis for the development of the project management framework and an inquiring, integrative project management framework was produced based on the components identified from data analysis.

A validation of the project management framework was carried out, by presenting the framework to experienced project management practitioners and receiving their feedback, to ascertain its suitability as a support tool for project management practitioners. Future research directions have also emerged.

The conclusions emerging from this research were presented in relation to the research aim, question and objectives.

The limitations of this research were explored and future research recommended to address these limitations and to take forward the research agenda started in this thesis.

Based on these considerations, the structure of this Thesis is given in Table 1.2.

Table 1.2: Thesis chapters and relationships between chapters

Chapter	Brief content outline	Links to other chapters
1. Introduction	An overview of the background to this research, and its justification, including personal motivation and experience, is presented. The research aim, question and objectives are stated.	2, 3, 4, 5, 6, 7 and 8
2. Literature review	Current knowledge in the area of project management, from both an academic and professional body perspective is summarized. The choice of methodology and data collection process are informed by literature. Data collection is directed by findings from this chapter.	1, 3, 4, 5 and 6
3. Methodology	The research philosophy and method are reviewed and selected in this chapter. The data collection instrument and process are determined. The data analysis process is established.	1, 2, 4, 5, 6 and 7
4. Process for exploring data and some results from analysis	A detailed review of the process for exploring data is presented in this chapter. Some results from data are presented. The components of the project management framework are outlined.	2, 3, 5 and 6
5. Exploration of data	An in depth analysis of the data is carried out. The components of the project management framework are identified. The relationships between key components of the framework are presented.	2, 3, 4 and 6
6. Constructing the project management framework	The development of the project management framework by aggregating its components and the relationships between them is carried out.	2, 3, 4, 5 and 7
7. Validating the project management framework	Further data collection and analysis, to ascertain the suitability of the project management framework as a practical support tool for project management practitioners, is undertaken.	2, 3, 6 and 8
8. Conclusions and future work	How the research aim, question and objectives were achieved is discussed. Limitations of this research, leading to future research, are explored. Future research directions are identified. The researcher's personal reflection on the research journey is included.	1, 3, 5 and 7

1.7. Conclusion

This work emerges from the researcher's personal interest in the area of project management and personal experiences in project management during his professional career.

This chapter has set the scene for the thesis whilst exploring some preliminary issues in project management, in particular the evidence that justifies this research.

High project failure rates with implications in terms of significant monetary losses are common in project management, prompting the need for further research in this area.

Current project management methods and tools do not seem to be sufficient to change this state of affairs and there is some evidence that the rate of project failures is, in fact, increasing.

Idealized, reductionist project management methods produce a disconnect from reality and this is a possible contributor to the high rates of project failures.

Some definitions of projects and project management fail to capture the complexities introduced by people and a broader, integrative view underpinned by an inquiring approach needs to be taken.

Therefore, there is a potential need to develop an inquiring, integrative project management framework that mirrors as closely as possible the reality of projects. This work, therefore, develops an inquiring, integrative project management framework that results in theoretical and practical contributions to project management.

The development of the novel project management framework developed in this work could have potential benefits to organisations given the significant cost impact of project failures.

2. Literature review

2.1. Introduction

Since the current status of project management seems to be characterized by high project failure rates, attracting costly overruns, a review of the issues in this area was necessary. Therefore, a wide range of literature was consulted (including practitioner literature associated with project management professional bodies), to ascertain prevalent issues in project management, including the importance of people.

Insights were drawn in terms of the main categories of issues encountered in project management which then inform both an appropriate research methodology for this work and the areas of exploration necessary to generate new data that can be used to further knowledge in project management.

A picture of complexity emerged, with people being an important driver for most of this complexity. The multidimensional nature of project management emerges as well as the highly contextual nature of projects.

A piecemeal approach was revealed, with many project management studies being focused on limited, specific aspects of project management, while trying to ascertain the impact of interventions in these specific areas only, without taking an integrative approach, where all key components of projects are considered.

Preliminary observations indicated that systems thinking can play a part in this research. An exploration of systems thinking literature was carried out as it is found that systems thinking is suitable for application in project management as both projects and systems are goal driven.

This chapter addresses research objective 1 “To examine possible gaps and areas of interest in project management” and will help to focus the research question and objectives.

Research objective 2 "To develop, design and validate an integrative project management framework for theoretical and practical use" is being progressed through the exploration of what might be the nature of such a framework and what concepts may be used to underpin it.

Chapter 2 will lay the groundwork for achieving research objective 3 "To identify key components of a project management framework" by setting the directions of exploration emerging from the review of the literature.

Research objective 4 "To explore the role of inquiry in a project management framework" is addressed through assessing the importance of people and complexities introduced by their project management related activities.

A diagram of how the literature review was carried out is presented in Figure 2.1, which shows how the literature review chapter contributes to progressing this research and the relationships between the stages of literature review.

The literature review chapter is focused on immersing the researcher into the issues associated with project management, as found in academic literature obtained through databases such as SCOPUS. Practitioner literature such as the Association for Project Management (APM) aligned Project journal and the Project Management Specialist Group (PROMSG) distributed independent Project Manager Today (PM Today) are consulted. PROMSG is part of the British Computer Society (BCS). This approach allows both an academic and a practitioner view to be taken and it is used to inform this research.

The chapter concludes with making a case for using the concept of system to underpin the project management framework.

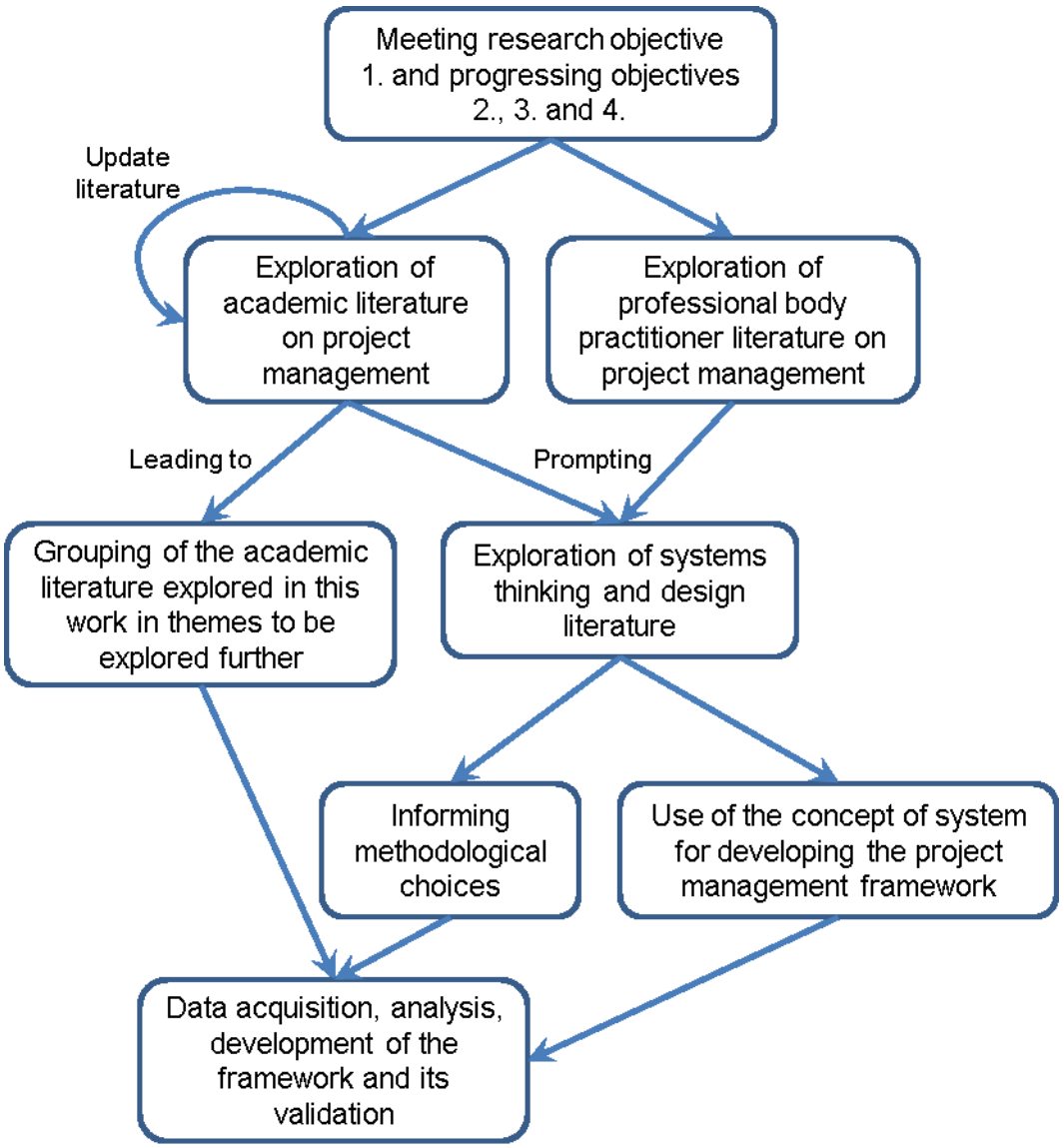


Figure 2.1: Literature review process

2.2. Considerations on project management

In this research project management is viewed as a set of people driven activities that allow the realization of a project which has an outcome (Kerzner, 2013, p.4). Moreover, since a project is a designed, purposeful human activity (Kerzner, 2013) there is an alignment with the idea of a purposeful system, as discussed by Churchman (1968).

Another definition of project management states that it is the application of knowledge, skills, tools, and techniques to project activities to meet the

stakeholder's project requirements (Eigbe et al., 2015), giving the impression that the application of such elements is a straight forward activity.

The exploration of project management in this chapter is trying to move things on from a reductionist definition (Eigbe et al., 2015), which is suggested as being too narrowly focused.

Project management, through activities of planning and scheduling, is recognizable, starting with major projects such as the Manhattan Project and similar very large scale projects such as the US space programme (Bryde, 1997; Hällgren et al., 2012). Although projects have existed for millennia, project management as a management methodology is a relatively recent development and it has its roots in positivist thinking emanating from operational research (Lacerda et al., 2011), with the dominant models taking a rational, deterministic approach. This inevitably leads to a reductionist approach to project management, which may not be able capture the complexities introduced by people.

Projects are multidimensional entities in which political, social, economic and ethical dimensions can be identified (Hemming, 2012) and these dimensions may result in actions that may, or may not, be in conflict with each other.

A way forward that fully considers the complexities of projects and allows for the inclusion of people as active components of a project management framework may be necessary. To this end, an exploration of issues in project management will be undertaken and this will help to inform the directions to be taken for data collection.

2.3. Issues in project management

Project management has nearly always relied on hard systems approaches for planning, resource allocation, scheduling and control (Cavaleri and Reed, 2008) driven by economic and engineering models.

Project managers have typically seen projects as clearly defined entities (Lacerda et al., 2011) with linear and deterministic behaviour, where rational decisions produce highly predictable results. This view will be challenged in Chapter 5, by the findings emerging from the data. However, the researcher's own experience and evidence from literature points towards a situation where, due to the fact that people are integral to the process of managing projects, a deterministic approach is not likely to provide the desired results. The reason for this is that people are not deterministic entities, similar to machines on a production line for example. The same action applied by several people will likely produce several different outcomes. This observation gives an indication that a process of inquiry is necessary to establish the impact of various actions taking place in a project environment. This idea will be explored in more detail throughout this chapter.

A range of problems are identified when applying hard (deterministic) project management practices to soft (non-deterministic) projects such as organisational change (Crawford et al., 2003). For example, top down projects based on hierarchical, rational models still dominate, whilst being applied to human, social, irrational contexts. The classical view is that the project sponsor performs some key activities to kick off the project while giving a suggestion that a hands off approach (Kloppenborg et al., 2011) should then follow, with the details of clarifying the outputs and running the project being transferred to the project manager. This could lead to a disconnect between the strategic objectives of the organisation and the project outputs.

The management of projects is a complex and dynamic mesh of relationships, in a continuous state of evolution (Dalcher, 2012), a mechanistic approach cannot capture this level of complexity. This is in contrast with findings that the use of standard (well determined) project management methodologies increases the chances of project success (Cervone, 2007), at least in relation to time and cost parameters.

Research in project management illustrates a continuous dichotomy between the so called “hard” and “soft” approaches levelled at various aspects of projects, from methods to management styles (Karrbom Gustavsson and Hallin,

2014). This state of affairs is further propagated by the research community by trying to give the impression that hard and soft approaches are very distinct and illustrate opposite traits. The researcher's experience is that in project management, the approach that practitioners take is a lot more nuanced, with aspects of both hard (deterministic, rational) and soft (non-deterministic, self-regulated by people) methods being used throughout the project's life. It is seen as unhelpful for the provision of new insights into project management to differentiate artificially between hard and soft approaches, as these are all constructs put in place by the project management researcher and practitioner communities (Staadt, 2012). A systems thinking approach may be preferred (Checkland, 1999) as this allows for the integration of hard and soft components. This is a significant find and systems thinking ideas will be explored further in Section 2.7 of this chapter to ascertain their suitability for advancing this research.

In certain public sector organisations while awareness of project management concepts is relatively high, this is not fully capitalized on due to other factors such as out-dated information systems (Gomes et al., 2008). This idea supports the necessity of an inquiring approach that allows for continuous actualization.

Project escalation of commitment (fear of abandonment) taking place as a result of irrational decision making processes is commonplace in project practice (Keil and Robey, 1999), when it would be more appropriate to redirect or even to stop the project in some circumstances. It is clear that project commitment de-escalation occurs more easily if the investigations carried out in relation to problems in a project are carried out by an external entity, not intimately connected with the project being investigated. The project deescalation (abandonment) process is however (Montealegre and Keil, 2000) usually fraught with difficulty and protracted since it requires a complete change of the worldview that exists in relation to the project. Escalation and deescalation of project commitment are viewed as separate areas, but they should, in fact, be treated as cyclical and related to each other (Pan et al., 2006), within a highly contextualized environment. Erroneous or opaque assumptions made while estimating at the outset the cost dimensions of projects (Wang and Keil, 2007; Zhang et al., 2003) can lead to serious project escalations, with negative project

performance implications. This strengthens the case for an inquiring approach in project management.

The use of organisational entities such as Project Management Offices to increase the efficiency of using resources, reduce risks and increase success rates in relation to the project business cases have been met with mixed results in practice (Kutsch et al., 2015). The main difficulty is the identification of added value that such entities bring to the organisation. However, the use of such entities may prevent the formation of communities of practice (Walker and Christenson, 2005) and can have a counterproductive effect in terms of senior management satisfaction with projects, whilst not contributing to the overall rates of project success (Ward and Daniel, 2013). Micromanagement of projects by such entities, instead of supporting efforts directed towards the start and the end of the projects, is seen to be the cause of such effects (Ward and Daniel, 2013). Again, an inquiring approach may be appropriate, to determine where efforts are best directed.

The use of project management practices can provide a common language and can result in better allocation of resources to improve overall organisational efficiencies (Maddox Abbott and Laskowski, 2014). Whilst innovation and flexibility are expected dimensions of a project, the increased need for the addition of efficiency and reliability (Majoor, 2015) creates a paradoxical situation, which is typically highly dependent on the project context. One should not attempt to resolve the paradox, but rather attempt to understand the relationships between its components and deal with their requirements as such. To fully understand the multidimensional nature of project, an inquiring approach could help, that will help to shed light on its complexities.

The contextual nature of project management principles is explored by Rosacker and Rosacker (2010) who see a distinction between private and public sector organisations in terms of the applicability of these principles. They suggest that public sector organisations are subject to many more constraints than private sector organisations. This results in a need to evaluate the suitability of applicability of project management principles developed in the private sector to public sector projects. The differences between project

management practices and their highly temporary and contextual nature is confirmed by Scott-Young and Samson (2009). Therefore, an inquiring approach could be preferable, as it will support the process of determining what are the most important aspects of specific projects in their own context.

In the following sections the academic literature explored in this thesis is grouped in the areas of interest that have been found by the researcher in relation to project management.

2.3.1 Projects and goals

New projects emerge for three reasons – an opportunity, a problem or a directive. Determining the feasibility of a project is not an easy task, given the range of criteria that may be used to evaluate whether a project should go ahead or not. For example, will the determining factor in a project be operational or economical, will it be technical or necessity (Cervone, 2008a)?

Abdel-Hamid et al. (1999) identify clearly that goal setting in projects and project management is of crucial importance as project managers make planning decisions and act in such a way as to fulfil the stated goals of the project. This leads to the obvious question, are the goals of the project clearly stated and suitable? For example, is achieving a target cost really a project goal or is it, in fact, a constraint, depending on the stakeholder? It would be hard to argue that delivering a project at a given target cost would constitute an outcome of the project for some project beneficiaries. An interesting conclusion (Abdel-Hamid et al., 1999) is that goals have weaker effects on complex tasks compared to simple tasks. This emphasises the practical need for project managers to break down their projects into easy to understand, clear goals that can be further translated into simple activities.

There is also evidence that once committed to a particular goal, stakeholders are finding it hard to change the high level of commitment in relation to that goal, whilst being willing to show a lot more flexibility in other areas of the project. Anantatmula and Kanungo (2008) identify sustained focus on the project objectives and goals as essential to project performance.

The iterative nature of achieving the project goals' quality related dimensions is discussed by Bryde (1997), who also illustrates the high and complex level of engagement needed with the project customers to ensure the identification of suitable goals, especially when these are not related to tangible business benefits.

An accurate definition of the desired project outcomes and deliverables is seen as important (Cervone, 2012) for project success. The activity of scoping a project, whilst fraught with difficulty, will significantly influence a project's outcomes (Miller and Lantz Jr, 2010). Clarity in scoping projects will have impacts beyond time and cost, whilst scoping changes are very likely to have undesired impacts. Involvement of external stakeholders is essential to scoping the project, even if it is likely to be difficult in practice.

Project goals need to be defined and measured not only in terms of easily quantifiable hard facts, but also on more intangible soft aspects such as trust and employee satisfaction (Niebecker et al., 2010), with the use of tools such as balanced scorecards seen as suitable for such purposes.

It can be established at this point that projects are intrinsically linked to goals and as such can be considered goal driven entities. This is a significant idea that will be explored further towards the end of this chapter. The concept of system (also a goal driven entity) will be aligned with the concept of project and will form a vehicle for furthering this research.

2.3.2 Project management methodologies and methods

It is seen as quite important that project stakeholders have sufficient knowledge and experience of project management methods when using these (Ahonen, 1999).

Despite advances and continuous evolution in project management, some authors identify that the need for appropriate methodologies for dealing with projects is still relevant (Andersen, 2010). These appropriate methodologies are termed as holistic (Andersen, 2010), in contrast with traditional approaches. In certain cases the project management methods proposed by some authors are

focused exclusively on very narrowly scoped techniques, for example mathematical programming or analysis models that do not consider the human dimension of the project well (Babu and Suresh, 1996; Tavares, 2002; Xia and Lee, 2005; Yang and Zou, 2014; Zhang et al., 2003). Gillard (2005) illustrates that companies often channel financial resources into project management tools rather than, for example, managers' communication competency.

Another pitfall that can occur at organisational level is a large investment into project management systems that are not then aligned to organisational strategy that support project management as a way of working (Eve, 2007). The adoption of a standardized framework for project management is not sufficient for effective communication (Carvalho, 2013) as it is also clear that there is often a lack of commitment towards such standardized tools. Regular, targeted communication is seen as essential (Cervone, 2011) for overcoming stakeholder resistance for example throughout the duration of the project.

There is significant evidence that using standardized project management practices helps with achieving customer satisfaction (Eigbe et al., 2015). However, which dimensions of such practice attract the most benefits is not clear. This preoccupation with identifying the factors or tasks that will have the most impact is explored by Cervone (2009) and even if definitive answers cannot be found, breaking down larger issues into smaller components (Cervone, 2009) will help achieve some clarity.

There is evidence that project management practices and methods employed in organisations (as with many other human activities related to operational research) can be driven by the need to justify the approach as rigorous and anchored in some credible theory (Ulrich, 2012a; Ulrich, 2012b). This would perhaps limit the amount of responsibility that project managers and other stakeholders have to shoulder. Therefore, the method employed to run and deliver a project can, in effect, become a justification for good practice and can take on the role of a stakeholder, which can ultimately be held accountable for the success or failure of the project.

Whilst increased efficiency in initiating and completing projects is helped by the introduction of structured project management processes (Feeney and Sult, 2011; Gemino et al., 2007), the introduction of such methods alone is not sufficient: additional stakeholder engagement and communication activities must take place.

Current project management methodologies were designed to work during the manufacturing age (Furlong and Al-Karaghouli, 2010), where much more structured and limited ranges of activities took place. These methods, given the large body of evidence in relation to project issues, no longer satisfy the needs of project management in the age of complex, information driven organisations. While methodologies such as Project Management Body of Knowledge (PMBOK) can be of some limited use (Furlong and Al-Karaghouli, 2010), they fail to drive information driven projects to success. In spite of this, in some quarters, PMBOK is seen as the global standard for project management (Marill and Lesher, 2007).

An important characteristic of a project is that it is considered to be unique which suggests that there is an impossibility to find ready-made solutions for any given project (Hällgren and Maaninen-Olsson, 2009), which creates uncertainty in projects. Therefore, it is inevitable that deviations from the original project plans will occur and practice shows that formal processes to deal with such deviations are rarely used due to lack of time. The unique opportunity to get something done and to get it right the only time it is done is therefore quite challenging and inherently difficult to manage (Huffman and Kilian, 2012).

The limitations of traditional project management methods is illustrated by the high rate of project failures (Kapsali, 2013) and there is a need to recognize that projects lend themselves better to an approach that encourages equifinality (achieving the same outcome through different possible means) through the design of flexible project systems. The importance of the suitability of using particular methods in specific projects (for example procurement methods) is shown by Koppinen and Lahdenperä (2007). The contextualization necessary to capture project complexity is explored by Owens et al. (2012) who state that traditional project management methodologies for managing costs, time and

outcomes are not sufficient for complex projects and that complexity emerging from context must be built into project management practices, currently over reliant on more mechanistic, process oriented approaches. The selection of appropriate project delivery methods, on the other hand, can have a significant impact on the success of the project (Park et al., 2015).

The area of project management methodologies and methods emerges as one of the areas of interest in project management and will therefore be explored during the data collection process.

2.3.3 Project managers

People and processes must be a priority for project managers and business managers. A “no blame” culture that puts people first is essential (Ajmal et al., 2009; Akgün et al., 2014).

The project managers should not await the completion of a particular phase of the project before evaluating its status, but rather they need to be in a constant process of monitoring and evaluating the project (Analoui, 1989).

The ability of project managers to address issues beyond the strictly technical issues of project management, such as cultural aspects, is seen as important (Biggs and Smith, 2003; Brookes and Locatelli, 2015). This is further confirmed by Brill et al. (2006) who state that project management must be reconceptualised beyond adhering to the three classical dimensions of time, budget and quality specification as considered by methodologies such as PMBOK. Also, project managers must possess a wide range of other skills such as problem solving, leadership, communication, etc. while concluding that problem solving and leadership are the two most important. Gomes et al. (2008) reiterate the importance of leadership and soft skills of the project managers over their technical skill or personality traits. Project managers are also not seen as having to act in the same ways as their team during the running of projects.

The project manager’s behaviour is an essential component in relation to their credibility within the project teams and avoiding “negative” behavioural traits such as being a control freak or being disengaged will increase the

effectiveness of their role (Cervone, 2008b). At least two types of project management styles are identified, bureaucratic and collaborative (Gregory and Keil, 2014) and there is evidence that both are needed to meet conflicting demands in projects. While the bureaucratic approach is useful when controlling the project, the collaborative approach is used when building and maintaining relationships. Both of these styles need to be applied at various times during the running of a project, however it may require two different project managers working in tandem to achieve this as most people gravitate towards their preferred management style.

Building further on the idea of control styles, defined as enabling and coercive by Heumann et al. (2015), there is room for both styles of control and there is evidence that styles of control adopted at higher hierarchical levels in projects are emulated by the team members. The conclusion that there is a need for a portfolio of control modes in project management (Kirsch, 1997; Roy et al., 2010; Soh et al., 2011; Turner et al., 2013) offers insights into different control modes needed for different groups of stakeholders and role holders.

The technical background of many project managers has led to a proliferation in focus on tasks and quantifiable results rather than on the soft skills and human aspects necessary in change management (Parker et al., 2013a), which projects bring about. Alignment and integration of project management and change management is seen as not only possible, but also desirable (Parker et al., 2013b) to achieve a project based change management model. The nature of the project manager role is, some decades after it has first emerged, still unclear, with research (Paton and Hodgson, 2016) showing that, in many cases, project managers are sitting at the threshold between a technical role of some kind that was their primary role and a managerial role necessary for running projects. They find it difficult to identify themselves with either of these spaces and for some this is a situation that lasts for their entire professional life. The value in having a project manager that is not, in fact, a technical specialist but a leader (Shore and Zollo, 2015), is seen as an important factor to project success.

The subjective nature of project managers, shaped by their interests and background is the next area of interest in project management and will therefore be explored during the data collection process.

2.3.4 Importance of project managers

A traditional view of project management methods is that the role of project managers is a collection of ingredients, rather than giving an indication of how they may approach the role and the actions that it entails (Analoui, 1989). However, it is argued (Analoui, 1989) that too much focus on factors such as financial indicators and actual delivery means that the human side of the project is neglected. Crucially the unique role of the project manager as a change agent becomes, in fact, that of a simple implementer.

To maximize the effectiveness of project managers, they must fit the organisation that they are part of, as organisational culture is very diverse and will provide the framework in which people operate and interact (Analoui, 1991; Aubry et al., 2012; Biggs and Smith, 2003).

While the project manager is seen as a leader and their work is anchored in management, not micromanagement (Badger et al., 2009), there is evidence that project managers have difficulties in moving away from reactive management to strategic management.

One of the key functions of the project manager is to guide the decision making process on a range of project related issues. The project manager cannot (or rather should not) make decisions without the involvement of all relevant stakeholders (Cervone, 2015) and different levels of attention must be paid to strategic decision making as opposed to others. Once made, decisions must be communicated to others in a timely and transparent manner.

Gillard (2005) shows that the single most important source of information for the project team is the project manager, who therefore becomes pivotal (as either enablers or barriers) in the communications processes. The role of the project manager is extended further (Johansen and Gillard, 2005) by recognizing that

project managers are pivotal in eliciting meaning out of information and becoming, in effect, a driver for organisational learning.

Project managers must take a holistic view of the issues relating to the projects, that they are involved with (Thomas et al., 2012), using multiple thinking styles, as this is proven to be beneficial to the level of project accomplishment. This idea suggests that a possible exploratory, inquiring approach is preferable or even desirable in project management practice.

The project managers and their importance will be explored during the data collection process.

2.3.5 Knowledge and learning in projects

Project teams must have access to a wide base of knowledge, existing or newly acquired, if they are to succeed (Ajmal et al., 2009; Akgün et al., 2014). As such, some form of inquiry is essential to successfully deliver the outcomes of any project. The process of acquiring project-related knowledge is complex and occurs when information and ideas from other people are accessed, captured, processed and added to the relevant stakeholders tacit knowledge (Algeo, 2014).

Knowledge management and project management support each other to achieve productive purposes (Anantatmula and Kanungo, 2008). Tacit knowledge obtained through projects is difficult to acquire and capture (Carvalho, 2013), illustrating the need for effective communication.

Learning from projects is discussed further (Friend et al., 1998; Nelson, 2010) with mixed conclusions as to how much learning is achievable through successive projects, while proposing the possibility that such learning is possible through the use of appropriate frameworks. The use of social media for lessons learned in project management is explored by Rosa et al. (2016), but in spite of a high degree of acceptance among the respondents, it fails to address any practical dimensions of the usefulness and impact of such an exercise, though links are being made between the lessons learned model and the wider organisational strategy.

While it seems intuitive to try to capture learning from previous projects, given the dynamic nature of the environment that projects take place in, this is a difficult task, that often deviates into “technical” activities of capturing information (Garon, 2006) while meaningful capture of learning such as accurate project costing exercises are almost non-existent. In certain industry sectors, construction for example, whilst most organisations are project driven entities which state that continuous learning and improvement are important and should be explicitly addressed (Gieskes and Broeke, 2000), the reality shows that they are not actually carrying out such learning activities that may help increase performance in future projects. One of the reasons for this could be the highly contextual nature of the projects taking place in the construction sector (Gieskes and Broeke, 2000).

Having good knowledge resources to underpin the project through putting together strong teams (Gemino et al., 2007) is seen as an enabler for running projects and will result in improved organisational support. This is not always an easy task to achieve (Grabher and Thiel, 2015) in some single project organisations (such as London 2012 Olympics and other large projects), where the project knowledge is actually embedded into the project teams. The knowledge that these individuals bring to the project teams is based on their experience in previous permanent organisations and this is transferred to the single project organisation through the labour market.

One of the key aspects of learning in projects seems to be related to the need to exhibit curiosity and through experience (Hällgren and Wilson, 2007); in other words muddling through and doing things, dealing with problems will result in learning. Formal blended learning in project management can be a useful way of furthering the development of project managers (Kilkelly, 2009), while not forgetting that understanding the nature of projects and project management may lead to a false sense of security that projects will become easier to manage. The complexity is not being removed from projects through formal learning, but rather the project managers are better equipped to deal with them. The use of complex, cross-functional projects that emulate real life projects is seen as beneficial to the training of future project managers (Maloni et al., 2012) as opposed to a purely academic approach.

The importance of knowledge management practices to the improvement of project management practices is seen as such by Lierni and Ribière (2008), so much so that they recommend their inclusion into standard industry methodologies such as PMBOK. Going beyond the more intangible project related knowledge benefits, there is evidence (Mitchell, 2006) that having access to external knowledge, and using this in conjunction with internal knowledge in an integrative way can help achieve more timely project completions. The impact of knowledge management in speeding up completion times and other project factors is also supported by Oluikpe et al. (2011).

The use of knowledge management systems can improve project performance (Naaranoja and Uden, 2007; Ribeiro and Ferreira, 2010) and will also address innovation aspects of projects.

Knowledge and learning are seen as important in project management and will therefore be explored during the data collection process.

2.3.6 Stakeholder relationships and engagement

Interpersonal trust and team cohesion is a major factor in project team learning (Akgün et al., 2014) and therefore production of knowledge necessary for the running of the project. This is supported by Anantatmula and Kanungo (2008). Whilst Berg and Karlsen (2014) identify various ways of introducing positive emotions among the project stakeholders, they are not able to draw any conclusions in terms of correlations between positive emotions, positive relationships and positive results in the project.

The complexity of the relationships between the various stakeholders is discussed by Bryde (1997), where even a distinction between customers and stakeholders is found. The role of communication is seen as important in reducing detrimental conflict and managing stakeholder expectations in projects (Carvalho, 2013), while recognizing that identifying the relevant stakeholders and their expectations is difficult. Using shared and collective problem solving as a means for improving the effectiveness of the project manager is increasing in popularity (Cavaleri et al., 2012), illustrating a trend towards a wider stakeholder engagement.

Involving stakeholders in decision making makes for better decision making and if stakeholders have participated in the decision making process, they are likely to support these decisions and undertake actions resulting from the decision making process (Cervone, 2005b).

One of the ways that stakeholders may engage with a project may be resistance to the changes brought about by the project. As such, alleviating resistance to a project requires a range of practices that project managers should engage with to alter interpersonal relations in as far as the project is concerned, such as create links between organisational strategy and changes being made by the project, engaging different groups of stakeholders by highlighting benefits for them and regular, targeted communication (Cervone, 2011).

A high level of stakeholder engagement is not always free of risk. Research shows that whilst a classical project team arrangement will develop projects based on the perception of their team leaders, highly engaged group support based teams will develop projects aligned with the interests of the project team (Dennis and Garfield, 2003) and this may obviously cause deviations from the original project goals and objectives.

Team leadership is seen as very important for fast projects (Scott-Young and Samson, 2009) whilst providing financial incentives for project managers is seen as a legitimate practice to increase the amount of engagement and the delivery of project objectives.

In extreme situations (Earnest, 2015), stemming from previous conflict circumstances, involving all of the relevant stakeholders (with emphasis on beneficiaries) in the project definition and selection is crucial and will form the basis for the successful definition of measurable project objectives.

Even when conflict is not the norm, during projects that generate a high level of change, it is clear that stakeholder stress is an ever present factor due to the difficulties associated with assessing risk for any number of given situations (Cervone, 2014b). Project related stress can have both positive and negative

influences (Smith et al., 2011). Therefore, stakeholder tolerance to change must be created through the project environment. Stakeholder conflict can be managed through careful stakeholder management (Hunt, 2008) and this is beneficial to the project outcomes as is user (beneficiary) involvement in all stages of the project. The range of conflicts that occur in a project may be explained by the various organisational roles that individuals undertake and which shape their overall behaviour (Jones and Deckro, 1993). Analysing the types of roles that individuals perform in an organisation will result in a better anticipation of the types of conflicts that are likely to occur in a project.

Identifying who the customer is at any one point in the project is not always easy (Ivory and Alderman, 2009) and will influence management decisions related behaviour in projects.

Power relationships in inter-organisational projects are difficult to establish (Hekkala and Urquhart, 2013) and project stakeholders will resort to using channels of formal authority in the absence of informal relationships between organisations. The use of formal authority in a bureaucratic environment is seen to generate a range of negative effects (Jin, 2000) including ineffective resolutions of implementation issues, waste of energy of participants and demoralization of stakeholders whilst generating disconnects between higher levels of management and project teams.

The role of trust in managing projects is illustrated by Lau and Rowlinson (2011) who discuss the two main forms that trust can take – formal (contractual) and informal. Neither formal nor informal trust can be treated in isolation and they are ultimately based on human relationships that cannot be substituted by such blunt tools as contracts. An interesting result is that no clear links can be drawn between trust and positive project outcomes (Lau and Rowlinson, 2011). Other authors find a positive relationship between stakeholder trust and benefits leading to the running of a project (Naaranoja and Uden, 2007; Ndoni and Elhag, 2010; Ng and Walker, 2008), with the middle authors going as far as to see the project as a network of relationships that acts as an enabler for a wide range of project-related activities.

Building on the idea of stakeholder relationships, it is shown that a strong level of relational norms between some project stakeholders has a positive effect on project success (Müller and Martinsuo, 2015) and that a bureaucratic approach towards relationships will be detrimental to the success of the project. It is likely that various categories of stakeholders will use relational norms that they feel comfortable with (Sabherwal, 2003) and what results in practice is then a relationship that contains elements of both informal and bureaucratic practice. Both internal and external stakeholder conflict will impact project performance in a negative way (Wang et al., 2005), making stakeholder management to prevent conflicts an essential project management task.

For the purposes of this work, project stakeholders will be considered entities that have relevance to the project, during any of its stages. Given the contextual nature of projects, as explored in this work, it is difficult to identify clearly all of the categories of stakeholders that would be recognisable in all projects; the identification of stakeholders must be carried out as part of the project-related inquiring processes.

Based on the literature explored in this section, the case is made for the project stakeholders area to be explored during the data collection process.

2.3.7 Projects and organisational culture

Whilst the business context and economic value of any given project is relatively easily understood as important, the cultural aspects of the initiating organisation must be considered (Aubry et al., 2012; Biggs and Smith, 2003). Brière et al. (2015) illustrate the importance of cultural alignment between different types of organisations involved in the running of a project, along with adapting culturally to a new context and moving beyond the economic dimensions of a project. Projects run as part of organisations will be defined by the organisational culture, which in most cases can be studied, but in very few cases can be easily controlled (Burström and Jacobsson, 2012).

Projects will invariably introduce change, yet change is likely to create additional stress to stakeholders unless they understand the big picture and perceive changes brought about by the project as positive and constructive. Creating an

organisational culture facilitative of change is seen as a contributing factor to project success (Cervone, 2013; Singh et al., 2009).

The success of project managers and the projects that they are running can be severely affected if they cannot adapt their practice to the culture of the environment that they operate in (Cerimagic, 2010; Sandhu et al., 2009; Skudiene et al., 2011). It is not sufficient to have a high degree of technical expertise as project managers do not work alone; their work is affected by a multitude of relationships which are borne of people's and organisation's culture. This idea is explored further by Eldridge and Nisar (1994) who state that every single dimension of a project, from design to completion and evaluation is shaped by local culture. In effect, by the cultural context in which the project is designed, it operates in and in which it will be evaluated. Espinosa et al. (2006) explore the cultural dimensions of global projects and find that cultural differences can be one of the most significant barriers to project success. Project manager awareness of cultural differences leading to a set of corrective actions needs to take place to address this issue. The performance of project teams can be significantly influenced by the impact of personal cultural values of team members if these are not explored and understood sufficiently (Jetu and Riedl, 2013) to be channelled towards supporting the overall project objectives.

Projects are seen as being dependent on the organisational and cultural context that constitute their environment and these will therefore be explored during the data collection process. To establish these dependencies, an inquiring approach may be suitable.

2.3.8 Project complexity and soft skills

Project complexity can be understood within the wider definition of complexity, which, as given by the Oxford dictionary is that of consisting of many different and connected parts and not easy to understand, complicated or intricate. The more complex a project, the less suitable the use solely of hard skills by project managers is (Azim et al., 2010). One interesting consideration is that people – interpreted here as the project stakeholders, are both a source of project complexity as well as the key element to project success.

Understanding project boundaries is part and parcel of being able to materialize decision making in a project (Burström, 2011). However, defining such boundaries is a difficult process as the boundaries of projects are likely to be continuously redefined and decision rights and authority are likely to be challenged by the various stakeholders. If decisions can stand after being challenged and tested, it is seen that such decisions are solid (Burström and Jacobsson, 2012).

Whilst a lot of complexity can be found in the technical aspects of a project, it is typical that the complexity found in the relationships between the stakeholders of the project easily exceeds any technical complexity (Cervone, 2005a). The ability to influence others is seen as a key skill for project managers. Very large projects are inevitably also very complex. One of the first actions when taking on a very complex project is to try and simplify the associated processes to achieve a higher degree of manageability (Giezen, 2013). However, one of the dangers associated with such activities is the loss of the rich picture associated with project complexity and may lead to rigid, sequential plans that ignore the "political" dimensions of the project.

The need for soft skills and organisational behaviour to be linked to project management is illustrated by Huffman and Kilian (2012). Project complexity can be viewed as internal and external and while internal project complexity can be managed through planning, external complexity is more difficult to manage, requiring continuous interaction with the stakeholders outside the project organisation even though this is difficult due to the perception of high political risks in the early stages of projects (Lenferink et al., 2014). Gowan Jr and Mathieu (2005) do not find a direct correlation between the project size or technical complexity and project performance whilst observing Information Systems (IS) projects. The use of formal project management methodologies is seen as a much better predictor of achieving the project delivery date. However, only one project dimension is studied in their work, no considerations about meeting cost, outcome, quality, etc. factors are given in relation to the use of formal project management methods.

One of the complexity factors associated with projects is human emotion. Project based work seeks to normalize and legitimize a range of positive emotions such as excitement and the promise of adventure through new work or negative emotions such as dealing with delays or unplanned overtime (Lindgren et al., 2014), leaving it up to the individual to manage themselves. The project manager could therefore have a role in channelling and dealing with such emotions.

One way of engaging with project complexity that has been identified in the literature (Sheffield et al., 2012) consists of oversimplification of project aspects and a reduction of project complexity into linear project plans. A systems thinking approach for dealing with such complexity is recommended (Sheffield et al., 2012), where the technical skills of project managers will take second place to interpersonal skills. Attempts at selecting “the right” stakeholders (the project team) by using mathematical models are made (Shipley and Johnson, 2009; Tiwari et al., 2009; Tsai et al., 2003). However, these are likely to fail to capture the full spectrum of human complexity and are limited to, at best, an initial selection of the project team, giving no guidance as to how this might evolve in time.

A picture of complexity emerges, particularly around the people aspect of the projects. Therefore, further exploration is seen as necessary, given that interaction with people is a relevant area of interest in project management, and will therefore be explored during the data collection process. The usefulness of an inquiring approach is depicted by the need for interaction with the project stakeholders.

2.3.9 Communication in projects

The importance of communication in projects is seen as very important by all categories of relevant stakeholders (Carvalho, 2013). However, communication practices and processes required by organisational Project Management Offices (PMO) and based on Prince2 or PMBOK are not typically followed or given a high priority by project managers with an informal approach being preferred (Carvalho, 2013).

While communication is not seen as an actual project deliverable or objective, it is seen as an essential component that contributes to the delivery of projects (Carvalho, 2013; Cervone, 2011; Cervone, 2014a; Feeney and Sult, 2011; Gillard, 2005; Tam et al., 2007b).

The act of communication in projects is linked to a range of issues related to stakeholders with cultural differences and different needs at different stages in the project (Cervone, 2014a) painting a dynamic and complex picture. Communication in projects is an intricate process that benefits from a proactive approach by the project manager (Gillard and Johansen, 2004), who can develop and fine-tune such communication skills over time through practice and learning. Using systems ideas to represent communication systems in projects is seen as a suitable approach (Gillard and Johansen, 2004) with the ultimate aim to achieve a communication system anchored in and feeding off its environment.

Project communication is seen by a majority of project managers as very much transmission based (Ziek and Anderson, 2015), focused on delivery of clear and complete information, instead of taking a much more holistic approach focused on rich dialogue that helps shape the evolution of the project. Using systems ideas to improve communications in projects is further advocated by Ishino and Kijima (2005), with some emphasis on the need to combine systems thinking with other types of analyses to achieve common formats of communication in organisations.

Communication emerges as the next area of interest in project management and will be explored during the data collection process. By its nature, communication is an inquiring process as exchanges of information occur between people.

2.3.10 Return on investment

It is not always easy to establish the value generated by spending on projects (Anantatmula and Kanungo, 2008; Ballou and Tayi, 1994). As such (Ballou and Tayi, 1994; Horne, 2014), it would be beneficial to identify and quantify the benefits arising from projects, whilst considering setting priorities for such

benefits. The idea that some project benefits are more easily measured than others will be explored further.

Cost benefit analysis is often used to make project related decisions with a financial driver. However, whilst it is relatively easy to quantify the actual cash spend in the project and some economic benefits, there are, depending on the project, a vast range of factors whose value is not easy to calculate, due to their subjectivity and/or long term nature of benefits realization (Cervone, 2010; Van Leeuwen et al., 2006). Improving cost/benefit forecasts is seen as the most important factor in terms of improving project performance (De Jong et al., 2013) in a very wide range of literature, yet such an approach fails to recognize the long term view that needs to be taken to allow for the long term project benefits to materialize.

Whilst project related costs seem to be a key element of projects and a great deal of effort is spent in trying to forecast costs accurately, the evidence shows that cost overruns are common and very significant (Doloi, 2011; Jørgensen and Wallace, 2000). The reasons for such cost overruns are still poorly understood, but some insights into the poor adequacy of traditional cost estimation practices (focused on simple costing exercises carried out in relation to project components) are given by Doloi (2011). A more flexible approach, underpinned by a Soft Systems Methodology (SSM) approach may be more adequate, though no definitive conclusion could be drawn at this stage. The traditional approach of using deterministic static models for project scheduling clearly cannot solve cost overrun issues (Jørgensen and Wallace, 2000), managerial flexibility must also be built into the process.

Investment decisions in organisational projects based on strictly traditional accounting methods such as return on investment only are not seen as sufficient (Gunasekaran et al., 2001) as there is a whole range of intangible benefits associated with projects that are not easily quantifiable, but important to the long term future of the organisation. Therefore reliance on strictly traditional, financially based, investment appraisal models gives a limited view of project success (Lefley, 2004), whilst failing to capture strategic benefits resulting from projects. Too much focus on the optimisation of transaction costs

will distort project management values, leading to suboptimal results (Leijten et al., 2010). Harder to quantify values such as quality and safety need to be made defendable and become a full part of the project assessment criteria.

The use of deterministic, risk-based and uncertainty based models to evaluate projects through global quantifiable based criteria (Li and Madanu, 2009; Ling and Liu, 2004) are common in the project management literature, failing to capture broader project benefits. Alternatively, the use of extremely elaborate, flow chart based project evaluation frameworks are proposed (MacDonald et al., 2013), in effect shackling the project management process into a linear process.

Whilst project performance is a continuous preoccupation for organisations, the definition of the criteria that can be used to assess such performance is not easy (Lacerda et al., 2011). Such criteria may be focused on hard, optimization based views of the project or softer, broader organisational views. It is, however, important to realize that a good set of performance criteria will contain both elements with their importance dependent on the stakeholders and the view of success if likely to evolve with time. It is clear that while evaluating a project is no easy task, there can be further negative connotations associated with the evaluation process (Seppänen-Järvelä, 2004). If project teams do not clearly understand the nature of the project evaluation process, they will be affected negatively by it and the evaluation process will distort their working practices and may even lead to sabotage in relation to evaluation exercises.

Return on investment emerges as the next areas of interest in project management and will therefore be explored during the data collection process. Given the mixed practice that exists in terms of how return on investment is defined and measured, an inquiry process would be beneficial to establish project specific measurement criteria and the monitoring of these.

2.3.11 Project success

Some factors that are correlated with the delivery of timely and cost controlled projects are strong project commitment, early stakeholder influence and endorsement of project plans and rich project communication (Andersen et al., 2006). However, it is interesting to note that the role of the stakeholder is seen

as very much that of endorsing project plans and being kept informed rather than as an active participant in the project design.

There is evidence that narrowly focusing on trying to control (maximize) the level of profit obtained in a project actually reduces that level of profit in the long term due to low quality knowledge obtained through such a narrow lens (Cavaleri and Reed, 2008).

The nature of project success is likely temporary, changing over time and it will be dependent on the perspectives of the various stakeholders (Dalcher, 2012). A classic example of the different perspective on the success of a project is given by Dhillon and Caldeira (2008), who discuss the very different perspectives that the project team can have in relation to project success when compared with the view of the ultimate beneficiaries of the project outcomes.

Some of the most commonly encountered factors that enable projects to deliver on the three classical dimensions of a project, cost, time and quality specification are improving cost and benefit estimates, identifying and containing risks, increased accountability of stakeholders and maintaining clear objectives (De Jong et al., 2013). However, it is clear that in practice, these are not easy tasks to achieve, for example projects are often estimated optimistically, whilst taking an ignorant or biased view of the risks. An optimistic approach taken by the project manager in the project can result in better project success (Smith et al., 2011) as long as this is anchored in a realistic project plan.

The importance of top management support for project success has been widely researched (Elbanna, 2013). However, whilst traditional wisdom states that this is the most important success factor, the reality can actually be very different, depending on whether the environment is multi-project, where top management support can shift between projects. Also, the support of top management tends not to remain constant over a period of time, which suggests the need for creating and relying on the support of local networks.

The relationship between structured project management and communication is identified by Feeney and Sult (2011) as a critical factor in project success, while illustrating that communication is a challenging process.

A surprising result by Ika et al. (2010) is given in the form of lack of correlation between the amount of project planning and project success, in the specific area of international development projects, whilst the monitoring and evaluation of projects seems to be well correlated with project success. However, the lack of correlation between project success and planning efforts may well be due to the lack of involvement of project managers in overall strategic planning (Ika and Saint-Macary, 2012): they are being, in effect, strictly reduced to the role of project implementation planning.

Given how much interest there is amongst the various project stakeholders to deliver success, it is surprising to find that in fact project success is still a very ill defined area (Müller and Jugdev, 2012), with no consistent and widely accepted definition being available. Project success is very much stakeholder dependent and while some components of project success have been identified (for example project success factors and criteria), they are poorly understood and not very well related to organisational success (Müller and Jugdev, 2012). This is confirmed by Saleh and Alshawi (2005) who state that holistic models for measuring Information Systems (IS) project success are needed, which must be linked to organisational success.

It is impossible to determine a definitive, generic list of project success factors as these will differ from project to project and need to be established within some context of business benefit for various stakeholders (Ojiako et al., 2008). However, there seems to be some merit in differentiating between project progress and success criteria, even if these cannot be separated completely in practice.

Project success factors is one of the areas being explored in this research, with the aim of providing clarity in relation to the range of factors that contribute to project success through a contextualized process of inquiry.

2.3.12 Project failure

Anthopoulos et al. (2016) state that a range of factors may contribute to project failure – overestimation of political will and commitment, creation of major design–reality gaps, large-scale and extremely complex projects, large numbers of stakeholders, shifting requirements and failures in budget and time control due to inefficient project management methodology. Birks et al. (2003) identify factors such as lack of effort, lack of senior management support, lack of user needs' analysis and training and lack of ability as significant obstacles to achieving good project performance.

A project-related work dimension little explored is related to the causes of failure (Dalcher, 2012) as most efforts in terms of defining performance criteria for projects are focused on project success.

Guah (2008) shows that in project management there is a human tendency to carry on with a course of action almost regardless of the amount of negative information that suggests that such a course of action is not viable. This aspect of project failure is further explored by Korzaan and Brooks (2015) who conclude that human emotional attachment can in fact cause "blindness" to the business problems that the projects are facing. Another factor that could cause individuals to continue a project beyond the point at which it is clear that the project is heading for failure is the use of financial or other incentives, aimed at those individuals that would disappear should the project be aborted.

A persistent reluctance of project stakeholders to convey negative project information is identified (Smith and Keil, 2003; Smith et al., 2001) in literature, with a broad range of contributing factors underlying such behaviour. This is confirmed by Smith et al. (2009) who link such behaviour to wider ethical organisational contexts and encourage a further process of exploration to reduce the occurrence of such misreporting behaviour.

Project failure can result from poor identification of stakeholders, their expectations and interrelationships and therefore the project manager would do well to ensure good stakeholder management (Pan, 2005).

This research also seeks to address the lack of interest in the area of factors that can give a clearer view of project failure.

2.3.13 Project forecasting

Forecasting errors in the various aspects of a project are a “technical” major source of cost overruns (Cantarelli et al., 2012a) that may be alleviated by using better contextualized data and information. However, this is not always the case and appraisal optimism (optimism bias) is another major cause, and more likely the real cause of cost overruns in projects (Cantarelli et al., 2012b).

Often, project planning and forecasting activity is based on a range of assumptions and constraints that project managers and other stakeholders make about the project context and its external environment (Cervone, 2012). However, these assumptions may be biased in some way, being too optimistic or too pessimistic, or driven by a range of subjective factors. A rigorous process of inquiry could address this problem, through continuous actualization.

2.3.14 Project risks

Whilst risks are an inherent factor in projects and project management, they are not a component of projects as such. Given they are not a deliverable or a financial element, it will be a range of risks associated with the more traditional dimensions of projects that will potentially influence project success or failure. After all, any dimension of a project that is not well researched and well understood will generate risks. A part of being able to understand project risk is related to understanding all of the components of a project and the relationships between them so that a comprehensive view may be formed. The resilience of projects to risk factors is not currently clearly understood, although it is becoming clear that a continuous review and actualization of projects is necessary to operationalize response to risk factors effectively (Schroeder and Hatton, 2012).

Brady et al. (2012) revisit the issue of risk and uncertainty in projects and project management and conclude that it is quite difficult, in the early stages of a project, to choose a strategy that will guarantee better outcomes for the project. Brady et al. (2012) state that the highest calibre project managers focus

on managing conflicting stakeholder aims and objectives, fully aware of the unpredictability of the problems that must be dealt with whilst running a project.

Reducing risks and hence likely cost overruns may be achieved by contextualizing the project to a high degree (Cantarelli et al., 2012a).

Identifying and controlling risks are seen as important factors in project management. However, the activity of controlling risks can, in itself, be detrimental to the creativity factor that is necessary in many projects (Eaglestone et al., 2003) and there seems to be a natural tension between the amount of constraints introduced by risk management and the amount of creative activity necessary to advance the project.

Risk management is seen as an essential part of project management (Cervone, 2006; Gemino et al., 2007; Tam et al., 2007a) and, as such, the identification of risk factors followed by risk analysis must be carried out and updated continuously. Whilst informal and formal risk control in projects is found to have an impact on project process performance and overall on the successful delivery on time and on budget of projects (Keil et al., 2013), there seems to be a continuous reluctance to engage in risk management practices. This view is supported by Taylor et al. (2012), who recognize that there is a gap between project management research and practice.

Different groups of stakeholders tend to have different views of risk factors associated with projects, in particular the project manager and the users (beneficiaries) of project outcomes (Keil et al., 2002). Whilst there are some areas of commonality in as far as certain risk factors are concerned, users of project outputs have a tendency to view risks flowing from the project manager, their skills and ability as more important. Project managers see risks stemming from the users as more important for the project. Technology may be employed to facilitate a consultative approach to risk management that recognizes the interests of different stakeholders and allows the engagement of a broad range of stakeholders (Loosemore, 2010).

The lack of geographical proximity of project teams can lead to an increase in all project related risk factors (Reed and Knight, 2010), necessitating an anticipation of such problems and a proactive approach in mitigating them through the creation of virtual project teams.

Whilst minimizing project duration is beneficial to project success (Lee et al., 2007), policies for reducing project duration are difficult to produce and implement because of the continuously evolving nature of projects. As such, using systems ideas based on constant “reworking” of resource allocations and activities is beneficial and unexpectedly, under certain conditions, a higher level of uncertainty can reduce durations. Project duration is a contributing factor to its associated risk factors (Reed and Knight, 2013) having a twofold effect, as the project risk factors may have a greater impact than originally estimated whilst the severity of the risk effect is also higher.

Larger projects will inevitably attract a higher level of risk (O'Callaghan, 2007) and the identification of boundaries of ownership and responsibilities is essential to mitigate problems.

Project-related occupational health and safety risks are currently heterogeneously integrated in project management practice and therefore results in a main risk category which is not systematically integrated into projects (Badri et al., 2012).

There is a gap in the literature (Sanchez et al., 2009) in terms of relating project risks to wider organisational risks, after all, many projects are part of project portfolios and risk factors that affect one project may well affect others in the organisation.

Project risks will be explored during the data collection process. Project risks are not considered in a consistent manner in the literature explored here and therefore there is a case for using an inquiring approach when dealing with this area.

2.4. Project management as a human, social, organisational activity

Project management is a human, complex, irrational, “messy” activity – therefore an in depth look at this area, going beyond mechanistic processes and activities is likely to be required (Biedenbach and Müller, 2011). Building a “rich” picture here is essential: a mechanistic, deterministic view is unlikely to produce good results as humans are not robots and their reactions cannot be easily predicted on a given input. Therefore, it is suggested that a continuous process of inquiry is needed, which is context dependent, to ascertain the outcome of each human activity in its own context.

Many projects have, as stated goals, technological innovation. However, it is necessary for the technological innovation delivered by projects to be accompanied by organisational innovation (Burström and Jacobsson, 2012). In other words, the organisation will be affected by the projects that it delivers. Cavaleri and Reed (2008) identify that there are clear advantages to looking at projects from a leadership perspective, where systems thinking, knowledge processing, learning, and organisational dynamics play key roles.

Most projects are, in fact, complex, dynamic systems that do not conform to a linear behaviour given the human driven activities encountered within. An SSM approach, based on inquiry focused on modelling and capturing human related complexity, is advocated as being eminently suitable for organisational activity (Checkland, 1999; Crawford et al., 2003). A flexible process is advocated when dealing with projects and SSM is found to offer a good source of theory and modelling in the development of project management. Small and Walker (2011) argue that since project complexity emerges from social complexity an adaptive approach is necessary for accommodating the ambiguities that are inherent in project work. A move from traditional project management tools and techniques is advocated and a systems interpretation of project management that is capable of capturing contextual issue is proposed.

The idea of a system is an abstract notion that can be applied to any situation, regardless of its complexity, including human organisational activities such as projects and project management (White and Fortune, 2009). Systems thinking

is particularly adept at capturing inter-connectivenes and contextualization as it requires continuous actualization of the system being represented. Given the human dimensions of project management Oyegoke (2011) argues that a constructive research approach, based on multiple interpretations of reality dependent on context is suitable.

The relationships between the organisation and projects run within it are examined, and leads to the conclusion that similar critical success factors (Ram et al., 2015) can be identified within both the organisation and projects, making the contextualized process of inquiry relevant to project management practice.

The implications for this work of the ideas explored so far point towards the possibility of using the concept of system and systems thinking to achieve research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use”.

The complexities of project management and projects, given the inseparable dependence on people and the inability of deterministic methods to capture such complexity, make a strong case for using an inquiring approach to project management.

Both the concept of system and an inquiring approach are explored in this work in Sections 2.7 and 2.9 and will be used to ensure progress towards meeting the research objectives.

2.5. Areas of interest in project management from academic literature

A range of project and project management areas of interest have been identified and discussed in the previous sections. The next stage is to identify areas for further exploration through data collection and analysis. This research seeks to advance project management through the provision of a framework that anchors theorists and practitioners in an integrative view of the issues occurring in project management, whilst providing a strong theoretical foundation.

It is necessary to use the basis provided by the literature review to acquire data that will allow the progression of theoretical and practical knowledge. Therefore, a number of exploration areas that have emerged from the literature review as being pertinent to projects and project management are presented in Table 2.1.

The project management exploration areas illustrated in Table 2.1 shape the direction of the data collection process. These exploration areas will form the basis of the interview framework developed in Chapter 3 and utilized for data generation that will allow the progression of research objective 3 “To identify key components of a project management framework”.

Table 2.1: Exploration areas from literature

Areas of interest in project management from academic literature	References	Exploration areas for data collection, resulting from areas of interest
Projects and goals, Project success, Project failure, Project risks	Abdel-Hamid et al. (1999), Anantatmula and Kanungo (2008), Andersen et al. (2006), Anthopoulos et al. (2016), Badri et al. (2012), Birks et al. (2003), Brady et al. (2012), Bryde (1997), Cantarelli et al. (2012a), Cavaleri and Reed (2008), Cervone (2006), Cervone (2008a), Cervone (2012), Dalcher (2012), De Jong et al. (2013), Dhillon and Caldeira (2008), Eaglestone et al. (2003), Elbanna (2013), Feeney and Sult (2011), Gemino et al. (2007), Guah (2008), Ika et al. (2010), Ika and Saint-Macary (2012), Keil et al. (2013), Keil et al. (2002), Korzaan and Brooks (2015), Lee et al. (2007), Loosemore (2010), Miller and Lantz Jr (2010), Müller and Jugdev (2012), Niebecker et al. (2010), O'Callaghan (2007), Ojiako et al. (2008), Pan (2005), Reed and Knight (2010), Reed and Knight (2013), Saleh and Alshawi (2005), Sanchez et al. (2009), Schroeder and Hatton (2012), Smith et al. (2011), Smith and Keil (2003); Smith et al. (2001), Smith et al. (2009), Tam et al. (2007a), Taylor et al. (2012)	Definition of a project
Project managers, Importance of project managers, Communication in projects	Ajmal et al. (2009), Akgün et al. (2014), Analoui (1989), Analoui (1991), Aubry et al. (2012), Badger et al. (2009), Biggs and Smith (2003), Brill et al. (2006), Brookes and Locatelli (2015), Carvalho (2013), Cervone (2008b), Cervone (2011), Cervone (2014a), Cervone (2015), Gillard (2005), Gillard and Johansen (2004), Gomes et al. (2008), Gregory and Keil (2014), Heumann et al. (2015), Ishino and Kijima (2005), Johansen and Gillard (2005), Kirsch (1997), Parker et al. (2013a), Parker et al. (2013b), Paton and Hodgson (2016), Roy et al. (2010), Shore and Zollo (2015), Soh et al. (2011), Tam et al. (2007b), Thomas et al. (2012), Turner et al. (2013), Ziek and Anderson (2015)	Representation of a project
Projects and organisational culture, Communication in projects	Aubry et al. (2012), Biggs and Smith (2003), Brière et al. (2015), Burström and Jacobsson (2012), Carvalho (2013), Cerimagic (2010), Cervone (2011), Cervone (2013), Cervone (2014a), Eldridge and Nisar (1994), Espinosa et al. (2006), Feeney and Sult (2011), Gillard (2005), Gillard and Johansen (2004), Ishino and Kijima (2005), Jetu and Riedl (2013), Sandhu et al. (2009), Singh et al. (2009), Skudiene et al. (2011), Tam et al. (2007b), Ziek and Anderson (2015)	Communicating the project to others

Areas of interest in project management from academic literature	References	Exploration areas for data collection, resulting from areas of interest
Knowledge and learning in projects, Project risks	Ajmal et al. (2009), Akgün et al. (2014), Algeo (2014), Anantatmula and Kanungo (2008), Badri et al. (2012), Brady et al. (2012), Cantarelli et al. (2012a), Carvalho (2013), Cervone (2006), Eaglestone et al. (2003), Friend et al. (1998), Garon (2006), Gemino et al. (2007), Gieskes and Broeke (2000), Grabher and Thiel (2015), Hällgren and Wilson (2007), Keil et al. (2013), Keil et al. (2002), Kilkelly (2009), Lee et al. (2007), Lierni and Ribière (2008), Loosemore (2010), Maloni et al. (2012), Mitchell (2006), Naaranoja and Uden (2007), Nelson (2010), O'Callaghan (2007), Oluikpe et al. (2011), Reed and Knight (2010), Reed and Knight (2013), Ribeiro and Ferreira (2010), Rosa et al. (2016), Sanchez et al. (2009), Schroeder and Hatton (2012), Tam et al. (2007a), Taylor et al. (2012)	Ideal / desirable change through projects
Return on investment, Project success, Project forecasting	Anantatmula and Kanungo (2008), Andersen et al. (2006), Ballou and Tayi (1994), Cantarelli et al. (2012a), Cantarelli et al. (2012b), Cavaleri and Reed (2008), Cervone (2010), Cervone (2012), Dalcher (2012), De Jong et al. (2013), Dhillon and Caldeira (2008), Doloi (2011), Elbanna (2013), Feeney and Sult (2011), Gunasekaran et al. (2001), Horne (2014), Ika et al. (2010), Ika and Saint-Macary (2012), Jørgensen and Wallace (2000), Lacerda et al. (2011), Lefley (2004), Leijten et al. (2010), Li and Madanu (2009), Ling and Liu (2004), MacDonald et al. (2013), Müller and Jugdev (2012), Ojiako et al. (2008), Saleh and Alshawi (2005), Seppänen-Järvelä (2004), Smith et al. (2011), Van Leeuwen et al. (2006)	Definition of project success
Return on investment, Project success	Anantatmula and Kanungo (2008), Andersen et al. (2006), Ballou and Tayi (1994), Cavaleri and Reed (2008), Cervone (2010), Dalcher (2012), De Jong et al. (2013), Dhillon and Caldeira (2008), Doloi (2011), Elbanna (2013), Feeney and Sult (2011), Gunasekaran et al. (2001), Horne (2014), Ika et al. (2010), Ika and Saint-Macary (2012), Jørgensen and Wallace (2000), Lacerda et al. (2011), Lefley (2004), Leijten et al. (2010), Li and Madanu (2009), Ling and Liu (2004), MacDonald et al. (2013), Müller and Jugdev (2012), Ojiako et al. (2008), Saleh and Alshawi (2005), Seppänen-Järvelä (2004), Smith et al. (2011), Van Leeuwen et al. (2006)	Situations of project success
Knowledge and learning in	Ajmal et al. (2009), Akgün et al. (2014), Algeo (2014), Anantatmula and	Feasible change through

Areas of interest in project management from academic literature	References	Exploration areas for data collection, resulting from areas of interest
projects, Project success, Project risks	Kanungo (2008), Andersen et al. (2006), Badri et al. (2012), Brady et al. (2012), Cantarelli et al. (2012a), Carvalho (2013), Cervone (2006), Dalcher (2012), De Jong et al. (2013), Dhillon and Caldeira (2008), Eaglestone et al. (2003), Elbanna (2013), Feeney and Sult (2011), Friend et al. (1998), Garon (2006), Gemino et al. (2007), Gieskes and Broeke (2000), Grabher and Thiel (2015), Hällgren and Wilson (2007), Ika et al. (2010), Ika and Saint-Macary (2012), Keil et al. (2013), Keil et al. (2002), Kilkelly (2009), Lee et al. (2007), Lierni and Ribière (2008), Loosemore (2010), Maloni et al. (2012), Mitchell (2006), Müller and Jugdev (2012), Naaranoja and Uden (2007), Nelson (2010), O'Callaghan (2007), Ojiako et al. (2008), Oluikpe et al. (2011), Reed and Knight (2010), Reed and Knight (2013), Ribeiro and Ferreira (2010), Rosa et al. (2016), Sanchez et al. (2009), Saleh and Alshawi (2005), Schroeder and Hatton (2012), Smith et al. (2011), Tam et al. (2007a), Taylor et al. (2012)	projects
Knowledge and learning in projects, Project failure, Project forecasting, Project risks	Ajmal et al. (2009), Akgün et al. (2014), Algeo (2014), Anantatmula and Kanungo (2008), Anthopoulos et al. (2016), Badri et al. (2012), Birks et al. (2003), Brady et al. (2012), Cantarelli et al. (2012a), Cantarelli et al. (2012b) , Carvalho (2013), Cervone (2006), Cervone (2012), Dalcher (2012), Eaglestone et al. (2003), Friend et al. (1998), Garon (2006), Gemino et al. (2007), Gieskes and Broeke (2000), Grabher and Thiel (2015), Guah (2008), Hällgren and Wilson (2007), Keil et al. (2013), Keil et al. (2002), Kilkelly (2009), Korzaan and Brooks (2015), Lee et al. (2007), Lierni and Ribière (2008), Loosemore (2010), Maloni et al. (2012), Mitchell (2006), Naaranoja and Uden (2007), Nelson (2010), O'Callaghan (2007), Oluikpe et al. (2011), Pan (2005), Reed and Knight (2010), Reed and Knight (2013), Ribeiro and Ferreira (2010), Rosa et al. (2016), Sanchez et al. (2009), Schroeder and Hatton (2012), Smith and Keil (2003), Smith et al. (2001), Smith et al. (2009), Tam et al. (2007a), Taylor et al. (2012)	Assumptions made during the running of a project
Projects and goals, Project success, Project forecasting	Abdel-Hamid et al. (1999), Anantatmula and Kanungo (2008), Andersen et al. (2006), Bryde (1997), Cantarelli et al. (2012a), Cantarelli et al. (2012b), Cavaleri and Reed (2008), Cervone (2008a), Cervone (2012), Dalcher (2012), De Jong et al. (2013), Dhillon and Caldeira (2008); Elbanna (2013), Feeney	Measures for project success

Areas of interest in project management from academic literature	References	Exploration areas for data collection, resulting from areas of interest
	and Sult (2011), Ika et al. (2010), Ika and Saint-Macary (2012), Miller and Lantz Jr (2010), Müller and Jugdev (2012), Niebecker et al. (2010), Ojiako et al. (2008), Saleh and Alshawi (2005), Smith et al. (2011), Tam et al. (2007a), Taylor et al. (2012)	
Return on investment, Project failure, Project forecasting	Anantatmula and Kanungo (2008), Anthopoulos et al. (2016), Ballou and Tayi (1994), Birks et al. (2003), Cantarelli et al. (2012a), Cantarelli et al. (2012b), Cervone (2010), Cervone (2012), Dalcher (2012), De Jong et al. (2013), Doloi (2011), Guah (2008), Gunasekaran et al. (2001), Horne (2014), Jørgensen and Wallace (2000), Korzaan and Brooks (2015), Lacerda et al. (2011), Lefley (2004), Leijten et al. (2010), Li and Madanu (2009), Ling and Liu (2004), MacDonald et al. (2013), Pan (2005), Seppänen-Järvelä (2004), Smith and Keil (2003), Smith et al. (2001), Smith et al. (2009), Van Leeuwen et al. (2006)	Definition of project failure
Return on investment, Project failure	Anantatmula and Kanungo (2008), Anthopoulos et al. (2016), Ballou and Tayi (1994), Birks et al. (2003), Cervone (2010), Dalcher (2012), De Jong et al. (2013), Doloi (2011), Guah (2008), Gunasekaran et al. (2001), Horne (2014), Jørgensen and Wallace (2000), Korzaan and Brooks (2015), Lacerda et al. (2011), Lefley (2004), Leijten et al. (2010), Li and Madanu (2009), Ling and Liu (2004), MacDonald et al. (2013), Pan (2005), Seppänen-Järvelä (2004), Smith and Keil (2003), Smith et al. (2001), Smith et al. (2009), Van Leeuwen et al. (2006)	Situations of project failure
Projects and goals, Project failure, Project forecasting	Abdel-Hamid et al. (1999), Anantatmula and Kanungo (2008), Anthopoulos et al. (2016), Birks et al. (2003), Bryde (1997), Cantarelli et al. (2012a), Cantarelli et al. (2012b), Cervone (2008a), Cervone (2012), Dalcher (2012), Dhillon and Caldeira (2008); Guah (2008), Korzaan and Brooks (2015), Miller and Lantz Jr (2010), Niebecker et al. (2010), Pan (2005), Smith and Keil (2003), Smith et al. (2001), Smith et al. (2009)	Measures for project failure
Return on investment, Project success, Project failure	Anantatmula and Kanungo (2008), Andersen et al. (2006), Anthopoulos et al. (2016), Ballou and Tayi (1994), Birks et al. (2003), Cavaleri and Reed (2008), Cervone (2010), Dalcher (2012), De Jong et al. (2013), Dhillon and Caldeira (2008), Doloi (2011), Elbanna (2013), Feeney and Sult (2011), Guah (2008),	Exploration of a project's end, benefits realisation

Areas of interest in project management from academic literature	References	Exploration areas for data collection, resulting from areas of interest
	Gunasekaran et al. (2001), Horne (2014), Ika et al. (2010), Ika and Saint-Macary (2012), Jørgensen and Wallace (2000), Korzaan and Brooks (2015), Lacerda et al. (2011), Lefley (2004), Leijten et al. (2010), Li and Madanu (2009), Ling and Liu (2004), MacDonald et al. (2013), Müller and Jugdev (2012), Ojiako et al. (2008), Pan (2005), Saleh and Alshawi (2005), Seppänen-Järvelä (2004), Smith et al. (2011), Smith and Keil (2003), Smith et al. (2001), Smith et al. (2009), Van Leeuwen et al. (2006)	
Projects and goals, Project risks	Abdel-Hamid et al. (1999), Anantatmula and Kanungo (2008), Badri et al. (2012), Brady et al. (2012), Bryde (1997), Cantarelli et al. (2012a), Cavaleri and Reed (2008), Cervone (2006), Cervone (2008a), Cervone (2012), Eaglestone et al. (2003), Gemino et al. (2007), Keil et al. (2013), Keil et al. (2002), Lee et al. (2007), Loosemore (2010), Miller and Lantz Jr (2010), Niebecker et al. (2010), O'Callaghan (2007), Reed and Knight (2010), Reed and Knight (2013), Sanchez et al. (2009), Schroeder and Hatton (2012), Tam et al. (2007a), Taylor et al. (2012)	Most important factor when running a project
Project managers, Importance of project managers, Project complexity and soft skills	Ajmal et al. (2009), Akgün et al. (2014), Analoui (1989), Analoui (1989), Analoui (1991), Aubry et al. (2012), Azim et al. (2010), Badger et al. (2009), Biggs and Smith (2003), Brill et al. (2006), Brookes and Locatelli (2015), Burström (2011), Burström and Jacobsson (2012), Cervone (2005a), Cervone (2008b), Cervone (2015), Giezen (2013), Gillard (2005), Gomes et al. (2008), Gowan Jr and Mathieu (2005), Gregory and Keil (2014), Heumann et al. (2015), Johansen and Gillard (2005), Kirsch (1997), Lenferink et al. (2014), Lindgren et al. (2014), Parker et al. (2013a), Parker et al. (2013b), Paton and Hodgson (2016), Roy et al. (2010), Sheffield et al. (2012), Shipley and Johnson (2009), Shore and Zollo (2015), Soh et al. (2011), Thomas et al. (2012), Tiwari et al. (2009), Tsai et al. (2003), Turner et al. (2013)	Main project actors / stakeholders in a project
Stakeholder relationships and engagement, Projects and organisational culture, Project complexity and soft skills	Akgün et al. (2014), Anantatmula and Kanungo (2008), Aubry et al. (2012), Azim et al. (2010), Berg and Karlsen (2014), Biggs and Smith (2003), Brière et al. (2015), Bryde (1997), Burström (2011), Burström and Jacobsson (2012), Carvalho (2013), Cavaleri et al. (2012), Cerimagic (2010), Cervone (2005a), Cervone (2005b), Cervone (2011), Cervone (2013), Cervone (2014a), Dennis	Relationships between the project stakeholders

Areas of interest in project management from academic literature	References	Exploration areas for data collection, resulting from areas of interest
	and Garfield (2003), Earnest (2015), Eldridge and Nisar (1994), Espinosa et al. (2006), Giezen (2013), Gowan Jr and Mathieu (2005), Hekkala and Urquhart (2013), Huffman and Kilian (2012), Hunt (2008), Ivory and Alderman (2009), Jetu and Riedl (2013), Jin (2000), Jones and Deckro (1993), Lau and Rowlinson (2011), Lenferink et al. (2014), Lindgren et al. (2014), Müller and Martinsuo (2015), Naaranoja and Uden (2007), Ndoni and Elhag (2010), Ng and Walker (2008), Sabherwal (2003), Sandhu et al. (2009), Scott-Young and Samson (2009), Sheffield et al. (2012), Shipley and Johnson (2009), Singh et al. (2009), Skudiene et al. (2011), Smith et al. (2011), Tiwari et al. (2009), Tsai et al. (2003), Wang et al. (2005)	
Project managers, Importance of project managers, Projects and organisational culture	Ajmal et al. (2009), Akgün et al. (2014), Analoui (1989), Analoui (1991), Aubry et al. (2012), Badger et al. (2009), Biggs and Smith (2003), Brière et al. (2015), Brill et al. (2006), Brookes and Locatelli (2015), Burström and Jacobsson (2012), Cerimagic (2010), Cervone (2008b), Cervone (2013), Cervone (2015), Eldridge and Nisar (1994), Espinosa et al. (2006), Gillard (2005), Gomes et al. (2008), Gregory and Keil (2014), Heumann et al. (2015), Jetu and Riedl (2013), Johansen and Gillard (2005), Kirsch (1997), Parker et al. (2013a), Parker et al. (2013b), Paton and Hodgson (2016), Roy et al. (2010), Sandhu et al. (2009), Shore and Zollo (2015), Singh et al. (2009), Skudiene et al. (2011), Soh et al. (2011), Thomas et al. (2012), Turner et al. (2013)	Trust and power relationships between the project stakeholders
Project managers, Importance of project managers, Stakeholder relationships and engagement, Projects and organisational culture, Project complexity and soft skills, Communication in projects, Project success, Project failure, Project risks	Ajmal et al. (2009), Akgün et al. (2014), Analoui (1989), Analoui (1991), Anantatmula and Kanungo (2008), Andersen et al. (2006), Anthopoulos et al. (2016), Aubry et al. (2012), Azim et al. (2010), Badger et al. (2009), Badri et al. (2012), Berg and Karlsen (2014), Biggs and Smith (2003), Birks et al. (2003), Brady et al. (2012), Brière et al. (2015), Brill et al. (2006), Brookes and Locatelli (2015), Bryde (1997), Burström (2011), Burström and Jacobsson (2012), Cantarelli et al. (2012a), Carvalho (2013), Cavaleri et al. (2012), Cavaleri and Reed (2008), Cerimagic (2010), Cervone (2005a), Cervone (2005b), Cervone (2006), Cervone (2008b), Cervone (2011), Cervone (2013), Cervone (2014b), Cervone (2014a), Cervone (2015), Dalcher (2012), De Jong et al. (2013), Dennis and Garfield (2003), Dhillon and Caldeira (2008), Eaglestone et al.	Engagement of the project stakeholders

Areas of interest in project management from academic literature	References	Exploration areas for data collection, resulting from areas of interest
	(2003), Earnest (2015), Elbanna (2013), Eldridge and Nisar (1994), Espinosa et al. (2006), Feeney and Sult (2011), Gemino et al. (2007), Giezen (2013), Gillard (2005), Gillard and Johansen (2004), Gomes et al. (2008), Gowan Jr and Mathieu (2005), Gregory and Keil (2014), Guah (2008), Hekkala and Urquhart (2013), Heumann et al. (2015), Huffman and Kilian (2012), Hunt (2008), Ika et al. (2010), Ika and Saint-Macary (2012), Ishino and Kijima (2005), Ivory and Alderman (2009), Jetu and Riedl (2013), Jin (2000), Johansen and Gillard (2005), Jones and Deckro (1993), Keil et al. (2013), Keil et al. (2002), Kirsch (1997), Korzaan and Brooks (2015), Lau and Rowlinson (2011), Lee et al. (2007), Lenferink et al. (2014), Lindgren et al. (2014), Loosemore (2010), Müller and Jugdev (2012), Müller and Martinsuo (2015), Naaranoja and Uden (2007), Ndoni and Elhag (2010), Ng and Walker (2008), O'Callaghan (2007), Ojiako et al. (2008), Pan (2005), Parker et al. (2013a), Parker et al. (2013b), Paton and Hodgson (2016), Reed and Knight (2010), Reed and Knight (2013), Roy et al. (2010), Sabherwal (2003), Saleh and Alshawi (2005), Sanchez et al. (2009), Sandhu et al. (2009), Schroeder and Hatton (2012), Scott-Young and Samson (2009), Sheffield et al. (2012), Shipley and Johnson (2009), Shore and Zollo (2015), Singh et al. (2009), Skudiene et al. (2011), Smith et al. (2011), Smith and Keil (2003), Smith et al. (2001), Smith et al. (2009), Soh et al. (2011), Tam et al. (2007a), Tam et al. (2007b), Taylor et al. (2012), Thomas et al. (2012), Tiwari et al. (2009), Tsai et al. (2003), Turner et al. (2013), Wang et al. (2005), Ziek and Anderson (2015)	
Stakeholder relationships and engagement, Project complexity and soft skills, Communication in projects	Akgün et al. (2014), Anantatmula and Kanungo (2008), Azim et al. (2010), Berg and Karlsen (2014), Bryde (1997), Burström (2011), Burström and Jacobsson (2012), Carvalho (2013), Cavaleri et al. (2012), Cervone (2005a), Cervone (2005b), Cervone (2011), Cervone (2014a), Cervone (2014b), Dennis and Garfield (2003), Earnest (2015), Feeney and Sult (2011), Giezen (2013), Gillard (2005), Gillard and Johansen (2004), Gowan Jr and Mathieu (2005), Hekkala and Urquhart (2013), Huffman and Kilian (2012), Hunt (2008), Ishino and Kijima (2005), Ivory and Alderman (2009), Jin (2000), Jones and Deckro (1993), Lau and Rowlinson (2011), Lenferink et al. (2014), Lindgren et al.	Factors for engagement of project stakeholders

Areas of interest in project management from academic literature	References	Exploration areas for data collection, resulting from areas of interest
	(2014), Müller and Martinsuo (2015), Naaranoja and Uden (2007), Ndoni and Elhag (2010), Ng and Walker (2008), Sabherwal (2003), Scott-Young and Samson (2009), Sheffield et al. (2012), Shipley and Johnson (2009), Smith et al. (2011), Tam et al. (2007b), Tiwari et al. (2009), Tsai et al. (2003), Wang et al. (2005), Ziek and Anderson (2015)	
Knowledge and learning in projects, Project success, Project failure	Ajmal et al. (2009), Akgün et al. (2014), Algeo (2014), Anantatmula and Kanungo (2008), Andersen et al. (2006), Birks et al. (2003), Carvalho (2013), Cavaleri and Reed (2008), Dalcher (2012), De Jong et al. (2013), Dhillon and Caldeira (2008), Elbanna (2013), Feeney and Sult (2011), Friend et al. (1998), Garon (2006), Gemino et al. (2007), Gieskes and Broeke (2000), Grabher and Thiel (2015), Guah (2008), Hällgren and Wilson (2007), Ika et al. (2010), Ika and Saint-Macary (2012), Kilkelly (2009), Korzaan and Brooks (2015), Lierni and Ribière (2008), Maloni et al. (2012), Mitchell (2006), Müller and Jugdev (2012), Naaranoja and Uden (2007), Nelson (2010), Ojiako et al. (2008), Oluikpe et al. (2011), Pan (2005), Ribeiro and Ferreira (2010), Rosa et al. (2016), Saleh and Alshawi (2005), Smith et al. (2011), Smith and Keil (2003), Smith et al. (2001), Smith et al. (2009),Tam et al. (2007a), Taylor et al. (2012)	Real clients / beneficiaries in a project
Knowledge and learning in projects, Communication in projects	Ajmal et al. (2009), Akgün et al. (2014), Algeo (2014), Anantatmula and Kanungo (2008), Carvalho (2013), Cervone (2011), Cervone (2014a), Feeney and Sult (2011), Friend et al. (1998), Garon (2006), Gemino et al. (2007), Gieskes and Broeke (2000), Gillard (2005), Gillard and Johansen (2004), Grabher and Thiel (2015), Hällgren and Wilson (2007), Ishino and Kijima (2005), Kilkelly (2009), Lierni and Ribière (2008), Maloni et al. (2012), Mitchell (2006), Naaranoja and Uden (2007), Nelson (2010), Oluikpe et al. (2011), Ribeiro and Ferreira (2010), Rosa et al. (2016), Tam et al. (2007a), Ziek and Anderson (2015)	Recommendations to project stakeholders
Project managers, Importance of project managers	Ajmal et al. (2009), Akgün et al. (2014), Analoui (1989), Analoui (1991), Aubry et al. (2012), Badger et al. (2009), Biggs and Smith (2003), Brill et al. (2006), Brookes and Locatelli (2015), Cervone (2008b), Cervone (2015), Gillard (2005), Gomes et al. (2008), Gregory and Keil (2014), Heumann et al. (2015), Johansen and Gillard (2005), Kirsch (1997), Parker et al. (2013a), Parker et al.	Approach undertaken in projects

Areas of interest in project management from academic literature	References	Exploration areas for data collection, resulting from areas of interest
	(2013b), Paton and Hodgson (2016), Roy et al. (2010), Shore and Zollo (2015), Soh et al. (2011), Thomas et al. (2012), Turner et al. (2013)	
Project managers, Importance of project managers, Project risks	Ajmal et al. (2009), Akgün et al. (2014), Analoui (1989), Analoui (1991), Aubry et al. (2012), Badger et al. (2009), Badri et al. (2012), Biggs and Smith (2003), Brady et al. (2012), Brill et al. (2006), Brookes and Locatelli (2015), Cantarelli et al. (2012a), Cervone (2006), Cervone (2008b), Cervone (2015), Eaglestone et al. (2003), Gemino et al. (2007), Gillard (2005), Gomes et al. (2008), Gregory and Keil (2014), Heumann et al. (2015), Johansen and Gillard (2005), Keil et al. (2013), Keil et al. (2002), Kirsch (1997), Lee et al. (2007), Loosemore (2010), O'Callaghan (2007), Parker et al. (2013a), Parker et al. (2013b), Paton and Hodgson (2016), Reed and Knight (2010), Reed and Knight (2013), Roy et al. (2010), Sanchez et al. (2009), Schroeder and Hatton (2012), Shore and Zollo (2015), Soh et al. (2011), Tam et al. (2007a), Taylor et al. (2012), Thomas et al. (2012), Turner et al. (2013)	Running a project in an ideal world
Project management methodologies and methods, Project risks	Ahonen (1999), Andersen (2010), Babu and Suresh (1996), Badri et al. (2012), Brady et al. (2012), Cantarelli et al. (2012a), Carvalho (2013), Cervone (2006), Cervone (2009), Cervone (2011), Eaglestone et al. (2003), Eigbe et al. (2015), Eve (2007), Feeney and Sult (2011), Furlong and Al-Karaghouli (2010), Gemino et al. (2007), Gillard (2005), Hällgren and Maaninen-Olsson (2009), Huffman and Kilian (2012), Kapsali (2013), Keil et al. (2013), Keil et al. (2002), Koppinen and Lahdenperä (2007), Lee et al. (2007), Loosemore (2010), Marill and Lesher (2007), O'Callaghan (2007), Owens et al. (2012), Park et al. (2015), Reed and Knight (2010), Reed and Knight (2013), Sanchez et al. (2009), Schroeder and Hatton (2012), Tam et al. (2007a), Tavares (2002), Taylor et al. (2012), Ulrich (2012a), Ulrich (2012b), Xia and Lee (2005), Yang and Zou (2014), Zhang et al. (2003)	Project management methods
Project management methodologies and methods, Project success, Project failure, Project risks	Ahonen (1999), Andersen (2010), Andersen et al. (2006), Anthopoulos et al. (2016), Babu and Suresh (1996), Badri et al. (2012), Birks et al. (2003), Brady et al. (2012), Cantarelli et al. (2012a), Carvalho (2013), Cavaleri and Reed (2008), Cervone (2006), Cervone (2009), Cervone (2011), Dalcher (2012), De Jong et al. (2013), Dhillon and Caldeira (2008), Eaglestone et al. (2003), Eigbe	Use of formal project management methods

Areas of interest in project management from academic literature	References	Exploration areas for data collection, resulting from areas of interest
	et al. (2015), Elbanna (2013), Eve (2007), Feeney and Sult (2011), Furlong and Al-Karaghouli (2010), Gemino et al. (2007), Gillard (2005), Hällgren and Maaninen-Olsson (2009), Huffman and Kilian (2012), Ika et al. (2010), Ika and Saint-Macary (2012), Kapsali (2013), Keil et al. (2013), Keil et al. (2002), Koppinen and Lahdenperä (2007), Lee et al. (2007), Loosemore (2010), Marill and Lesher (2007), Müller and Jugdev (2012), O'Callaghan (2007), Ojiako et al. (2008), Owens et al. (2012), Pan (2005), Park et al. (2015), Reed and Knight (2010), Reed and Knight (2013), Saleh and Alshawi (2005), Sanchez et al. (2009), Schroeder and Hatton (2012), Smith et al. (2011), Smith and Keil (2003), Smith et al. (2001), Smith et al. (2009), Tam et al. (2007a), Tavares (2002), Taylor et al. (2012), Ulrich (2012a), Ulrich (2012b), Xia and Lee (2005), Yang and Zou (2014), Zhang et al. (2003)	
Project management methodologies and methods, Project managers, Importance of project managers	Ahonen (1999), Ajmal et al. (2009), Akgün et al. (2014), Analoui (1989), Analoui (1991), Andersen (2010), Aubry et al. (2012), Babu and Suresh (1996), Badger et al. (2009), Biggs and Smith (2003), Brill et al. (2006), Brookes and Locatelli (2015), Carvalho (2013), Cervone (2008b), Cervone (2009), Cervone (2011), Cervone (2015), Eigbe et al. (2015), Eve (2007), Feeney and Sult (2011), Furlong and Al-Karaghouli (2010), Gemino et al. (2007), Gillard (2005), Gomes et al. (2008), Gregory and Keil (2014), Hällgren and Maaninen-Olsson (2009), Heumann et al. (2015), Huffman and Kilian (2012), Johansen and Gillard (2005), Kapsali (2013), Kirsch (1997), Koppinen and Lahdenperä (2007), Marill and Lesher (2007), Owens et al. (2012), Park et al. (2015), Parker et al. (2013a), Parker et al. (2013b), Paton and Hodgson (2016), Roy et al. (2010), Shore and Zollo (2015), Soh et al. (2011), Tavares (2002), Thomas et al. (2012), Turner et al. (2013), Ulrich (2012a), Ulrich (2012b), Xia and Lee (2005), Yang and Zou (2014), Zhang et al. (2003)	Usefulness (or otherwise) of project management methods / frameworks
Project management methodologies and methods, Project managers, Importance of project managers, Project success	Ahonen (1999), Ajmal et al. (2009), Akgün et al. (2014), Analoui (1989), Analoui (1991), Andersen (2010), Andersen et al. (2006), Aubry et al. (2012), Babu and Suresh (1996), Badger et al. (2009), Biggs and Smith (2003), Brill et al. (2006), Brookes and Locatelli (2015), Carvalho (2013), Cavaleri and Reed (2008), Cervone (2008b), Cervone (2009), Cervone (2011), Cervone (2015),	Advantages of project management methods / frameworks

Areas of interest in project management from academic literature	References	Exploration areas for data collection, resulting from areas of interest
	Dalcher (2012), De Jong et al. (2013), Dhillon and Caldeira (2008), Eigbe et al. (2015), Elbanna (2013), Eve (2007), Feeney and Sult (2011), Furlong and Al-Karaghouli (2010), Gemino et al. (2007), Gillard (2005), Gomes et al. (2008), Gregory and Keil (2014), Hällgren and Maaninen-Olsson (2009), Heumann et al. (2015), Huffman and Kilian (2012), Ika et al. (2010), Ika and Saint-Macary (2012), Johansen and Gillard (2005), Kapsali (2013), Kirsch (1997), Koppinen and Lahdenperä (2007), Marill and Lesher (2007), Müller and Jugdev (2012), Ojiako et al. (2008), Owens et al. (2012), Park et al. (2015), Parker et al. (2013a), Parker et al. (2013b), Paton and Hodgson (2016), Roy et al. (2010), Saleh and Alshawi (2005), Shore and Zollo (2015), Smith et al. (2011), Soh et al. (2011), Tavares (2002), Thomas et al. (2012), Turner et al. (2013), Ulrich (2012a), Ulrich (2012b), Xia and Lee (2005), Yang and Zou (2014), Zhang et al. (2003)	
Project management methodologies and methods, Project managers, Importance of project managers, Project failure	Ahonen (1999), Ajmal et al. (2009), Akgün et al. (2014), Analoui (1989), Analoui (1991), Andersen (2010), Anthopoulos et al. (2016), Aubry et al. (2012), Babu and Suresh (1996), Badger et al. (2009), Biggs and Smith (2003), Birks et al. (2003), Brill et al. (2006), Brookes and Locatelli (2015), Carvalho (2013), Cervone (2008b), Cervone (2009), Cervone (2011), Cervone (2015), Dalcher (2012), Eigbe et al. (2015), Eve (2007), Feeney and Sult (2011), Furlong and Al-Karaghouli (2010), Gemino et al. (2007), Gillard (2005), Gomes et al. (2008), Gregory and Keil (2014), Guah (2008), Hällgren and Maaninen-Olsson (2009), Heumann et al. (2015), Huffman and Kilian (2012), Johansen and Gillard (2005), Kapsali (2013), Kirsch (1997), Koppinen and Lahdenperä (2007), Korzaan and Brooks (2015), Marill and Lesher (2007), Owens et al. (2012), Pan (2005), Park et al. (2015), Parker et al. (2013a), Parker et al. (2013b), Paton and Hodgson (2016), Roy et al. (2010), Shore and Zollo (2015), Smith and Keil (2003), Smith et al. (2001), Smith et al. (2009), Soh et al. (2011), Tavares (2002), Thomas et al. (2012), Turner et al. (2013), Ulrich (2012a), Ulrich (2012b), Xia and Lee (2005), Yang and Zou (2014), Zhang et al. (2003)	Disadvantages of project management methods / frameworks

It is possible that other areas of interest in project management, not identified in the academic literature in this work may emerge from the data collection process. The complexities identified earlier in terms of project management practice suggest that this is not an exhaustive list. Therefore, whilst the areas identified in Table 2.1 will constitute a starting point for exploration, it is fully expected that further relevant discussion points will emerge during the data collection process and these will be captured as they appear. The broad range of exploration areas identified above suggest that there are no “silver bullet” factors that, if taken into account, will guarantee the success of a project, but rather that a multitude of interconnected factors that require attention are likely to be the ingredients of successful project management practice.

Every area of interest identified in the table above can be perceived as a risk factor for the project and as such, they must all be explored thoroughly.

It can be seen from Table 2.1 that many of the areas identified for further exploration are related to people dimensions as indeed, for example, defining the measures for project success or failure are, in fact, dependent on the stakeholders of the project, as explored in the literature. In fact, a closer exploration of the factors identified above reveals that all of these can be traced back to the people element involved in projects and project management, even whilst appearing to be more technical in nature. For example, project management methods, while they appear to be more intrinsically “technical” in nature, are, in fact, dependent on their selection for application to a particular project by the stakeholders, in particular by the project manager or by the organisation that the project takes place in. This lends weight to the idea that since most of the factors are related to the people element, there is a high degree of contextualization to be found in relation to projects and project management, with this context being provided by the mix of stakeholders (internal and external) that the project will operate with.

The knowledge associated with projects and project management cannot exist outside the people element involved, even though there is some evidence in the literature that attempts (with very limited success) of capturing “intrinsic”

knowledge have been made. It is the mix of stakeholders in a project that will form the body of knowledge associated with that project.

The dynamic nature of such a mix of stakeholders is self-evident, as indeed the contextual stakeholder mix will introduce a continuous state of flux in terms of all of the project management component areas. Therefore, a suitable research method for dealing with the complexity of the stakeholder element and high level of contextualization related to project management is needed, as the intention is to capture this complexity as lived by project management practitioners that can offer the best view possible as being the most involved with all aspects of project management. One way through which such complexity may be captured is by employing a process of inquiry, an idea already introduced in this chapter.

Having looked at a range of academic literature to identify areas of interest in project management, it is useful to take a view of what the literature associated with the professional bodies has to offer, to advance practitioner concerns.

2.6. Current project management professional bodies agenda

In this section an exploration of the current conversations taking place within the Association for Project Management (APM) and its associated Project journal were carried out. The researcher is a member of APM and has identified that one of its newest Special Interest Groups (SIG) (APM, 2016) is Systems thinking which advocates a holistic, integrative approach to project management. McGlynn (2017) explains that a holistic, integrative approach is a good approach to tackling project through developing a deeper understanding of their state, whilst being mindful of the interrelationships between its components. This aligns well with this research, as it seeks to develop an integrative project management framework.

The researcher is also a member of the British Computer Society (BCS) and its Project Management Specialist Group (PROMSG) who distribute the independent Project Manager Today (PM Today) professional magazine to its members. Therefore, views and conversations taking place in PROMSG and

PM Today will be explored. It is noted here that PROMSG has established strong links with the APM, therefore it is expected that the conversations taking place in both interest groups have a good degree of similarity in terms of their agendas.

The rate of failure, of projects, on one or more counts, is seen as stable over the last few decades (Flyvbjerg and Budzier, 2015) and high (Beach, 2015), showing the need for further work in this area.

Kerzner (2018) writes on project management methodologies and advocates the use of agile integrated frameworks that allow the move away from the extensive use of rigid policies and forms towards a more agile approach, based on guidelines and checklists. This is consistent with this research, where an integrative project management based on inquiry is being proposed.

The current project management practice is in a state of transition, towards the adoption of conceptual frameworks that act as a support skeleton for delivering the project (Kerzner, 2018). The importance of adopting and using a framework relates well to this research, which seeks to produce such a framework. The use of a framework is, however, no guarantee against project failure (Kerzner, 2018).

Project stakeholders and their engagement are seen as essential by Brown (2017) and stakeholders are identified as a key component of the framework proposed in this research. This is supported by Clayton (2017), Peel (2017) and Pritchard (2016b). Clayton (2016) goes as far as saying that one only thing matters in projects – the stakeholders.

Project managers are recognized by Taylor (2017) as another major area of interest and this is furthermore confirmed by Carver and Johnson (2014), Kilkelly (2018), MacNicol (2015) and Walker (2016). Their research finds that the project manager is a key component of the project management framework.

Finding own answers when engaged in projects is important, as shown by Parslow (2016) and this conclusion relates very well to the inquiring nature of

the framework proposed in this work, where project managers are a major component.

Agile is an approach to project management that does not place as much emphasis on detailed documentation and understanding of the project requirements before work can begin (Naybour, 2015). The detail will be provided through an iterative process of updating the project. The growing presence of the Agile agenda since its introduction in the year 2001, as shown by Roberts (2017), is evidenced well in the PM Today collection, with articles on Agile found in 76% of magazines from the total of 50 published during January 2012 to March 2018. However, more “classical”, rigid project thinking is still present on the agenda, with articles on Prince 2 (introduced in 1996, over 20 years ago) found in 26% of issues published during the same period. This interest in Agile is also visible in the Project magazine collection, with articles focused on Agile found in 62% of its issues, compared to articles focused on Prince 2 found in 8% of its issues during the period January 2015 to March 2018.

The number of articles using systems thinking found in the professional project management publications is small; the researcher only discovered a few articles in this area. This is possibly due to some of the complexities associated with systems thinking. However, this is set to grow, as evidenced by the creation of the Systems Thinking APM SIG. Ocock (2016) shows that systems thinking is particularly useful in complex, human activity situations, which projects are.

This evidence shows the transition phase that the project management discourse is going through at the moment. However, methods such as Prince 2, which takes a much more deterministic, hugely detailed approach, are still seen as relevant (Stewart, 2017). There is also evidence that traditional approaches in Prince 2 are giving way to agile thinking starting from within the Prince 2 method, with its 2017 update (Clarkson, 2017), the first such update since 2009. The introduction of agile thinking into Prince 2 dates back to 2015 (Hepworth and Tomlinson, 2015) when first publications in this area started appearing (Acaster, 2015).

One of the strengths of an agile approach is that, through rapid actualization, it can prevent the need for U-turns in projects (Matthews, 2017). However, this must not be mistaken for a superficial approach (Messenger, 2013); an integrative approach is essential.

There are some characteristics of an agile approach – simple, checklist based and integrative, iterative, system based that converge with the findings from the data and the project management framework proposed in this research.

Agile is based on an inquiring approach to ensure rapid and easy updating of the project state. Crean (2016) explains the importance of updating the project status, which is one of the main features of the framework developed in this work.

Agile is more about the mindset than about methods and tools (Parkes, 2017) and so is the framework developed in this work. The framework developed in this work, however, seeks to provide a useful level of detail to guide project practitioners through their inquiry processes.

Pritchard (2016a) identifies that being clear on the goals of a project is of a paramount importance if they are to be successful. This is confirmed by Kidd (2016) who establishes that without a clear goal, there is little chance of project success.

Systems thinking is present in the discourse (Gillett, 2015) and it advocates a holistic (integrative) approach to organisations and projects. A good understanding of what the status of the project is necessary before useful decisions can be made and systems thinking can support this through inquiry (Hughes, 2013). Delivering a project is not only about the goal to be achieved, but also about the journey needed to achieve said goal (Gray, 2015) and there is a need to update the project state in an integrative manner to make progress.

A holistic, integrative, but not dogmatic approach is advocated by Gogate (2017) and this is what the framework proposed in this work is trying to achieve.

The researcher concludes that whilst systems thinking represents a small part of the project management community discourse, this is set to grow as shown by the increasing interest shown by the APM Systems Thinking SIG.

Carver and Johnson (2014) identify that reasons for project failure, such as unclear objectives, wrong leader, poor or no planning and poor communication, have not changed that much in the last 30 years, whilst showing that measuring projects is an important area. These reasons for failure are all related to people, supporting the need for inquiry. Hill (2017) strongly advocates evaluating projects carefully and this is in tune with this research, where a range of project measurement criteria are identified and proposed as components of the project management framework.

Agile and Prince 2 can be seen as sitting at different ends of approaches to project management. Whilst Agile is quick, with much less governance, Prince 2 is focused on governance, which impedes speed and flexibility. The trend in the practitioner literature for the merging of the two approaches indicates that there is a desire for project management be fast moving, but also governed properly. A framework underpinned by systems thinking could provide an answer to both the governance and flexibility aspects in the form of a detailed checklist, without being overly cumbersome.

The idea for developing a framework underpinned by systems thinking emerges therefore from three directions:

- the need for an integrative approach, which systems thinking supports,
- the requirement for flexibility, as advocated by Agile,
- the necessity for governance, as illustrated by Prince 2.

There seems to be a disconnect between the academic and the professional conversations in the sense that the academic literature consulted in this thesis is still focused on piecemeal, specific aspects of projects and project management. Whilst this kind of focus is still observable in the professional literature, it is quite clear that the focus on a more holistic, integrative approach, underpinned by agile thinking, is a major topic for discussion.

This research is addressing the professional communities focus on agile thinking through the production of a project management framework that can support an agile approach through its simple, “checklist” driven approach to inquiry and updating the project.

Practitioner literature reflects the same conclusions as the academic literature in as far as high rates of failure in projects (Peel, 2014) is concerned.

This research aims to improve the portfolio of knowledge and tools available to project management academics and practitioners through the provision of an inquiring, integrative project management framework.

To advance this research towards achieving its objectives the researcher will explore in the following sections systems ideas as the concept of system and systems thinking have emerged as suitable for project management.

2.7. Projects and goals – thoughts on methodology

In the previous sections of this chapter, a number of areas of research interest have been found. Therefore, progress towards establishing a way forward for this research is necessary to meet its objectives.

To choose a suitable methodology for this research, it is helpful to review its intended purpose, which is to produce a project management framework. A project seeks to achieve a goal or to solve a problem through a process of change. Therefore, some ideas emerge, that will help to inform further methodological choices:

- The necessity of finding a modelling tool that will provide the mechanism for producing the project management conceptual framework,
- The idea of purpose, associated with projects,
- The idea of inquiry, necessary to update the status of a project and potentially a better tool for interacting with people, given the fact that they are not deterministic.

Project management has emerged from operational research's positivist origins, as illustrated by Tavares (2002). This thesis is looking to take a different approach, which considers complexities introduced by people and allows for mechanisms for capturing it. At the same time, a project is defined by Tavares and Węgłarz (1990) as a purposeful transformation leading a system from an initial state to another (intended) state. The concept of a system is seen as useful to model project work and will be explored in detail. Therefore, it would be useful to employ a modelling methodology that will have the concept of systems as a core, given the idea of change that projects involve.

A first such possible approach is provided by Mitroff and Sagasti (1973) who proposed a conceptual model of the operations research process by adopting general systems theory with a holistic point of view upon which operational research can be understood and effectively applied. The model has five components:

1. The reality of the problem situation,
2. The conceptual model of the problem situation,
3. The scientific model of the conceptual model,
4. The solution to the scientific model,
5. The implementation of the solution.

This model was further developed by Mitroff et al. (1974) to cover diverse research philosophies and approaches. The initial model proposes that every scientific inquiry starts with the existence of a problem situation. The conceptual model is then formulated through identifying the particular problem that will be solved by applying a systems view of problem solving. This model is shown in Figure 2.2 adapted from Mitroff et al. (1974) and it may be noted that there are no start or end points; the research process can begin at any point in the flow chart. Since there are a multitude of systems that can be derived from Figure 2.2, a suitable system must be found for this research.

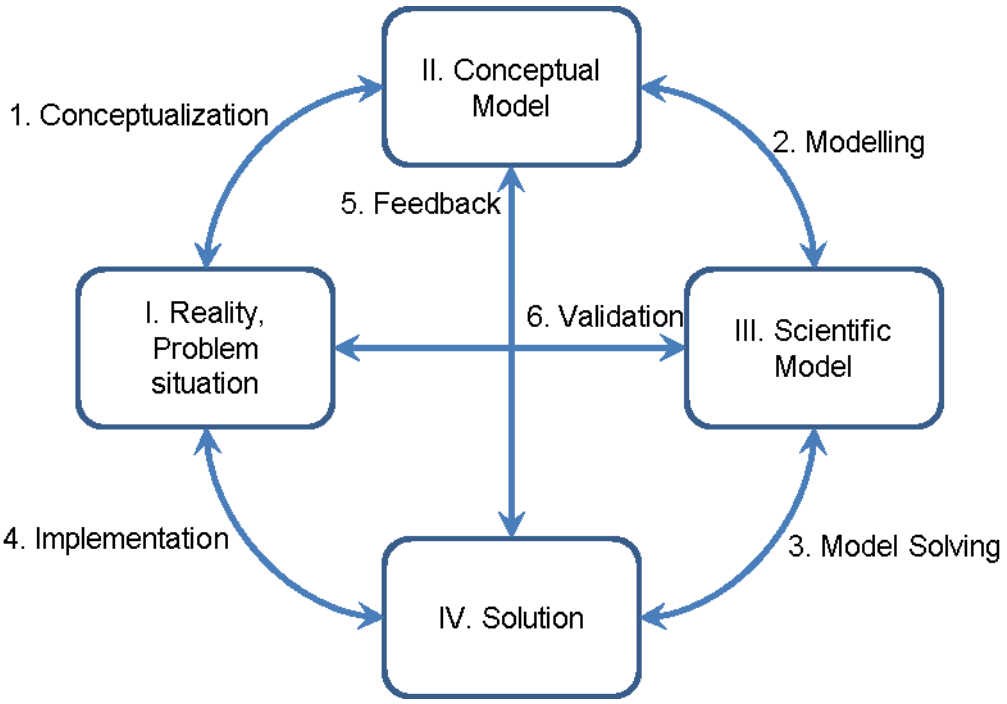


Figure 2.2: A systems view of problem-solving

Different research approaches will adopt different loops in terms of combinations of its components, giving an appropriate inquiry system based on the philosophical position and research approach chosen. For this work, an inductive research approach is possible, given its focus on project management where people are a key component. Hence, we could select an inquiry subsystem that is appropriate, as shown in Figure 2.3 adapted from Mitroff et al. (1974):

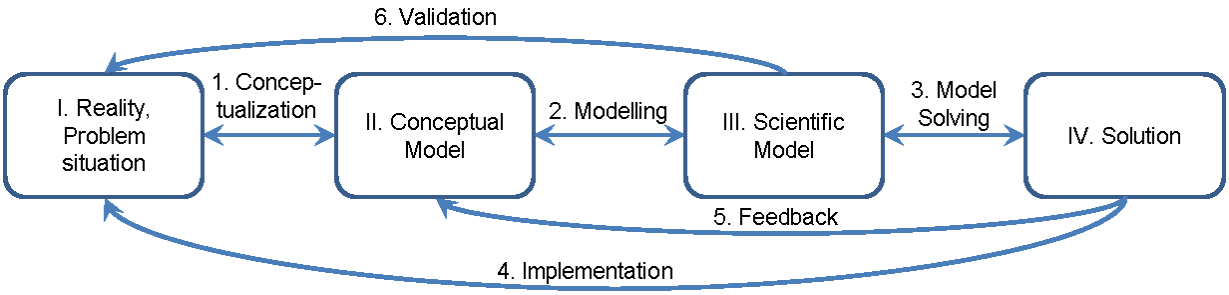


Figure 2.3: An inquiry system for inductive research approach

Other researchers (Elgazzar, 2013) have considered the interpretation of the model presented in Figure 2.3, adapted for the purposes of this work. For inductive research, the logical loop will be I, II, III and IV (Elgazzar, 2013). In this approach, the theory emerges from the recognition of a problem situation

and analysis of the data collected. The practical implementation of the inquiring project management framework developed in this work has occurred through the production of a user guide, presented in Appendix 2.

Whilst setting out some useful ideas in terms of the main activities that need to take place, this methodology gives little indication as to the practical steps to be taken to obtain the model of any conceptual framework. To progress this research further, it is necessary to gain further insights into systems thinking that will give further practical guidance to the researcher.

Another view on a systems approach to inquiry is given by Checkland (1999) and Checkland and Scholes (1999) and its exploration could allow the progression of this research through the practical steps that its authors recommend. A broad overview of this approach is given in the following section to ascertain its suitability for this research.

2.7.1 Purposeful activities and systems

In this section there is a discussion of aspects of methodologies that may be suitable for modelling a project management framework. The central idea that drives the discussion is that projects can be considered as purposeful systems. A model that could be used for the improvement of an existing situation and for a better understanding of the project management area is created. The improvement process in itself being a purposeful human activity and can be modelled at some point.

This research is attempting to model project management activity through a conceptual framework and to facilitate a better understanding of reality, which, in turn, will help to draw some useful conclusions to be used to improve project management practice. This approach will be useful in two contexts; advancing project management knowledge and providing an iterative process of inquiry that will support running projects.

Methodologies for inquiring and modelling an activity, with the possible objective of planning or optimizing further activities in such a way that the required set of goals is achieved, will be discussed.

The aim of this research is to contribute to the state of knowledge and practice in project management by developing a theoretical and practical tool.

As such, it seems apparent that contributing to improving an existing situation cannot happen by serendipity or random occurrence – a concerted effort must be spent to achieve the desired effect (achieving the set goal). This concerted effort is called design (Churchman, 1972). For the purposes of this research a systems design is considered and this needs to be explored to allow an understanding of how a project management framework might be achieved. The concept of design, as used in this thesis, allows the methods for achieving the goals to be flexible; indeed the framework developed in this work allows the users to use their own process of inquiry and methods for updating the states of their projects.

The concept of design, as used in this work, can be seen as solving a problem and therefore producing a project management framework can be interpreted as solving the “project problem” in general terms. To solve a practical “project problem” requires a process of inquiry to be carried out by project management practitioners into the specific contexts of their projects. The components of the inquiry are provided for them by the framework developed in this research. This must not be interpreted as straight jacketing the project manager professionals, on the contrary, by definition, inquiry allows the flexibility that the design of the solution to specific “project problems” to be context dependent, which is an essential feature of the framework proposed in this work.

2.7.2 The concepts of system and design of systems

The concept of system appeared in wide use for the first time in the field of biology through the works of Bertalanffy (1968), who is one of the pioneers of systems theory and published seminal works in this area. Since then, the concept of a system has been “stolen” by engineering and it was primarily used to describe a collection of elements that could be somehow delimited from the surrounding environment. The idea of system, used in an engineering context, brought with it the immediate consequence of a control system or in any case the idea of controlling the system entity. This was, and still is the main purpose of utilizing systems and a systems theory in engineering - in other words

engineers try to deal with a particular engineering problem by delimiting components and trying to control them to such an extent that the desired behaviour is obtained. Therefore, it can be concluded that control is an attribute of a system.

The word system is not used in the way in which either a manager or a gambler might use it, for example, it is used as a name for connectiveness (Beer, 1966). That is, anything that consists of parts connected together will be called a system. For instance, a game of snooker is a system, whereas a single snooker ball is not. Of course, the snooker ball could be considered a system of molecules and atoms from somebody else's point of view. A car, a pair of scissors, an economy, a language, an ear and a quadratic equation: all these things are systems. They can be pointed out as aggregates of bits and pieces; but they begin to be understood only when the connections between the bits and pieces, the dynamic interactions of the whole organism, are made the object of study. For example, a pair of scissors: when human action "uses" them they can be considered a system because they perform a "transformation", with a purpose. When it relates to the use of the teleological discussion, scissors can have a purpose and scissors have a technology which can be modelled as a component of a higher system and not as a system in its own right. This reflects a significant difference in the views that engineering and management take to aspects of real life. This brings to the attention of the reader that the definition of any particular system is arbitrary. It is fine to call a car a system. The larger context of a car travelling on the motorway is also a system. In turn, the car travelling on the motorway could be part of a larger system – the road network system and so on (Beer, 1966). Whilst for one observer, the car mentioned above, could be a minimum system (the car entity is defined as a whole, not its components), for another the car may well be a collection of components such as wheels, engine, seats, etc. and from here on we can go on to say that for another observer the engine is a system made of cylinders, wheels, pipes, etc. (Beer, 1966). So, while the scope of the system definition here changes all the time and the collection of bits of each of the observers mentioned above changes as well – each of these collections of bits can still be considered as being a system.

Of course, the definition of the system changes all the time as well. The engine is, for example, a system for producing mechanical power, the car is a system which enables travelling, and the road network is a system which enables human interaction and so on. Any entity that is the object of an inquiry will consist of a number of subsystems, and the entity itself is a subsystem of a series of larger systems. Therefore, the problem of defining the system we wish to inquire upon is not so easy. One has to consider, that based on the discussion so far, the inquiry process itself can be considered to be a system and analysed as such.

This research seeks to establish what the components of a project management framework might be and, therefore, it is likely that several levels of depth, in terms of its components, will be found if systems thinking is to be utilized.

Let us assume that we have succeeded in isolating and describing the system on which we wish to inquire. We could now represent the components which make up this system by a series of dots on a piece of paper (Beer, 1966). Each of these dots can be considered a system in its own right in an even more detailed analysis. The connectiveness of the system can now be introduced into this picture by drawing lines between the dots - some dots may well be connected to all other dots, but in some cases a dot may be connected to only one of its fellows. In this way, we come to look upon a system as a kind of network. Usually the feature of the network we are interested in is the pattern created by the lines (Beer, 1966). This pattern will probably change from moment to moment as the system interacts within itself to operate in the way this particular system does operate. The nature and complexity of the network of links will, in effect, define a specific system. The links between the components of a system will change depending on the viewpoint of the observer and the links network will look differently depending on the assumptions about the purpose of the system that the observer made prior to observing the system. If systems thinking and the concept of system is to be used for developing the project management framework, the relationships between its components need exploring and representing to ensure a complete view.

As stated previously, we are mostly interested in inquiring activities that have a purpose, an objective. This ultimately translates into an activity of design at some stage. Otherwise, we would argue, there is not much point in pursuing the inquiry activity in the first place. Churchman (1972) said that the activity of design must have a number of main characteristics in relation to the behaviour (connectiveness) and goal of a system:

1. Attempts to distinguish between different sets of behaviour patterns,
2. Tries to estimate in thought how well each alternative set of behaviour patterns will serve a specified set of goals,
3. Aims to communicate its thoughts to other minds in such a way that they can convert the thoughts into corresponding actions which in fact serve the goals in the same manner as the design said they would,
4. Generality – how general a design is.

Consistent with the point of view so far – of arbitrary definitions of systems – the language used here contains phrases like “attempts to”, “tries to”, “aims to” which indicate that the designer may actually not be able to achieve these objectives. If, for example, formulations like “communicates” without the “aims to” prefix would be used we would suggest that design only happens when it is completely successful – which is really never.

The fourth characteristic of design, how general a design is, is crucial for it to be useful (Churchman, 1972). This could translate into methodology – avoiding the same thought process when faced with a similar purpose problem. The complexities of setting out a methodology should be obvious by now as it is quite difficult to deal with each and every one of the previous four characteristics. Progress must be made, however, to advance this research and such a series of possible practical steps must be developed to do so. This is carried out in the next section of this thesis.

2.7.3 Soft systems thinking

As society grew more complex and decision making was no longer necessarily centralized to a handful of individuals, the idea of trying to design and engineer aspects of society became inevitable. The first attempts to do this meant that people were trying to apply the same systems thinking that first appeared in

engineering. It very soon became obvious (Checkland, 1999) that the hard thinking methods (deterministic) were simply not suitable because of one fundamental difference – social groups consist of people and the complexity of human relations is not something that the natural sciences have found a satisfactory answer for. In other words, managing people and relations between people in a social environment can simply not be described in a clear fashion, similar to engineering problems, as people cannot be seen as deterministic entities.

The multitude of human interactions and human innermost motivations have not yet been penetrated and understood by social sciences in the same way as many of the phenomena that the physical world around us have been understood and explained by the fundamental sciences (Checkland, 1999). Whilst objects and their interactions can be described well using engineering, based on deterministic ideas, the same cannot be said about people. People have their own built “logic”, based on thinking processes and individual motivations and therefore an action applied to a person may not produce the same result if applied to another. The problems facing a manager cannot be dealt with in the same manner as engineering problems, since the social world is much more unstructured, unpredictable and does not follow natural laws (Checkland, 1999). This is illustrated in Figure 2.4 (source: researcher), based on the researcher’s view of soft systems thinking. It can be observed that the perceived world of the manager is very unclear. It is virtually impossible to define clear systems with clear boundaries and a clear set of connections with their environment. What the manager sees is a set of activities which he/she hopes may be modelled using the concept of a system.

So, what is one to do at this stage? It would appear that there is no hope for trying to apply systems thinking to such unclear problems. However, one idea (Checkland, 1999) came forward at this point: that we should not necessarily try to apply systems thinking to the problem itself but to the inquiry of the problem – in effect organizing the inquiry using systems thinking and generating a learning system or an inquiry system.

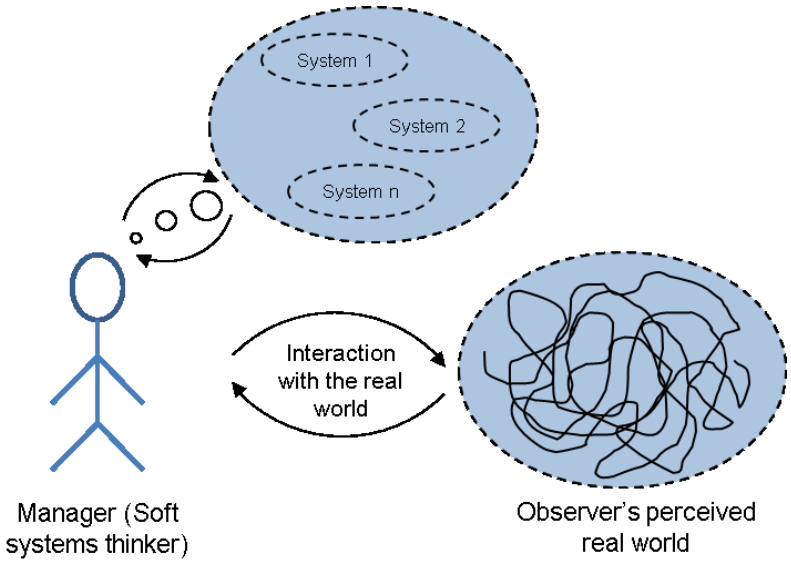


Figure 2.4: A soft systems thinker's interaction with the world

In one of the first works of this kind (if not the first), Churchman (1972) provides a definition of a system that would be suitable as an inquiry tool. It is implied that since we are looking to inquire upon a problem we must do this with a purpose in mind. If we have a purpose when inquiring about a problem, we are obviously concerned with systems that have a purpose – in other words goal driven systems. What is really stated here is that all systems have a purpose – at least some of the properties of systems are functional. This may not completely agree with the classical scientific approach on systems given by Mitroff et al. (1974) but as we have seen previously, systems can be defined arbitrarily. Thus, we may define the class of systems that form the object of our inquiry as being systems with a purpose, for example projects, given the object of this research.

Churchman (1972) states that since the system is really a choice of design there is nothing to stop one considering the inquiry process as a system. While not everyone may consider inquiry in this way, it is nevertheless a valid use of the systems concept (Churchman, 1972) and the design of an inquiry strategy using systems concepts is appropriate. According to Churchman (1972), there are nine necessary conditions for an entity to be considered a system (S). Therefore, it is useful to map this research in relation to the conditions for a system. Based on Table 2.2, it seems viable to adopt a systems research design.

Table 2.2: Mapping this research against the conditions for a system

Churchman's conditions of a system (S)	**This research as an inquiry system**
1. S is teleological	Has a purpose – the production of a project management framework
2. S has a measure of performance	Has a research aim, question and objectives to be achieved by which it will be measured
3. There exists a client whose interests (values) are served by S in such a manner that the higher the measure of performance, the better the interests are served, and more generally, the client is the standard of the measure of performance	The researcher is the client who will decide whether the research aim, question and objectives are satisfied
4. S has teleological components which co-produce the measure of performance of S	The research objectives constitute the components which co-produce the answer to the research question and aim
5. S has an environment which also co-produces the measure of performance of S	The environment in which this research takes place, with its constraints, will co-produce the results of the research objectives, question and aim
6. There exists a decision maker who - via his resources - can produce changes in the measures of performance of S's components and hence changes in the measure of performance of S	The researcher is guiding the research process and is making decisions about its aim, question and objectives
7. There exists a designer, who conceptualizes the nature of S in such a manner that the designer's concepts potentially produce actions in the decision maker, and hence changes in the measures of performance of S's components, and hence changes in the measure of performance of S	There is a researcher who designs this research and determines the results of this research through decisions made during the research process
8. The designer's intention is to change S so as to maximize S's value to the client	The researcher's intention is to maximize the value of the output of this research, through contributions to theory and practice
9. Point 5 is "stable" with respect to the designer, in the sense that there is a built-in guarantee that the designer's intention is ultimately realizable.	The researcher will have to adopt a research design and strategy that will deliver a realizable research outcome

This will be explored further in Chapter 3, to ensure a good methodological underpinning for this research. It has been argued by Churchman (1972) that these nine conditions are also sufficient to define an entity as a system.

Although no ultimate guarantee can be made, this is seen as being the best we can do (Hegel, 1977; Kant and Abbott, 2004; Leibniz, 1953; Locke and Nidditch, 1975) to make our inquiry process worthwhile.

A key author in the area of systems thinking is Checkland (1999) whose ideas are useful for this work as a vehicle for the refinement of a systems approach which employs soft thinking to identify a practical way of carrying out the research. Checkland (1999) introduces SSM, discussed previously in this this chapter, as practical way of applying system ideas to a problem.

The Checkland (1999) approach can be expressed in a graphical way and comprises seven stages that the inquirer is advised to go through to complete one iteration. To understand better the methodology, the sequence of stages should be followed from Stage 1 to Stage 7 in chronological order, as illustrated in Figure 2.5.

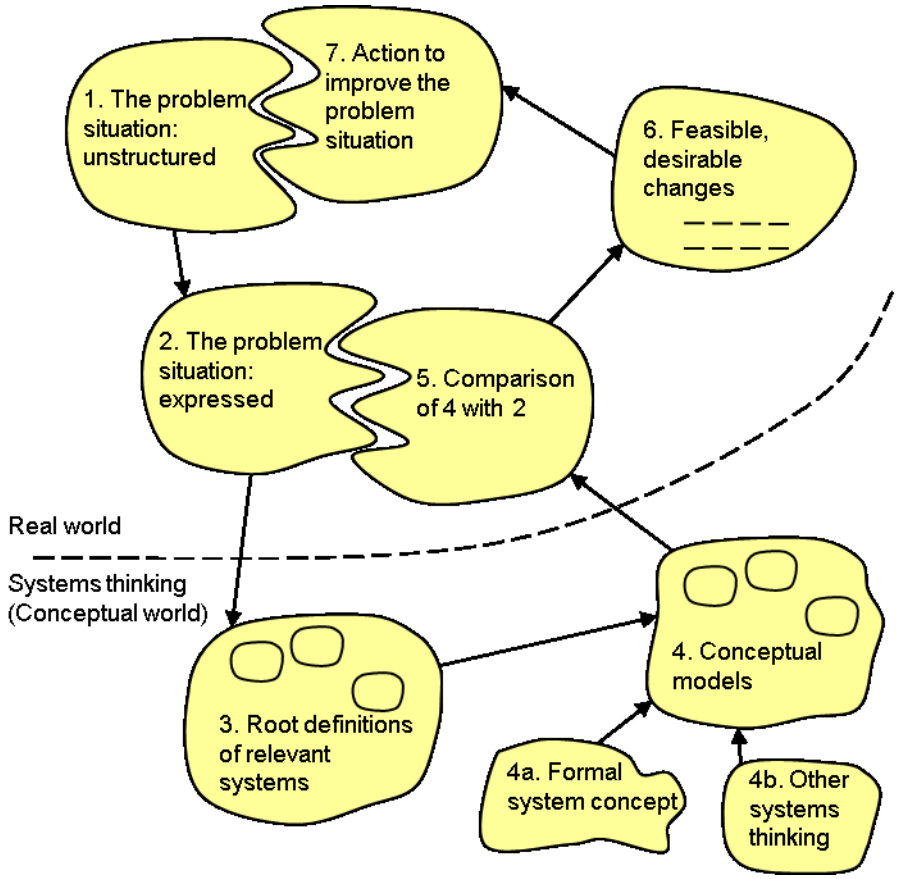


Figure 2.5: Checkland (1999) representation of SSM

Checkland (1999) points out, quite surprisingly, that this sequence of stages does not necessarily have to be preserved and the stages for a particular project can be dealt with depending upon the nature of the problem. This is a similar idea to that found in Mitroff et al. (1974), where it is the nature of the problem that leads to the design of a system to deal with it.

It must be stressed again that the systems thinking applied here refers to the inquiry process and not to the description of the world and that is why it is appropriate to use and isolate a number of systems even though they may not be set is stone as such – there is room for interpretation here. Stages 1, 2, 5, 6, 7 happen in the real world while stages 3 and 4 happen in a conceptual world involving systems thinking. The stages that happen in the real world will involve people that are in the problem situation, whilst the stages that involve systems thinking do not necessarily involve these people. This is dependent on the particular circumstances of the study but in any case, the inquirer or systems thinker has, at this stage, the most important role.

An attempt to map this research to an SSM approach is made to ascertain its possible use. This has been carried out in Table 2.3.

Table 2.3: Mapping this research against SSM stages

SSM Stages, Checkland (1999)	**This research project**
1. The problem situation: unstructured	The problem of project management could be chosen for study
2. The problem situation: expressed	The problem of project management could be expressed through findings from the literature review and data
3. Root definitions of relevant systems	The root definitions of the relevant systems could be achieved
4. Conceptual models	The model (project management framework) could be produced
5. Comparison of 4 with 2	The comparison of the model (project management framework) with the real world could take place (validation)
6. Feasible, desirable changes	The feasible, desirable change to the problem of project management takes place through the availability of a framework obtained at 5.
7. Action to improve the problem situation	The problem of project management is actioned through the publication of this research and potential use of the framework

It is important for the inquirer to understand that the methodology is seen as an iterative process and backtracking and re-iteration could be important when going through the various stages.

Checkland (1999) provides the mnemonic **CATWOE** as a checklist for ensuring that the important features of the root definitions are included:

Customers – customers of the system, beneficiaries or victims affected by the system's activities. They will be indirect objects of the main verbs used to describe the system,

Actors – the agents who carry out the main activities of the system, in particular its main transformation,

Transformation – a process by which defined inputs are transformed into defined outputs. This process is obviously a purposeful activity through which the input is changed into a different state or form,

Weltanschauung – a world view that makes the root definition meaningful. Now this brings to attention the point that there may be more than just one world view as this seems to be the nature of human activity systems,

Owner – an entity that is in "charge" of the system and has the power to cause the system to cease to exist. It is an essential component and can be found as condition 6 in the list of conditions necessary for an entity to be considered a system in the works of Churchman (1972),

Environmental constraints – the features of the systems environment that need to be considered and are a given.

Having reviewed ideas around the concept of system (Checkland, 1999; Churchman, 1972; Mitroff et al., 1974) and having established that both system and projects are goal driven entities, the possibility of using SSM for this research work is emerging and this will be explored further in Chapter 3.

2.8. Establishing the research gap

In the previous sections of this chapter, a number of areas of research interest in project management have been found. The majority of the literature (both academic and practitioner) reviewed in this chapter is focused on specific aspects of projects and project management. As such, a conclusion emerging from the literature explored in this thesis is that most research work is focused on partial aspects of projects and project management practice and possibly ignore the overall complexity introduced by people, who are non-deterministic entities. This complexity could be addressed through inquiry, to allow data/information and knowledge about projects to be acquired for the purposes of decision making.

The findings of most authors are only partially relevant to the project management agenda, as they ignore the interconnected aspect of project components, where influencing one part of a project will have an effect in other parts. This is one of the findings of this research, where the researcher is presenting in Chapter 5 evidence that the component parts of a project management framework are interrelated and should not be treated in isolation.

The researcher is proposing an inquiring, integrative approach to project management and to achieve this a novel project management framework is proposed.

Systems thinking advocates an integrative (holistic) approach and it was established earlier in this chapter that systems thinking may be suitable for use in developing an integrative project management framework.

The practical steps for using systems thinking to develop the project management framework are explored and used by the researcher in the following section, as well as in Chapter 3, Chapter 4, Chapter 5 and Chapter 6 of this work.

2.9. Relating the concept of system to the creation of a project management framework

Whilst the concept of system has been related to projects earlier (throughout section 2.7), progress needs to be made in relation to what may be a suitable way to interpret a project management framework. The goal of a project management framework is to support project management professionals to achieve the best outcome possible (a goal) in relation to their projects. As such, the project management framework itself can be considered a system. Indeed, a project system will form the basis for the project management framework developed in this work, as illustrated in Chapter 4, in Figure 4.2.

Through the works of Checkland (1999) and Churchman (1972) it has been established that the concept of system is intrinsically related to the existence of a goal. Therefore, a goal driven system could be represented as follows, in Figure 2.6:

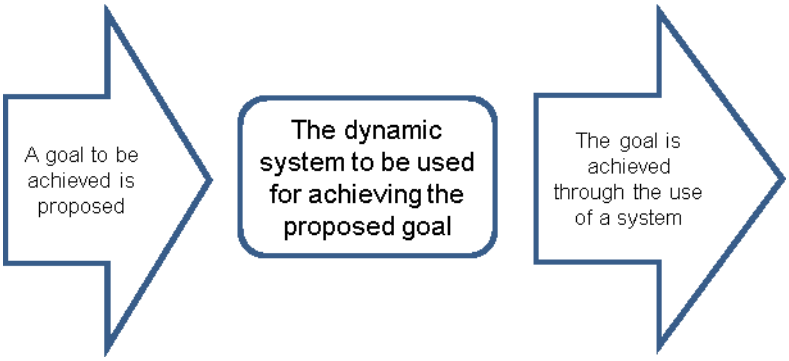


Figure 2.6: A goal driven system (author's representation)

However, projects are goal driven entities, as discussed extensively in Chapter 2 (particularly in section 2.3.1) and they also exhibit all of the other characteristics of systems (e.g. complexity, dynamicity). Therefore, it is relatively easy to move from a generic representation of a system, as given in Figure 2.6, to a representation of a project system, shown in Figure 2.7:

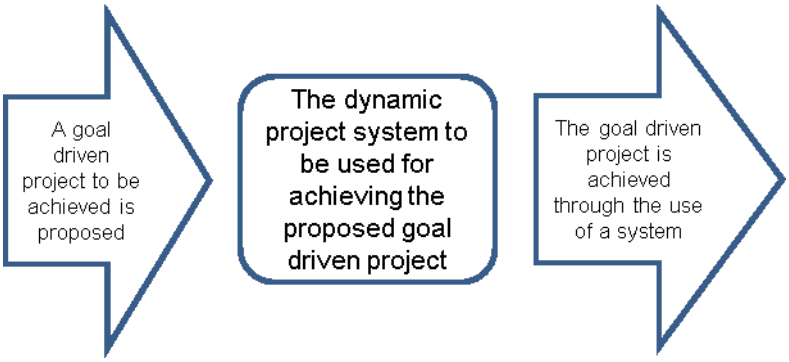


Figure 2.7: A goal driven project system (author's representation)

This project system will be used to underpin the project management framework, its components resulting from the data analysis carried out in Chapter 5. This research will seek to establish the components of the project system represented in Figure 2.7 and this is shown in Figure 2.8.

The use of a systems thinking approach to project management is an emergent idea in the activities of APM, discussed earlier in this chapter. The inquiring and integrative approach offered by a systems approach is seen by some project management practitioners as important and there is evidence, through the creation of specialist interest groups in this area that this agenda will gain importance in the future.

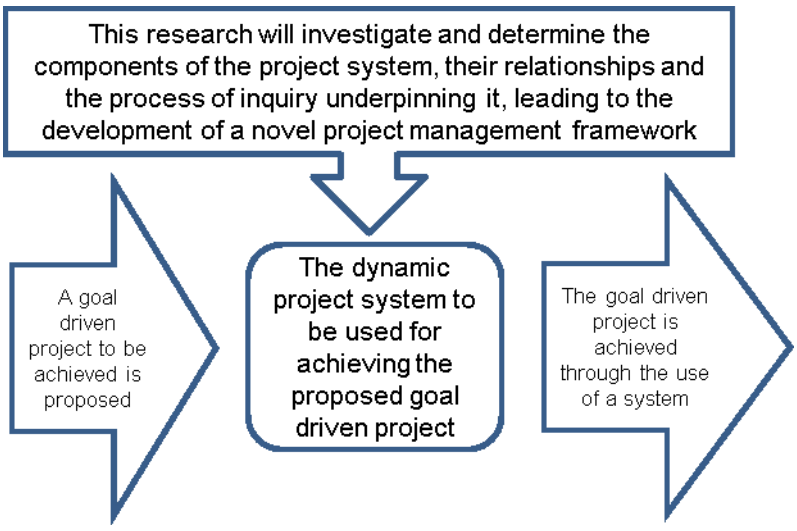


Figure 2.8: The scope of this thesis

Whilst the literature explored so far allowed the researcher to propose the project system shown in Figure 2.7, its components are unknown at this stage. Further exploration is needed to determine the key components of the project

system, these will lead to the project management framework proposed in this work. This exploration will take place through collection of data.

The starting point for the data collection process is provided by the areas of project management interest revealed by the literature in Table 2.1 and these are summarized in Table 2.4.

Table 2.4: Exploration areas emerging from literature

Exploration areas for data collection	
Definition of a project	Relationships between the project stakeholders
Representation of a project	Trust and power relationships between the project stakeholders
Communicating the project to others	Engagement of the project stakeholders
Ideal / desirable change through projects	Factors for engagement of project stakeholders
Definition of project success	Real clients / beneficiaries in a project
Situations of project success	Recommendations to project stakeholders
Feasible change through projects	Approach undertaken to projects
Assumptions made during the running of a project	Running a project in an ideal world
Measures for project success	Project management methods
Definition of project failure	Use of formal project management methods
Situations of project failure	Usefulness (or otherwise) of project management methods / frameworks
Measures for project failure	Advantages of project management methods / frameworks
Exploration of a project's end – benefits realisation	Disadvantages of project management methods / frameworks
Most important factor when running a project	Any other factors emerging from data collection
Main project actors / stakeholders in a project	

The identification of the project management framework components through data collection and analysis will then allow its development to take place.

By definition, a system is a dynamic entity. As such, to be able to understand the evolution of a system its intermediate states must be available. Therefore, it is becoming clear that inquiry is necessary to allow the actualization of a project system, given the people (non-deterministic) element involved.

Inquiry allows data/information and knowledge about projects to be acquired for the purposes of decision making.

An inquiring framework, based on a project system, will allow the necessary actualization of the project by design, not randomly or serendipitously. This is an important idea, central to the development and practical use of the framework produced in this work. Indeed, the inquiring, integrative project management framework proposed in this thesis will be developed in several stages adding complexity as this emerges from the data sets.

Upon the application of the project management framework, a specific project problem solving system will be created by project management practitioners upon performing their own inquiry into the context of their own projects, to facilitate decision making for progressing said projects.

2.10. Conclusion

The literature explored in this chapter tends to focus on very specific areas of project management and propose that interventions in such areas may be beneficial (or not) to delivering successful projects. Such studies fail to capture the interrelated nature of the many elements present in project management and projects and are taking a reductionist approach, where the reality is simplified considerably.

A picture of complexity in relation to project management and projects has emerged, with the people element being at the centre of this complexity. The highly evolving and contextual nature of the areas studied in this work, underpinned by people, suggests that the research methods to be employed in this work need to be suitable for exploring “the lived” experience of project managers, as the people that have an overview of all of the aspects of project management. An inquiring approach is needed to allow the complexities introduced by people (who are non-deterministic entities) to be captured.

The purposeful, goal driven, nature of projects and project management, their contextual nature and constant state of evolution indicate that systems thinking

ideas may have a role to play in this research. The concept of system will be used to advance this research and to underpin the project management framework, which constitutes the research question posed in this work.

A range of exploration areas for data collection, see Table 2.4, have been identified and these will constitute the starting point for data collection. To generate data, using as a starting point the exploration areas identified in this chapter, a suitable methodology will be explored and chosen in Chapter 3.

This chapter has addressed research objective 1 “To examine possible gaps and areas of interest in project management” by identifying a range of explorations areas. Inquiry is important to ensure that complexities related to people are captured. An integrative approach is desirable, to ensure that the components of project management and their relationships are represented. The use of systems ideas to advance this research is possible.

Research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” was progressed through determining that the concept of system can be used to underpin the project management framework.

The groundwork for achieving research objective 3 “To identify key components of a project management framework” was achieved by identifying the directions of exploration for data collection.

Research objective 4, “To explore the role of inquiry in a project management framework" was progressed through assessing the importance of people and complexities introduced by their project management related activities. It is argued that inquiry needs to underpin the project management framework.

3. Methodology

3.1. Introduction

In the previous chapter, a review of literature was conducted on the nature of project management. The importance of people in project management was explored; this will give direction to the methods to be employed to carry out this research.

This chapter seeks to identify the most appropriate research philosophy, approach and strategy to answer the research question and objectives. The choices made to progress this research are justified and are based on the findings and discussion in Chapter 2.

Biedenbach and Müller (2011) identify the area of project management research as difficult to position from a philosophical perspective, but also give some guidance as to what approaches a researcher might find useful to take in this area: interpretivism underpinned by qualitative methods. Given the scope of this research and the importance of people in project management, an interpretive, inductive research path is chosen. Systems thinking and grounded theory are employed to make progress.

The process through which the data was collected and analysed is established in this chapter.

The necessary steps for progressing research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” are established.

Progress in completing research objective 3 “To identify key components of a project management framework”, is achieved by structuring the directions of exploration for data collection and analysis.

Research objective 4 “To explore the role of inquiry in a project management framework” is progressed through strengthening the case for an inquiring approach due to complexities introduced by people.

3.2. Exploring the nature of this research

This research aims to contribute to the body of knowledge that exists in the area of project management, through the production of a project management framework.

Project management is a human and social change activity (Kerzner, 2013, p.94-98) that takes place typically in a business or other organisational environment and is, by definition, affected by a high degree of variability due to the fact that no two businesses or organisations are alike. Indeed, the employees that will become the stakeholders and actors of their projects will also be different and will exhibit different behaviours. Aubry et al. (2012) go as far as to integrate project management as an organisational function. This state of affairs leads to the idea that this research cannot be carried out by employing mechanistic, deterministic, processes but will need to look towards flexible approaches that can be contextualized in environments with high variability.

Kerzner (2013, p.64) links project management clearly with the open systems (that react with their environment) ideas. These open systems have permeable and changeable boundaries; social systems of activity are open systems. Therefore, the project management resulting from this research must be suitable for contextualization to achieve any practical purpose.

3.3. Research philosophies

It is necessary for researchers to identify the relationship between their research project and a specific research philosophy. The philosophical position must be suitable to the nature of the research conducted and will further inform the methods through which a phenomenon can be studied to produce new knowledge. As illustrated in Saunders et al. (2012, p.130), it is not entirely possible to force a researcher’s position in a discrete philosophical stance, it is

recommended that researchers take a continuum view on the debate between epistemology and ontology.

As each research philosophy exhibits strengths and weaknesses, the choice of alignment to a philosophy should be based on the research aims, questions and objectives that are addressed by the researcher.

There are a number of research philosophies that underpin the approach to research and they attempt to explore and explain the different perspectives available to researchers (Hacking, 2004).

In the following, a case for an interpretive stance is made, with references and assessments as to how this fits this particular research.

Mingers (2003) states that research philosophies attempt to model, with axiology concerned about why researchers model. Epistemology is concerned with how modelling is carried out by researchers and ontology with what they model. Further guidance is given (Saunders et al., 2012, p.129) where axiology is represented by the role of values, epistemology by what is considered to be acceptable knowledge and ontology as to what is the nature of reality.

Ultimately, it can be concluded that researchers must answer a number of questions in relation to their research:

- Why researchers model what they do?
- What will be modelled?
- How will modelling be achieved?

A justification and the researcher's motivation for carrying out this research was given in Sections 1.2 and 1.3 of this thesis.

The problem of project management will be modelled in this work as it aims to provide theoretical and practical contributions in this area.

A way of modelling the problem of project management is explored in this chapter and will be used to produce a project management framework.

3.4. Interpretivism

Interpretivism is an alternative to positivism, where positivism is taken as seeking to reduce the complexity of the social world to definite laws in a similar way to physical sciences. Interpretivism argues that rich insights to the complex world are lost if it is reduced to law-like generalisations (Saunders et al., 2012, p.137). Interpretivists advocate that the subject matter of social sciences is fundamentally different from that of natural sciences. Interpretivism is a continual process of interpretation of the social world, by interpreting the actions of others, leading to adjustments and the creation of meanings of one's actions (Saunders et al., 2012, p.137). Crotty (1998) argues that interpretation is present even in findings emerging from natural science as research is carried out by people.

This research is concerned with project management, which is a social, people driven activity. Given that the interpretivist philosophy requires an empathetic approach by the researcher to understand the world from his/her point of view, it is eminently suited to business and management research. It is understood here that business situations are both complex and unique due to the variety of people actors that come together at specific times. The nature of project management is similar, hence an interpretivist position is suitable (Douglas, 2006; Oliver et al., 2005; O'Reilly et al., 2012).

Whilst positivism can only account for the "external you" aspect of people, assuming that they are deterministic, in this research it is argued that it is in fact the "internal you" aspect that should be considered to account for the complexities introduced in project management by people. Gill et al. (2010) support this position and it is further argued by the researcher that only through considering people related complexities through a process of inquiry can lead to the possibility of contextualization of the project management framework proposed in this thesis.

Whilst some authors go as far as to assert that no alternatives are required to positivism (Avis, 2003); this is not a view taken in this thesis, as people cannot

be seen as deterministic entities due to their internal logic and therefore cannot be reduced to a deterministic status (Gill et al., 2010).

Continuing the philosophical exploration, research paradigms are discussed. Paradigms are a way of viewing the world that reflects a researcher's beliefs about knowledge and how it is best acquired (Saunders et al., 2012, p.141). Therefore, a research paradigm summarises and clarifies the epistemologies and ontologies, by offering a useful way of understanding the behaviour of researchers towards their work. Selecting a paradigm helps to outline the best path for the research being undertaken by helping the researcher understand where it is heading and investigating what it is possible to achieve.

Whilst there are some inconsistencies in terms of the use of the term paradigm, in this work a paradigm is defined as a way of examining social phenomena from which an understanding of these phenomena can be obtained and further explanations attempted.

Given the philosophical choice made so far in this work, it is useful to align the next steps with a suitable paradigm. The researcher has considered the most useful way of anchoring the position adopted in this work in a suitable, accepted criteriology and has found that the works of Seale (1999) and Johnson et al. (2006) are particularly useful to provide a comprehensive criteriology upon which this research can be undertaken. It is the purpose of this work to better understand projects and project management and to propose new theory in these areas. The subjective realm of the people is important, can be accessed and described, leading to the possibility of explaining behaviour in an objective manner (Johnson and Clark, 2006).

This research is concerned with understanding and establishing the "rules" of project management, which has been established as an organisational, social activity by Aubry et al. (2012) and to produce a project management framework that will improve the way in which project management is conducted. Of course, projects are carried out by social actors, so it is, in effect, the relationships between these actors that will ensure the successful (or not) delivery of a project.

Since a project management framework, which is the main purpose of this research, will seek to articulate the relationships between the project components, it is argued here that this research is positioned in the interpretivist research space. This is consistent with a large proportion of research carried out in this area (Biedenbach and Müller, 2011).

3.5. The role of Soft Systems Methodology in this research

The decision to adopt an interpretivist stance, given the nature of project management was made earlier and the importance of people in this area had been established throughout Chapter 2. It is the people aspect in project management that offers the possibility of blending an interpretive approach and Soft Systems Methodology (SSM) together. An interpretivist approach offers the possibility of understanding the complexities introduced by people in a given research area. Instead of trying to reduce the complexities associated with people, as attempted by deterministic approaches, Checkland (1999) proposes the use of the concept of system in a practical methodology, SSM. SSM is attempting to provide a mechanism for analysing a problem, through a process of learning (Checkland, 1999), driven by inquiry. The inquiry will facilitate the interpretation of the "internal you" aspect of people, that will allow an understanding of the problem that is the object of study to be built to progress towards a solution.

Having discussed the concept of system in relation to projects earlier, it is possible to see this research as a goal driven activity and therefore as a system. Therefore, it would have been possible to use a Soft Systems Methodology (SSM) only approach to this research, without resorting to any other mechanisms. However, one of the main criticisms of SSM (Kapsali, 2013) and systems thinking in general is that it provides low specificity. One of the five research evaluation criteria proposed by Johnson et al. (2006) is transferability (extent of applicability). This research aims to provide a project management framework that contributes to theory and practice. To address the contribution to practice of such a framework, a good degree of specificity is necessary, so that project management practitioners may be able to utilize it.

A research strategy that allows a high degree of specificity to be obtained will be presented in this chapter, and is based on grounded theory.

It is useful at this stage to make the case for the integration of the precision and level of boundary detail that could be provided by the use of grounded theory (Strauss and Corbin, 1998) into the systems thinking approach that underpins the project management framework proposed in this work. Both systems thinking and grounded theory approaches involve iterative processes to achieve results. An integration between SSM and this research is shown in Table 3.1 (based on Table 2.3), illustrating the role of grounded theory in underpinning its results.

Table 3.1: Mapping this research against SSM stages

SSM Stages	This research project	Practical steps to be taken in this research
1. The problem situation: unstructured	The problem of project management could be chosen for study	Determine research aim, question and objectives to advance the problem of project management.
2. The problem situation: expressed	The problem of project management could be expressed through findings from the literature review and data	The rich picture is built by exploration of literature and data to build understanding of project management. Literature will inform data collection. Collect data and analyse it.
3. Root definitions of relevant systems	The root definitions of the relevant systems could be achieved	Root definition of the project system underpinning the project management framework is achieved.
4. Conceptual models	The model (project management framework) could be produced	Identify the project management framework components. These components are determined by using grounded theory. Build the project management framework based on components and relationships resulting from data analysis.
5. Comparison of 4 with 2	The comparison of the model (project management framework) with the real world could take place (validation)	Present the project management framework to project management practitioners to refine it and assess its practical usability.
6. Feasible, desirable changes	The feasible, desirable change to the problem of project management takes place through the availability of a framework obtained at 5.	The feasible, desirable change to the problem of project management is achieved through the availability of the novel project management framework and its user guide.
7. Action to improve the problem situation	The problem of project management is actioned through the publication of this research and potential use of the framework	The research aim, question and objectives are achieved. The publication of this research provides a contribution to project management theory and practice, advancing the problem of project management. Future areas for research emerge.

It is useful to state here that this research is using an SSM approach as a learning system to solve the theoretical “project management” problem and this is a valid use of the methodology (Checkland, 1999, p.202).

The rich picture required by SSM emerges from findings from the literature review and the data acquired in this work; a pictorial representation is given in Chapter 4 in Figure 4.1.

The interpretivist philosophical positioning will inform decisions in terms of what approach, methodological choice and data collection and analysis techniques and procedures will be taken. Some weaknesses associated with adopting an interpretivist research philosophy are identified and these are related to cost, time-consumption and, at times, data interpretation (Collis and Hussey, 2014). How these limitations have affected this work will be discussed in Chapter 8 of the thesis.

It is useful at this stage to recast Figure 2.5 so that it represents the research carried out in this work, on the basis of Table 3.1. This will help to clarify the steps taken in this research to achieve its aim, question and objectives. The result is shown in Figure 3.1, where it can be noticed that the work takes place in two realms, the real world and the conceptual world. The work that takes place in the conceptual world includes the use of systems and theory emerging from the application of a grounded process for data analysis. Both SSM and grounded theory are widely used to address situations of complexity where people play a major role.

The integration of SSM ideas with a grounded theory process is argued to be appropriate as the object of this research is project management and this has been established as an area of complexity, with much of this complexity being introduced by people. The case for using a grounded theory approach will be made in detail in Sections 3.8 and 3.9.

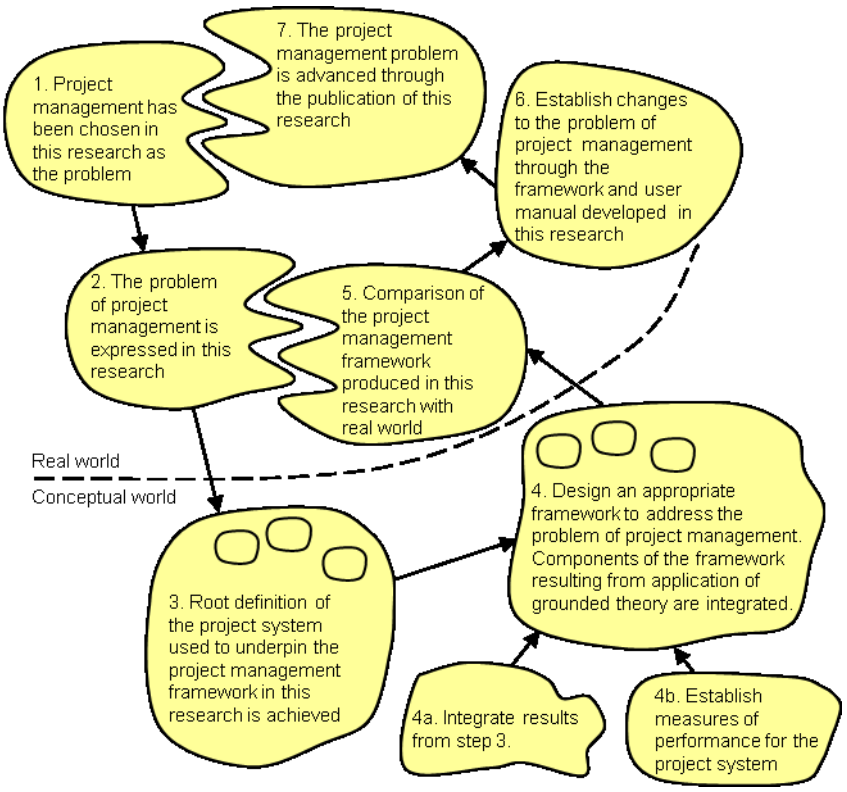


Figure 3.1: This research using SSM ideas

3.6. Inductive research approach

According to Easterby-Smith et al. (2012) it is important to decide upon a research approach for three reasons:

- Enables more informed decision making about research design,
- Enables an informed choice of research strategy and methodological choice,
- Enables an understanding of various constraints that will result in adapting the research design.

One of the main research approaches identified in the business research methods literature (Bryman and Bell, 2015, p.24-27; Saunders et al., 2012, p.145-148) is the inductive approach.

The inductive approach is an alternative approach to deduction and the research starts by collecting data to explore a phenomenon to better understand the nature of the problem either by conducting interviews or going into the field and collecting samples of data, then analysing this data to

generate theory in the form of a conceptual framework (Saunders et al., 2012). This is often associated with grounded theory as it encourages researchers to persistently interact with their data, whilst remaining constantly involved with their emerging analysis (Wilson, 1990).

When using a deductive approach a researcher works within an explicit theory, whilst when using an inductive approach the researcher tries not to be constrained by prior theory and instead starts to collect data initially to develop purpose, propositions and concepts for a relevant theory. However, it is impossible to start with a blank slate (Charmaz, 2006); in this research the literature review informs the directions for exploration.

This research seeks to generate a project management framework and therefore an inductive approach seems entirely appropriate. Of course, a philosophical interpretivist position has already been adopted and this suggests considerable focus upon the details of a situation, which is consistent with the persistent interaction and understanding of the data as illustrated above.

A view of how this research is suitable for an inductive approach is given in Table 3.2, adapted from Saunders et al. (2012, p.144). It can be argued, based on Table 3.2 that this research maps well to an inductive research approach and therefore this is the approach that will be taken in this work.

Table 3.2: Mapping this research to research approaches

Research approach →	**Inductive**
Logic	Known premises are used to generate untested conclusions
Generalisability	Generalising from the specific to the general
Use of data	Data collection is used to explore a phenomenon, identify themes and patterns and create a conceptual framework
Theory	Theory generation and building

A representation of the role of theory in an inductive research approach is given in Figure 3.2, based on Gill et al. (2010):

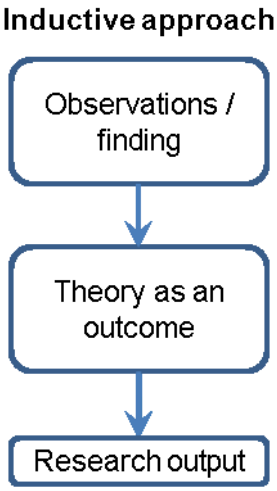


Figure 3.2: The role of theory in an inductive research approach

This research will move between observations through data collection and will be concerned with a deep understanding of the data collected that will result in the production of the theory.

The next step in this chapter will be formulating the research design, which is informed by the positions taken so far in terms of research philosophy and approach.

3.7. Research Design

The research design allows the translation of the research objectives and questions into a research project by providing a framework for collecting and analysing the data, as illustrated by Saunders et al. (2012, p.158) and Bryman and Bell (2015, p.49). Elements such as research methodological choice, strategy and techniques and procedures for data collection and analysis will be determined in the research design and will be borne from the choice of research philosophy and approach as discussed earlier.

In terms of methodological choices, Saunders et al. (2012, p.165) provide a useful diagram, adapted here in Figure 3.3, that can be utilized for decision making and is useful in combination with earlier decisions to identify the

methodology for this research. The case for employing a multimethod qualitative design, based on SSM and grounded theory, will be made.

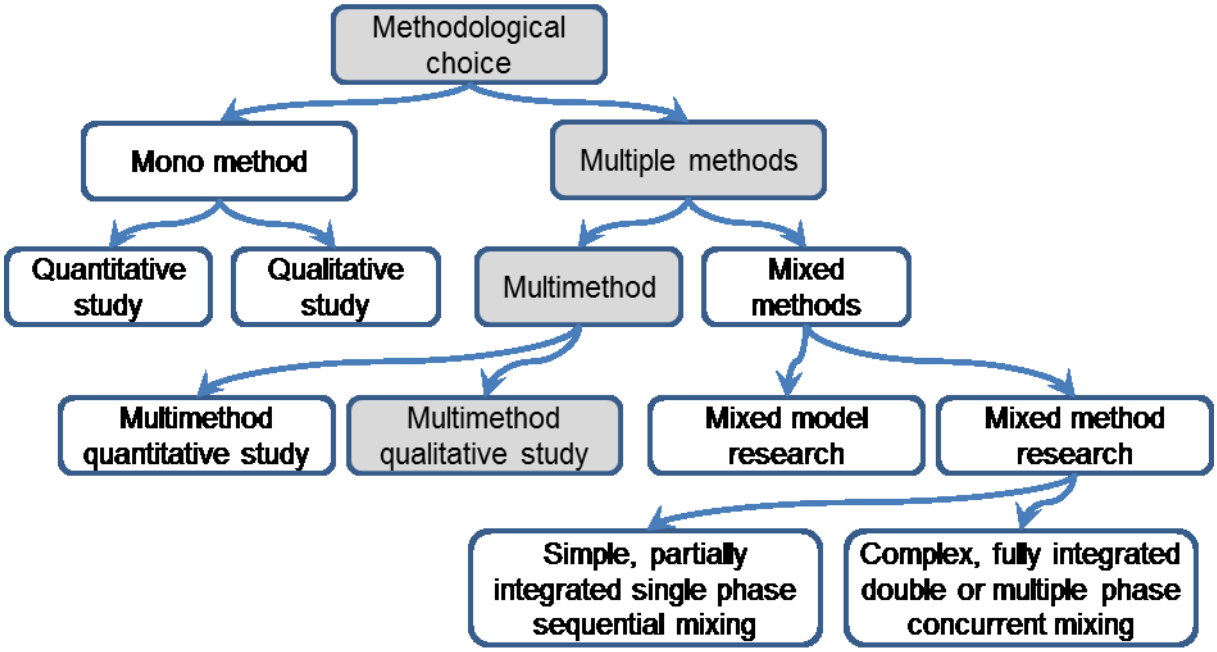


Figure 3.3: Methodological choices, adapted from Saunders et al. (2012, p.165)

At this stage it is necessary to examine the particularities of quantitative and qualitative research designs to be able to make a useful selection for this research.

Quantitative and qualitative research designs are not mutually exclusive and they are, at times, employed together whilst the superior one to the other depends on the circumstances and the aim and objectives of the research (Wilson, 2010). The key differences between quantitative and qualitative research designs are illustrated in Table 3.3.

Table 3.3 has been developed from Saunders et al. (2012, p.162-163) and Collis and Hussey (2014, p.60-72) by pulling together the characteristics of the qualitative and quantitative research designs.

Table 3.3: Differences between qualitative and quantitative research designs

Research design → Properties↓	**Qualitative**	**Quantitative**
Research philosophy	**Interpretivism**	Positivism
Research approach	**Mainly inductive. Deductive is possible. Abductive is also possible and used**	Mainly deductive. Inductive approach is possible
Research strategies	**Action research, Case study, Ethnography, Survey, Grounded theory, Experiment, Narrative inquiry, Archival research**	Experimental studies Cross-sectional studies Longitudinal studies Surveys Models and simulation
Characteristics	**Examines participants' meanings and relationships between them to develop a conceptual framework. Data analysis is not statistical. Data collection is non-standardized. Data sampling is purposeful**	Examines relationships between variables that are mainly numerical. Data analysis is mainly statistical. Data collection is standardized. Data sampling is random and deliberate
Beliefs about the nature of reality	**There are multiple realities; reality is not purely objective, and does not exist independent of the people who interpret it**	There is one objective reality that is not dependent on human interpretation
Quality assurance	**Construct validity, confirmability, internal validity / credibility, external validity / transferability, reliability / dependability.** **In-depth information/data on a few cases**	Internal and external reliability, validity comes from construct, context. Less in-depth information/data but more breadth of information across a large number of cases
Other properties	**More subjective: describes a problem or condition from the point of view of those experiencing it**	More objective: provides observed effects, interpreted by researchers, of a problem or condition
	Generally non-numerical	Generally numerical
	Unstructured or semi-structured response options	Fixed, structures response options
	Can be valid and reliable, depending on the skill and rigour of the researcher	Can be valid and reliable, depending on the measurement device or instrument used
	Usually less generalizable	Usually more generalizable

Given the nature of this research, it is argued that a qualitative approach will be suitable for it. To support this point of view, a mapping of this research against the qualitative research design is given in Table 3.4.

Table 3.4: Mapping this research against qualitative research design

Research design → Properties↓	**Qualitative**	**This research**
Research philosophy	Interpretivism	Already established as interpretivist in philosophical position
Research approach	Mainly inductive. Deductive is possible. Abductive is also possible and used	Inductive as mapped in Table 3.2
Research strategies	Action research, Case study, Ethnography, Survey, Grounded theory, Experiment, Narrative inquiry, Archival research	To be chosen in the following sections
Characteristics	Examines participants' meanings and relationships between them to develop a conceptual framework. Data analysis is not statistical. Data collection is non-standardized. Data sampling is purposeful	It is concerned with developing of a conceptual framework
Beliefs about the nature of reality	There are multiple realities; reality is not purely objective, and does not exist independent of the people who interpret it	The reality that will emerge from the data analysis is dependent on the view of project managers interviewed
Quality assurance	Construct validity, confirmability, internal validity / credibility, external validity / transferability, reliability / dependability. In-depth information/data on a few cases	In depth data analysis will be carried out. Internal validation assured by rigorous data analysis, appropriate quantity and quality of data. Comparison of project management framework with real world
Other properties	More subjective: describes a problem or condition from the point of view of those experiencing it	The framework will be dependent on the world view of the people who will provide the data
	Generally non-numerical	Will be non-numerical
	Unstructured or semi-structured response options	A semi-structured questioning framework will be chosen
	Can be valid and reliable, depending on the skill and rigour of the researcher	A high level of rigour in relation to data analysis is achieved
	Usually less generalizable	Given the inquiring nature of the framework elicited from the data, the generalizability aspect is argued to be satisfied

Referring to Figure 3.3, based on the analysis carried out in Table 3.4 it is now argued that a qualitative research design is suitable for this research and given its nature a multimethod qualitative study, based on SSM and grounded theory, will be employed in this work.

3.8. Research Strategy – making the case for Grounded theory

Having made qualitative research design as the choice for this research, a research strategy that will provide the necessary data and means of analysing it is needed. In this work a grounded theory research strategy was adopted and the case for its use will be argued as follows.

Grounded theory was developed by Glaser and Strauss (1967) as a response to the positivist nature of a considerable amount of social research at the time. Grounded theory is used to develop theoretical explanations of social interactions in a multitude of contexts, including business and management. The aim of this research strategy is to generate theory grounded in the data produced from accounts of social actors.

In the grounded theory strategy of Corbin and Strauss (2008) there are three coding stages:

- open coding where data is reorganised in categories
- axial coding where relationships between categories are recognised
- selective coding is where categories are integrated to produce a theory

Underpinning data coding is the process of constant comparison (Saunders et al., 2012, p.186). An inductive process is used by the researcher during the coding process and the identification of the relationships between the codes. Data collection should continue until the new data offers no further new insights relevant to a category and therefore theoretical saturation is reached. This may be difficult and time consuming in practice, depending on the complexity of the issues being explored.

Hekkala and Urquhart (2013) also see grounded theory approaches as eminently suited to project management research.

Given the nature of this research, grounded theory is seen as suitable given the social nature of the project management area and is utilized in this work.

3.9. Grounded theory as a vehicle for analysing data

Since grounded theory has been chosen as the research strategy for this study it will be discussed further. Grounded theory is a qualitative research method, as established earlier in this work.

According to Glaser and Strauss (1967), grounded theory requires the collection of data related to a phenomenon and then it is developed and provisionally verified through further systematic data collection and analysis of data relative to the phenomenon being studied. As a research strategy, it can be used independently of the way data is generated, the level of analytical focus, or the coding methods used. Grounded theory is based on empirical research that uses explanations emerging from data to develop new theories that will contribute to knowledge in a particular research area (Glaser and Strauss, 1967).

Since the original grounded theory emerged, Strauss (1987) changed the original theory and moved towards verification of existing theory: in other words while originally grounded theory advocated starting with no preconceived ideas, it is now possible to use existing theory to inform the areas of exploration. This evolution of grounded theory was continued in the works of Strauss and Corbin (1998) and Corbin and Strauss (2008) and it became known for its rigour and usefulness (Charmaz, 2006) and even, sometimes, for its positivistic assumptions.

The flexibility and legitimacy of grounded theory means that it is widely appealing to qualitative researchers and is regarded as a general theory of a scientific method. As illustrated by Corbin and Strauss (2008), it is concerned with the detection and explanation of social phenomena, which can come from the researcher's interaction with the data and existing theory. This ensures that the patterns that emerge from the data are related back to the existing theory to generate new knowledge.

Grounded theory can be used regardless of the way data is generated, the granularity of analytical focus, or the coding method used (Charmaz, 2006).

However, grounded theory must be applied to qualitative data and must be generated by getting access to the people that will provide it, who become participants in the research process.

Grounded theory is based on a rigorous empirical research that uses explanations and relationships to develop new theories to contribute to knowledge in a particular research area.

The basis of grounded theory analysis is the data coding process, which involves manipulating the data via breaking it down, analysing, comparing and categorising the data so that theory which is grounded in the data can be obtained (Bryman and Bell, 2015; Collis and Hussey, 2014; Saunders et al., 2012).

There are currently two main approaches to coding in grounded theory as shown in Table 3.5 (adapted from Saunders et al. (2012, p.568)), as emerging from the works of Charmaz (2006) and Strauss and Corbin (1998).

In this work a Charmaz (2006) grounded theory building and coding approach has been taken as it allows for the most comprehensive and clear building of theory from the data and links with existing theory. The starting point for the inquiry can be provided by the literature review and this is the case in this work.

Wu and Beaunae (2014) see grounded theory as suitable for doctoral theses work and note its increased popularity in qualitative research.

Table 3.5: Coding approaches in grounded theory

Charmaz coding approach	**Strauss and Corbin coding approach**
Initial sample of data	
Initial coding – will allow for the identification of significant concepts to be used in future data collection	Open coding – will allow for the identification of significant concepts and themes to be used in future data collection
Focused coding – further analysis of the data to re-evaluate codes and to categorize larger units of data	Axial coding – looking at the relationships between the categories of data that have emerged previously
Theoretical coding – establishing relationships between codes	Selective coding – the development of principal categories and related subcategories and identifying categories that need more development
Leading to grounded theories	

Based on the considerations made up to this point, to produce new knowledge, a grounded theory approach based on Charmaz (2006) will be used within a systems thinking framework as found in the works of Checkland (1999).

The coding of the data was carried out by the researcher following the process recommended by Charmaz (2006) and comprised several stages as illustrated in the following.

Data familiarisation involved gaining a good understanding of all material relating to this research, including the literature explored in this work and the data generated by the interview framework. This ensured that an overview and understanding of the issues raised during the data collection through interviews was maintained.

The initial coding process involved the identification of key issues, concepts, and themes by means of thematic analysis of the data. Thematic analysis was used to discover significant patterns on various key issues and concepts while at the same time testing for the consistency of these by moving through the data continuously. Through using thematic analysis, a textual investigation based on categorising and re-categorizing the data was conducted. Whilst Glaser and Strauss (1967) advocated that coding should be completely open

ended, this is virtually impossible to achieve in practice as the researcher will hold prior ideas and skills. However, this is not an impediment in terms of keeping an open mind Charmaz (2006, p.48) and this is the approach that the researcher has taken.

To identify key issues, concepts and themes, each interview transcript was broken down into units of analysis consisting of paragraphs which were then examined and compared with key issues emerging from these categorised. The codes and categories emerged from moving through the data provided by the interview transcripts. Codes and categories identified in the data have emerged as a result of the multiple passes through the interview transcripts; this is consistent with the advice from Glaser and Strauss (1967) that no previous concepts are introduced in the data artificially. The dependability evaluation criterion (Johnson et al., 2006) is addressed by a thorough examination of data to ensure the minimization of researcher idiosyncrasies.

Coding of the data was carried out initially using an incident to incident approach. This process is recommended by Charmaz (2006, p.53) in situations where behaviouristic descriptions of people's actions are not best suited for exploration using word-by-word or line-by-line coding and allows for more flexibility by looking at similar and dissimilar events to allow greater insights into the data.

The initial coding process allowed the researcher to fulfil two criteria for completing a grounded theory analysis (Charmaz, 2006, p.54): fit (the codes fit the data) and relevance (an interpretation of what is happening). Thus, initial codes have been constructed and they have been organised in categories that will underpin the project management framework developed in this thesis.

Part of the coding process involved putting together coding memos in relation to the issues discussed by the interviewees. This approach is recommended by Charmaz (2006, p.72) and it ensures that the data provided by interview transcripts is coded consistently and the ideas crystallize well in the mind of the researcher.

The codes emerging at this stage will constitute the “variables” presented in Chapter 4, Chapter 5 and Chapter 6.

The next stage in the coding process undertaken in this work was focused coding as recommended by Charmaz (2006, p.57). Focused coding is carried out by examining the codes obtained through initial coding and allows the synthesis and explanation of larger segments of data and provides the vehicle for the creation of the more substantive, conceptual codes which represent the “nodes” presented in Chapter 4 and Chapter 5. The nodes emerging from data will constitute components that underpin the project management framework.

The outputs obtained from the initial coding and focused coding (variables and nodes) are organised in tables throughout Chapter 4 and Chapter 5 to enable a from “ground up” build up of the results and an easier view of these. Therefore, it can be said that a bottom up coding was carried out in this work, starting from a very close up involvement with the minutia of the data and then “moving up” to larger segments of data. During this process indexing and numbering of the data (nodes and codes) was undertaken and this helped to structure the data for analysis which eventually resulted in substantive theory. A hierarchical structure of nodes and codes resulted and all of the interview transcripts data was coded and incorporated into this structure.

A final stage of focused coding was carried out to identify what would become the main themes of the project management framework developed in this work.

The next stage of coding undertaken in this work was theoretical coding. This coding follows focused coding and is recommended by Charmaz (2006, p.63) to establish possible relationships between the codes developed during the focused coding stage, represented in this work by nodes. Theoretical coding adds another analytical layer to the results obtained in this work and improves their precision and clarity. The results of the theoretical coding work undertaken in this thesis are presented in Table 5.42 and will be discussed in Chapter 5.

The identification of codes, nodes and relationships between nodes facilitated generation of theory. This involved countless passes through the data set to complete the data analysis process.

The various stages of the application of the grounded theory process in this thesis are shown in Figure 3.4.

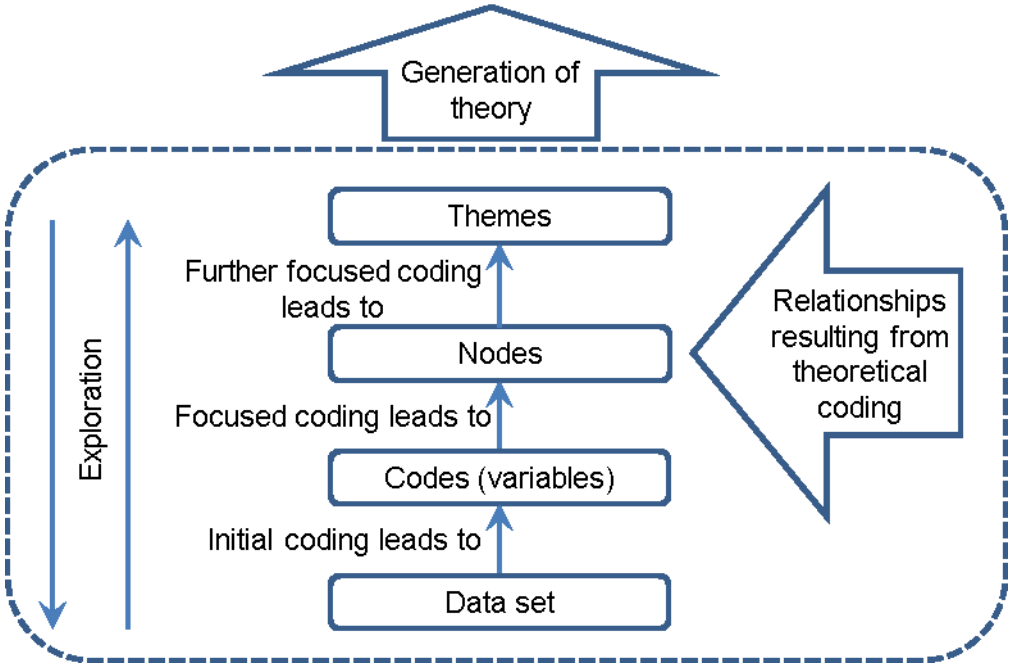


Figure 3.4: Grounded theory process in this thesis

The process for generation of theory involved drawing out categories to become major themes, nodes and codes. These underpin the project management framework developed in this work and will constitute the areas of inquiry to be used during its practical application.

The explanation of the phenomena captured in the data and investigated in this thesis led to the results developed through the grounded theory process.

The data set was analysed with the aid of computer software and this will be presented in the following section. The actual coding process was undertaken by the researcher, not software.

3.10. Computer software to support data analysis

There are many advantages to using computer software to help with the data coding process (Bhattacharya, 2014; Dean and Sharp, 2006; Richards, 1999):

- it can provide a huge improvement in the efficiency and ease with which qualitative data analysis can be conducted,
- is an excellent tool for ease of enhanced coding, data retrieval and very fast text searches,
- is a tool to facilitate a faster exploration of interrelationships between data that would have been too obscure if only manual techniques are used.

These are useful traits that could be employed in this work to help with the large volume of data.

It must not be expected, however, that the use of software will replace human intuition or make actual judgements, which is a key characteristic of qualitative research (Dainty et al., 2000). In effect, the computer software is just a tool, it does not replace any of the research processes carried out by humans, it merely improves the efficiency of these processes. Johnson et al. (2010) find that using technology to organise large amounts of data is beneficial, which is helpful given the thousands of lines of text that have resulted from the data set transcripts used in this thesis.

Disadvantages of using computer software are potential loss of engagement with data and oversimplified results. A possible incompatibility between qualitative research and technology is identified by Roberts and Wilson (2002), as technology is assumed to be objective and quantifiable. This issue could be addressed by using computer software to only support the data analysis process and not to determine it.

Considering both sides of the argument the researcher decided to employ the use of computer software in this research, to organise and manipulate data efficiently, whilst the coding processes were fully undertaken by the researcher and not by software.

QSR International NVivo was used as a support tool for the initial stages of data coding and organisation as this software was found to be useful for producing the coding structure emerging from the data. Once the initial coding had taken place, the data was exported to Microsoft Excel, as this software was found to be more user friendly than NVivo in terms of manipulating large amounts of data.

An overview of the data collection process is given in the following section.

3.11. Data collection

A method for collecting data is necessary. Data collection is necessary to satisfy the confirmability criteria (Johnson et al., 2006) for this research, ensuring that the results obtained in this work are based on data and not researcher.

Data for a grounded theory strategy can be obtained by any data collection method associated with an interpretivist philosophical stance. In most cases interviews and observations are utilized (Collis and Hussey, 2014, p.180).

For the purposes of this work, observation as a data collection method is not considered as appropriate due to the fact that observation is a time demanding process that requires interaction with the observed entities for a long period of time and that getting a sufficient level of access to organisations that employ project managers may not be possible to achieve due to operational and commercial reasons.

This identifies the interview as the most appropriate data collection method for this research and selecting the interviewees and the type of interviews to be conducted are the next decisions to be made. Interviews are also seen as the preferred method for data collection (Wu and Beaunae, 2014) for research based on the grounded theory approach, and they are adopted in this work.

3.11.1 Selecting the interview sample

Given the interpretivist inductive nature of this research a non-probability sampling method is appropriate. There are several non-probability (non-random) sampling methods that can be employed to select the interviewees:

- Quota sampling, used for structured interviews and based on the premise that the sample will represent the whole of the population in terms of the variables that define it.

This method is most appropriate for a survey research strategy and therefore will not be adopted in this work.

- Haphazard sampling, where the researcher does not link the sample to be analysed to the research objectives and questions.

This is not an approach used here due to issues related to the suitability of the data for the research.

- Volunteer sampling, where the researcher identifies a small number of suitable cases for research and then asks these cases to identify further cases that may be suitable for the research.

This is appropriate for situations where it is difficult to identify the desired research cases. The area of project management does not pose this issue as it is well represented in organisations. However, a small number of interviews were arranged through initial contacts, as they offered help or were asked for assistance.

- Purposive sampling, where the researchers use their judgement to select cases that will best serve the research objectives and questions.

This is the method selected in this work and it is justified by the adoption of a grounded theory strategy, by understanding the areas that needed exploration.

The interviewees chosen for the data set, necessary for identifying the components of the project management framework, were obtained initially through contacts available from the Business Engagement team in the Sheffield Business School, where the researcher was employed. These contacts have been selected from a database of organisations that the Business School had relationships with.

Another source of interviewees was through personal contacts of the researcher, that he had come across during his work.

A third, small, source of interviewees was obtained via volunteer sampling. The interviewees were chosen on the basis of their job titles and likely project management experience.

As illustrated by Biedenbach and Müller (2011), most project management research is cross-sectional. Saunders et al. (2012) recognized that due to the time limitations associated with research projects, most academic research is likely to be cross-sectional, taking a snapshot of data. Given the nature of this research a cross-sectional data collection has been employed.

Since there is a need for as rich a picture as possible to be formed from the data, as required by both SSM and grounded theory, participants would ideally be from a variety of industries and would undertake a range of roles with close ties to the project management area. As such, a rich view of project management was sought, and a heterogeneous range of interviewees working on projects, for different organisations in different industry sectors was obtained, see Table 3.6.

All interviewees had a range of project management experience, regardless of their job titles. Interviewees were asked to specify the level of complexity of the projects that they were involved in and a three-tier scale was used for this purpose. This ensured that the data acquired would be representative of experience with different levels of project complexity. Further details are given in Section 3.11.2.

A necessary condition for any interviewee to be part of this research was their willingness to participate. Most, but not all, prospective interviewees contacted by the researcher agreed to participate in this research. Some potential interviewees chose not to participate in this research due to their work commitments.

Selecting the right data sample helps to ensure the credibility of this research.

In terms of the sample size for the data collection Saunders et al. (2012, p.283) state that for a non-probability sampling used in an inductive approach based on a grounded theory strategy a sample size of 20 to 35 meets the minimum requirements. According to other authors (Charmaz, 2006; Strauss and Corbin, 1998) the sample size is dependent on the nature of the study and the concept of theoretical saturation. Lincoln and Guba (1985) agree that the sample size is dependent on many factors such as the kind of research being carried out and the nature of data. However, they give the guidance that a dozen or so interviews can exhaust most available information whilst twenty interviews will provide data well beyond information redundancy.

Mason (2010) identifies the mean sample size in PhD studies to be 31, having looked at 560 theses. However, as it will be explored in Section 8.6.4 of this thesis, being compliant with the requirements of the literature does not guarantee that full data saturation will be obtained.

Given the methodological and research strategy approach taken in this research work, 31 interviews were conducted during 2009 and the process of conducting the interviews was carried out to satisfy the requirements of grounded theory (Charmaz, 2006).

3.11.2 Interviews for data collection

A semi-structured interview framework, emerging from the literature, as recommended by Charmaz (2006) and Wu and Beaunae (2014) was used to collect the data for this research.

The semi-structured interview framework approach is preferred in this work as it allows for adaptation during the interview process and the exploration of unexpected paths of questioning that may occur as a result of the dialog with the interviewees.

Unstructured interviews were not thought to be suitable for this research as grounded theory Charmaz (2006) required the identification of areas of exploration, which cannot be achieved through such an informal, unstructured, approach.

Project management is a social activity that cannot be constrained in a straitjacket approach that a structured interview would entail (Collis and Hussey, 2014, p.135) as this prevents any new ideas that emerge from the interviewing process being followed up, which contravenes a grounded theory approach. A semi-structured questioning framework (Collis and Hussey, 2014, p.135) is argued to be suitable for data collection as the exploration of the ideas of the people interviewed is important in this research.

The interview framework is represented in Figure 3.5 and to illustrate its flexible nature, according to the principles already established earlier in this work, a diagram was chosen to represent it rather than a table, which might suggest a rigid approach.

The initial discussion points for these interviews are identified from literature (see Table 2.4) forming, in effect, the basis for the interview framework; the interview data collection instrument has been refined so that it now forms the basis for the interviews carried out at this stage.

The interview framework initiated discussions in the areas represented within it, but the discussions with the interviewees have then followed any relevant points made by the interviewees, to clarify their relevance.

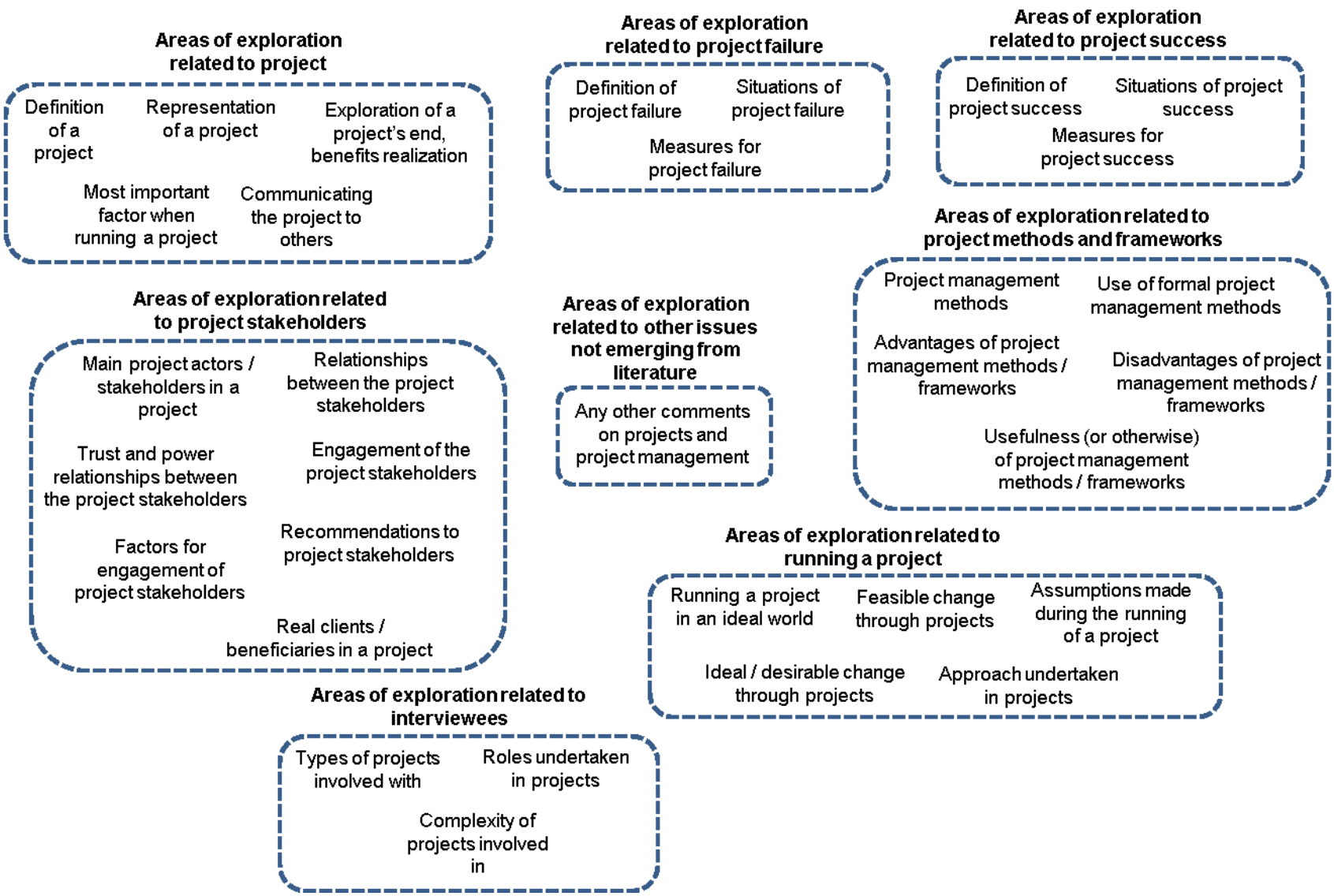


Figure 3.5: The semi-structured interview framework used in this research

For example, interview participants have made a range of statements that have evidenced details of issues occurring in projects and project management upon which theory could be built. As such, the use of the interview framework to uncover detail can be compared with the creation of a network of concepts that have emerged in relation to projects and project management which is a requirement of using grounded theory (Charmaz, 2006). This is a good example of how the choice of adopting systems thinking and grounded theory was used in practice to generate the data necessary for this research.

An interview framework is therefore seen as the most appropriate form of data collection because of the amount of flexibility possible under this approach. Whilst using a semi-structured interviewing framework, the order of the themes to be covered may be changed and emerging areas can be explored as needed to exhaust a certain line of inquiry (Easterby-Smith et al., 2012), also illustrated by Saunders et al. (2012). Given that the highly contextual nature of project management interviewee's opinions and insights are valuable to the research, such information cannot really be obtained through structured interviews. Adopting a semi-structured interview framework will allow clarifications to take place in order for both the researcher and the interviewee to fully understand what is meant during the exploratory process.

The interview framework allows a range of questions, from very generic questions to enable new themes and concepts to emerge to quite specific questions where necessary if exploring well-defined concepts such as project management methods used by project managers. In effect, as described by Saunders et al. (2012, p.377), both exploratory and explanatory questions were used and the balance of these was determined dynamically during each interview, based on the interviewee's answers. Collis and Hussey (2014, p.136) state that it is beneficial to move from general to specific topics and to only ask questions that are relevant to the research being conducted, this is an approach taken in this work. Exploration has been organised in areas and specific discussions have taken place, using as starting points the directions of exploration identified from literature (see Table 2.4). Research objective 3 "To identify key components of a project management framework" can be

progressed through an exploration of the areas of interest previously identified in literature.

As mentioned previously, 31 interviews were conducted (comprising 32 interviewees, as one interview was carried out with two interviewees from the same organisation at the same time). The interviewing process resulted in approximately 32 hours worth of interview based data.

The list of interviewees, their project related experience and industry sectors are given in Table 3.6:

Table 3.6: List of interviewees

Inter-viewee index	Job title	Sector	Type of projects	Projects Experience (Years)	Complexity of projects	Duration of projects (Years)
I01	Business Owner	Consultancy	Construction, Education, IT, Steel	10-15	Medium	0-2
I02	Consultant	Training	Automotive, Steel	10-15	High	0-2
I03	Service Planning Manager	Local Government	Local Authority	10-15	Medium	0-2
I04	Business Development	Training	Employment	10-15	Medium	0-5
I05	Project Manager	Manufacturing	Unspecified	10-15	Medium	0-0.5
I06	Senior Project Manager	Construction	Construction	10-15	High	0-5
I07	Head of Information Governance	IT	Health	0-5	High	0-2
I08	Internal Audit Relationship Manager	Financial	Financial	20+	High	0-0.5
I09	Project Manager	Local Government	Business Transformation, Change Management	30+	High	0-10
I10	Church Centre Manager	Community	Business Development, Education	5-10	Medium	0-2
I11	Childcare Manager	Local Government	Childcare	10-15	High	0-2
I12	Principal Lecturer	Education	Construction, Events	20+	High	0-2
I13	Head of Continuous and Professional Development	Education	Training	10-15	High	0-2
I14	Head of Fundraising	Community	Training	0-5	High	0-5

Inter-viewee index	Job title	Sector	Type of projects	Projects Experience (Years)	Complexity of projects	Duration of projects (Years)
I15	Policy and Research Manager	Education	Education	10-15	High	0-2
I16	Project Manager	Transport	Mining, Transportation	10-15	High	0-10
I17	School Administrator	Education	Construction	10-15	High	0-2
I18	Project Manager	Employment	Business Development, Education	10-15	Medium	0-2
I19	Processing Team Manager	Health	Health	0-5	High	0-1
I20	Senior IT & Learning Support Advisor	Education	IT	5-10	High	0-0.5
I21	Print Services Manager	Education	IT	5-10	Low	0-1
I22	Project Manager	Consultancy	IT	30+	High	0-5
I23	Conference Coordinator	Education	Events	0-5	Medium	0-1
I24	Technical Manager	IT	IT	5-10	High	0-5
I25	Campus Manager	Education	Construction	15-20	Medium	0-2
I26	Auditor	Financial	Financial	10-15	High	0-2
I27	Higher Skills Team Leader	Education	Business Transformation, Change Management	5-10	Medium	0-5
I28	Contracts Manager/Business Improvement Manager	Construction	Construction	15-20	High	0-5
I29	Business Manager	Local Government	Business Transformation, Change Management	5-10	High	0-2
I30	Executive Manager	Consultancy	Business Transformation, Change Management	5-10	High	0-5
I31	Business Improvement Manager	Construction	Construction	30+	High	0-1

The interviews typically lasted between one and two hours and were conducted in the interviewee's own place of work, in a quiet meeting room (or their own individual office when available) as this was thought to place them in a familiar environment, where they were more likely to be relaxed and engaged in the discussion process as they were not affected by unfamiliarity factors. To ensure

that the interviewees were relaxed and fully participative in the interview process, the location of their choosing was agreed for the interviews.

3.11.3 Recording the interviews and transcription

The interviews were recorded using a digital recorder and were transcribed to ensure a full capture of the conversations that took place. According to Easterby-Smith et al. (2012) and Saunders et al. (2012) some of the advantages of recording the interviews are that they allow the interviewer to fully concentrate on the interview and the accuracy of the record is very good, with no bias introduced by the researcher in the recording of the data. However, the disadvantages of audio recording are that they may influence the relationships between the researcher and interviewee and may result in a time consuming transcription process (Easterby-Smith et al., 2012; Saunders et al., 2012).

In this research, given that a grounded theory research strategy within a systems approach was chosen (both of which require as good and accurate a capture of data as possible to ensure as rich a picture to be built from the data) it was decided to audio record all of the interviews.

One of the main disadvantages of audio recording the interviews is that in order for the data to be available for analysis it needs to be converted into a word processed format which is a lengthy process. To address this issue, professional transcribing services were used to convert the data which is one of the avenues suggested by Saunders et al. (2012, p.551) and Collis and Hussey (2014). One of the main disadvantages of using such a transcription process is that the level of familiarization with the data that occurs when the researcher transcribes the data does not occur. To address this issue a process of transcription verification followed to ensure data accuracy and the immersion in data of the researcher.

3.11.4 Ethical considerations

To ensure that poor practice is avoided and the integrity of the research was preserved, a number of ethical considerations as recommended by Saunders et al. (2012) and Bryman and Bell (2015) were implemented.

Participants were informed about the purpose of the research, the process to be followed, including the audio recording of the interviews, and the time commitment required from them. They were provided with the researcher's contact details should they need to get in touch for any reason.

Each participant was given as much time as needed to fully convey their views in the interviews; in effect the length of the interviews for each participant was determined by the length of their responses to the various exploratory discussions.

Interviewees were free to withdraw from the interviews at any time. The potential for impacting negatively the interviewees was virtually non-existent as they were adult professionals and the explorations that took place in the interviews referred to their professional practice. The interviews were carried out in a place that the interviewees chose, usually their place of work, ensuring that the interviewees were comfortable during the data collection process.

The data collection was conducted by the researcher himself and therefore it can be ensured that all individual names and other interviewee related details are stored securely by having control of the data sets. The interviewees were informed that their names and contact details and the name of the organisations that they work for will remain confidential. They were also informed that their job tiles, organisation sector and project management related experience will be illustrated in the research to ensure the credibility of the research through the suitability of the interviewees.

The anonymity of the interviews in this research is ensured through coding; each interviewee is allocated a numerical code and therefore no identifiable details are recognisable. Interviewees were offered access to the results of the research to inform their own and other project managers' practice; this illustrates the "higher purpose" of this research as well as the non-commercial nature of it. This is important as it helps to establish the impartiality of the researcher and the ulterior benefit to the wider academic community and the wider society as a whole.

Interviewees were asked at the end of the interviews whether they were happy for the data that they had provided to be used for this research and they all consented without reservations.

3.12. Building theory from data - achieving a conceptual framework

Research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” needs progression; the components of the framework will emerge from the analysis of the data. To this end, the data collected during the interviews was analysed through a process of coding according to the Charmaz (2006) grounded theory principles. The intention was to identify relevant concepts that will underpin project management and stitch these together to generate new theory. As per Klag and Langley (2013), it is rarely a single insight that leads to new theory, but rather many small creative leaps. The grounded theory process undertaken in this work is shown in Figure 3.4; many intermediate steps were needed to achieve the end result.

Presenting the data using tables allows for a greater transparency of the results (Saldaña, 2013, p.188). Once the data was fully analysed it was possible to produce the final nodes and codes tables that have led to theory building.

A conceptual framework is defined as the result of a number of related concepts derived from data that are used to explain an issue that is the subject of the research (Lester, 2005; Ngulube and Mathipa, 2015). The process of creating a conceptual framework is an inductive process, where concepts are joined together to map the research framework in trying to answer the research question. It is important to pay attention to the building of the theory that sits behind the conceptual framework (Jones and Noble, 2007). To build the new conceptual framework, its components and relationships identified from data analysis have been aggregated, resulting in new theory.

The project management framework produced in this work uses the concept of a project system which is determined from the theory produced by taking a grounded approach to data analysis.

3.13. Comparison with real world – validation of the project management framework

A comparison of the project management framework with the real world view of project management practitioners was carried out to ensure that SSM step 5 is satisfied (see Table 3.1 and Figure 3.1). This will provide some confidence that the framework produced in this work is reliable, in relation to the research question, has practical usability and any improvements that could be made to it are captured and implemented or used to set up future research directions.

Validation of existing models is recommended by Sofia et al. (2013), while a set of areas for exploration in a qualitative validation process is recommended by Gallardo-Vázquez et al. (2014).

There are five evaluation criteria (Johnson et al., 2006), that should be used to assess research:

- Credibility (authentic representations, confidence in the findings),
- Dependability (minimization of researcher idiosyncrasies, repeatability of findings),
- Confirmability (researcher self-criticism, making sure the research findings are based on the data and not researcher),
- Ecological validity (reduce sources of contamination, ensuring independence from data sources, objectivity),
- Transferability (extent of applicability, can findings applied to other contexts).

Johnson et al. (2006) establish the requirement for a transferability evaluation criterion in relation to research findings. To explore the potential for credibility and transferability of the project management framework a new data set is acquired for validation. The new data was collected from a number of suitably experienced, project and business managers who did not participate in the initial interviews that led to the development of the framework. The fact that the new data set is not related in any way to the initial data set increases the confidence in the findings of this research, by supporting the credibility evaluation criterion (Johnson et al., 2006).

The areas that have been explored with the interviewees during the validation process were determined and applied as a result of the findings from the initial data set, using the same semi-structured approach that was employed earlier.

In effect, the evaluation process, as used in this research, is an attempt to test the inquiring framework by introducing it to experienced project managers and getting feedback from them on its suitability and usefulness. The strengths and weaknesses of the inquiring project management framework were explored as provided by the interviewees and refinements to the framework were introduced as a result of the validation process.

The inquiring, integrative nature of the framework was explored with the project management practitioners taking part in the validation process. The ultimate goal of the validation process is to ensure that the research aim, question and objectives are met, and while this is achieved in the first instance through the extraction of theory from the data analysed in Chapter 5, further exploration will increase the reliability of the results whilst allowing for new insights into the framework.

The interviewees used for the validation were also selected through contacts obtained from the Business Engagement team in the Sheffield Business School, where the researcher was employed. These contacts have been selected from a database of organisations that the business school had relationships with. Another source of interviewees were personal contacts of the researcher, that he had come across during his work. No interviewees were obtained via volunteer sampling, as was the case during the initial data collection, for the production of the framework.

It is important to re-state that none of the project managers interviewed in the validation stage have taken part in the initial data collection. This ensures that there is no possibility of using the same data to extract theory and validate the same theory, enhancing therefore the confirmability and ecological validity of this research (Johnson et al., 2006).

Given the stage that this research had reached, validation, it was considered that in depth discussions were necessary, to fully explore the project management framework proposed in this work. Therefore, the focus was on selecting a range of experienced project managers, that could assess with the authority given to them by their experience, the potential for practical use of the framework developed in this work. Five experienced project management practitioners were interviewed during the middle to latter part of 2016, see Table 3.7, and the interview data was transcribed using the same process employed previously in this work. The data acquired through the validation process is the most current data achievable in this research, ensuring that the validation process relies on the most recent data possible to lead to the outcomes of this work.

As the nature of the data necessary for this research has not changed in its nature from the original data set used for extraction of theory, the same data collection process was employed for validation purposes.

An interview framework, showing the same degree of flexibility as the original interview framework used in this work, was used to generate the validation data. The interview framework focused on these areas of exploration:

1. Whether the four themes, constituting the main components of the framework are appropriate;
2. Whether there are obvious problems with the project management framework;
3. Whether the project management framework can be seen as useful for project management practitioners;
4. Whether any suggestions for the improvement of the project management framework can be given;
5. Whether there are any other comments offered by the interviews in relation to the proposed framework.

Therefore, the validation process is quite focused and will not repeat the research process again, but rather explore whether the framework that has resulted from this work is useful and any suggestions for improvements can be given. Participants were also asked for any further comments, to glean any

other insights that might emerge in relation to the framework proposed in this work.

Five interviews were conducted, with a range of interviewees working on complex projects, for different organisations in different industry sectors. In terms of the suitability of the interviewees, these were experienced individuals working in project management or professional roles that required them to project manage complex projects on a regular basis. The list of validation interviewees is presented in Table 3.7:

Table 3.7: List of validation interviewees

Inter-viewee index	Job title	Sector	Type of projects	Projects Experience (Years)	Complexity of projects	Duration of projects (Years)
V01	Project Manager	Banking	IT	10-15	High	0-5
V02	Head of Faculty Professional Services	Education	Business Transformation, Change Management	10-15	High	0-5
V03	Project Manager, Advisory Practice	Consultancy	Various, multiple industries	10-15	High	0-5
V04	Business Head, Projects	Automotive	Various, multiple industries	15-20	High	0-2
V05	Managing Director	Professional development	Various, multiple industries	10-15	High	0-3

The validation interviews were transcribed by the researcher and this has allowed for maximum contact with the data set which improved understanding of its meaning.

3.14. Pulling it all together – research process

The research process, including data collection and analysis, is presented in Figure 3.6, in an integrated manner, to clarify its multistage nature.

An initial review of academic literature was carried out to identify areas of exploration and a suitable methodology.

The initial data collection and analysis took place in 2009 and involved the use of the interview framework based on themes emerging from the literature and

presented earlier in Figure 3.5. Data was analysed through the application of a grounded theory process and the components of the project management framework were established.

There were several interruptions to the research process due to unavoidable circumstances. These interruptions occurred during 2011-2016, amounting to long periods of suspension from studies.

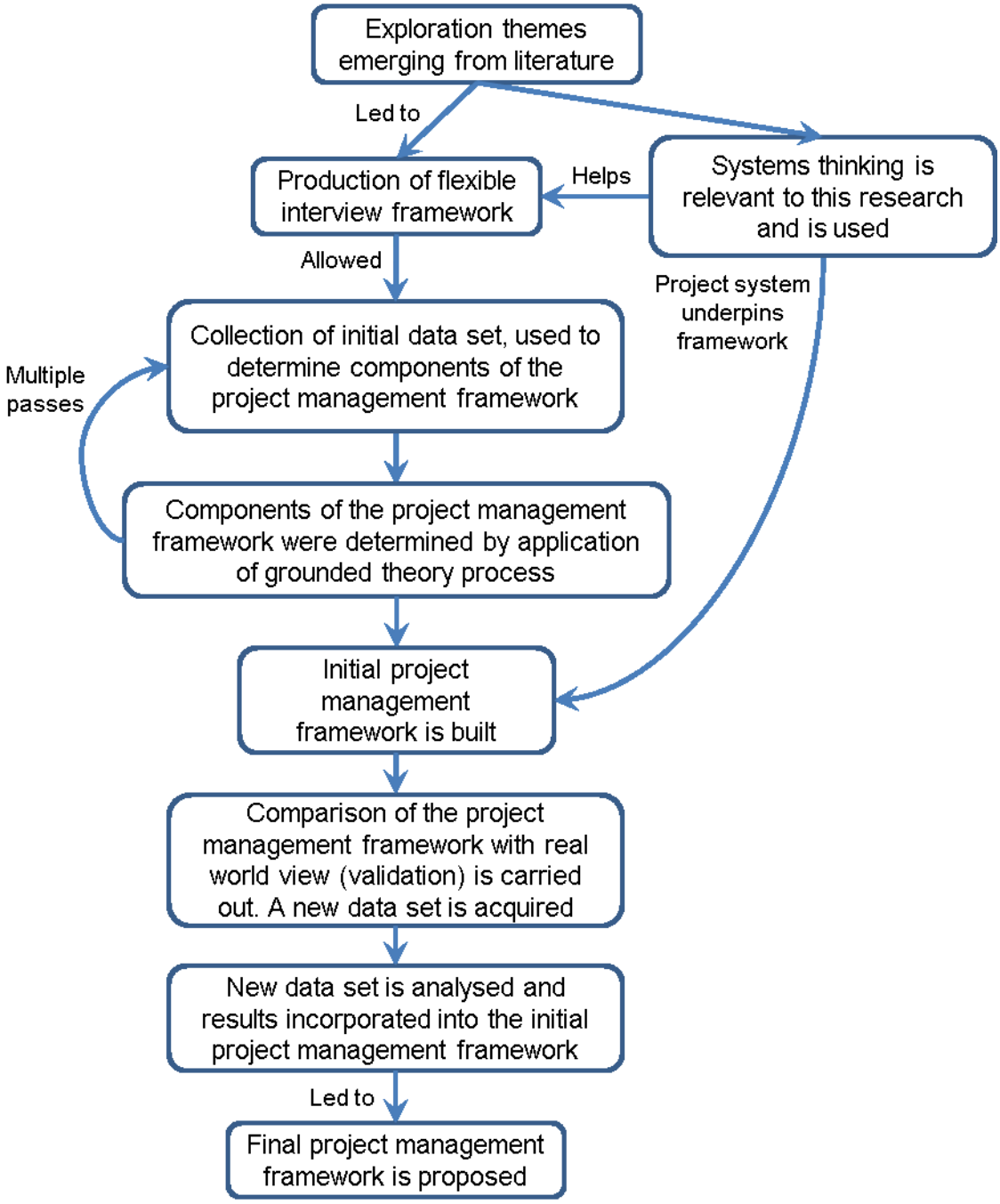


Figure 3.6: Research process, including data collection and analysis

The research process was resumed in early 2016 leading to the acquisition of data for validation, its analysis and the production of the final version of the project management framework.

The academic literature was updated during 2016-2017 and professional literature was included during 2017-2018.

3.15. Conclusion

A review was carried out with the purpose of identifying the most appropriate research philosophy, approach, strategy and design that would enable data collection and analysis, essential for new knowledge generation.

An interpretivist philosophical stance was considered the most appropriate for this work and grounded theory building within a systems thinking framework was selected to this end.

The most suitable data collection instrument for this research was identified as an interview framework. Detailed data analysis would be carried out by employing grounded theory.

To conduct the data analysis, a coding process was chosen and this is implemented by using data analysis software such as QSR International NVivo and Microsoft Excel as support tools only. The coding of data is carried out by the researcher.

Emerging theory from data, leading to the components of the project management framework, will be embedded into a framework based on a project system.

To ensure that the framework developed in this research is exposed to a real world view of project management practitioners, a validation exercise will be carried out in this work.

The practical steps for progressing research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” were established; a combination of systems thinking and grounded theory will be used to achieve the framework.

Progress towards completing research objective 3 “To identify key components of a project management framework” was achieved by structuring the directions of exploration for data collection and analysis.

Research objective 4 “To explore the role of inquiry in a project management framework” was progressed through strengthening the case for an inquiring approach due to complexities introduced by people.

4. Process for exploring data and some results from analysis

4.1. Introduction

Having established an appropriate research philosophy and methodology in the previous chapter and given the complexities associated with data analysis and its integration with systems thinking, the steps taken to analyse the data, and therefore to progress the agenda of building a project management framework, are presented in this chapter. The process of building the project management framework and coding the data is explored.

Research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” is advanced through presenting an outline of the nature of the components of the project management framework as represented by variables. A rich picture of project management is presented, showing complexity. The root definition of the project system that underpins the framework proposed in this research is determined.

Some results from data analysis are presented in this chapter, to allow further progress to be made towards achieving research objective 3 “To identify key components of a project management framework”.

4.2. Building a rich picture of project management

Having built a detailed, rich picture, of project management, through an exploration of the literature and data collection and analysis, this be represented now in a pictorial format, in Figure 4.1, as required by step 2. of SSM, see Figure 3.1.

A sense of complexity is illustrated by the elements of the rich picture, with people being key to this complexity. People shape all aspects of projects and their management and accessing people is essential.

There are many elements that shape projects and these need considering as only an integrative approach will give a full picture of a project.

Projects need contextualizing as they exist a specific, dynamic, environments and they are subject to constraints.

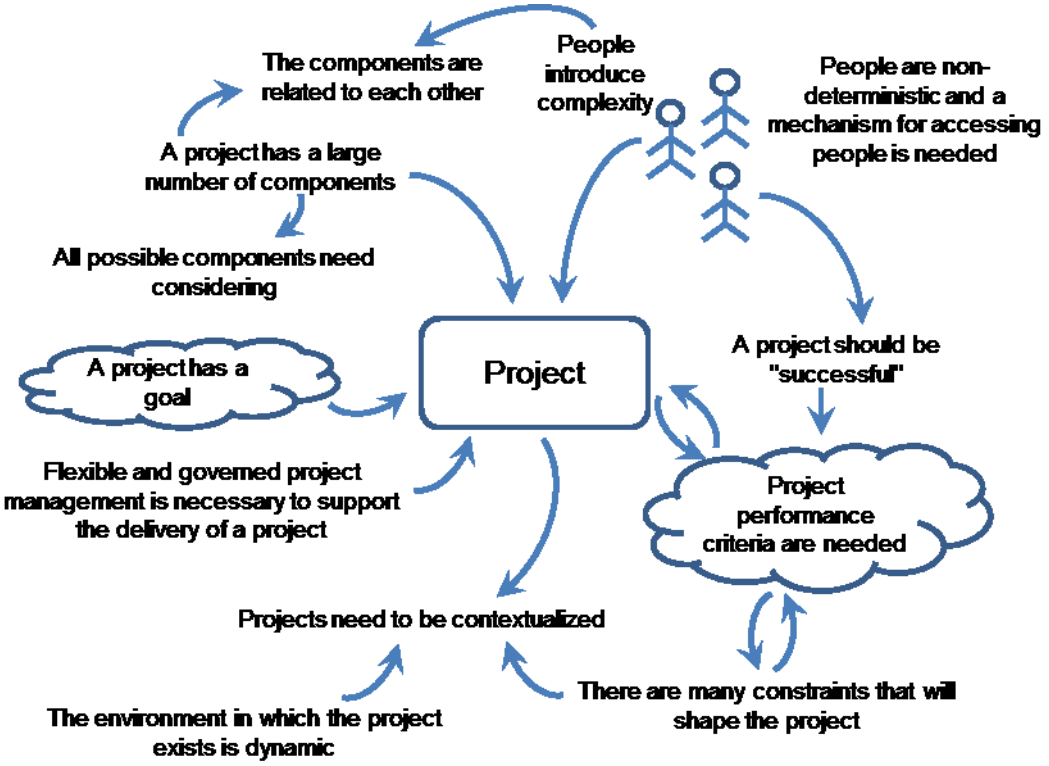


Figure 4.1: Rich picture representing project management

Progress is necessary to produce a project management framework, which constitutes the model emerging from the application of SSM. A root definition of the project system underpinning the framework is given in the next section.

4.3. A project system as the basis for the project management framework

Whilst the idea of a dynamic, evolving, project system was discussed earlier in this work, we need to progress the construction of the framework by defining the project system that underpins it.

At its simplest, a project management system could be represented as follows, in Figure 4.2, based on Figure 2.7.

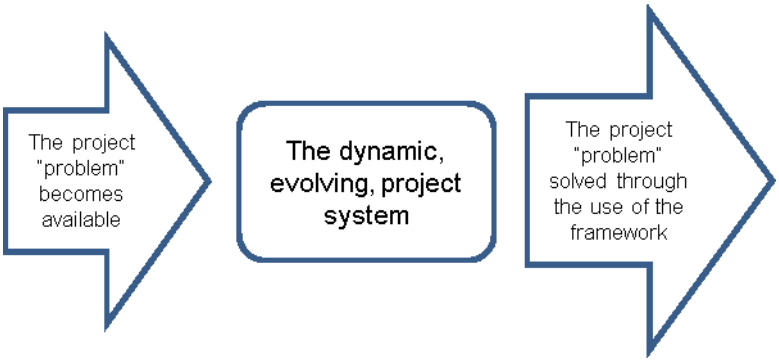


Figure 4.2: The project system as the basis for the project management framework

However, Figure 4.2 only gives a high level view of the project system, it is necessary to provide further level of detail to ensure that this framework is useful.

Having built a detailed, rich picture, Figure 4.1, of the problem of project management, through an exploration of the literature and data, a root definition of the project system, which is used to underpin the project management framework, can now be given in Table 4.1.

Table 4.1: Root definition of the project system underpinning the framework

Root definition of the project system	
A system owned by the project owner that allows a project to be progressed successfully through acquiring data, information and knowledge needed for decision making in a broad range of relevant areas. Projects contain complexities introduced by people that will impede decision making by project management practitioners and will need exploration. A broad range of project specific constraints will need to be satisfied.	
Customer	Project beneficiaries
Actors	All project stakeholders
Transformation	The application of the project system allows the solving of a project problem through decision making based on data, information and knowledge obtained via a thorough inquiry into its complexities
Weltanschauung (World view)	To solve a project problem successfully, in other words to deliver a successful project
Owner	Project owner
Environment	The specific context in which the project exists. Likely to be complex, dynamic, with people contributing significantly to its complexity.

The root definition's associated CATWOE checklist (Checkland, 1999) is also shown in Table 4.1, based on the discussion in Section 2.7.3 of this thesis.

Further progress needs to be made to develop the project management framework and the components of the project system are identified next.

4.4. Review of data coding for framework construction

Having defined the project system to be used for the construction of the project management framework, its components need to be provided, to progress the development of the project management framework presented in Figure 4.2. The components of the project management framework are identified by taking a grounded theory approach to data analysis.

The coding of the data was carried out by the researcher following the coding process recommended by Charmaz (2006) and comprised several stages:

1. An initial coding process involved the identification of key issues, concepts, and themes by means of analysis of the data. Therefore, codes identified in the data have emerged as a result of the multiple passes through the interview transcripts. The codes emerging at this stage are the "variables" presented in this and following chapters.

2. The next stage in the coding process undertaken was focused coding. Focused coding allowed the synthesis and explanation of larger segments of data and provides the vehicle for the creation of the more substantive, conceptual codes which represent the "nodes" presented in this chapter.

3. A further stage of focused coding was carried out to identify what have become the main component themes of the project management framework developed in this work.

4. Finally, theoretical coding was undertaken to ensure that relationships between nodes are identified to allow building a further understanding around project management complexities.

During the coding process, indexing and numbering of the data (nodes and variables) has taken place and this has helped to structure the data for analysis. A hierarchical structure of nodes and variables (codes) has resulted and is presented and discussed in this chapter.

Using as a starting point Figure 3.4, the results of applying the grounded theory process to establish the project management framework components are presented in Figure 4.3.

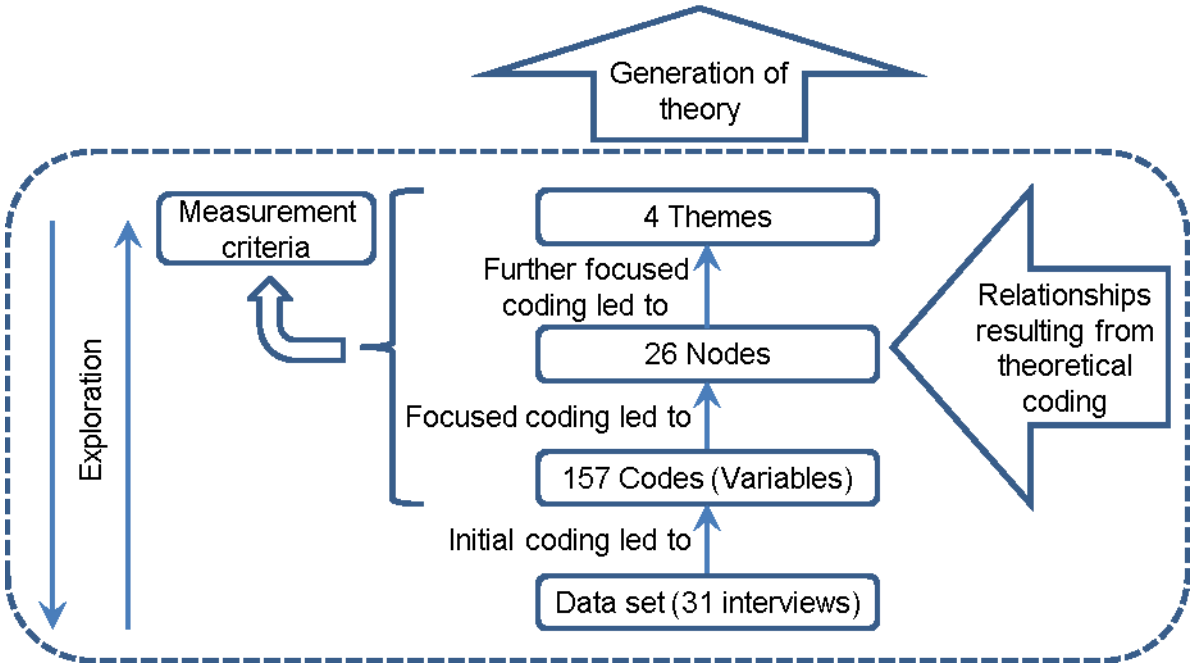


Figure 4.3: Results of data analysis using a grounded theory process

In terms of indexing the variables, this had taken place during the coding process and the way in which variables were indexed is shown in Figure 4.4.

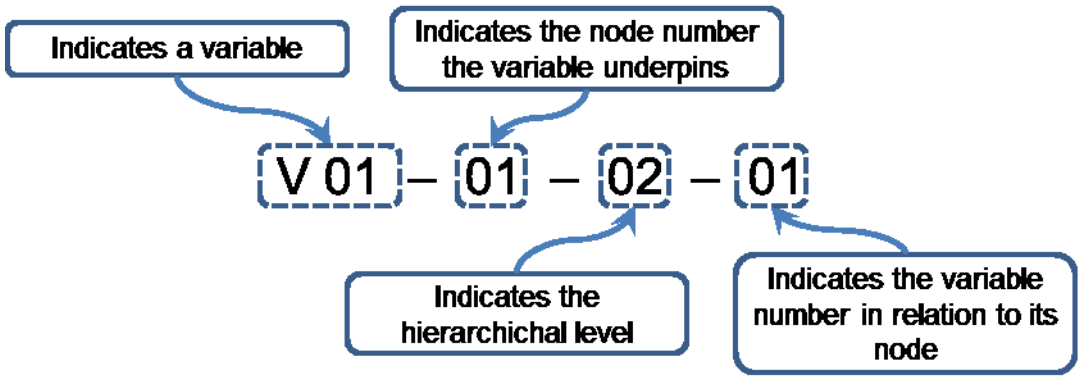


Figure 4.4: Indexing of variables

157 codes (variables), to be used for project management framework construction, were identified during the initial data coding process. These are presented in Table 4.2.

Table 4.2: Initial codes (variables) resulting from data analysis

No.	Index	Code (Variable)
1.	V01-01-02-01	Structure and consistency
2.	V01-01-02-02	Common platform and portability
3.	V01-01-02-03	Familiarity of process
4.	V01-01-02-04	Focus
5.	V01-01-02-05	Visibility of project and monitoring
6.	V01-02-02-01	Planning
7.	V01-02-02-02	Communication and information
8.	V01-02-02-03	Sponsors and stakeholder engagement
9.	V01-02-02-04	Objectives
10.	V01-02-02-05	Flexibility
11.	V01-02-02-06	Qualification and training
12.	V01-03-02-01	Communication and information
13.	V01-03-02-02	Ownership
14.	V01-03-02-03	Work priorities
15.	V01-03-02-04	Stakeholder relationships
16.	V01-03-02-05	Changes in environment
17.	V01-03-02-06	Unclear and changing objectives
18.	V01-03-02-07	Cumbersome processes
19.	V01-04-02-01	Structured approach
20.	V01-04-02-02	Flexibility
21.	V01-04-02-03	Assurance
22.	V01-04-02-04	Common approach
23.	V01-05-02-01	Flexibly defined specification
24.	V01-05-02-02	Tightly defined specification
25.	V01-05-02-03	Project and External team specification
26.	V01-05-02-04	Project team specification
27.	V01-05-02-05	External team specification
28.	V01-06-02-01	Stakeholder benefits resulting from project
29.	V01-06-02-02	Project success
30.	V01-06-02-03	Lessons learned
31.	V01-06-02-04	Project objectives
32.	V01-07-02-01	Planning
33.	V01-07-02-02	Scope suitability and understanding
34.	V01-07-02-03	Stakeholder relationship
35.	V01-07-02-04	Valid business case
36.	V01-07-02-05	Benefits realisation
37.	V01-07-02-06	Project budget
38.	V01-07-02-07	Environment changes

No.	Index	Code (Variable)
39.	V01-07-02-08	Time
40.	V01-07-02-09	Did not fail
41.	V01-08-02-01	Planning
42.	V01-08-02-02	Benefits realisation
43.	V01-08-02-03	Financial measures
44.	V01-08-02-04	Stakeholder relationship
45.	V01-08-02-05	Objectives and scope
46.	V01-08-02-06	Skills mix
47.	V01-09-02-01	A change
48.	V01-09-02-02	Defined time
49.	V01-09-02-03	Has objective and/or outcomes
50.	V01-09-02-04	Needs resources
51.	V01-09-02-05	Defined activities
52.	V01-09-02-06	Boundary
53.	V01-10-02-01	Practical limitations
54.	V01-10-02-02	Complexity of method
55.	V01-10-02-03	Suitability of method
56.	V01-10-02-04	Stakeholder engagement
57.	V01-10-02-05	Prescriptiveness
58.	V01-10-02-06	Training requirements
59.	V01-11-02-01	Direct stakeholder benefit or relevance
60.	V01-11-02-02	Consultative approach, empowerment
61.	V01-11-02-03	Enjoyable working relationships and environment
62.	V01-11-02-04	Publicising project
63.	V01-11-02-05	Financial rewards
64.	V01-11-02-06	Worthwhile projects
65.	V01-11-02-07	Senior stakeholder influence
66.	V01-12-02-01	Complexity
67.	V01-12-02-02	Stress
68.	V01-12-02-03	Dependence on other stakeholders
69.	V01-12-02-04	Usefulness and/or benefits
70.	V01-12-02-05	Variety of work practices
71.	V01-12-02-06	Consistency of work practices
72.	V01-13-02-01	Ideal objectives and/or deliverables
73.	V01-13-02-02	Feasible objectives and/or deliverables
74.	V01-13-02-03	Constraints
75.	V01-14-02-01	Project scope creep
76.	V01-14-02-02	Short term benefit realization
77.	V01-14-02-03	Long term benefit realization
78.	V01-14-02-04	Stakeholder views
79.	V01-14-02-05	Not measured
80.	V01-14-02-06	Timescales for delivery not achieved
81.	V01-14-02-07	Risk assessment
82.	V01-14-02-08	Valid business case

No.	Index	Code (Variable)
83.	V01-14-02-09	Financial and numerical measures
84.	V01-15-02-01	Risk assessment
85.	V01-15-02-02	Short term benefit realization
86.	V01-15-02-03	Long term benefit realization
87.	V01-15-02-04	Financial and numerical measures
88.	V01-15-02-05	Objectives and quality achieved
89.	V01-15-02-06	Stakeholder views
90.	V01-15-02-07	Not measured
91.	V01-15-02-08	Timescales for delivery achieved
92.	V01-15-02-09	Learning
93.	V01-16-02-01	Organisational structures and processes
94.	V01-16-02-02	Cultural and perspective differences
95.	V01-16-02-03	Assumptions about others
96.	V01-16-02-04	Senior stakeholder involvement
97.	V01-16-02-05	Effective working relationships
98.	V01-16-02-06	Ineffective working relationships
99.	V01-16-02-07	External influences
100.	V01-16-02-08	Authority to make decisions
101.	V01-16-02-09	Reluctance to communicate
102.	V01-16-02-10	Ineffective communication
103.	V01-17-02-01	Representing a project
104.	V01-18-02-01	Project planning and scope
105.	V01-18-02-02	Being proactive
106.	V01-18-02-03	Relationships with stakeholders
107.	V01-18-02-04	Learning and building understanding
108.	V01-18-02-05	Monitoring
109.	V01-18-02-06	Communication to others
110.	V01-18-02-07	Iterative process
111.	V01-19-02-01	Objectives
112.	V01-19-02-02	Resources
113.	V01-19-02-03	Senior stakeholder support
114.	V01-19-02-04	Competence and professionalism
115.	V01-19-02-05	Time
116.	V01-19-02-06	Budget
117.	V01-19-02-07	Planning
118.	V01-19-02-08	Stakeholder relationships
119.	V01-19-02-09	Flexibility of action
120.	V01-20-02-01	Understanding communications and information from project stakeholders (and engagement with these)
121.	V01-20-02-02	Capability and willingness of project stakeholders
122.	V01-20-02-03	Project progress and stakeholders engagement
123.	V01-20-02-04	Capability of systems
124.	V01-20-02-05	External influences
125.	V01-20-02-06	Effective and accurate information

No.	Index	Code (Variable)
126.	V01-21-02-01	Objectives and deliverables
127.	V01-21-02-02	Ownership
128.	V01-21-02-03	Senior stakeholder engagement
129.	V01-21-02-04	Communication
130.	V01-21-02-05	Timescales
131.	V01-21-02-06	Relationships with stakeholders
132.	V01-21-02-07	Planning
133.	V01-21-02-08	Quality
134.	V01-21-02-09	Right team
135.	V01-21-02-10	Decision making and management
136.	V01-22-02-01	Prince 2
137.	V01-22-02-02	Gantt Charts
138.	V01-22-02-03	Other methods
139.	V01-22-02-04	Organisation specific
140.	V01-22-02-05	Project or Project Manager specific
141.	V01-22-02-06	Not known or not specified
142.	V01-22-02-07	Avoids using
143.	V01-24-02-01	End of project
144.	V01-24-02-02	Relationships resulting from project
145.	V01-24-02-03	Long term aspects
146.	V01-24-02-04	Short term aspects
147.	V01-25-02-01	Main stakeholders in a project
148.	V01-26-02-01	Project related organisational stakeholders
149.	V01-26-02-02	Other organisational stakeholders
150.	V01-26-02-03	Direct project customers
151.	V01-26-02-04	3rd Party stakeholders
152.	V01-27-02-01	Ideal objectives and/or deliverables
153.	V01-27-02-02	Realistic objectives and/or deliverables
154.	V01-27-02-03	Time constraints
155.	V01-27-02-04	Budget constraints
156.	V01-27-02-05	Quality constraints
157.	V01-27-02-06	Adjusted objectives and/or deliverables

A small number of variables related to interviewees and not used in the construction of the project management framework are presented in Table 4.3.

Table 4.3: Codes (variables) not used for constructing the framework

Variables not used for project management framework construction	V01-23-02-01	Job title
	V01-23-02-02	Sector
	V01-23-02-03	Type of projects
	V01-23-02-04	Projects Experience (Years)
	V01-23-02-05	Complexity of projects
	V01-23-02-06	Duration of projects (Years)

Following on from initial coding, during focused coding, 27 nodes were identified. The indexing of nodes is shown in Figure 4.5.

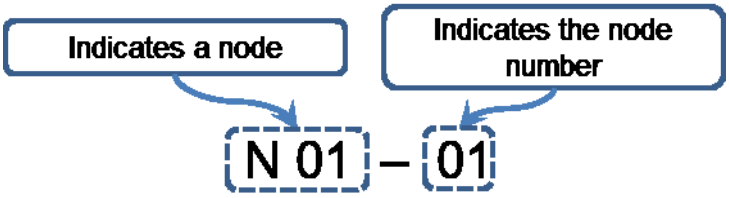


Figure 4.5: Indexing of nodes

The nodes represent broader sections of data, whilst the variables represent narrower areas. The nodes are presented in Table 4.4.

Table 4.4: Nodes resulting from focused data coding

Index	**Node**
N01-01	Advantages of project management methods
N01-02	Running a project - recommended practice
N01-03	Barriers when running a project
N01-04	Assertions on project management frameworks
N01-05	Project brief
N01-06	Communicating a project to others
N01-07	Defining project failure and reasons
N01-08	Defining project success and reasons
N01-09	Defining the project
N01-10	Disadvantages of project management methods
N01-11	Engagement and motivation of project stakeholders
N01-12	Assertions on projects and project management
N01-13	Ideal or desirable changes through projects
N01-14	Measures for project failure
N01-15	Measures for project success
N01-16	Relationships between the stakeholders in a project
N01-17	Representing a project
N01-18	Running a project - interviewee's practice
N01-19	Running a project - in an ideal world
N01-20	Assumptions made when running a project
N01-21	Most important factor when running a project
N01-22	Project management methods employed
N01-23	Types of projects undertaken and experience
N01-24	Assertions on a project's end
N01-25	Main stakeholders in a project
N01-26	The real project beneficiaries
N01-27	Feasible changes through projects

The relationships, as reflected by indexes, between the nodes and the variables presented earlier are shown in Figure 4.4.

At this stage it can be noted that “N01-23. Types of projects undertaken and experience” and the variables underpinning it are not utilized for the production of the project management framework. This node and variables have resulted from the process of establishing the interviewees’ credentials in the area of project management and is presented for completeness only. Therefore, only 26 nodes and the variables underpinning them are used for the production of the project management framework.

Following further focused coding, the main component themes of the project management framework were identified and these are shown in Table 4.5. Themes represent the broadest areas of data and are underpinned by the nodes and variables identified earlier.

Table 4.5: Themes representing the main components of the framework

Index	**Theme**
1.	Project
2.	Project Manager
3.	Project Stakeholders
4.	Project Management Framework and Methods

The variables, nodes and themes have emerged as a result of applying the grounded theory analysis process to the data set obtained as a result of the interviews carried out for data collection purposes.

The process of eliciting the variables, nodes and themes from the data has meant a lengthy and rigorous process of going forward and backwards within the data set and an iterative process of refinement of the concepts emerging from the data until they have reached their final form, which is presented in this chapter.

Having established the nodes and themes, that constitute the components of the project management framework, they are presented together in Table 4.6 to illustrate their positioning in relation to each other.

Table 4.6: Nodes and themes

Major project management related theme	**Node**
Project	N01-03. Barriers when running a project
	N01-05. Project brief
	N01-07. Defining project failure and reasons
	N01-08. Defining project success and reasons
	N01-09. Defining the project
	N01-13. Ideal or desirable changes through projects
	N01-14. Measures for project failure
	N01-15. Measures for project success
	N01-24. Assertions on a project's end
	N01-27. Feasible changes through projects
Project Manager	N01-02. Running a project - recommended practice
	N01-06. Communicating a project to others
	N01-12. Assertions on projects and project management
	N01-17. Representing a project
	N01-18. Running a project - interviewee's practice
	N01-19. Running a project - in an ideal world
	N01-20. Assumptions made when running a project
	N01-21. Most important factor when running a project
Project Stakeholders	N01-11. Engagement and motivation of project stakeholders
	N01-16. Relationships between the stakeholders in a project
	N01-25. Main stakeholders in a project
	N01-26. The real project beneficiaries
Project Management Framework and Methods	N01-01. Advantages of project management methods
	N01-04. Assertions on project management frameworks
	N01-10. Disadvantages of project management methods
	N01-22. Project management methods employed

“Project Measurement Criteria” have been identified from variables, nodes and themes as shown in Table 4.7. These criteria are the measures of performance for the project system underpinning the framework proposed in this work, see Figure 3.1.

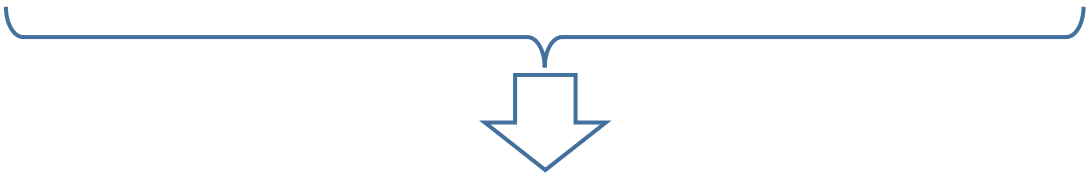
Table 4.7: Project Measurement Criteria

Project Measurement Criteria		
Major project management related theme	**Node**	**Code (Variable)**
Project	N01-14. Measures for project failure	V01-14-02-01 Project scope creep
		V01-14-02-02 Short term benefit realization
		V01-14-02-03 Long term benefit realization
		V01-14-02-04 Stakeholder views
		V01-14-02-05 Not measured
		V01-14-02-06 Timescales for delivery not achieved
		V01-14-02-07 Risk assessment
		V01-14-02-08 Valid business case
		V01-14-02-09 Financial and numerical measures
	N01-15. Measures for project success	V01-15-02-01 Risk assessment
		V01-15-02-02 Short term benefit realization
		V01-15-02-03 Long term benefit realization
		V01-15-02-04 Financial and numerical measures
		V01-15-02-05 Objectives and quality achieved
		V01-15-02-06 Stakeholder views
		V01-15-02-07 Not measured
		V01-15-02-08 Timescales for delivery achieved
		V01-15-02-09 Learning
	N01-24. Assertions on a project's end	V01-24-02-02 Relationships resulting from project
Project Manager	None	None
Project Stakeholders	N01-11. Engagement and motivation of project stakeholders	V01-11-02-01 Direct stakeholder benefit or relevance
		V01-11-02-02 Consultative approach, empowerment
		V01-11-02-03 Enjoyable working relationships and environment
		V01-11-02-04 Publicising project

Project Measurement Criteria		
		V01-11-02-05 Financial rewards
		V01-11-02-06 Worthwhile projects
		V01-11-02-07 Senior stakeholder influence
Project Management Framework and Methods	None	None

Due to the large number of variables, it is not thought practical to include the full view of themes, nodes and variables in one table as this would be unwieldy. However, the structure of the results obtained from the data, which constitute the components of the project management framework, is shown in Table 4.8.

Table 4.8: Components of the project management framework

Project	**Project Manager**	**Project Stakeholders**	**Project Management Framework and Methods**
10 Nodes	8 Nodes	4 Nodes	4 Nodes
64 Variables	49 Variables	22 Variables	22 Variables
			
Project Measurement Criteria have been identified from			
2 Themes, 4 Nodes and 26 Variables			

4.5. Review of variables

A detailed analysis of the types of variables representing each of the nodes will be carried out. Having spent a considerable amount of time immersed in data, further insights emerged in relation to the variables identified during initial coding. These insights allow further classification of the 157 variables resulting from data into five categories:

1. “High interest” variable,
2. “Regular” variable,

3. “Difficult” variable,
4. “Difficult and High interest” variable,
5. “Deficient” variable.

Based on the analysis so far, when discussing variables in Chapter 5, it is proposed, by the researcher, to use a colour coding convention to illustrate the variable types that will be discussed. The colour coding convention proposed and the interpretation given to the five types of variables are presented in Table 4.9. It is expected that the colour coding convention for variables will help with the practical use of the project management framework, as it will be able to guide its users in terms of carrying out the inquiry process (according to their particular context) that is necessary for the application of the framework.

Table 4.9: Colour coding convention for the variables

Variable type	**Colour**	**Description of the variable**
“High interest” variable	**Green**	A type of variable that is underpinned by a lot of data, which allows conclusions to be drawn.
“Regular” variable	**Grey**	A type of variable that is underpinned by sufficient data, which allows conclusions to be drawn.
“Difficult” variable	**Orange**	A type of variable is underpinned by sufficient data, which allows conclusions to be drawn and conveys the message that interviewees find this area difficult to deal with.
“Difficult and High interest” variable	**Orange + Green**	A type of variable that is underpinned by a lot of data, which allows conclusions to be drawn and conveys the message that interviewees find this area difficult to deal with.
“Deficient” variable	**Red**	A type of variable that is underpinned by a small amount of data, which may be inconsistent, suggesting the need for further investigation.

It is possible for a variable to belong to two categories, for example a variable may be a “High interest” variable and at the same time a “Difficult” variable. By the definitions given to the types of variables in the previous table, this is, in fact, the only combination logically possible. For example, it is not possible for a “Deficient” variable to be a “Difficult” variable as well, as there is not enough information available to ascertain this from the data that has been obtained in this research. The “High interest” variables are the opposite of the “Deficient” variables, whilst the “Regular” variables are by definition, just that.

4.6. Conclusion

Research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” was advanced through presenting an outline of the nature of the components of the project management framework as represented by variables in Table 4.9.

The rich picture of project management is presented in Figure 4.1.

The root definition of the project system that underpins the framework was established and presented in Table 4.1.

The process of coding the data is explored in detail and a review of the codes (variables), nodes and themes that will constitute the components of the project management framework is presented. This allowed further progress to be made towards achieving research objective 3 “To identify key components of a project management framework” by stating the 4 themes, 26 nodes and 157 variables that constitute the components of the framework (see Table 4.2, Table 4.4, Table 4.5, Table 4.6, Table 4.7 and Table 4.8).

A full presentation of the data analysis leading to the components of the project management framework is available in Chapter 5.

The components of the project management framework resulting from data analysis and presented in this chapter will be “assembled” in Chapter 6, to lead to the production of the project management framework.

5. Exploration of data

5.1. Introduction

This chapter is concerned with exploring the data in depth and the focus is on its interpretation to achieve generation of substantive theory. Data analysis will help to identify the components of the project management framework and to show the relationships between these components, as identified in this work. This will result in the production of a novel project management framework.

Research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” will be advanced through providing further details of the relationships between some of the components of the framework, as represented by nodes.

The focus of this chapter is on achieving research objective 3 “To identify key components of a project management framework” via a detailed discussion about the nature of variables and nodes that will constitute areas of inquiry.

Research objective 4 “To explore the role of inquiry in a project management framework” will be advanced, with support for taking an inquiring approach identified in data. Whilst results obtained from data are drawn throughout this chapter, these results are theoretical and need to be contextualized through a process of inquiry during the application of the project management framework.

The components of the framework are represented by the 4 themes, 26 nodes and 157 variables emerging from data. “Project Measurement Criteria” are identified to constitute the measures of performance for the project system underpinning the framework.

5.2. Review of exploration of data

A summary of the themes, nodes and variables is presented in Table 5.1 and these will be explored in detail throughout this chapter.

Table 5.1: Summary of themes, nodes and variables

Theme	Node	Variables
Project	N01-03. Barriers when running a project	7 Variables, Table 5.4
	N01-05. Project brief	5 Variables, Table 5.5
	N01-07. Defining project failure and reasons	9 Variables, Table 5.6
	N01-08. Defining project success and reasons	6 Variables, Table 5.7
	N01-09. Defining the project	6 Variables, Table 5.8
	N01-13. Ideal or desirable changes through projects	3 Variables, Table 5.9
	N01-14. Measures for project failure	9 Variables, Table 5.10
	N01-15. Measures for project success	9 Variables, Table 5.11
	N01-24. Assertions on a project's end	4 Variables, Table 5.12
	N01-27. Feasible changes through projects	6 Variables, Table 5.13
Project Manager	N01-02. Running a project - recommended practice	6 Variables, Table 5.16
	N01-06. Communicating a project to others	4 Variables, Table 5.17
	N01-12. Assertions on projects and project management	6 Variables, Table 5.18
	N01-17. Representing a project	1 Variable, Table 5.19
	N01-18. Running a project - interviewee's practice	7 Variables, Table 5.20
	N01-19. Running a project - in an ideal world	9 Variables, Table 5.21
	N01-20. Assumptions made when running a project	6 Variables, Table 5.22
	N01-21. Most important factor when running a project	10 Variables, Table 5.23
Project Stakeholders	N01-11. Engagement and motivation of project stakeholders	7 Variables, Table 5.26
	N01-16. Relationships between the stakeholders in a project	10 Variables, Table 5.27
	N01-25. Main stakeholders in a project	1 Variables, Table 5.28
	N01-26. The real project beneficiaries	4 Variables, Table 5.29
Project Management Framework and Methods	N01-01. Advantages of project management methods	5 Variables, Table 5.32
	N01-04. Assertions on project management frameworks	4 Variables, Table 5.33
	N01-10. Disadvantages of project management methods	6 Variables, Table 5.34
	N01-22. Project management methods employed	7 Variables, Table 5.35

The four theme components of the framework can be summarized as follows:

- "Project" theme, underpinned by 10 Nodes and 64 Variables. This theme is explored in Section 5.3;
- "Project Manager" theme, underpinned by 8 Nodes and 49 Variables. This theme is explored in Section 5.4;
- "Project Stakeholders", underpinned by 4 Nodes and 22 Variables. This theme is explored in Section 5.5;
- "Project Management Framework and Methods", underpinned by 4 Nodes and 22 Variables. This theme is explored in Section 5.6.

When presenting the node and variables tables throughout this chapter, several items of information are presented in relation to each, as outlined in Table 5.2.

Table 5.2: Information associated with nodes and variables

Information associated with variables and nodes	**Meaning of the information associated with the variables and nodes**
Level 01 Node Sources	This information shows the total number of sources (interviewees) from which data was used to elicit the node
Level 01 Node References	This information shows the total number of references (data items) that exist under the node
Node	This information is the node index and name
Level 02 Variable Sources	This information shows the total number of sources (interviewees) that have provided data (through their interviews) under the variable
Level 02 Variable References	This information shows the total number of sources (interviewees) from which data was used to elicit the variable
Variable	This information is the variable index and name
Interviewee code - Inn	The code given to each interviewee, to ensure anonymity.
Variable type 1 and 2	Which variable type(s) do the variables belong to, based on the conventions shown in Table 4.9
Relationship with node(s)	Other nodes that this node is related to
x	Indicates where data items leading to the elicitation of a variable exist

Having set the scene so far, it is now time to move on and start the detailed analysis of the variables and nodes and the relationships between them. The

relationships between variables and nodes will be presented; these relationships have emerged during the iterative data analysis undertaken in this work, according to grounded theory principles.

Each node will be analysed in detail, identifying the types of variable representing them, whilst illustrating findings that have emerged from the data. The nodes will be analysed in the order presented in Table 5.1. Simplified versions of the node and variables tables are presented in Chapter 5; further content related to data analysis is available in Appendix 1. A guide to interpreting the node and variables tables is given in Figure 5.1.

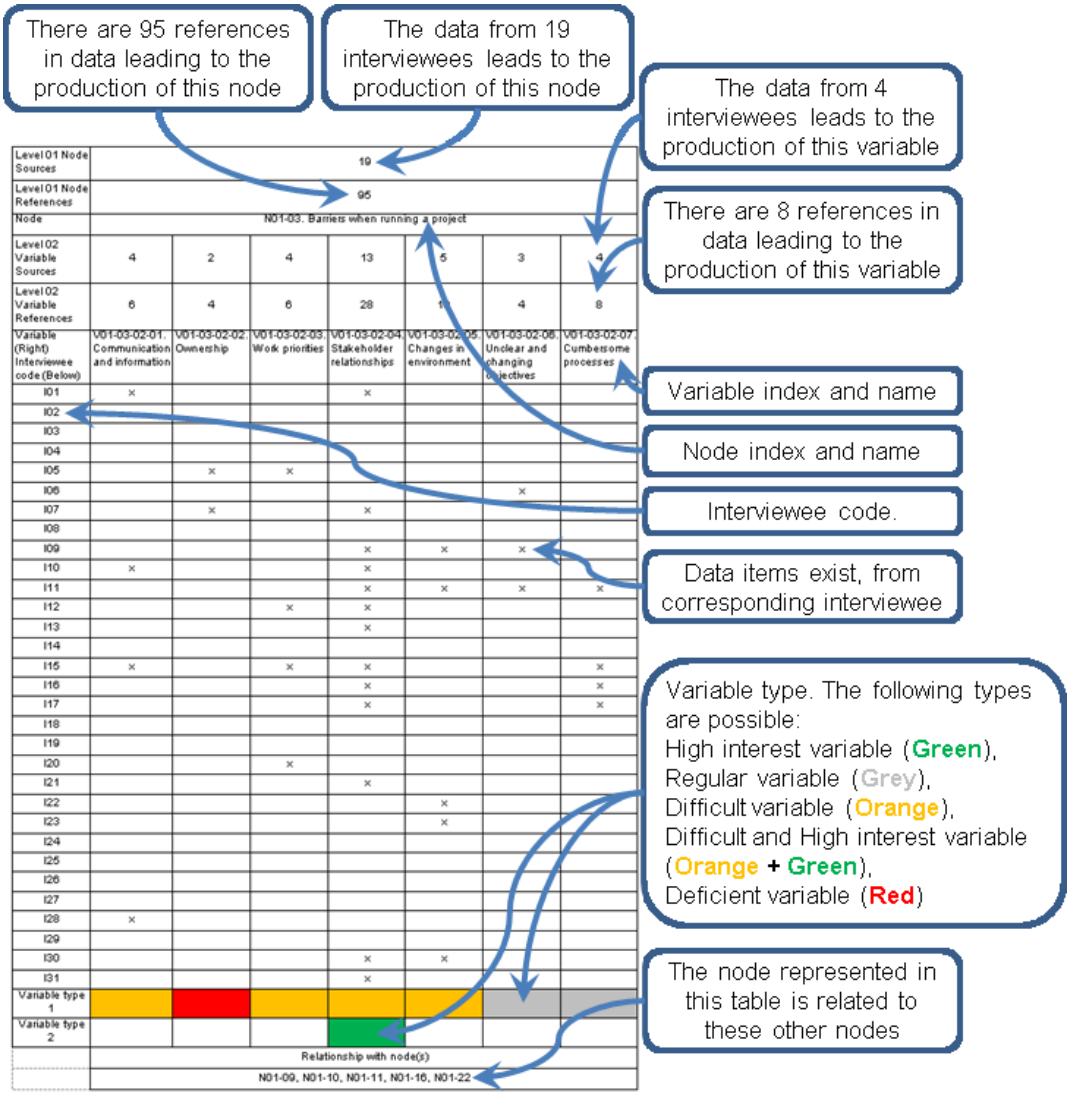


Figure 5.1: Node and variables tables explained

The data set is available on request. The data set includes the anonymised interview transcripts and the electronic files used for data processing.

5.3. The “Project” theme

The “Project” theme contains 10 nodes and 64 variables (the largest number of nodes and variables representing any of the four themes), which is not unexpected, considering that this research is concerned with project management which has projects as object. The “Project” theme constitutes a major component of the project management framework.

The “Project” theme is underpinned by nodes identified from data and these are shown in Table 5.3:

Table 5.3: The “Project” theme nodes

Major project management related theme	**Node**
Project	N01-03. Barriers when running a project
	N01-05. Project brief
	N01-07. Defining project failure and reasons
	N01-08. Defining project success and reasons
	N01-09. Defining the project
	N01-13. Ideal or desirable changes through projects
	N01-14. Measures for project failure
	N01-15. Measures for project success
	N01-24. Assertions on a project's end
	N01-27. Feasible changes through projects

The data and variables representing each node will now be analysed in detail.

The node and variables tables presented in this chapter are organised to show a range of information relating to which interviewees have provided data used to obtain the variables leading to nodes, the indexes and names of nodes and variables and the types of variables, as explained earlier in Table 5.2 and Figure 5.1.

5.3.1 Barriers when running a project

The “Barriers when running a project” node is shown in Table 5.4:

Table 5.4: The “Barriers when running a project” node

Level 01 Node Sources	19						
Level 01 Node References	95						
Node	N01-03. Barriers when running a project						
Level 02 Variable Sources	4	2	4	13	5	3	4
Level 02 Variable References	6	4	6	28	10	4	8
Variable (Right) Interviewee code (Below)	V01-03-02-01. Communication and information	V01-03-02-02. Ownership	V01-03-02-03. Work priorities	V01-03-02-04. Stakeholder relationships	V01-03-02-05. Changes in environment	V01-03-02-06. Unclear and changing objectives	V01-03-02-07. Cumbersome processes
I01	x			x			
I02							
I03							
I04							
I05		x	x				
I06						x	
I07		x		x			
I08							
I09				x	x	x	
I10	x			x			
I11				x	x	x	x
I12			x	x			
I13				x			
I14							
I15	x		x	x			x
I16				x			x
I17				x			x
I18							
I19							
I20			x				
I21				x			
I22					x		
I23					x		
I24							
I25							
I26							
I27							
I28	x						
I29							
I30				x	x		
I31				x			
Variable type 1							
Variable type 2							
	Relationship with node(s)						
	N01-09, N01-10, N01-11, N01-16, N01-22						

The “Barriers when running a project” node has been elicited from a significant amount of data and a number of variables, as shown in Table 5.4 above. Of

course, what is important is the knowledge extracted from the relevant data, and this is what the discussion will focus on at this point. The data analysis process undertaken at this node is going to serve as a model for the similar data analyses carried out for all of the other nodes resulting from the interview data.

The data that has served to produce the first variable identified here, "V01-03-02-01. Communication and information" has produced the conclusion that the predominant view is that communication is difficult between the stakeholders of the project. This is illustrated by interviewee statements such as:

> *"Production will not speak to Sales. Sales will not speak to – unless they have to, you know… Client Service, and so on. That was a big, big, big problem..."* (I01)

> *"…the hardest thing is establishing good communication really, getting people to talk, and listen, and to understand why we're doing something that's required."* (I10)

> *"I think one of the main problems with it is communication, because what you've got is, you've got partners dispersed around a geographical area."* (I15)

The next variable, "V01-03-02-02. Ownership" has revealed few comments from the participants, an example is given in the following:

> *"…it's started off as a clinical issue, and it's become an administrative issue. And really to address the problem it needs to return ownership to becoming a clinical issue."* (I07)

Variable "V01-03-02-03. Work priorities" is revealed as a difficult area as stakeholder priorities are liable to change during the project meaning that engagement in the project can drop off:

> *"…and generally what happens is, their own job, their own function, which is part of keeping the factory running, tends to take priority… So if somebody's got a bit of a problem, that tends to take priority, and then the project work tends to take a backseat…"* (I05)

Moving on to the next variable, "V01-03-02-04. Stakeholder relationships", this reveals that relationships between people are identified as a potential major barrier when running a project:

> *"…obviously somebody junior is not going to go and pester people higher up…"* (I01)

> *"…and then I've got, you know, a couple of people who just can't work together. You know, they just can't, and I really can't unpick why they can't. And I think the main thing to do is to point out that there is a cultural difference here, because everyone just tends to assume that people think like they do, and they get very puzzled, and confused and bewildered when they find out that actually they don't."* (I10)

> *"Not actually knowing who we're going to get, and whether we're going to like them, and who the main contact's going to be. And if you're lucky you get on really well with them. If you're unlucky, then it can be a real issue, and the project kind of, is already starting off on a low note."* (I17)

The area of relationships between the various stakeholders of a project is therefore identified as difficult and it clearly attracts a lot of interest given the number of comments made by the interviewees.

Variable "V01-03-02-05. Changes in environment" is yet another potential barrier when running a project. Interviewees' comments show these thoughts:

> *"I think where you are looking at a customer facing project you have to be very careful about kicking a project off that has got potentially a long delivery time because there is the danger that the environment and the customer's expectations will have changed so significantly that you will have drifted it is so far out of scope of the original project it is no longer worth continuing...the NHS is a classic example where one of their project deliverables might be a new IT system but after a couple of years the landscape has changed so much the IT system has gone through so many variations of design that no one can remember what it was they were designing anyhow..."* (I09)

> *"And the complication there was that they had a very high rate of churn, at their end – of Project Managers…in the time that I ran the project at our end in Sheffield, they had seven different Project Managers at their end."* (I22)

The conclusion that can be drawn from this area is that changes in environment over a period of time are a problem, as they cannot be controlled by the project stakeholders, therefore leaving them effectively in a reactive state. It is simply not possible to plan for all of the external changes that may take place, especially during longer projects.

Variable "V01-03-02-06. Unclear and changing objectives", reveals that there are some potential problems with unclear and changing objectives identified, as follows:

> *"The NHS is a classic example where one of their project deliverables might be a new IT system but after a couple of years the landscape has*

changed so much the IT system has gone through so many variations of design that no one can remember what it was they were designing anyhow..." (I09)

"…is absolutely endemic problem of the scope of projects being altered as you go along…In local government. I think that just happens everywhere, because the other structures change, policy changes, you know, you might get a change of council control." (I11)

However, this area has not attracted a lot of interest from the interviewees, nor do the comments suggest a particular difficulty in terms of dealing with it, which suggests that perhaps this situation does not occur very frequently.

The last variable analysed under the "N01-03. Barriers when running a project" node is "V01-03-02-07. Cumbersome processes". This has attracted a similar level of interest from the interviewees as the previous variable, here are some illustrations:

"…the way that the department is structured, it's quite difficult to act as a Project Manager, because you don't tend to manage a process from inception to finish…we would do a bit in planning, and then hand it over to the next team, who do the next bit. And that's how it's been, so that kind of put a break really on effective project management. ...you get all these conditions of grant; it must be spent by this time, you can't spend it on this, you can't spend it on that; if it's capital money, it has to be items over 2,500 pounds, you know, there have to be funding remits in place. There's so much bureaucracy around it." (I11)

"Bureaucracy, too many processes; I'm not quite sure whether the shareholder-client relationship is right." (I16)

The main concern that can be extracted from the data is related to issues with processes around running projects. Chiefly the concern is related to an overburden of too many processes, some of which are related to resources.

5.3.2 Project brief

The “Project brief” node is shown in Table 5.5:

Table 5.5: The “Project brief” node

Level 01 Node Sources	20				
Level 01 Node References	124				
Node	N01-05. Project brief				
Level 02 Variable Sources	3	7	9	3	9
Level 02 Variable References	3	11	14	4	14
Variable (Right) Interviewee code (Below)	V01-05-02-01. Flexibly defined specification	V01-05-02-02. Tightly defined specification	V01-05-02-03. Project and External team specification	V01-05-02-04. Project team specification	V01-05-02-05. External team specification
I01					
I02	x			x	x
I03	x	x			x
I04			x		
I05			x		
I06					
I07		x			x
I08			x		
I09					
I10			x		
I11			x	x	x
I12					
I13		x			
I14	x		x		
I15					
I16		x			
I17					
I18				x	x
I19					
I20					x
I21					
I22		x			x
I23					
I24			x		
I25					
I26					x
I27					
I28		x			
I29			x		
I30			x		
I31		x			x
Variable type 1					
Variable type 2					
	Relationship with node(s)				
	N01-09, N01-16, N01-17, N01-26				

There are five variables identified under this node and the area is covered to a reasonably good extent by the interviewees.

Variable “V01-05-02-01. Flexibly defined specification” illustrates the potentially iterative nature of the process of defining the project specification as identified by the interviewees. Also, a degree of creativity and uncertainty is expected in terms of developing the project brief:

> *“On the other half of the occasions people will come to me and start to initiate the process by saying this is a rough specification of what we think we want.”* (I02)
>
> *“Sometimes you can be more creative...”* (I03)
>
> *“...so kind of it’s cyclical, we have to do it in consultation with the people who are going to be benefiting.”* (I14)

The previous variable is in contrast to variable “V01-05-02-02. Tightly defined specification”, which is perceived as difficult by the interviewees:

> *“…in the NHS, for information governance, we work to a particular structure and we find that the clients’ sort of horizon is constricted by working within this framework, so they work to achieve the standard that’s set in this framework, and don’t see it in a wider context…”* (I07)
>
> *“the scope… the specifications that we get from the kinds of big clients, you know, who have a lot of money to spend, often the specification will be quite extensive… You usually receive a very detailed specification, but I think what I’ve noticed increasingly over the last ten years, say, is that there has been a real shift in that we’re seeing more and more detail in the original outline tender… Specification. Far too much detail. You know, they are itemising tons of different requirements, and there isn’t that room for discussion.”* (I13)
>
> *“And the requirements were therefore three layers deep, and they were just inches and inches and inches of Excel spreadsheet that said…”* (I22)

The data illustrates that a detailed project brief specification, often driven by external constraints, is not easily achieved or easy to work with.

The next variable, “V01-05-02-03. Project and External team specification” is perceived as difficult and has attracted a lot of interest. A diverse range of stakeholders is identified at this point. However, whilst the ultimate beneficiaries do feature in the interviewees’ responses, they do not seem to feature in all of the project brief specification teams. Interviewees have noted:

> *“So I wrote it actually, I wrote the…The tender, you know, what we… they said what they wanted…And the tender, obviously, detailed how we’d do it…”* (I04)

"I think the other things are, we obviously have to…we… before launching any project, we do it in consultation with the people who are going to use or benefit from the services." (I14)

"...the client's obviously approaching us, and saying they need an upgrade, they're wanting to use maybe a new software package. …And so it might be that they want to use that; they don't have any servers or anything on site, so it's discussing with them about their actual requirements...But we always try and get clients to get the users involved with the project, because ultimately it's in their benefit because it'll be more successful for them..." (I24)

"You know, there are other people in the decision making; I've got a boss, he's got a boss, and then there are members involved." (I29)

The area defined by the "V01-05-02-04. Project team specification" variable has attracted a number of comments:

"...the project was actually my initiation because I did it to try and solve a problem I found when vehicles go into production... Sometimes I go to a client and say I have this course can I do it in house, or this programme of training, and they say 'yes please do'" (I02)

"So our team has actually instigated projects from the bottom-up, saying, we've just got this data, we've developed this understanding, and actually we think we're going to need to do a project in area X..." (I11)

and some conclusions can be drawn that the specification of the project brief does seem to come from the project team at times.

This is in contrast with the conclusions that can be drawn by examining variable "V01-05-02-05. External team specification", which strongly suggests that in many cases it is external stakeholders or teams that will specify the project:

"...some projects come as sort of directives...you know, there are very specific initiatives that come from the government...and local authorities, you know, are given criterias that they have to work within." (I03)

"I did develop a project plan for the project that I was doing, but… I mean a lot of this was dictated, really, by the external constraints that I was working to...and that is largely a top-down exercise..." (I11)

"The original concept came from one of the operating HR Directors…" (I31)

The fact that external stakeholders are often responsible for specifying the project brief could pose ownership issues and influence the relationship between the various stakeholders.

5.3.3 Defining project failure and reasons

The “Defining project failure and reasons” node is shown in Table 5.6:

Table 5.6: The “Defining project failure and reasons” node

Level 01 Node Sources	20								
Level 01 Node References	124								
Node	N01-07. Defining project failure and reasons								
Level 02 Variable Sources	3	14	7	3	3	4	5	7	14
Level 02 Variable References	5	29	17	5	4	10	20	12	22
Variable (Right) Interviewee code (Below)	V01-07-02-01. Planning	V01-07-02-02. Scope suitability and understanding	V01-07-02-03. Stakeholder relationship	V01-07-02-04. Valid business case	V01-07-02-05. Benefits realisation	V01-07-02-06. Project budget	V01-07-02-07. Environment changes	V01-07-02-08. Time	V01-07-02-09. Did not fail
I01	x								x
I02		x	x					x	x
I03		x			x				x
I04		x							x
I05		x				x	x		x
I06									
I07			x						
I08									
I09				x	x		x		
I10			x		x			x	
I11		x	x	x		x		x	x
I12									
I13		x	x					x	x
I14									
I15									
I16									
I17	x	x						x	
I18									
I19		x						x	x
I20		x	x			x			x
I21									
I22		x							x
I23									
I24		x							
I25									
I26	x	x					x		x
I27									
I28						x	x		x
I29		x							x
I30				x				x	
I31		x	x				x		x
Variable type 1									
Variable type 2									
	Relationship with node(s)								
	N01-05, N01-06, N01-08, N01-09, N01-10, N01-11, N01-13, N01-14, N01-16, N01-20, N01-24, N01-27								

Nine variables have been identified under this node and there are some contrasts between the conclusions that can be gleaned from these. For

example, whilst three variables are underpinned by a small amount of data, two are based on quite a lot of data. Two variables have been identified as difficult and two as “Regular”, according to the variables definition given earlier in this work, in Table 4.9.

Let us analyse the variables by their nature, starting with the variables are based on the least amount of data. These are:

- “V01-07-02-01. Planning”
- “V01-07-02-04. Valid business case”
- “V01-07-02-05. Benefits realisation”

Looking at the names of these three variables, it is surprising to be in this position. Other parts of this research have also identified these areas as important, particularly planning, so it is surprising that project managers do not clearly link the planning of a project to its failure, whilst advocating for planning in their own practice.

Let us take the three variables in turn. Whilst some interviewees identify “V01-07-02-01. Planning” as essential:

> *“…the less planning you have, the more you’re going to have problems afterwards.”* (I01)

> *“But I think there are some, you know, building blocks in a project that if they’re not there then, you know, that project is going to fail, and it will always fail… You know, and that is around, certainly, your very clear objectives, tight project planning, effective risk and issue management”* (I26)

this does not seem to be a widely expressed view among other interviewees.

In terms of the “V01-07-02-04. Valid business case” variable, some interviewees felt that the business case is important:

> *“So we had to stop the project and then decide, was the business case for what we’d started right, or did we just need to walk away, or did we need to take a different approach to it, and we just decided that we needed to take a different approach, which was involving more people, perhaps letting it take a little bit longer than was necessarily expected to take, just so that people felt comfortable with it.”* (I30)

but again, this is not illustrated widely in the data.

Variable “V01-07-02-05. Benefits realisation” is underpinned by limited information, one example is given below:

> *“...one of the things it tends to build up an inertia, you get loads of people on board, you’ve got the money, you’ve got the thing and we will see it through to conclusion even you as the professional project management are saying to them ‘you are not going for these reasons you are not going to get the end results that you planned for’. ‘Do you really .... ‘ ‘Well you know we’ve started, we’ve got the money we’ve effectively taken the money out of our budget and put into this project we might as well’. So local government, if you were being critical, you could say they carry projects on when they really shouldn’t and where the private sector wouldn’t.”* (I09)

The two variables that give the most insight will now be discussed. Variable “V01-07-02-02. Scope suitability and understanding” suggests that the scope of some projects seems to be changing regularly - is this to avoid failure as suggested by some interviewee's comments? The iterative nature of the redefinition of the project is suggested by these comments:

> *“It goes back to that original charter document you set out milestones, so working out when you have slippage, working out when something isn’t as you originally envisaged. But what you have to be careful of is, it is ... just because something is different it doesn’t mean it is wrong, so if your project outcome is different, no need to say ‘no, no, no that is wrong let’s go back to the original project’ let’s think why is it different, is it better and should we use that new learning to adapt. So don’t just throw it out because it is different.”* (I02)

> *“I think we’ve sort of re-evaluated projects. I mean I can’t just think of an example specifically,...then obviously implications of withdrawing that project would be discussed, and I’m sure if that was the right decision, then it would be withdrawn, but I don’t think I’ve been involved in this, up to date, that we have withdrawn. I think we might have refined it, but I don’t think actually stopped something.”* (I03)

> *“I think if you go into… if you know what you want to achieve and you go into it flexibly enough, that you shouldn’t fail.”* (I04)

> *“The company hadn’t interpreted that right, hadn’t read the spec properly; they had missed something out ...It didn’t fail I had to change it half way through. I had to change the base aim. I am not sure it is failed because I am not sure a project is a set thing at the beginning there is room for movement within...as I was running through the project constantly monitoring what was going on and spotted a problem, reacted to that in the middle and slightly shifted the direction. If I had followed it through to the end I could see it wasn’t going to work and I would be wasting my time so I had to react to it at that point.”* (I19)

Variable “V01-07-02-09. Did not fail” provides some remarkable insight, which show some similarities with the variable discussed previously. The conclusions that can be drawn from this variable are that instead of conceding that a project has failed, the scope of the project is altered generally to avoid acknowledged failure! The acceptance of different outcomes from what was defined originally seems to be fairly common:

> *“Very rarely it fails completely...”* (I01)

> *“I think we’ve sort of re-evaluated projects. I mean I can’t just think of an example specifically, then obviously implications of withdrawing that project would be discussed, and I’m sure if that was the right decision, then it would be withdrawn, but I don’t think I’ve been involved in this, up to date, that we have withdrawn. I think we might have refined it, but I don’t think actually stopped something.”* (I03)

> *“Oh… I’m a novice to failure! (laughs) Like I say, you can make it work!”* (I04)
> *“So I think it would be difficult to identify acknowledged failures…”* (I11)

> *“...you might expect me to say this, but we have a very successful track record in project development and delivery over the last eight years. I can’t remember a single project that we’ve failed on in terms of not being able to deliver. We might have had to redirect, but we’ve managed to drive everything through...”* (I29)

Variable “V01-07-02-03. Stakeholder relationship” is perceived as difficult and problematic:

> *“...because the relationship in the team didn’t work. What I see is money is won, that project is won and it is thrown over the fence to someone else to deliver there is no integration of the whole activity...So the sales person and the delivery person need to be very closely together within the team.”* (I02)

> *“A failure in that sense would normally be a breakdown of a relationship with a client. If the relationship was broken down to the extent that we could do all the work and the client still wouldn’t be happy, because they don’t like us, or we’ve done something completely to alienate them, then we might withdraw from the project. So I think failure would be one where the client wouldn’t come back to us for future work.”* (I07)

> *“I quite often recognise when things aren’t going well, and then go back to who I know is the client, and say, this isn’t working, could you have a word with so-and-so and come back in to put pressure on people.”* (I31)

A breakdown in relationships will constitute a serious reason for project failure and this is identified with some consistency as difficult to deal with. This is a good illustration of project activities being by excellence human, social activities,

where things cannot be dealt with in a mechanistic way given that a lot of stakeholder interaction is likely to happen.

Variable "V01-07-02-08. Time" refers to the time necessary for completing a project and it is the only one of the traditional dimensions of a project (time, cost, quality) to feature to an extent where conclusions can be drawn from it:

> *"...that project is won and it is thrown over the fence to someone else to deliver there is no integration of the whole activity... ...and that person who catches it at the other side of the fence 'wow hold on a second this is not doable' or within the budget or timescale you want."* (I02)

> *"...that was taking up more and more of our time. ...it was just taking up all of her time, for really no discernible benefit to us and no discernible benefit to the school."* (I10)

> *"And it just wasn't enough time. It wasn't enough time."* (I13)

> *"People were rushing to hit deadlines so maybe they should have made sure it was right before hitting the deadline."* (I19)

What can be drawn from this variable is that time available for running a project is identified as a challenge and there are links drawn to the quality of the outcome.

What can be drawn from variable "V01-07-02-06. Project budget" is that exceeding the budget will sometimes stop the project. An interesting point is that sometimes budget is allocated without a clear benefit/outcome in mind:

> *"Well, there's been quite a few. There's… the biggest one I've ever worked on that went wrong… we didn't go wrong, the project didn't go wrong at all… but we got like 60-65 per cent of the way into the project, and people started putting brakes on, I couldn't spend any more money."* (I05)

> *"There's so much bureaucracy around it. And then we're monitored on it, so they're saying to us, right, you're half way through the year, how much have you spent; well you've only spent a quarter, you need to get on with it, we want to see evidence of more spending. And then they're saying to me, right, where can we quickly commit, you know, and you're saying, well I'd like to more research but you could just shove it there; right, OK, we'll shove it there. So that affects your ability to kind of come out with the very best outcome, because ideally you'd want more time. This sort of makes me think that, sometimes, some projects are being run which aren't necessarily useful, or… Yeah, I'm sure of that."* (I11)

The project budget here represents in fact the cost of the project and both terms seem to be used interchangeably by project managers.

The final variable to be analysed under this node is "V01-07-02-07. Environment changes". The main conclusion that can be drawn is that organisational changes seem to be the biggest environmental threat to a project. This is illustrated as such:

> *"So you pick up a few vibes when things are going wrong. But what happened in the end is, there were two companies… Which they was… they was both owned by a parent company. And there were a management buyout… Of one of the companies, who was actually going to purchase both the companies from the parent company, and merge them together on one site. And the project was to fetch all the equipment from one site onto the Doncaster site… And we got so far through the process, and then there were a big change back in the parent company, and they decided not to sell one of the companies to the management of the Doncaster company… So it's complicated. So the whole project actually got stopped." (I05)*

> *"Other than that there might be something happened that central government might change the rules so at that point you would call an exception meeting as it is called in local government. You would say something that couldn't be foreseen, couldn't have been planned for as happened, a change of legislation, a change of business, a change of administration politically, the goal post have moved so far off field we have got to say another 18 months to run but there is absolutely no sense in continuing and at that point you get the business sponsor (the person who ultimately owns the project) to say 'let's close it and cut our losses'."* (I09)

5.3.4 Defining project success and reasons

The “Defining project success and reasons” node is shown in Table 5.7:

Table 5.7: The “Defining project success and reasons” node

Level 01 Node Sources	8					
Level 01 Node References	31					
Node	N01-08. Defining project success and reasons					
Level 02 Variable Sources	3	4	1	2	2	2
Level 02 Variable References	4	6	2	5	2	5
Variable (Right) Interviewee code (Below)	V01-08-02-01. Planning	V01-08-02-02. Benefits realisation	V01-08-02-03. Financial measures	V01-08-02-04. Stakeholder relationship	V01-08-02-05. Objectives and scope	V01-08-02-06. Skills mix
I01	x	x				
I02						
I03		x			x	
I04		x	x			
I05	x					
I06						
I07				x		
I08	x				x	x
I09						
I10						
I11						
I12						
I13						
I14						
I15		x				
I16						
I17						
I18						
I19						
I20						
I21						
I22						
I23						
I24						
I25						
I26						
I27						
I28						
I29				x		x
I30						
I31						
Variable type 1						
Variable type 2						
	Relationship with node(s)					
	N01-05, N01-07, N01-09, N01-10, N01-16, N01-20, N01-24, N01-27					

This area seems to be in contrast with the previous node, “N01-07. Defining project failure and reasons”. Whilst the previous node has encompassed a lot of

data, there is a relatively small amount data to build knowledge from here. The interviewees had little to say in relation to the variables that underpin this node, suggesting that in practice, project management practitioners really need to explore further their understanding of what constitutes project success and how this might be achieved! Without these concepts being clarified it is manifestly hard to assess whether a project is on course for success.

All of the variables identified in this node are of the “Deficient” type, this is the only node identified in this work with this unusual structure. There seems to be a bias here, illustrated by the data, where more attention is paid to outright project failure than to project success.

Some variables identified under this node are familiar from node “N01-07. Defining project failure and reasons”. These are:

- “V01-08-02-01. Planning”
- “V01-08-02-02. Benefits realisation”
- “V01-08-02-04. Stakeholder relationship”

This strengthens the case for these variables to be considered key to the overall prospects of any project, with project management practitioners encouraged to understand these areas well when running their own projects. Some of the comments given by the interviewees are presented:

“V01-08-02-01. Planning":

> *“A successful project is very much dependent on the planning… obviously agreeing the target, the objectives, ownerships and planning. The more work you do at the outset, the more proactive you are at the outset of the project, the less likely to have problems as the project progresses.”* (I01)

“V01-08-02-02. Benefits realisation”:

> *“I’ve also done projects where you have thought you knew what the success was going to be, and then when we finished with it the success has been slightly different than what we anticipated as well. So the benefits have not been quite how we thought they would be.”* (I15)

“V01-08-02-04. Stakeholder relationship”:

> *“...those two types of Officers have to work very close together, which I believe helps to lead and deliver the success, in that the Service people help to manage the stakeholder groups, because they already have a relationship with those stakeholders, which helps the Project Officers who are dealing with the project development side of things… I think the*

other thing is success breeds success, doesn't it? So the more you deliver successful projects, the more you're likely to deliver successful projects, because you learn the recipes for success, don't you? We've got a team of people who've been together now for seven or eight years, who've gone through one thing after another, who've learned from mistakes, and begun to understand what do you need to do to deliver a project from start to finish and beyond, and make it successful…"(I29)

Whilst there is some evidence that variables "V01-08-02-03. Financial measures", "V01-08-02-05. Objectives and scope" and "V01-08-02-06. Skills mix" might have a bearing in terms of contributing to project success, the data available here is not sufficient to draw firm conclusions. These three variables will therefore be identified as areas of particular inquiry interest for project management practitioners, without being able to give them a firm steer as to what to look for in these areas. However, the very fact that they emerged from the data is an indicator that these areas need further exploration.

5.3.5 Defining the project

The “Defining the project” node is shown in Table 5.8:

Table 5.8: The “Defining the project” node

Level 01 Node Sources	28					
Level 01 Node References	87					
Node	N01-09. Defining the project					
Level 02 Variable Sources	7	18	18	4	3	2
Level 02 Variable References	11	34	26	4	4	2
Variable (Right) Interviewee code (Below)	V01-09-02-01. A change	V01-09-02-02. Defined time	V01-09-02-03. Has objective and/or outcomes	V01-09-02-04. Needs resources	V01-09-02-05. Defined activities	V01-09-02-06. Boundary
I01	x	x	x	x	x	
I02		x	x	x		
I03	x	x	x			
I04			x		x	
I05		x				
I06	x	x				
I07		x				
I08	x		x			
I09			x			
I10		x	x			
I11		x	x			
I12		x	x			
I13		x	x			
I14		x				
I15		x	x			x
I16		x		x		
I17		x	x			
I18		x		x		
I19			x			
I20						
I21			x			
I22		x	x			
I23						
I24		x	x			
I25						
I26	x					
I27						x
I28			x			
I29	x					
I30	x	x				
I31			x		x	
Variable type 1						
Variable type 2						
	Relationship with node(s)					
	N01-05, N01-14, N01-15, N01-24, N01-25					

This node provides a total of six variables to be analysed. However, one of these variables, V01-09-02-06. Boundary, whilst identified as important by some

interviewees, is underpinned by a small amount of data, which does not allow firm conclusions to be drawn.

There are some significant differences in terms of the amount of data available for drawing conclusions, with the following two variables offering the most insight:

- "V01-09-02-02. Defined time". This variable refers to the time that is envisaged that the project will run for and has attracted the most comments, while the other two traditional project dimensions, quality and cost do not seem to feature in this node. The main conclusion to be drawn from this variable is that the predominant view is that the project is usually well defined in terms of time. Interestingly though, two interviewees identify projects that "run forever", this suggests the idea that the goal of the project may not be easily defined in terms of time. Here are some insights from the interviews:

> *"Project is time limited…"* (I02)
>
> *"...because it's a project, it's got a start, it's got an end, and I will walk away and leave it. It's a job that's got a beginning, it's got an end. It's not a job that goes on forever. You've got some kind of brief, or target, or whatever it is. You start working on it, and at some point that project will finish and you stop working on it."* (I05)
>
> *"A bit of work that involves a distinct group of people, with a definite target or goal, which may or may not have an end point."* (I10)
>
> *"I would say it's a specific scheme, or piece of work, or initiative, whatever you want to call it, but a specific thing with a specific goal, that has a start and a finish. Because I think, here, far too many things get called projects, which don't have a finish, so they just run forever… And they never reach an outcome..."* (I11)

- "V01-09-02-03. Has objective and/or outcomes". This variable identifies objectives and/or outcomes as key elements of a project and is supported by a large number of comments:

> *"Something with a defined set of objectives, and to be achieved with a definite start and end."* (I12)
>
> *"...ideally it should have a very specific aim or kind of planned outcome…"* (I17)
>
> *"Maybe something what you want to get… achieve an outcome… ...you need an outcome at the end…"* (I21)

> *"...has to deliver an objective, or maybe more than one or two objectives… And I need to have an outcome… It's delivering an objective, isn't it…? That's got to be what it is…"* (I28)

The predominant view is that the project should have a clear outcome - to link in with the idea of being able to measure the outcomes. Also, a project is a goal driven system, a transformation. However, one thing to note here, is that there are virtually no comments made about the quality of the outcome and the ultimate beneficiaries or the project.

Variable "V01-09-02-01. A change" illustrates one of the main ideas associated with projects, that projects are in fact a transformational process, an idea that can be easily recognised from soft systems thinking. The data shows that the predominant view is that a change will happen as a result of the project - but there are some difficulties in relation to clarifying the concept of a project. Some examples of data are given:

> *"A project, you know, usually it's about a change… changing something. ...that's basically the project: everything that's involved in creating that change from beginning to an end."* (I01)

> *"A project is a… erm… predominantly a short- or medium-term… a number of people coming together to deliver a short – medium-term initiative, change programme…"* (I08)

> *"...the delivery of any change… I guess you could widen that out, but ostensibly, in this organisation, that's what it's about: it's delivery of change, and it's the management of that's change, it's the umbrella that sits over that… ...that's a project; a piece of work… Something that's different. It's not… something that's not business as usual…"* (I26)

The data found under variable "V01-09-02-04. Needs resources" illustrates that the project will need resources in order for it to be achieved. A link with the idea of transformation in systems thinking can be established here; the resources will help achieve the transformation or change that the project will deliver. Some data supporting this view is presented:

> *"...you've got resources involved, people involved… obviously costs involved…"* (I01)

> *"...usually it's going to take a certain amount of resource…"* (I18)

The last variable to be discussed here, "V01-09-02-06. Boundary" gives little insight in terms of the interviewees' thinking and there is some suggestion that further investigation is needed in this area, as illustrated by this example:

> *"Well as far as I'm concerned, it's everything from getting up in the morning, getting to work, which you don't even think about, but let's face it, there's routines, there's things you have to do in a logical, sequential fashion to achieve that. You know, that to the opposite stick stream of, you know, managing a major building project of building a new city. You know, you can define almost anything as a project…"* (I27)

The advice to project management practitioners is therefore to investigate this variable further as at the moment it belongs to the "Deficient" type, which means that it is based on a small amount of data.

5.3.6 Ideal or desirable changes through projects

The “Ideal or desirable changes through projects” node is shown in Table 5.9:

Table 5.9: The “Ideal or desirable changes through projects” node

Level 01 Node Sources	13		
Level 01 Node References	23		
Node	N01-13. Ideal or desirable changes through projects		
Level 02 Variable Sources	12	5	2
Level 02 Variable References	19	5	2
Variable (Right) Interviewee code (Below)	V01-13-02-01. Ideal objectives and/or deliverables	V01-13-02-02. Feasible objectives and/or deliverables	V01-13-02-03. Constraints
I01	x	x	
I02			
I03	x		
I04	x		
I05			
I06	x		
I07			
I08	x	x	x
I09			
I10	x	x	
I11			
I12			
I13			
I14	x	x	
I15	x		
I16			
I17			
I18	x	x	
I19			
I20			
I21			
I22	x		
I23			
I24			
I25			
I26			x
I27			
I28	x		
I29			
I30	x		
I31			
Variable type 1			
Variable type 2			
	Relationship with node(s)		
	N01-03, N01-05, N01-09, N01-14, N01-15, N01-16, N01-26		

This node represents a relatively small area, with only three variables underpinning it. The first variable is represented quite well in terms of data, whilst the last is classified as "Deficient".

The first variable to be analysed is "V01-13-02-01. Ideal objectives and/or deliverables". The main conclusion that can be drawn from this variable is that whilst many projects have attached ideal changes to them that their stakeholders are hoping to achieve, there is a realisation that these may not be realistic or indeed entirely achievable. This is illustrated by the following comments:

> *"...we all have an ideal, we all want to reach stated aims, but then who's to say the aims that you stated at the beginning were necessarily right?"* (I14)

> *"I think every project – many projects – start with a lot of high expectations of the outcomes, and then you go through a period of cooling down of everybody's expectations. And a bit of realism creeps in... And early on in the project, you get a lot of aspirational thinking about all the things you're going to achieve..."* (I22)

> *"...you might have an ideal solution, but you know that, actually, the way everyone else is structured, then you can get that, you would need some sort of strategy change, at quite a high level, before you can do that. That doesn't mean that to say that you shouldn't always go for the ideal not the feasible..."* (I30)

In contrast to the previous variable, "V01-13-02-02. Feasible objectives and/or deliverables" is not supported by a similar amount of data; this is perhaps an indication that in many cases people prefer to set out the ideal objectives that their project might deliver, whilst the feasible objectives are what ends up being achieved in practice. Some thoughts given by the interviewees support this view:

> *"...at the outset, when I put the proposal for a client, I always have like ideal objectives and minimum objectives."* (I01)

> *"I think the reality is that only 50 per cent of projects will deliver the ideal, I think the other 50 per cent, some will have marginally veered, and actually that's acceptable…"* (I08)

> *"...especially with dealing with lots of different stakeholders, we might end up with a bit of a compromise solution. That might be that the feasible thing."* (I18)

In conclusion, there is a realisation that ideal changes achieved through a project almost always end up being morphed into more feasible changes.

It is the constraints that seem to be what transforms ideal objectives into feasible objectives and this is the last variable to be explored in this node. However, whilst variable "V01-13-02-03. Constraints" has been discussed, it is underpinned by a small amount of data. A data sample is given:

> *"...you often experience barriers, difficulties, time constraints, staff going off ill, so you have challenges to overcome during that delivery, which does sometimes mean that your ideal is compromised…"* (I08)

Project management practitioners are advised to inquire fully into the extent of their constraints, as these will have a material impact on the achievability of the project objectives.

5.3.7 Measures for project failure

The “Measures for project failure” node is shown in Table 5.10:

Table 5.10: The “Measures for project failure” node

Level 01 Node Sources	20								
Level 01 Node References	51								
Node	N01-14. Measures for project failure								
Level 02 Variable Sources	2	6	5	14	2	6	2	2	5
Level 02 Variable References	2	6	7	25	5	7	2	3	6
Variable (Right) Interviewee code (Below)	V01-14-02-01. Project scope creep	V01-14-02-02. Short term benefit realization	V01-14-02-03. Long term benefit realization	V01-14-02-04. Stakeholder views	V01-14-02-05. Not measured	V01-14-02-06. Timescales for delivery not achieved	V01-14-02-07. Risk assessment	V01-14-02-08. Valid business case	V01-14-02-09. Financial and numerical measures
I01							x		
I02									
I03	x	x						x	
I04									
I05				x					
I06				x					x
I07									
I08				x		x			
I09			x	x	x				
I10									
I11					x				
I12		x	x	x					
I13				x		x			
I14				x					
I15						x	x		x
I16			x					x	x
I17		x		x		x			x
I18				x		x			
I19		x	x	x					
I20				x					
I21		x		x					
I22									
I23	x								
I24				x					
I25									
I26									
I27						x			
I28				x					x
I29		x	x						
I30									
I31									
Variable type 1									
Variable type 2									
	Relationship with node(s)								
	N01-05, N01-07, N01-08, N01-09, N01-10, N01-15, N01-16, N01-17, N01-24, N01-25, N01-26								

Having earlier investigated the reasons for project failure and success, it is through this node that more specificity emerges in these two areas through

measures for project failure and success. The data representing each of the corresponding failure and success nodes is different, with the measures for project failure being represented in a more muted way than the area for defining project failure and reasons. There is more supporting data under the measures for project success than under the defining project success and reasons. Perhaps this is a factor linked to the conceptual level that the issues were discussed at, or perhaps this is a reflection of the fact that people are more comfortable with concepts that can be "measured" as opposed to "expressed".

There are nine variables under this node and four of these are "Deficient": "V01-14-02-01. Project scope creep", "V01-14-02-05. Not measured", "V01-14-02-07. Risk assessment" and "V01-14-02-08. Valid business case". Three of these variables are identified in other parts of this research as relevant and important, while the "V01-14-02-05. Not measured" variable suggests that in some cases, whilst project failure is understood, it is not actually measured in any significant way:

> *"So local government will set hares running and you will go off and everyone full of enthusiasm and they will set out, they might determine and articulate the benefits they think they are going to get out of this project at the start but if you were to look at a dozen projects I would suspect that there are only one or two that actually measure them after the project has finished. So that makes it very difficult to be definitive about 'what's a failure' because if you don't go back and measure you don't really know."* (I09)

An indication of the relevance of the "V01-14-02-08. Valid business case" variable is given:

> *"…the textbook answer is that a project is failure the minute that the business case for the project no longer stands. Yeah? But, I would go on to say that there's probably some fantastic buildings, and structures, and things being built over the years in different cities, that are a success now that, if you looked at them in the cold terms of a business case at the time, they would have been a total flop."* (I16)

For all of the four "Deficient" variables above it is recommended that project management practitioners undertake a further inquiry process to achieve a greater understanding of these areas as measures for project failure on their respective projects.

The next variable to be examined is the "V01-14-02-02. Short term benefit realization". The main conclusions to be drawn from the data are clear links with the project objectives and the usability of the project output. It is also easier to define short term benefits realization, than long term benefits realization:

> *"Failure for me, with the type of work we do, is if a client didn't use the tools that we've given them."* (I12)

> *"…So if people are not using it, like I say… and we have seen some people, who I've been to see, not using it again. I've never really found out because we're moving on now why they stop using it."* (I21)

> *"So in the short-term, we've delivered. In the long-term, I probably can't answer your question, do I know whether it's failed or not, because changing people's… you know, I've been in this job six years, I don't think necessarily you create the culture change in six years that we're looking for it. It's a 10-, 15-year, 20-year goal …"* (I29)

A variable related to time appears in this node, which strengthens the argument for the fact that people find it more comfortable to measure an entity which can be expressed numerically, as opposed to quality or benefits realization, which, for example, do not always easily fit into numerical performance indicators. As such, variable "V01-14-02-06. Timescales for delivery not achieved" shows that project managers are comfortable with this project failure indicator, as per:

> *"It isn't successful if it isn't delivered on time."* (I08)

> *"I think you measure failure if deadlines have been missed… if deadlines have been missed, and if you've not set up sufficient checks to make sure that people stay on-track with what they're supposed to be doing."* (I13)

Similarly to the previous variable, project managers are at ease with the "V01-14-02-09. Financial and numerical measures" variable, as it can be relatively easily measured through a numerical indicator. This is evidenced by the following statements:

> *"…that you're losing money."* (I06)

> *"The other thing, actually, is, which I've found is a really good measure as well, is budget spend, as well, because if people don't spend their budgets then a little warning bell starts ringing that they're not actually doing the project as well."* (I15)

> *"A big thing for the university is about the scheduling and the budgets. If you go over budget, you've failed. Generally, if you eat into your contingency within your budget you've been deemed to have failed."* (I17)

The area that seems to present difficulty for project managers under this node is represented by variable "V01-14-02-03. Long term benefit realization". The following statements support this view:

> *"… you will have a milestone and say '6 months after the project has finished we are going to go back and we are going to measure, 12 months after, 18th months after whatever, you just set those things appropriate to the project. You tell me and one of the things I will do in the analysis is to create a static point where I actually measure what you have told me is important to you and then I will suggest to you that it is probably going to take six months to embed these changes, so after six months I will come back, with your agreement, and with your money (because I am not going to do it for nothing)' which is often why they don't get done because they have a tendency to pay money for something that is tangible, people actually doing something, but then saying they have to pay somebody on and on and on to say something has or hasn't worked, they are less..."* (I09)

> *"Normally there is something that comes out from it you know, it is useable for most things but we need extra work here. It is my experience, I have been doing this type of work for four and a half years and before that I was in research, in my experience nothing is ever finished, it is everything, it is every bit of work you do spawns another bit of work."* (I19)

Attempts are made to discuss long term benefit realization, but it is clear that there are problems in defining long term benefits – this area seems to be harder to tackle for project managers than short term benefit realization.

"V01-14-02-04. Stakeholder views" is well represented in data and a lot of comments allow us to draw the conclusion that most project failures are linked clearly to the customer's perception of the project output, but some links are made with other project stakeholders, for example the project team - they need to draw satisfaction out of the project. Failure seems to be harder to define than success in terms of the use of measurable concepts. Is this possibly due to a reluctance to evidence failure through clear measures? There are a range of statements to support this view:

> *"Generally, if it's not succeeding, people tell you."* (I05)

> *"How do you know it's failing other than an unhappy client."* (I06)

> *"…if the customer says, you know, we haven't got what we want…also, for me, a project would be a failure if our staff hadn't enjoyed delivering it."* (I12)

> *"Failure is harder [to define] than success really."* (I19)

5.3.8 Measures for project success

The “Measures for project success” node is shown in Table 5.11:

Table 5.11: The “Measures for project success” node

Level 01 Node Sources	31								
Level 01 Node References	146								
Node	N01-15. Measures for project success								
Level 02 Variable Sources	3	4	10	19	11	20	3	6	4
Level 02 Variable References	4	9	18	34	19	41	3	10	4
Variable (Right) Interviewee code (Below)	V01-15-02-01. Risk assessment	V01-15-02-02. Short term benefit realization	V01-15-02-03. Long term benefit realization	V01-15-02-04. Financial and numerical measures	V01-15-02-05. Objectives and quality achieved	V01-15-02-06. Stakeholder views	V01-15-02-07. Not measured	V01-15-02-08. Timescales for delivery achieved	V01-15-02-09. Learning
I01									
I02			x	x	x	x			
I03			x	x			x		
I04		x	x						
I05				x		x			
I06				x		x			
I07				x					
I08	x			x	X	x		x	
I09				x		x			
I10				x		x			x
I11				x		x	x		
I12			x				x		
I13			x			x			
I14				x	x				
I15				x	x				
I16				x		x			x
I17		x	x	x		x		x	
I18						x			
I19	x		x	x	x	x			
I20				x		x			x
I21						x			
I22				x		x			
I23						x			
I24						x			
I25			x	x	x			x	
I26	x	x	x	x	x			x	
I27					x	x		x	x
I28				x	x	x		x	
I29		x	x		x				
I30					x				
I31						x			
Variable type 1									
Variable type 2									
	Relationship with node(s)								
	N01-05, N01-06, N01-09, N01-11, N01-14, N01-16, N01-17, N01-24, N01-26, N01-27								

The counterpart for the previously analysed node is focused on project success and there is a good amount of data to support drawing conclusions in this area.

There are two areas, represented by variables “V01-15-02-04. Financial and numerical measures” and “V01-15-02-06. Stakeholder views” which are supported by the richest amount of data.

Variable “V01-15-02-04. Financial and numerical measures” illustrates yet again that it seems to be easy to measure numerical indicators - these are categories of measures that are easy to represent consistently and measure relatively accurately:

> *“Numbers there are very good and the objectives... the measurable are very objective. I say ‘OK you mark this one 1, 2, 3, 4 or 5 that can translate into percentages…”* (I02)

> *“Black and white, financially: that’s fairly easy to demonstrate. Obviously finances are always recorded, you’re audited, so… that’s the easy stuff really. It’s the more ‘floury’ stuff, as we call it, that’s more difficult to record.”* (I06)

> *“You get paid! But ultimately, the projects that I’ve been running have been in private sector companies, where your purpose is to run the company, and you do jobs for people and earn money. So the 99 per cent of it… the 90 per cent of it is completing the job and getting paid, and actually having done that without losing money on the job…”* (I22)

Another conclusion that can be drawn under this node is that there is a lot of thinking that project success is linked to the project stakeholders (of all sorts) and that their "happiness" is ultimately what matters. This is illustrated well by data supporting “V01-15-02-06. Stakeholder views”, exemplified here by a few statements:

> *“People tell you, and I ask. I always ask. It doesn’t matter what kind of job it is, I’ll ask, did that go well, did it not go well.”* (I05)

> *“the ideal is that you’re satisfied that you’ve done the best job that you could do, and the client is happy with the product. ...the marker for me is whether the client is happy, but whether you also feel you’ve done a good job. I don’t feel happy personally, even if the client’s happy, if I think we’ve done a quick and dirty job, I don’t feel happy.”* (I13)

> *“To me, a project should be… you should deliver what the client wants, you should deliver it to a quality that is acceptable… that he’s happy with, you should deliver it to a price that he’s happy to pay… and I’m not necessarily saying that’s the price that he said he’ll pay at the start… it’s a price that he’s happy to pay.”* (I16)

A conclusion that has appeared before in the data analysis is that it seems to be difficult to pinpoint long term project benefit realisation and there are some

suggestions that sometimes long term benefit means further work for the project team, therefore a disconnect from the real beneficiaries. This is the conclusion that can be drawn from variable "V01-15-02-03. Long term benefit realization" as supported by:

> *"I think, when you're talking about measurables, you have to measure success long-term, not just short-term."* (I04)

> *"…and then at the end as well there's best practice, we'll have a washup meeting with the client where we go through everything that's been done and make sure that the project's signed off, identify things we could do better. Sometimes it's very difficult, because the type of work we do, which is often around developing strategy for public sector organizations, is that the success in terms of what the strategy was meant to achieve could be quite a few years down the road."* (I12)

> *"So the idea was that we would do an immediate review and then we would review things a year later. And the review process is hard because you're really heavily engaged in it, and you want it to have worked because it's been something you've looked after for five months."* (I17)

A view consistent with previous conclusions from data is that it seems to be harder to define qualitative indicators, as evidenced by the data leading to variable "V01-15-02-05. Objectives and quality achieved". Since many of the aspects to be measured here are not numerical, project managers find coping with these more difficult. However, as illustrated in some comments received in this area, even when the quality measures are numerical, at times, they can be difficult to deal with. A few supporting statements are given:

> *"Measuring success in the steel industry is great because you have some real objectives in terms of certain standards materials should be, certain tolerances, certain quantities and protective measures it starts to get a little bit tricky when you are developing a project, the project itself is evolving over a period of time."* (I02)

> *"…you've got very much your statistical side of it. What I think is much more difficult is the actual qualitative measure of a project, because that's where you're getting into sort of benefit realisations and outcomes as well...I've also done projects where you have thought you knew what the success was going to be, and then when we finished with it the success has been slightly different than what we anticipated as well. So the benefits have not been quite how we thought they would be."* (I15)

The "V01-15-02-02. Short term benefit realization" variable illustrates some of the conclusions encountered previously, that project managers are comfortable with measuring benefits realization in the short term. However, there is some evidence that while there seems to be some reasonable discussion around

benefits realisation in the short term, there also seems to be some uncertainty around what actually constitutes success, with short term benefits actually not amounting to meaningful benefits realisation, as illustrated:

> *"If you're measuring short-term, I don't think… you're not proving that there's any sort of quality to what you've done. Especially in this sort of work, it's… such as young people going into employment. That's fine… you know, for the last few years to just ring up one of the employment agencies and sort of get them into six weeks' work. That's… our figures look great but, you know, in six weeks time that young person's out of work."* (I04)

> *"…at the outset of the project, you've clearly identified what you're looking to achieve and deliver… And the short-term judgment of success is, did you deliver that."* (I29)

Another recurring area is expressed under variable "V01-15-02-08. Timescales for delivery achieved". Whilst there are some clear links with areas such as quality and stakeholders' views, project managers are comfortable with using time as a measure for project success. This is illustrated in the following statements:

> *"But success is also measured on many levels. So success would also be about delivering on time. I want to deliver a good-quality product on time; I don't want to deliver it two months late."* (I08)

> *"…to time...They'll be reporting on things like progress in the period, they'll be reporting on sort of their achievements in the last four weeks, they'll be reporting on milestones that should have been delivered in that period, milestones that are due to be delivered maybe in the next eight weeks."* (I26)

> *"Many of these customers are asking, particularly in this time – this economic climate – just to really deliver the goods on time, whether you've gone over on …time."* (I28)

The last three variables to be analysed here are:

- "V01-15-02-01. Risk assessment"
- "V01-15-02-07. Not measured"
- "V01-15-02-09. Learning"

These variables are of the "Deficient" type, with a small amount of data to support conclusions. However, the fact that they appear in the "Deficient" type, is a possible conclusion in itself, prompting a recommendation to project management practitioners to inquire in these areas further given that they appear in the data in this form.

The final variable, “V01-15-02-09. Learning” is perhaps somewhat surprising as classical project dimensions do not consider the area of learning as directly relevant to project success. A couple of statements are illustrated:

> *“…if you’re learning, if people are benefiting, that’s successful.”* (I10)

> *“…they terminated the contract, and from that came the best learning… learning cycle or learning curve you could ever want.”* (I16)

There seems to be a suggestion that organisational learning is seen as a measure of project success in some cases – but is this part of the definition of the project? This has not been identified as such in this data set, so perhaps some people use measures of success not defined in the project! Further investigation is required in this area.

5.3.9 Assertions on a project's end

The “Assertions on a project's end” node is shown in Table 5.12:

Table 5.12: The “Assertions on a project's end” node

Level 01 Node Sources	15			
Level 01 Node References	33			
Node	N01-24. Assertions on a project's end			
Level 02 Variable Sources	7	4	7	4
Level 02 Variable References	11	4	10	5
Variable (Right) Interviewee code (Below)	V01-24-02-01. End of project	V01-24-02-02. Relationships resulting from project	V01-24-02-03. Long term aspects	V01-24-02-04. Short term aspects
I01				
I02	x	x		
I03			x	
I04				
I05				
I06			x	x
I07		x		
I08				x
I09	x		x	
I10			x	
I11				
I12		x		
I13				
I14				
I15	x		x	
I16				
I17				
I18				
I19				
I20	x			
I21				
I22				
I23	x			x
I24				
I25				
I26				
I27	x		x	
I28				
I29		x	x	
I30	x			
I31				x
Variable type 1				
Variable type 2				
	Relationship with node(s)			
	N01-05, N01-07, N01-08, N01-09, N01-14, N01-15, N01-16			

Whilst perhaps there is an expectation that if the project has been well defined, then the end of the project would be easy to identify, two of the four variables under this node are of the "Difficult and High interest" type. These are:

- "V01-24-02-01. End of project"
- "V01-24-02-03. Long term aspects"

In terms of the conclusions related to the first variable, most comments are related to items that are easy to measure, such as payment for the work done, with only some discussion about achieving the objectives of the project. This is linked to conclusions emerging from the second variable listed above: these are that it is widely acknowledged that for many projects the benefits or effects of their outputs take a long time after the end of the project to materialize - the question is then who is there to measure these benefits or effects? Some supporting statements are given:

> *"When the final bill has been paid, OK. Because if there is a problem with the project and the final bill goes in and there is a query, the way to punish me, the supplier, is to hold my invoice. If the final invoice has been cleared then everything is fine..."* (I02)

> *"...my job ends on the 31st of December: HEFCE stop paying us on the 31st of December… In that respect the project is over, barring finishing off the final report. ...you know, most projects should be defined by an outcome that is achievable in some particular way, because otherwise you can never draw the line."* (I27)

> *"...you might start off with a project that has a start and finish... ...it started off being something to do with achievement and attainment, you know, has that delivered, you know, are we going to see a rise in children's attainment, several years later from that project being delivered…"* (I03)

> *"...it might be that your goal is one you can never, ever reach, you know, you're always in the process of getting to it."* (I10)

An area that has been identified as having some importance related to the end of a project is illustrated by variable "V01-24-02-02. Relationships resulting from project". Whilst the project has ended, the relationships built along the way do not end when the project does and this is seen as valuable by project managers:

> *"...it is important to know ... the project is one step along the road and the road is the relationship making sure you maintain that relationship."* (I02)

> *"...the relationship usually doesn't come to an end at the point of which, you know, the hard and fast bit of it's been delivered."* (I29)

The final variable, "V01-24-02-04. Short term aspects" allows conclusions to be drawn about the fact that even though a project may have ended, some related short term activities will continue:

> *"...construction, when it ends is 12 months after we've handed over the job; generally 12 months – we do 12 months defects…"* (I06)

> *"...although I am not doing anything then the project is still going on because they are still gathering feedback and I guess after the ceremony they also produce the statistics..."* (I23)

5.3.10 Feasible changes through projects

The “Feasible changes through projects” node is shown in Table 5.13:

Table 5.13: The “Feasible changes through projects” node

Level 01 Node Sources	23					
Level 01 Node References	63					
Node	N01-27. Feasible changes through projects					
Level 02 Variable Sources	5	17	5	6	3	6
Level 02 Variable References	6	37	8	13	3	10
Variable (Right) Interviewee code (Below)	V01-27-02-01. Ideal objectives and/or deliverables	V01-27-02-02. Realistic objectives and/or deliverables	V01-27-02-03. Time constraints	V01-27-02-04. Budget constraints	V01-27-02-05. Quality constraints	V01-27-02-06. Adjusted objectives and/or deliverables
I01	x	x				x
I02						
I03			x			x
I04		x				
I05		x				
I06		x	x	x	x	
I07						x
I08	x	x			x	
I09		x				
I10						
I11	x	x	x	x		
I12				x		
I13		x				
I14		x				
I15		x				
I16	x	x				
I17						
I18						
I19		x			x	
I20		x	x			
I21						
I22	x	x				x
I23						
I24						x
I25			x	x		
I26		x				
I27						
I28						
I29				x		x
I30		x		x		
I31		x				
Variable type 1						
Variable type 2						
	Relationship with node(s)					
	N01-03, N01-05, N01-07, N01-09, N01-13, N01-14, N01-15, N01-16, N01-17, N01-19					

Under this node the “V01-27-02-02. Realistic objectives and/or deliverables” variable allows for the drawing of confident conclusions given the amount of

data available for analysis. The idea is that feasible changes may be the changes that can be achieved after reviewing the progress of the project - the iterative nature of the process is evident here, which is clearly linked to soft systems thinking ideas. Feasible changes are the ones that deliver the project objectives and as such they don't need to be "gold plated", but rather functional at times. There has to be a connection between the client's expectations and the project team's view on what can be delivered, which implies that an inquiry process must be carried out by the project manager to reach a position of agreement. Statements supportive of this view are given:

> *"...one of my approaches is that… let me just get this right… a 100 per cent commitment to a 50 per cent solution is better than 50 per cent commitment to a 100 per cent solution… So I would never aim for perfection..."* (I05)

> *"Sometimes you may have to compromise and say 'it is not exactly what I wanted at the end of this process but it is good enough'."* (I19)

> *"… you start off with the ideal in every project, and you end up on the feasible. And the difference between the ideal and the feasible is how much you can get away with in terms of the contract and the expectations of the people that you're supplying, and how much you can stretch those relationships with… depending how much trust you've got."* (I22)

An area that seems to be consistently occurring in the "Deficient" type is one of the major dimensions of any project, quality. Variable "V01-27-02-05. Quality constraints" is poorly represented in terms of data. Project managers' statements in this area are vague, as per this example:

> *"...you also have quality constraints… and quality is in direct opposition to budget and time…"* (I06)

In terms of the next variable to be analysed, "V01-27-02-01. Ideal objectives and/or deliverables" what can be drawn from the data is that there is a mix of views - for some the ideal changes through projects are always "in some way better" than the feasible changes and constitute a starting point for expectations, whilst for others the feasible changes are the only ideal changes that matter. A couple of supporting statements are given:

> *"I would say that your project should be designed to deliver what you need to deliver. So that, I guess, is the ideal."* (I08)

> *"...if your ideal outcomes are not feasible, OK, then they're not ideal, are they? Then they're a dream, they're not an ideal outcome. If what you've been asked to deliver can't be delivered, because it's just feasibly*

possible but in reality it's not, then in reality it's not feasible; therefore it's a dream." (I16)

There is an inverse relationship between the time constraints and the quality of the output, leading to a pragmatic approach, as evidenced by variable "V01-27-02-03. Time constraints". The area of time keeps appearing in the interviewees comments as expected since it is one of the three classical project dimensions and it enables different perspectives on the importance of the time element in the different aspects of the project. Some supporting statements are given:

"I think we've had some ambitious targets, but that's… the ambition's been more to do with meeting the deadlines… that we've been given rather than the actual delivery of it…" (I03)

"...sometimes you have to go with what you can deliver in time…" (I11)

"So sometimes it is a trade off I think, are you prepared to get it in on time and on budget and you are happy with what you are getting, or is it that substantial that if you let it continue it will have a big detriment to the project and then you have to accept the fact that some of the end dates and end costs will move." (I25)

In line with the previous variable, there seems to be an inverse relationship between the budget constraints and the quality of the output, leading to a pragmatic approach, as evidenced by variable "V01-27-02-04. Budget constraints", through supporting statements such as:

"...you have budgetary constraints put on… ...it's the balance of the client's expectations in that, that's my role really, in that they would all love to have the Taj Mahal, but they can't afford it…" (I06)

"This is what we want, this is what we can afford; how do we bring the two things together? And again, explaining that to stakeholders, you know, it requires some management skills that quite… you know, their 'dream' may have to sort of shrink a little bit." (I29)

It is interesting to observe at this point that of three classical dimensions of a project, time, cost and quality, it is the quality dimension that seems to take the "hit". This is most likely due to the ill-defined nature of the quality dimension as evidenced by the data so far. The time and cost dimensions, since they can be relatively easily quantified numerically are also more easily expressed and therefore they are controlled by project managers, with the quality dimension being adjusted accordingly.

The final variable to be studied here is the "V01-27-02-06. Adjusted objectives and/or deliverables" where there is very strong agreement that the objectives of the project are refined often, with the client – interpreted as the person who pays the bills, whilst the ultimate beneficiary is not actually mentioned in the data. Some example statements support this view:

> *"...sometimes your client wants to add other things in, but it has to be reviewed and has to be planned again."* (I01)

> *"If you've got very little trust: very little room to manoeuvre on the requirements. If you've got a lot of trust, you can probably go and have a discussion where you can redefine the outcomes halfway through the project; and this is where it's important to make sure that the person buying is perceived to have done a good job of buying your solution… Never leave them in a situation where they look bad putting the work to you."* (I22)

> *"For very small, you know, projects, right through to major projects, we've always managed to deliver, even if it's meant some reshaping…"* (I29)

5.3.11 Summarizing the "Project" theme

Having analysed the "Project" theme, its nodes and variables, a view of project management practice emerges in this area. Whilst this research is not concerned with a quantitative analysis of the data set, it is useful to present a count of variables in this area in Table 5.14.

Table 5.14: Variables underpinning the "Project" theme

Variable type	**Colour**	**Number of variables in the "Project" theme**
"High interest" variable	**Green**	10
"Regular" variable	**Grey**	21
"Difficult" variable	**Orange**	13
"Difficult and High interest" variable	**Orange + Green**	4 (not counted twice in the total)
"Deficient" variable	**Red**	20
Total		64

An area that attracts attention is that represented by the "Deficient" variables. This indicates that whilst these areas are identified by various project managers as significant enough to discuss, they are potentially not well understood or

even ignored in the project management community. This result adds weight to an inquiring approach towards project management practice. In addition to these “Deficient” variables there are 13 “Difficult” variables present, which will require frequent actualization to ensure that the complexities of a project are captured adequately.

The “Project” theme, focused on project related data, emerges as a major component of the framework to be developed in this work, with a significant number of areas that require attention during the running of projects.

The need for an inquiring approach emerges from the analysis of the variables found under this theme, which are summarized in Table 5.14.

5.4. The “Project Manager” theme

The “Project Manager” theme contains 8 nodes and 49 variables showing, as expected, the importance of project managers in project management and constitutes a major component of the project management framework.

The “Project Manager” theme is underpinned by nodes identified from data and these are shown in Table 5.15:

Table 5.15: The “Project Manager” theme nodes

Major project management related theme	**Node**
Project Manager	N01-02. Running a project - recommended practice
	N01-06. Communicating a project to others
	N01-12. Assertions on projects and project management
	N01-17. Representing a project
	N01-18. Running a project - interviewee's practice
	N01-19. Running a project - in an ideal world
	N01-20. Assumptions made when running a project
	N01-21. Most important factor when running a project

The data and variables representing each node will now be analysed in detail.

5.4.1 Running a project - recommended practice

The “Running a project - recommended practice” node is shown in Table 5.16:

Table 5.16: The “Running a project - recommended practice” node

Level 01 Node Sources	29					
Level 01 Node References	79					
Node	N01-02. Running a project - recommended practice					
Level 02 Variable Sources	10	12	10	7	7	4
Level 02 Variable References	14	18	19	9	7	8
Variable (Right) Interviewee code (Below)	V01-02-02-01. Planning	V01-02-02-02. Communication and information	V01-02-02-03. Sponsors and stakeholder engagement	V01-02-02-04. Objectives	V01-02-02-05. Flexibility	V01-02-02-06. Qualification and training
I01	x	x	x			
I02			x	x		
I03			x	x		
I04					x	
I05	x					
I06		x	x			
I07		x	x			
I08			x			
I09					x	
I10		x				
I11						x
I12		x				
I13	x	x	x			
I14						x
I15	x			x	x	
I16					x	
I17	x			x	x	
I18	x	x				
I19		x		x	x	
I20		x				x
I21						
I22			x			
I23	x					
I24	x	x				
I25					x	
I26	x		x			
I27						
I28				x		x
I29	x	x	x			
I30		x				
I31				x		
Variable type 1						
Variable type 2						
	Relationship with node(s)					
	N01-01, N01-03, N01-05, N01-06, N01-09, N01-10, N01-11, N01-16, N01-17, N01-19, N01-25					

One area, represented by the “V01-02-02-02. Communication and information” variable illustrates that communication with all project stakeholders is essential

and it must be effective. It helps with engagement of stakeholders and therefore the delivery of the project, as evidenced in:

> *"draw up a project plan, and make sure that everybody in the team really understands that project plan, but then I would say, throughout the course of the project, spend as much time as you can on paying attention to the human-side of it, to making sure that people are involved, engaged, that they're… that, you know, they're sharing what they're learning from it, and that they're meeting their particular commitments."* (I13)

> *"I think communication skills are the biggest strength that any project manager should have, because unless you're building teams, so unless you've actually built the team and communicate well internally and externally, then the project won't go anywhere."* (I30)

One interesting aspect about this variable is that project managers do not seem to find communication difficult.

What project managers do find difficult is planning, as evidenced by the "V01-02-02-01. Planning" variable. This is an important result as planning has been identified earlier as a "Deficient" variable in both project success and project failure. It is clear at this point that good planning is may be lacking in project management practice, or where it exists it is perceived as quite a difficult area:

> *"Don't do it, it's too complicated! (laughs) I think, try and work out your schedule as far in advance as possible."* (I17)

> *"…don't over-engineer it, don't make it any more complicated than it needs to be. Something that, I think doing science taught me, is that the right answer is usually the elegant answer; so if it's looking messy, you're probably doing the wrong thing."* (I18)

For some project managers, planning, being organised and communicating the project seem to be quite important. The project should have clarity and simplicity at its core:

> *"…be organised in working out your project plan...But draw up a project plan, and make sure that everybody in the team really understands that project plan."* (I13)

Another area perceived as difficult is represented by the "V01-02-02-03. Sponsors and stakeholder engagement". The conclusions that can be drawn from this area are that there are a whole range of stakeholders that need to be engaged and that this is a key aspect of running a project - there is a view that running a project is actually running people and their relationships:

> *"I think what you've got to try and do is instil some confidence in people that, you know, you do know what you're doing, and that you've got every confidence in them…keep people on-board, because I think, you know, that's your downfall. You know, if you can't keep people on-board, politics or no politics, you're not a people player, but if you can't keep people on-board, you're just not going to deliver what you need to deliver, no matter how good you are; or you deliver it yourself."* (I03)

> *"…realise who your client is and who your contractors are. Recognise that, whilst you've got to listen to these people, the instruction comes from your client, and your client alone. ..my job's managing people really, not hammers and spanners, it's people."* (I06)

Variable "V01-02-02-04. Objectives" illustrates that there is good agreement that a clear project objective is essential and that the project objective may evolve iteratively if needed:

> *"I think you need to have a very clear statement of expectation. Expectations, clear and transparent expectations. What are you expected to deliver, by whom, with what…"* (I02)

> *"…make it very, very clear what your aims and objectives are and don't be afraid to change them if you need to."* (I19)

Related to the variable above is the "V01-02-02-05. Flexibility" variable, which conveys the idea that flexibility is essential when running a project - again this suggests that an iterative process is inevitable when running a project:

> *"the biggest thing is to be flexible, and to respond quickly when you identify that it's not going…"* I(04)

> *"if someone was [a] relatively new entrant into project management field I think the thing is to be open and flexible. It is very easy because project management, particularly if you use something like Prince, it is easy to drift into rigid prescriptive approaches and doing that you run a big, big risk of missing important things and what you tend to do is become completely blinkered."* (I09)

The final area to be discussed here refers to variable "V01-02-02-06. Qualification and training" which is of a "Regular" type. Even though there is little discussion around formal qualifications, this is perhaps an area of concern given that the interviewees that do mention this area strongly support having qualifications and training:

> *"It's really, really worth pursuing the training and the knowledge."* (I11)

> *"try and get a formal qualification, so that you can actually have the knowledge before you launch into it."* (I14)

5.4.2 Communicating a project to others

The “Communicating a project to others” node is shown in Table 5.17:

Table 5.17: The “Communicating a project to others” node

Level 01 Node Sources	16			
Level 01 Node References	36			
Node	N01-06. Communicating a project to others			
Level 02 Variable Sources	6	2	1	9
Level 02 Variable References	10	4	1	10
Variable (Right) Interviewee code (Below)	V01-06-02-01. Stakeholder benefits resulting from project	V01-06-02-02. Project success	V01-06-02-03. Lessons learned	V01-06-02-04. Project objectives
I01	x			
I02	x			x
I03				
I04		x		
I05				
I06				
I07			x	
I08				x
I09				x
I10				x
I11				
I12	x			x
I13				
I14				
I15	x			
I16				
I17				
I18				x
I19				x
I20		x		
I21				
I22				
I23				
I24				
I25				
I26				
I27	x			x
I28				
I29				
I30				x
I31	x			
Variable type 1				
Variable type 2				
	Relationship with node(s)			
	N01-05, N01-09, N01-10, N01-12, N01-15, N01-16, N01-17			

Communication and information have emerged previously as important to a project manager’s practice and there are further considerations to be explored

through the node analysed in this section. Four variables have been identified here of which variable "V01-06-02-04. Project objectives" stands out in terms of the amount of data available for analysis. It transpires that the project objectives are important and need communicating:

> *"...we would sit down and we would have a briefing session, so we had a common understanding of what we were trying to achieve..."* (I08)

> *"I think in simple terms, is just describing what the project wants to achieve."* (I12)

> *"So I suppose, if I was talking to somebody on the street, I'm not really talking about project management or how I go about it, I'm just talking about what it is I'm trying to achieve."* (I18)

Another area that is important to communicate when running a project is represented by variable "V01-06-02-01. Stakeholder benefits resulting from project". According to the data supporting this variable, when communicating the project, the emphasis must be on highlighting the benefits that it brings to stakeholders:

> *"…it's making sure that people know why the project is happening, and try to sell it in terms of what would be the benefits for the various departments, the various players going to get out of it. So what's it for them, kind of thing; that needs to be communicated at the outset…"* (I01)

> *"So you're not talking about the project, you're talking about the benefits for them...So you need to explain it from their angle, and the benefits for them."* (I15)

Two more areas are identified as being possibly important to tackle when communicating a project to others and these are:

- "V01-06-02-02. Project success"
- "V01-06-02-03. Lessons learned"

However, these variables are supported by a small amount of data. These areas are recommended as further inquiry areas for project management practitioners, without being able to steer them as to what they may find. Some supporting statements are given:

> *"What I would do first is tell you what we have done so far, what we have achieved so far."* (I20)

> *"…at the end of a project, when we have been paid, and the client's happy, and we've left the project, we will produce essentially in-house a small case study so that we take away from that the lessons that we've learnt as a team."* (I07)

5.4.3 Assertions on projects and project management

The “Assertions on projects and project management” node is shown in Table 5.18:

Table 5.18: The “Assertions on projects and project management” node

Level 01 Node Sources	27					
Level 01 Node References	208					
Node	N01-12. Assertions on projects and project management					
Level 02 Variable Sources	13	8	14	6	8	3
Level 02 Variable References	26	14	21	11	13	7
Variable (Right) Interviewee code (Below)	V01-12-02-01. Complexity	V01-12-02-02. Stress	V01-12-02-03. Dependence on other stakeholders	V01-12-02-04. Usefulness and/or benefits	V01-12-02-05. Variety of work practices	V01-12-02-06. Consistency of work practices
I01						
I02						
I03		x	x			
I04					x	
I05					x	
I06		x	x			
I07	x					
I08	x					
I09		x				
I10					x	
I11	x		x	x		
I12			x			
I13	x		x			
I14						
I15						
I16	x		x		x	
I17	x					
I18	x	x	x		x	x
I19	x		x			x
I20	x					
I21			x			
I22	x		x			
I23					x	
I24			x	x		
I25						
I26	x	x		x		
I27				x	x	
I28	x	x	x	x	x	x
I29			x			
I30	x	x	x	x		
I31		x				
Variable type 1						
Variable type 2						
	Relationship with node(s)					
	N01-01, N01-03, N01-04, N01-08, N01-09, N01-10, N01-11, N01-14, N01-15, N01-16, N01-17, N01-19, N01-22					

For any project management practitioner, it would be very useful to receive as much "knowledge" about running a project as possible and this is what the data under the current node being analysed is showing.

Variable "V01-12-02-03. Dependence on other stakeholders" is represented by a lot of data, supporting the emerging conclusion that an important discussion point seems to be the dependence on other people that may not have a rational, business mind or may have individual agendas/issues that will need addressing, as illustrated:

> *"People do get very stuck in their ideas and ways... 'why are we changing this when we have done it like this for the last 15 years' 'we are changing it because for the last 15 years it has been costing us money' 'we are changing this because for the last 15 years we could have been doing it better'. You get a lot of inertia, people have been here for a long time and then it is difficult for them to move and change what they are doing."* (I19)

> *"...there's also the fact that you've got to consider all the interested parties… There could be hundreds of different issues, but it's important that you regularly sit down with people and discuss their problems, and then you can – as a team – you can come up with a solution of, you know, how to mitigate that problem. Because one thing you can't do in a project is just let somebody fester on their own..."* (I28)

Another area that is well represented in data is variable "V01-12-02-01. Complexity". There is a very strong acceptance that projects and project management are very complex and difficult. The idea that managing people is quite difficult appears:

> *"And in many ways the most complex part of the work we do is the stakeholder engagement. In terms of delivering the project, the complexity is in overcoming stakeholder resistance… In terms of delivering the project, the complexity is in overcoming stakeholder resistance…"* (I07)

> *"How to deal with your individual people in project management is not a very well covered area. Project management and how you deal with individuals within that project management ... I haven't found anywhere it is covered yet and I read a lot around this area."* (I19)

This variable is "Difficult and High interest", which suggests that a careful inquiry process by the project manager is needed here.

The next difficult area to be discussed is related to variable "V01-12-02-02. Stress". Running a project is a stressful undertaking and it is not easy for the

people that have to do it. One of the major causes of stress seems to be the fact that people cannot focus exclusively on one project at any one time, as evidenced:

> *"And I think that's where the project management can then be stressful, because I think that you're constantly trying to anticipate things and, you know, in the real world that's not always easy. So it's just constantly having to go over it. The problem is I haven't got the time to be constantly, you know… So I think it's… I get stressed then, you know. If I could just totally focus on things, it would be great, but the job I've got doesn't allow me to do that… You know, so, you know, one morning I'll be doing that project, but then another morning I'll be doing something else and, you know, an hour later I'll be doing something different..."* (I03)

> "*So there'll always be a lot of pressure to actually bring that project in on time and to budget."* (I26)

One more difficult area is emerges from the data and this is variable "V01-12-02-05. Variety of work practices" where there is a view that almost everything needs tailoring to a specific project and that most people use different work practices - this will be a serious practical difficulty. This conclusion provides a good link to systems thinking in the sense that contextualization is necessary; one size does not fit all. Such supporting statements are available:

> *"I think the APM have a view that if you are a Project Manager and you manage projects through a project management methodology, you could manage a project in any field. OK. That's one view. My view isn't that, and I would certainly say you couldn't bring in a Project Manager from the streets and say, this is a mine, manage a mining project. ...what I do – and I think probably most people do – that when you become… when you get more experienced, you tailor it to what you need."* (I16)

> *"So we've got different practices in different parts of the organisation… And in the past, people have been very resistant to anything that looked like formalised ways of working, because it tied them down…"* (I18)

> *"I think there's quite a variety in levels of sophistication in terms of what people do. So I think it's a matter of being aware of the various tools that are available but using them with discretion. I wouldn't assume that, you know, one style of project management or one bit of software would fit all projects."* (I27)

There seems to be a view emerging that the issue of project benefits is neglected at times and does not seem to attract a lot of interest, as illustrated by variable "V01-12-02-04. Usefulness and/or benefits", through some supporting statements:

> *"...if you're not careful, your original benefits case can be wiped out. Your project might be delivered, and what have you done, what have you really delivered to the organisation?"* (I26)

> *"I've got colleagues who will put… spend hours and hours and hours planning it all down on a computer and I say, well look, you know, yes it looks like a… you know, it's a wonderful… a chart on this… you've got everything planned in there, but in reality… Is it going to deliver anything..."* (I27)

The final area to be discussed in this node is variable "V01-12-02-06. Consistency of work practices", which is supported by a small amount of data and there are suggestions that there may be little support for standardization of work practices, whilst there seem to be some links between standardization and larger organisations:

> *"When you're working for a bigger company, you've just got a lot more support… And you've got a lot more procedures, and I think that people should follow them. I am a great believer in that, and that is always the trick…"* (I28)

5.4.4 Representing a project

The “Representing a project” node is shown in Table 5.19:

Table 5.19: The “Representing a project” node

Level 01 Node Sources	3
Level 01 Node References	7
Node	N01-17. Representing a project
Level 02 Variable Sources	3
Level 02 Variable References	7
Variable (Right) Interviewee code (Below)	V01-17-02-01. Representing a project
I01	x
I02	x
I03	
I04	
I05	
I06	
I07	
I08	x
I09	
I10	
I11	
I12	
I13	
I14	
I15	
I16	
I17	
I18	
I19	
I20	
I21	
I22	
I23	
I24	
I25	
I26	
I27	
I28	
I29	
I30	
I31	
Variable type 1	
Variable type 2	
	Relationship with node(s)
	N01-03, N01-09, N01-22

This node is an atomic node to be analysed in this work and as such it has only one variable representing it, the variable with the same name “V01-17-02-01.

Representing a project". Although there is a small amount of data to go on, there are some suggestions that some project representation tools are too abstract to be understood widely:

> *"I think it is very important to understand the purpose of the project and then to look at your constraints and then to look at your resources and then to look at how these problems or opportunities originate or manifest themselves and how you can maybe influence and change those. I am not good at abstract…"* (I02)

This shows the need for any project management practitioner to inquire in this area and it is recommended that further exploration takes place given the "Deficient" nature of the variable representing this area.

Representing a project emerged from literature as important (see Table 2.4), and it is therefore argued that a node representation for this area is appropriate. Given the small amount of data underpinning this area, further exploration is recommended.

5.4.5 Running a project - interviewee's practice

The “Running a project - interviewee's practice” node is shown in Table 5.20:

Table 5.20: The “Running a project - interviewee's practice” node

Level 01 Node Sources	25						
Level 01 Node References	188						
Node	N01-18. Running a project - interviewee's practice						
Level 02 Variable Sources	19	4	12	14	11	4	6
Level 02 Variable References	31	5	19	22	20	6	14
Variable (Right) Interviewee code (Below)	V01-18-02-01. Project planning and scope	V01-18-02-02. Being proactive	V01-18-02-03. Relationships with stakeholders	V01-18-02-04. Learning and building understanding	V01-18-02-05. Monitoring	V01-18-02-06. Communication to others	V01-18-02-07. Iterative process
I01	x	x		x	x		
I02			x	x			
I03		x		x			
I04			x	x			
I05	x		x	x			x
I06							
I07	x	x	x			x	
I08	x			x			
I09			x	x			x
I10	x		x	x		x	x
I11							
I12	x		x	x	x		x
I13							
I14	x			x	x		
I15	x		x	x	x		x
I16	x		x		x		
I17	x				x		
I18	x				x		
I19	x	x		x		x	x
I20	x		x		x	x	
I21				x			
I22					x		
I23	x			x			
I24	x		x				
I25	x				x		
I26							
I27							
I28	x						
I29	x		x		x		
I30	x						
I31							
Variable type 1							
Variable type 2							
	Relationship with node(s)						
	N01-02, N01-05, N01-06, N01-09, N01-10, N01-11, N01-14, N01-15, N01-16, N01-17, N01-19, N01-24						

Continuing with the theme of exploring the project manager area, the practice of the interviewees is studied here, starting with “High interest” variable “V01-18-

02-01. Project planning and scope". Discussion around project planning, focused on positivist ideas such as well-structured successions of tasks and timelines is shown. Perhaps this is one of the reasons why the interviewees had some difficulty previously with relating planning to project success and failure. The link to project success seems to emerge in this data set. A few supporting statements are given:

> *"...what I try and do is list down all the tasks we've got to go through, and that, really, that's key to success of project. The more thought you put into it up-front, the better. If you can get that right, I think you're 90 per cent of the way there."* (I05)

> *"So myself, and the Executive Director, and the Training Coordinator sat down, and we worked out a plan that we thought we could implement. I receive, usually, it's the size of a house, a student handbook, and it usually fills me with dread to begin with, and then I actually read through it all, I look at the tasks that I have to do, and then I work out a plan of how I'm going to do that."* (I24)

There are also some suggestions that project plans can be quite daunting to deal with:

> *"So myself, and the Executive Director, and the Training Coordinator sat down, and we worked out a plan that we thought we could implement. I receive, usually, it's the size of a house, a student handbook, and it usually fills me with dread to begin with, and then I actually read through it all, I look at the tasks that I have to do, and then I work out a plan of how I'm going to do that."* (I14)

The next area is represented by the "High interest" variable "V01-18-02-04. Learning and building understanding" where there is strong support for contextualization and understanding the environment that the project will be delivered into – this provides a good link to systems thinking:

> *"...the first task is to go and do like a process analysis of how that organisation works… But in there, I have the different interviews with all the key people, and see how the whole thing works."* (I01)

> *"...you need to make sure that you understand the environment, talk to the individuals who operate in that area, taking in I guess as much information as quickly as… relevant information as quickly as possible. ...if a similar piece of work has ever been done before, it's about building on that piece of work and making it more efficient…"* (I08)

> *"...there are so many areas of it that I have learnt as I've gone along…"* (I23)

An idea that comes up with some consistency now is related to the "V01-18-02-03. Relationships with stakeholders" variable. The data representing this

variable indicates that there is a strong discussion around the idea that running a project is in fact running people and that this is quite a hard thing to achieve:

> *"I think you work to who your influences are, you try and influence those who influence us, if there are people you just can't get through to them who can and how do you form alliances with them. It can easily turn into something that is very divisive, very political and no matter how much I dislike someone personally, I need to work with them on a professional level, work with them professionally."* (I02)

> *"Yes there is myself, the management team in the area that I work in, which I am part of, there are people outside the management team, as an example there are people in central staff departments who we have to constantly liaise with…"* (I20)

The next idea emerging from the data is that whilst there is a significant amount of discussion around the monitoring of the project, this seems to be focused on milestones and tasks and not that much on achieving the final objective of the project. This is illustrated under variable "V01-18-02-05. Monitoring" and evidenced by:

> *"...then there'll be monitoring the key milestones…"* (I12)

> *"...we would have a weekly project management meeting where the contractor's would have their time line and I would have my time line and my job was to make sure they were on target and if they were missing a target did that affect me and when were they going to complete the task so I could adjust my time line to fit theirs. ...that was the way I project managed it. I just identified the tasks that needed to be done and set start and end dates against them and just monitored them to see if they achieved them."* (I25)

The idea that the running of the project is an iterative process, links well with systems thinking and keeps recurring in the data, through variable "V01-18-02-07. Iterative process" at this stage. Project managers state that this is part of their practice:

> *"I think what it is, is how the project evolved, because the project that is about change should evolve, and often what is delivered or how the project is delivered and how it's managed evolves and changes over the course of the project."* (I15)

> *"And then I'll talk to my staff, agree what we're going to do, and just dive in and do it, and… Then just go round in a few loops until, you know… because obviously, you know, whenever you start something, a lot of your assumptions are wrong, and you need to learn as you go along, so that's what we do, really."* (I10)

The last two variables to be discussed here are of the “Deficient” type. Variable “V01-18-02-02. Being proactive” suggests that some project managers see being proactive when running a project as important, but there is not enough data to glean any more information. One such statement is given:

> *“...the work that I get involved in is quite reactive work, and project management is quite proactive…”* (I03)

Variable “V01-18-02-06. Communication to others” interestingly attracts little discussion here, even though the communication area has been identified as important previously. One example of a statement given in this area is:

> *“... as an example there are people in central staff departments who we have to constantly liaise with and tell them what we are doing… ...let them know when the project is going to hit them because obviously we move around each department.”* (I20)

5.4.6 Running a project - in an ideal world

The “Running a project - in an ideal world” node is shown in Table 5.21:

Table 5.21: The “Running a project - in an ideal world” node

Level 01 Node Sources	23								
Level 01 Node References	55								
Node	N01-19. Running a project - in an ideal world								
Level 02 Variable Sources	4	3	2	4	7	4	11	8	12
Level 02 Variable References	4	4	5	4	12	6	14	10	20
Variable (Right) Interviewee code (Below)	V01-19-02-01. Objectives	V01-19-02-02. Resources	V01-19-02-03. Senior stakeholder support	V01-19-02-04. Competence and professionalism	V01-19-02-05. Time	V01-19-02-06. Budget	V01-19-02-07. Planning	V01-19-02-08. Stakeholder relationships	V01-19-02-09. Flexibility of action
I01	x	x	x	x			x		
I02				x					x
I03				x	x		x	x	x
I04		x		x		x	x		x
I05	x								
I06					x		x	x	
I07					x			x	
I08									
I09									
I10									
I11					x				
I12		x							
I13								x	
I14							x		
I15								x	x
I16									x
I17					x	x	x		x
I18							x		x
I19	x						x	x	
I20			x					x	
I21								x	x
I22									x
I23							x		
I24					x	x	x		x
I25									
I26									
I27	x				x	x	x		x
I28									
I29									
I30									x
I31									
Variable type 1									
Variable type 2									
	Relationship with node(s)								
	N01-02, N01-03, N01-04, N01-05, N01-07, N01-09, N01-10, N01-11, N01-14, N01-15, N01-16, N01-20, N01-21, N01-27								

This node aims to illustrate the differences between what project managers do in practice and what they might do if they had complete freedom of action.

Whilst a lot of areas for discussion and inquiry open up under this node, five variables are of the "Deficient" type, being supported by a small amount of data. These are "V01-19-02-01. Objectives", "V01-19-02-02. Resources", "V01-19-02-03. Senior stakeholder support", "V01-19-02-04. Competence and professionalism" and "V01-19-02-06. Budget". It is interesting to see that resources and budget appear as two distinct areas. This is an indication, perhaps, that having a budget does not guarantee having the right resources for the project. These five areas are recommended as careful inquiry areas for project management practitioners. Some supporting statements for the five variables above are given:

> *"I would articulate the key objectives, your key outcomes…"* (I27)
>
> *"In an ideal world, you'll have the… ...right resources..."* (I04)
>
> *"…and get a top man in the organisation to support it… That's very important. Ideally I'd like to have a very powerful sponsor… Somebody senior… It could be the Managing Director or Financial Director, as a minimum, you know…"* (I01)
>
> *"I'd pick people that I've worked with in the past that I know that I can rely on and that…"* (I03)
>
> *"I mean in an ideal world you'd have a limitless budget…"* (I17)

The "V01-19-02-01. Objectives" variable suggests that having clear objectives would be quite helpful to the running of the project. Having an unlimited budget is an aspiration that some project managers have identified.

Variable "V01-19-02-09. Flexibility of action" conveys ideas around the need to be able to do your own thing and there is a clear preference by project managers towards working alone so that things can be controlled 100% - this is of course wishful thinking and could indicate that project managers see others as a barrier towards moving the project on:

> *"...in an ideal world I'd just do it myself! ...you'd do it yourself, you're completely in control, you work to your timescales, you can get things done, and you do it in the way you want to do it, and you're not managing a team…"* (I30)
>
> *"In an ideal world, probably just have one person looking after that, to project-manage. Not have the day-to-day jobs, other tasks, other pressures, so they can concentrate fully on that…"* (I21)

This is further complemented by the view that there is a desire for simplicity, not being overburdened by red tape or by other activities:

> *"The paperwork is as simple as possible: it's there to support, not dominate the project, as well."* (I15)

> *"I would run a project so that I'd only have one at a time…"* (I03)

A reoccurring area, planning, is illustrated here by "V01-19-02-07. Planning". Planning is seen as very important, but it can be difficult to undertake well:

> *"…and planning. I've got to say, before I did this job my planning was terrible. You know, I believe you should plan…"* (I04)

> *"I would love it to be systematic with a beginning to end of every task, but I think that is an almost impossible task when we are dealing with the data we deal with…"* (I23)

The last two areas that allow for the building of knowledge in this node are "V01-19-02-05. Time" and "V01-19-02-08. Stakeholder relationships". The time project dimension seems to be, as before, something that people find relatively easy to measure due to its easy numerical representation:

> *"…and I would prefer, in an ideal world… I would prefer to have more time understanding the client at the beginning of the project…"* (I07)

> *"I mean in an ideal world you'd have… ...a limitless time schedule…"* (I17)

Good and long-lasting relationships would be desirable. This is an indication of the social activity aspect of projects and it shows that the desired effects of the project exceed its boundaries:

> *"So that for me is, you know, is an ideal project, where you build a long-standing relationship."* (I13)

> *"I want to make x work' and after three months x it working and you think brilliant thank you very much for your help, final report say thank you, get it out to everybody a bit of praise because that's going to work for next time, 'we are really pleased to say this has all worked, thank you for your hard work' walk away from it and hopefully next time you come around to start your next project with those individuals they think the last time we worked with this chap it all worked and he said thank you. Always end on a positive. Even if something hasn't worked try and end on a positive as well."* (I19)

5.4.7 Assumptions made when running a project

The “Assumptions made when running a project” node is shown in Table 5.22:

Table 5.22: The “Assumptions made when running a project” node

Level 01 Node Sources	23					
Level 01 Node References	86					
Node	N01-20. Assumptions made when running a project					
Level 02 Variable Sources	11	10	13	3	4	4
Level 02 Variable References	22	22	19	3	7	4
Variable (Right) Interviewee code (Below)	V01-20-02-01. Understanding communications and information from project stakeholders	V01-20-02-02. Capability and willingness of project stakeholders	V01-20-02-03. Project progress and stakeholders engagement	V01-20-02-04. Capability of systems	V01-20-02-05. External influences	V01-20-02-06. Effective and accurate information
I01						
I02						
I03	x	x	x			
I04		x				
I05	x		x			
I06	x	x				
I07	x				x	
I08	x					
I09	x		x	x		
I10		x			x	x
I11						
I12	x		x			
I13	x	x	x			
I14	x		x			x
I15			x			
I16			x			x
I17						
I18			x		x	
I19	x	x				
I20			x	x	x	
I21		x		x		
I22						
I23						x
I24		x				
I25		x	x			
I26						
I27						
I28						
I29			x			
I30		x	x			
I31	x					
Variable type 1						
Variable type 2						
	Relationship with node(s)					
	N01-03, N01-05, N01-06, N01-11, N01-14, N01-15, N01-16					

A very interesting area of discussion is related to what assumptions are made by project managers during the running of projects.

Six areas of discussion, represented by variables represent this node. The area that is supported by most data is "V01-20-02-03. Project progress and stakeholders engagement" where there is a discussion around the assumption that people are engaged in the project, when in fact they may not be. From the point of view of the project management practitioner, there needs to be an inquiry as to whether this is in fact true or not:

> *"I think the only assumptions that I would say is that sometimes I've perhaps assumed that things are being done when they're not being done. So it's a false assumption…"* (I13)

> *"I suppose a lot of the assumptions are that… yeah, most things are going to go right. We have to make assumptions about sort of stakeholders getting engaged with the project..."* (I18)

> *"I don't assume people are doing what they say they're doing, I like to see it, so I don't make any assumptions about that."* (I30)

"V01-20-02-01. Understanding communications and information from project stakeholders" provides an interesting take on communication, as it clearly puts the emphasis on project managers as receivers of information and their ability to utilize that information in an effective way. There seem to be issues identified around the communication between the project manager and other project stakeholder; there are assumptions that the project managers know more, but also that they know less than other stakeholders:

> *"So what you've got to try and do is second-guess what the sponsor wants… And sometimes they don't know what they want, so you've got to decide what they want, and then… they think they know what they want but they don't really…"* (I05)

> *"So I'm not going into areas that I don't know or I'm unfamiliar with, so it's very hard not to take some knowledge or previous experience into that. But those assumptions must always be validated…"* (I08)

> *"I assumed that they knew what a plan was. I assumed that these guys would know what I was talking about. It took… it's taken three weeks to turn that round… Never assume!"* (I31)

In terms of "V01-20-02-02. Capability and willingness of project stakeholders" there seem to be a lot of assumptions that all project stakeholders know what they are doing or what needs doing, but this is not correct in most cases, therefore an inquiry into the project stakeholders' actions is needed. The project managers are subject to the same assumptions, in other words they may assume that they know what they are doing, but this is not always the case – a

project managers' self-inquiry into their own actions is needed. Hence this area is identified as a "Difficult and High interest" type:

> *"...don't assume people know what they are doing, ask them and then ask them again and get them to tell you what you want them to do. That is a key one. Don't assume people are willing to talk out."* (I19)

> *"I think the assumption I make is that fact that at the project meetings all the people sat around that table were supposedly experts in that area."* (I25)

> *"So I think I've got the answer, and, you know, it's actually the working through that gives you the answer, sometimes, you know, more often than not, but I can, I have to stop myself, because I think I know what the solution to the problem is and therefore you stop thinking about other things."* (I30)

The final three variables discussed here are represented by small amounts of data, but as with all of the "Deficient" variables, project management practitioners are encouraged to further inquire into these areas when running their own projects:

- "V01-20-02-04. Capability of systems"
- "V01-20-02-05. External influences"
- "V01-20-02-06. Effective and accurate information"

Some statements that support the view that there is a need for inquiry in these areas are given:

> *"You also make assumptions that in terms of deploying the managed desktop the deployment server is going to be up 100% of the time, that doesn't happen as well and that can impact again it is covered in the risk assessment."* (I20)

> *"We have to – certainly when we're making our plans – we have to assume that, you know, government's not going to change its mind next week, otherwise we'd never get anything done."* (I18)

> *"I go in with the assumption that the data I am given is correct. But I think you have to work with the assumption that the data you are given is correct and at times it hasn't been and I have had to deal with the consequence."* (I23)

In terms of project related information there seems to be some consistency in terms of project managers expecting that the data they are furnished with is accurate.

5.4.8 Most important factor when running a project

The “Most important factor when running a project” node is shown in Table 5.23:

Table 5.23: The “Most important factor when running a project” node

Level 01 Node Sources	29									
Level 01 Node References	91									
Node	N01-21. Most important factor when running a project									
Level 02 Variable Sources	7	3	1	14	6	9	7	2	2	2
Level 02 Variable References	10	7	1	31	7	19	9	2	3	2
Variable (Right) Interviewee code (Below)	V01-21-02-01. Objectives and deliverables	V01-21-02-02. Ownership	V01-21-02-03. Senior stakeholder engagement	V01-21-02-04. Communication	V01-21-02-05. Timescales	V01-21-02-06. Relationships with stakeholders	V01-21-02-07. Planning	V01-21-02-08. Quality	V01-21-02-09. Right team	V01-21-02-10. Decision making and management
I01	x	x	x	x						
I02				x	x	x				
I03	x			x	x	x	x		x	
I04										
I05		x					x			
I06				x		x		x		
I07						x				
I08	x						x			
I09	x									
I10	x									
I11				x						
I12				x		x				
I13				x						
I14	x					x			x	
I15		x		x		x				
I16				x						
I17				x			x			x
I18				x			x			
I19				x			x			
I20					x					
I21					x	x				
I22				x	x					
I23								x		
I24				x						
I25						x				
I26	x				x		x			x
I27										
I28										
I29										
I30										
I31										
Variable type 1										
Variable type 2										
	Relationship with node(s)									
	N01-02, N01-03, N01-05, N01-06, N01-07, N01-09, N01-10, N01-11, N01-15, N01-16, N01-18, N01-19, N01-20, N01-22, N01-24, N01-27									

A broad variety of views were expressed under this node. Five of these variables are supported by good amounts of data to allow conclusions to be drawn and to give project management practitioners a steer. The other five areas are represented by "Deficient" variables and further exploration is recommended.

We shall start with the most well represented "High interest" variable, "V01-21-02-04. Communication", which appears regularly when discussing projects and project management. Communication is identified by many project managers as the most important but also the most difficult element when running a project, giving this variable a dual type. This is a view that is held consistently through the data analysis and is further supported by these statements:

> *"Well it's a total cliché, isn't it, but it would have… it has to be communication for us. If the communication stops, it just… it just goes wrong…"* (I11)

> *"I have a personal bug bear about communication. Communicating what you are doing to the people involved at every step of the way. It is something I bang on about a lot but I find it very difficult to manage people involved in a project if you are not going to tell them what is going on."* (I19)

> *"...in terms of managing a project by far the hardest thing to do in running a project is to work out how you're going to do the project memory function in the middle of it. Whose job is it to remember every question, or issue, or action that comes up at a meeting, and to recognise that, you know, things that are issues become actions, and then actions become issues, and they become questions, and then they become meeting minutes, then they become things that get put on the shelf, then they get things that have to come off the shelf later and be dealt with later... And so that's, I think, the most difficult and most important thing to do in a project."* (I22)

"V01-21-02-06. Relationships with stakeholders" is also a recurring area and it is seen by some project managers as the most important factor when running a project. People relationships in a project are seen as going hand in hand with engagement:

> *"So I think… I would have thought that was probably the biggest thing, is your kind of relationships and your communication..."* (I03)

> *"From my perspective, it's the relationship with the client, and the people that we're working with."* (I07)

> *"...can they engage with the customer is number one for me. Will the customer enjoy working with them, will they enjoy working with the customer."* (I12)

For some project managers the area of "V01-21-02-01. Objectives and deliverables" attracts good consensus in terms of the importance of clear objectives:

> *"What is the most important from my own personal experience, what's key is that the outside of the project to agree what the objectives and the deliverables are…"* (I01)

> *"I think a very clear scope, i.e. do you know what you're trying to deliver…"* (I26)

Similar to previous conclusions, ideas about keeping things to time emerge from the "V01-21-02-05. Timescales" variable, but of course the problem is that people refer only to the more easily measurable numerical dimension of time:

> *"I think the most important thing is to keep an eye on how the project is running. What I mean by that is taking into consideration the risks and the target date and make sure the risks do not overwhelm the target date so we don't meet the target date."* (I20)

> *"And as part of that plan, have you really worked out how much time you need, do you… have you brought some contingency into your plan for things that will go wrong – which invariably do…"* (I26)

A notable result is that planning is seen as important, as illustrated by data supporting variable "V01-21-02-07. Planning":

> *"Planning. Planning. So if you get the planning wrong, you could waste your time and energy. So it's… so if the planning is the most thought-provoking, needs the most time, most structure, most lateral thinking, to make sure that you're taking this project in the right direction."* (I08)

> *"...do you have a very clear plan of how you're going to deliver that, and a realistic plan?"* (I26)

Suggestions that planning is difficult emerge again at this point.

The last five variables to be analysed here are:

- "V01-21-02-02. Ownership"
- "V01-21-02-03. Senior stakeholder engagement"
- "V01-21-02-08. Quality"
- "V01-21-02-09. Right team"
- "V01-21-02-10. Decision making and management"

and these are supported by small amounts of data. Some speculation might be made here based on some of the comments about the very little discussion that takes place around having the right team. This is in contrast with the idea that people relationships are essential - so does a relationship matter more than having competent people? Making the right decisions seems to be linked to relationships, not necessarily in a positive way, as illustrated:

> *"...being able to make decisions that you know are needed, but that people might not like."* (I17)

What is interesting to note is that several project managers do not believe it possible to identify a single most important factor when running a project, but rather two or more factors. This is an interesting result in itself and it is not a surprising result given that projects are quite complex human activities, where a multifaceted set of expectations is reasonable.

What is also notable is that whilst two of the classical dimensions of project management can be found amongst this node's variables (time and quality), cost is not being identified as a key element. Many projects fail on the cost dimension; perhaps this data has uncovered an indication as to why this might be happening?

5.4.9 Summarizing the "Project Manager" theme

Having analysed the "Project Manager" theme, its nodes and variables, a view of project management practice emerges in this area. It is useful to present a count of variables in this area, this is available in Table 5.24.

Table 5.24: Variables underpinning the "Project Manager" theme

Variable type	**Colour**	**Number of variables in the "Project Manager" theme**
"High interest" variable	**Green**	9
"Regular" variable	**Grey**	12
"Difficult" variable	**Orange**	9
"Difficult and High interest" variable	**Orange + Green**	5 (not counted twice in the total)
"Deficient" variable	**Red**	19
Total		49

There are a number of “Deficient” variables under the “Project Manager” theme. This indicates that whilst these areas are identified by various project managers as significant enough to discuss, they are potentially not well understood or are even ignored in the project management community. This result adds increased weight to taking an inquiring approach towards project management practice. In addition to these “Deficient” variables there are 9 “Difficult” variables present, which will require frequent actualization to ensure that the complexities of a project are captured adequately.

The “Project Manager” theme emerges as the next major component of the framework to be developed in this work.

The need for an inquiring approach in project management is further strengthened by the analysis of the variables found under this theme, which are summarized in Table 5.24.

5.5. The “Project Stakeholders” theme

The “Project Stakeholders” theme contains 4 nodes and 22 variables, making this theme a major component of the project management framework.

The “Project Stakeholders” theme is underpinned by nodes identified from data and these are shown in Table 5.25:

Table 5.25: The “Project Stakeholders” theme nodes

Major project management related theme	**Node**
Project Stakeholders	N01-11. Engagement and motivation of project stakeholders
	N01-16. Relationships between the stakeholders in a project
	N01-25. Main stakeholders in a project
	N01-26. The real project beneficiaries

The data and variables representing each node will now be analysed in detail.

5.5.1 Engagement and motivation of project stakeholders

The “Engagement and motivation of project stakeholders” node is shown in Table 5.26:

Table 5.26: The “Engagement and motivation of project stakeholders” node

Level 01 Node Sources	30						
Level 01 Node References	143						
Node	N01-11. Engagement and motivation of project stakeholders						
Level 02 Variable Sources	18	10	6	3	5	11	2
Level 02 Variable References	33	19	7	3	5	14	8
Variable (Right) Interviewee code (Below)	V01-11-02-01. Direct stakeholder benefit or relevance	V01-11-02-02. Consultative approach, empowerment	V01-11-02-03. Enjoyable working relationships and environment	V01-11-02-04. Publicising project	V01-11-02-05. Financial rewards	V01-11-02-06. Worthwhile projects	V01-11-02-07. Senior stakeholder influence
I01	x			x			x
I02	x						
I03	x						
I04	x						
I05	x						
I06		x				x	
I07	x						
I08	x	x					
I09		x					
I10			x	x		x	
I11	x						
I12	x		x				
I13	x						
I14				x		x	
I15	x				x		
I16			x			x	
I17	x						
I18		x				x	
I19					x	x	
I20		x					
I21	x	x					
I22	x					x	
I23						x	
I24							
I25		x	x				
I26							x
I27	x				x	x	
I28	x	x	x				
I29					x	x	
I30	x	x	x		x	x	
I31	x	x					
Variable type 1							
Variable type 2							
	Relationship with node(s)						
	N01-02, N01-05, N01-07, N01-09, N01-16, N01-18, N01-19, N01-20, N01-21, N01-27						

Starting with the "High interest" variable "V01-11-02-01. Direct stakeholder benefit or relevance" there is a view that people will engage well with a project if there are benefits for them and their personal or professional lives, linked with creating good relationships:

> *"...the easiest way to engage people is to show them that what you're trying to get them to help you with is going to benefit their key priority in the long-term…"* (I11)

> *"I've found from my Project Managers, is that to get them engaged in the work as well is also to set out their development plan; it can also be a part of their yearly appraisal, is actually to set out what they need to deliver, their objectives, their development plan. ...there might be a site agent, and you've set them a two-year plan, and part of their plan they need to achieve certain objectives; and they're following it to the letter, and then ultimately they're getting promoted, and they're engaged in the work because they can see progression..."* (I28)

> *"...those that are affected by it need to understand the rationale…And if it's going to be more work for them, or a different way of doing it, and then they're uncomfortable with it, explaining why it's a good thing that that happens, and would they please, you know, bear with it and do it."* (I31)

The idea that the project is going to make a positive difference (or perceived positive difference) is quite important and it seems to be motivating people, as illustrated by data leading to variable "V01-11-02-06. Worthwhile projects":

> *"Doing something that's worthwhile, and that they think is worthwhile, and sometimes… I think part of my job is explaining to people why what they're doing is worthwhile, why it matters, the significance of it, the meaning of it."* (I10)

> *"I think when we do set ourselves a target, an aim, a new project, an existing project, we want it to succeed, because we all have to buy into it, we all want to buy into it, we're motivated by it being a good idea…"* (I14)

> *"...people who work along the projects, they kind of need to see what's… what is it that's good about this project, what difference is this going to make to people's lives. And that tends to be what motivates people here."* (I18)

What motivates and engages other stakeholders is consultation, this is shown by variable "V01-11-02-02. Consultative approach, empowerment" as a key element for engagement, even when the project does not affect them directly:

> *"So my personal view on it is you should always talk to people and where appropriate always try to get their views and perspectives on everything... ...you need to make people feel they are involved with the project."* (I09)

> *"So my personal view on it is you should always talk to people and where appropriate always try to get their views and perspectives on everything... ...you need to make people feel they are involved with the project."* (I25)

The social nature of the project has been explored before, but it is further strengthened by "V01-11-02-03. Enjoyable working relationships and environment" which concludes that the social aspect of work is important and people enjoying themselves while working on a project is important:

> *"I believe a large proportion of people accept that when they come to work they actually want to enjoy it, and they believe in what they're doing."* (I16)

> *"Some people want the social interaction of coming to work."* (I30)

The "V01-11-02-05. Financial rewards" variable allows the conclusion that financial incentives are identified as important; a number of project managers commented on this point:

> *"I am being paid as well obviously and being paid well."* (I19)

> *"...they're being paid to do it…"* (I29)

The final two variables to be explored are:

- "V01-11-02-04. Publicising project"
- "V01-11-02-07. Senior stakeholder influence"

which are supported by a small amount of data. However, there are some supporting statements that suggest that these are worthy areas of inquiry for project managers:

> *"...about twice a year we'll get the whole staff team, and as I say I don't do this as often as I could perhaps, get the whole staff team together and say this is why we're doing this, and tell some stories, and make everyone feel good about what they're doing, and also help them to see why it matters."* (I10)

> *"...if the top people are buying into it, they'll buy into it… If the top management are not buying into it they'll not give it any [attention], because at the end of the day they have their job at stake. ...if it's not important for the Managing Director, it's not going to be important for them. If it's not important for their boss – direct boss – it's not going to be important for them… I know it's a bit political, but it does play a big role in terms of motivation."* (I01)

5.5.2 Relationships between the stakeholders in a project

The “Relationships between the stakeholders in a project” node is shown in Table 5.27:

Table 5.27: The “Relationships between the stakeholders in a project” node

Level 01 Node Sources	31									
Level 01 Node References	393									
Node	N01-16. Relationships between the stakeholders in a project									
Level 02 Variable Sources	6	10	6	17	27	15	6	1	2	6
Level 02 Variable References	17	19	11	59	92	41	14	2	6	14
Variable (Right) Interviewee code (Below)	V01-16-02-01. Organisational structures and processes	V01-16-02-02. Cultural and perspective differences	V01-16-02-03. Assumptions about others	V01-16-02-04. Senior stakeholder involvement	V01-16-02-05. Effective working relationships	V01-16-02-06. Ineffective working relationships	V01-16-02-07. External influences	V01-16-02-08. Authority to make decisions	V01-16-02-09. Reluctance to communicate	V01-16-02-10. Ineffective communication
I01	x	x		x						
I02		x			x	x	x			
I03					x	x				
I04			x							
I05					x					
I06					x					
I07				x	x	x				
I08					x					
I09			x	x	x					x
I10		x	x	x	x	x				x
I11	x			x	x	x	x	x		
I12		x			x					
I13		x	x	x	x	x				x
I14		x		x						
I15		x			x					
I16	x				x	x				
I17		x		x	x		x			
I18				x	x	x				
I19	x			x	x	x	x		x	x
I20				x	x				x	x
I21		x			x					
I22				x	x					
I23					x	x				
I24			x		x	x				
I25					x	x				
I26	x			x	x					
I27	x					x				
I28			x	x	x		x			x
I29		x		x	x	x				
I30				x	x		x			
I31				x	x	x				
Variable type 1										
Variable type 2										
	Relationship with node(s)									
	N01-02, N01-03, N01-05, N01-07, N01-08, N01-10, N01-12, N01-14, N01-15, N01-18, N01-19, N01-20, N01-21									

Looking at the types of variables that are encountered under this node it can be noted that there are several variables of the "Difficult" type. This is not unexpected as there has been previous evidence in this work that concepts that can be measured numerically are dealt with more easily than concepts that cannot; human relationships cannot be measured numerically.

The first such variable discussed here is "V01-16-02-05. Effective working relationships" which is a variable that is based on many comments. The main conclusions that can be drawn from this variable is that effective working relationships are identified as both essential to the running of projects and difficult to achieve. The issue of trust comes up often in the interviewee's comments and is seen as important in terms of building effective relationships. This is evidenced by:

> *"And then, just having good relationships, I think… being happy, you know, work can be in a place where you enjoy coming to, where there's good relationships. ...the hardest thing is establishing good communication really, getting people to talk, and listen, and to understand why we're doing something that's required."* (I10)

> *"We had to really work hard at building some of those relationships, so the project team relationship's been really critical, I think, to the success of projects."* (I11)

> *"Trust: You have to have trust; because without trust you've got nothing, you've got no relationships. …You get a whole… the whole of the human… the whole of the elements of human behaviours are all shown in projects. Again, to me, the best way to deal with that is clear communication; everybody should know what they're expected do and when they're expected to do it."* (I16)

The next area, yields the conclusion that relationships between senior stakeholders themselves and other people is identified as a key factor, together with the fact that organisational politics plays an important role in decision making, and is represented by the variable "V01-16-02-04. Senior stakeholder involvement". Illustrated here are some of the comments:

> *"So you need enough clout from your sponsors…To push it for you… OK. If the people on the project are fairly junior, most likely it's not going to happen…"* (I01)

> *"There is a sense, often, I think, with these groups, that they have quite a lot of power, and they've got the resource, so you are very much, you know, doing their bidding. So the power thing is quite interesting, isn't it."* (I13)

> *"I think that it doesn't help in that particular instance if the two directors involved were not quite as in agreement as perhaps they should've been when the project started… So there were some tensions in pulling the teams in their own direction, but once that was resolved that was much easier..."* (I30)

Another variable supported by a good amount of data is "V01-16-02-06. Ineffective working relationships". The fact that people take a personal view instead of a business view to things leads to a lot of ineffective relationships and it will ultimately affect the way in which the project runs. This is evidenced by:

> *"There were a few people who initially were very resistant to it and we couldn't work out why. Then we triggered after a bit after a discussion with one of my managers, it suddenly showed up what everyone was doing all the time, so you couldn't bury yourself in the herd and avoid doing work because suddenly everyone was supposed to be doing a certain job at a certain time and we had one or two people who we suddenly realised weren't actually doing very much. And they realised that it was showing them up at about the same time, we realised they weren't doing very much, that's why you don't like that because it is showing something you are not happy about coming out."* (I19)

> *"They've banged in a project proposal because they're interested in something, but in reality they haven't got the time or they don't get the support to do it within their own institutions, so nothing is going to come of it. Other ones, in some ways, sometimes they can bite off more than they can chew."* (I27)

> *"Every now and then you find… you come across people who will deliberately just block it… Not take part, and try to slow it down."* (I31)

In the data set, it is widely acknowledged that different cultural standpoints lead to different perspectives on a project and ultimately the difficulty is reconciling these different views, as illustrated by variable "V01-16-02-02. Cultural and perspective differences". Some supporting statements for this view are given:

> *"I would give you an example of a project I worked on in Japan with J... and we went out as part of a project team, the project team there was about 40 of us from America, UK and Japan. You can imagine the kind of cultural differences there, the communication differences, differences in terms of urgency and time line."* (I02)

> *"And it's hard to manage all of them, and they all come at it with a whole different perspective and a different set of wants and desires, and trying to balance all of that is quite difficult."* (I17)

While variable "V01-16-02-07. External influences" reflects only a moderate amount of data, there is strong evidence that this area is of a "Difficult" type. External influences, of people who are not actually involved in the project at all,

but on whom the project can have some effects, can actually be very disruptive to the projects, as evidenced:

> *"And obviously you've got your job to do, but you've also got everything else to do, because if you've got an unhappy client or you've got unhappy locals, then that can make it, you know, quite challenging at times… I mean we've had one site that we did quite recently – that W… one – where we had a very narrow lane, and there were some… it was quite isolated, and the residents on that lane took exception to heavy vehicles moving down there, to the extent that one ex-Policeman would put nails out on the road to try and puncture the vehicle tyres."* (I28)

> *"Where does the budget lie? Who has the most influence in terms of, you know, sometimes it's not about their budget or their actual importance, it's about where their network of influence is. And, you know, that's very often the most difficult to manage..."* (I30)

"V01-16-02-10. Ineffective communication" is the last "Difficult" variable to be examined under this node and it attracted a similar number of data items as external influences. The conclusion drawn is that ineffective communication seems to occur with some regularity and it seems to be related to the issue of maintaining good relationships; people are reluctant to say things that may cause difficulties:

> *"... the accusation that I have heard before is that they don't communicate technical stuff at all well and I try and avoid that at all costs because if you can't communicate it through you haven't got a project…"* (I20)

> *"...sometimes people tell you… they do, in this world they tell you what you want to hear. If you speak to people, and you say, OK, can you give me a progress update of… you're manufacturing this piece of equipment for me, can you tell me how it's going on? They'll say, yeah, it's going fine, we're still going to meet that date, blah, blah, blah. What we've found, the best thing to do is to say, right, you know, we are going to come up and we're going to inspect it; we're going to give a… we're going to come up on that particular day and we're going to look at where you are on it. And nine times out of ten it was a bit of a different picture than what they were telling you on the telephone."* (I28)

"V01-16-02-01. Organisational structures and processes" attracted some discussion, but this area does not seem to be identified as a key factor in relationships between the stakeholders of a project, whilst giving the possibility that it will have an impact:

> *"A lot of the time you've got like empires, you know…and then the project, generally speaking, goes through those empires…And people feel a bit… I wouldn't say threatened, but they feel they're… that they're somehow affected...So they'll be on the defensive"* (I01)

> *"They always will, because you always have personalities involved, and you'll always have some strong personalities. You will have people that want to shortcut processes, people that don't want to be shown as failing because they haven't delivered when they should have delivered."* (I26)

In the "V01-16-02-03. Assumptions about others" node, the main conclusion that can be drawn is that most assumptions seem to be about people's competency and ability to achieve what they are supposed to achieve, which does affect the nature of the relationships:

> *"And they'll have very important titles, often, like Director of Research Projects, or something like that, and actually you find they're pretty naïve in terms of their knowledge and experience, so you might assume that they're actually much more on top of what they're dealing with than they are…"* (I13)

> *"Because it's very easy to assume that somebody's competent with a computer, and I do go to places where they struggle to even turn the power on, so…Obviously, it's just a case of being patient with people, and making sure that you do train them correctly, you know sitting down, talking to them, running through…"* (I24)

The last two variables belong to the "Deficient" category and there are supporting statements that suggest they should be inquired upon by project management practitioners. These variables are:

- "V01-16-02-08. Authority to make decisions"
- "V01-16-02-09. Reluctance to communicate"

and the need for further inquiry in these areas is supported by the following statements:

> *"I thought I'm sure I'm making decisions that I don't really have the authority to make, but I don't know quite else how to do it; and I'd send her an email saying I really need a bit of a steer on this, and I wouldn't get anything back, and… You know, time's marching on, so I think, well, we'll try it and see what happens and, you know, sometimes think I've probably stepped outside my real remit…"* (I11)

> *"You also get people who think it is not part of their job; not part of their role to be reporting problems, then you just get general shyness, some people don't like bringing it up..."* (I19)

5.5.3 Main stakeholders in a project

The “Main stakeholders in a project” node is shown in Table 5.28:

Table 5.28: The “Main stakeholders in a project” node

Level 01 Node Sources	2
Level 01 Node References	16
Node	N01-25. Main stakeholders in a project
Level 02 Variable Sources	2
Level 02 Variable References	3
Variable (Right) Interviewee code (Below)	V01-25-02-01. Main stakeholders in a project
I01	x
I02	x
I03	
I04	
I05	
I06	
I07	
I08	
I09	
I10	
I11	
I12	
I13	
I14	
I15	
I16	
I17	
I18	
I19	
I20	
I21	
I22	
I23	
I24	
I25	
I26	
I27	
I28	
I29	
I30	
I31	
Variable type 1	
Variable type 2	
	Relationship with node(s)
	N01-09, N01-16, N01-26

This node is the only other atomic node resulting from coding, containing only one variable of the same name “V01-25-02-01. Main stakeholders in a project”. It can be noted immediately that this variable belongs to the “Deficient” type and it is supported by a small amount of data. This is somewhat unexpected, as a lot of data was provided under the previous two nodes referring to engagement, motivation and relationships between the stakeholders of a project. However, the project managers interviewed in this research have failed to provide a clear view on this. It is therefore recommended that project management practitioners inquire in more detail in this area when running projects and this is supported by:

> *“The key people are the client and the provider… they decide who are the owners and then they would be reporting to somebody. Normally it’s somebody from quite high up in senior management…”* (I01)

> *“I think the key one is the client because without them you shouldn’t be there. After that it is the people who actually deliver the project... ...and I think the person who is often considered to be the most important person in a project, the project manager, is down the list somewhere because the project manager emerges, he is the person who is most suited.”* (I02)

Further inquiry into this area should ensure that ambiguity is eliminated. It is perhaps telling that project managers have failed to identify a category of main stakeholders in the project, similar to having difficulties identifying a single most important factor when running a project. This could well be due to the fact that such a main category of stakeholders does not exist!

Since representing a project emerged from literature as important (see Table 2.4), it is argued that a node representation for this area is appropriate. Given the small amount of data underpinning this area, further exploration is recommended.

5.5.4 The real project beneficiaries

The “The real project beneficiaries” node is shown in Table 5.29:

Table 5.29: The “The real project beneficiaries” node

Level 01 Node Sources	25			
Level 01 Node References	52			
Node	N01-26. The real project beneficiaries			
Level 02 Variable Sources	4	9	20	7
Level 02 Variable References	7	9	27	14
Variable (Right) Interviewee code (Below)	V01-26-02-01. Project related organisational stakeholders	V01-26-02-02. Other organisational stakeholders	V01-26-02-03. Direct project customers	V01-26-02-04. 3rd Party stakeholders
I01		x		
I02			x	
I03			x	
I04	x		x	
I05			x	
I06				
I07		x	x	x
I08	x			x
I09			x	
I10	x		x	
I11			x	x
I12			x	
I13				
I14				
I15	x		x	
I16			x	
I17		x	x	
I18			x	x
I19		x	x	x
I20		x	x	
I21		x		
I22				x
I23		x	x	
I24			x	
I25				
I26				
I27		x	x	
I28			x	x
I29				
I30			x	
I31		x		
Variable type 1				
Variable type 2				
	Relationship with node(s)			
	N01-02, N01-03, N01-06, N01-07, N01-08, N01-10, N01-11, N01-12, N01-14, N01-15, N01-16, N01-18, N01-19, N01-21, N01-25			

The last major area to be discussed in the “Project Stakeholders” theme is related to the real project beneficiaries. A project may benefit virtually all of its

stakeholders in different ways, but projects are generally designed to provide the most impact to its beneficiaries. Four variables emerged in this area, with three of these being well supported in data and one being of the "Deficient" type.

Variable "V01-26-02-03. Direct project customers" is of the "Difficult and High interest" type and the conclusion that can be drawn from it is that a lot of customers are identified, but it is clear that the real project beneficiaries are, in many cases, disconnected from the active project stakeholders, an unusual state of affairs to be sure. Statements that support this view are given:

> *"Citizens. From a public sector project perspective it is the citizens. ...the citizens are usually in the lower influence but high impact category, that's quite a reflection if you think about it, they don't feel the citizens influence the project particularly but the impact upon them is normally high."* (I09)

> *"...the local authority is the client for our work but they're not necessarily the beneficiaries."* (I12)

> *...the very end user… would be individuals in the workforce. Could you attribute some of the projects that we're involved in, could you draw a line, a thread to them? Probably not.* (I30)

The other variable that can provide insight in this area is "V01-26-02-02. Other organisational stakeholders", but this illustrates that there is a reasonable amount of knowledge and awareness as to who the beneficiary stakeholders are in the organisation as opposed to the project related beneficiary stakeholders. Some supporting views are given:

> *"The directors; the company itself obviously, because it's going to raise our profile, it's going to mitigate the risks, and we can have peace of mind."* (I01)

> *"I think the team – the support team – have benefited from it."* (I17)

> *"All members of staff. It was going to be some external customers, but various issues with the firewall, that was impossible. So really, all members of staff really."* (I21)

A significant number of project managers have identified a range of third party stakeholders that may benefit from the outputs of the project, but are clearly not involved in the project, as evidenced by variable "V01-26-02-04. 3rd Party stakeholders". Illustrative comments are given:

> *"…ultimately, my ultimate stakeholder would be every single shareholder of the organisation."* (I08)

> *"And also employers, who are going to employ those people, and get more out of them because they're better able to do the work and sort of increase profits and all that sort of thing….government benefits directly from our advice…"* (I18)

> *"...it was the American people… ultimately the beneficiary was researchers and the public."* (I22)

A surprising lack of consistent data underpins variable "V01-26-02-01. Project related organisational stakeholders", given that such beneficiary stakeholders were identified elsewhere in the data. However, there are some views expressed here that support further inquiry into this area:

> *"So ultimately I'm working for the Director who owns the process, to say yep, it's working well, or no, it's not working well, this is what you need to do about it. ...ultimately, beyond that, my customer, I guess, is the group's audit committee…"* (I08)

> *"I think the beneficiaries with some projects get lost. And it's the stakeholders that take over because it's the benefit for them… Rather than the outcome. And I have had people become part of projects not because of the benefits to the beneficiaries at the end, but because of the kudos of funding that would come their way..."* (I15)

There are some suggestions from the data that the real project beneficiaries are not always involved in the project.

5.5.5 Summarizing the "Project Stakeholders" theme

Having analysed the "Project Stakeholders" theme, its nodes and variables, a view of project management practice emerges in this area. It is useful to present a count of variables under this area in Table 5.30.

Table 5.30: Variables underpinning the "Project Stakeholders" theme

Variable type	**Colour**	**Number of variables in the "Project Stakeholders" theme**
"High interest" variable	**Green**	3
"Regular" variable	**Grey**	7
"Difficult" variable	**Orange**	6
"Difficult and High interest" variable	**Orange + Green**	3 (not counted twice in the total)
"Deficient" variable	**Red**	6
Total		22

Similar to what the data shows in the “Project” and “Project Manager” themes, there are a number of “Deficient” variables. This indicates, yet again, that while these areas are identified by some project managers as significant enough to discuss, they are potentially not well understood or are ignored in the project management community. This result adds further increased weight to taking an inquiring approach towards project management practice. In addition to these “Deficient” variables there are 6 “Difficult” variables present, which will require frequent actualization to ensure that the complexities of a project are captured adequately.

The “Project Stakeholders” theme constitutes an essential component of the framework to be developed in this work and identifies the project stakeholders as key in the running and success of a project.

The need for an inquiring approach is confirmed by analysing the variables found under this theme, which are summarized in Table 5.30.

5.6. The "Project Management Framework and Methods" theme

The "Project Management Framework and Methods" theme contains 4 nodes and 22 variables, making this theme a major component of the project management framework.

The "Project Management Framework and Methods" theme is underpinned by nodes identified from data and these are shown in Table 5.31:

Table 5.31: The "Project Management Framework and Methods" theme nodes

Major project management related theme	**Node**
Project Management Framework and Methods	N01-01. Advantages of project management methods
	N01-04. Assertions on project management frameworks
	N01-10. Disadvantages of project management methods
	N01-22. Project management methods employed

The data and variables representing each node will now be analysed in detail.

5.6.1 Advantages of project management methods

The “Advantages of project management methods” node is shown in Table 5.32:

Table 5.32: The “Advantages of project management methods” node

Level 01 Node Sources	22				
Level 01 Node References	59				
Node	N01-01. Advantages of project management methods				
Level 02 Variable Sources	8	5	7	1	8
Level 02 Variable References	14	5	7	1	14
Variable (Right) Interviewee code (Below)	V01-01-02-01. Structure and consistency	V01-01-02-02. Common platform and portability	V01-01-02-03. Familiarity of process	V01-01-02-04. Focus	V01-01-02-05. Visibility of project and monitoring
I01					x
I02					
I03			x		
I04					
I05	x	x			
I06			x		x
I07					
I08	x				
I09		x			
I10				x	
I11		x	x		
I12			x		x
I13					x
I14			x		
I15	x				
I16					
I17		x			
I18					x
I19	x	x			
I20					
I21					x
I22					
I23					
I24	x				
I25					
I26	x				
I27	x		x		x
I28	x				x
I29					
I30			x		
I31					
Variable type 1					
Variable type 2					
	Relationship with node(s)				
	N01-02, N01-04, N01-05, N01-09, N01-10, N01-11, N01-12, N01-16, N01-17, N01-18, N01-20, N01-21, N01-22				

This node has fives variables representing it and four of the variables are underpinned by good or sufficient amounts of data. The most well represented variables from a data point of view are "V01-01-02-01. Structure and consistency" and "V01-01-02-05. Visibility of project and monitoring". The conclusion that can be drawn from the first variable is that project management methods allow for consistency of approach and improved ability to communicate the project to others are the key benefits here. This is supported by:

> *"So consistency… communication and training, so people have an understanding of the key stages of the project and what is required. The consistency piece is important because, whilst if I deliver a project it won't be identical, if somebody else did it then there has to be some analysis or there's some key elements that I will make sure I will look at that somebody else will look at…"* (I08)

> *"I think it's very, very, very strongly on the advantages side. It drives consistency."* (I26)

A similar amount of data is available to draw the conclusion that there is good agreement with the idea that using a project management method will allow for good monitoring and communication of the project, as illustrated by variable "V01-01-02-05. Visibility of project and monitoring". The following supporting statements illustrate this:

> *"…the other advantage is those systems are created for a reason, to cover us as a company, and so therefore you'd like to think if we are following those procedures, whether the job's going right or wrong, we're recording it in the right manner, and presenting it to the right people as well."* (I06)

> *"…it does allow us to monitor, obviously, time scales, time milestones, but the other thing I like about it, it does help me with getting the resources out of the subject teams…"* (I12)

There is also a hint that a project management method can act as an "insurance" tool, which can be used to justify project related actions.

Variable "V01-01-02-02. Common platform and portability" coveys the idea that portability of a method or a tool is seen as an advantage by some project managers:

> *"…and the beauty of Excel is everybody can open an Excel file."* (I05)

> *"I think there is a huge advantage to having that, in that I have seen project management documentation that's been produced in a completely different service, and I can still make sense of it…"* (I11)

The “V01-01-02-03. Familiarity of process” variable shows that there is agreement that being familiar with processes around a project management method is a clear advantage, for both the internal project stakeholders as well as for external partners:

> *“I find it quite useful because it is… we’ve got L…, who manages the whole process, we’ve got an administrator who sort of reminds us all of what we should be doing, and it’s sort of eminently simple and understandable, so even some of our partner organisations can manage to grasp it.”* (I27)

However, there is also a warning that the method must not be allowed to take over the inquiry process that the project management practitioners should be continuously embarked upon:

> *“I think it would be good for our organisation to have a standard by which everybody works to, and that’s what we’re working, and so there will be a process in place around what people, if when we’re leading projects, how we’re expected to behave, the tools we’re expected to use, the process we’re expected to use. As long as that doesn’t do away with any thinking.”* (I30)

Variable “V01-01-02-04. Focus” is supported by data from one interviewee who says:

> *“The advantages would be, if it was a good one, and if it fitted, you can keep focus on things you need to keep focus on, you can have some idea of progress, you can have some confidence that you’re thinking about the right things and giving time to think about the right things.”* (I10)

This indicates that there may be a need for further inquiry in this area.

5.6.2 Assertions on project management frameworks

The “Assertions on project management frameworks” node is shown in Table 5.33:

Table 5.33: The “Assertions on project management frameworks” node

Level 01 Node Sources	13			
Level 01 Node References	42			
Node	N01-04. Assertions on project management frameworks			
Level 02 Variable Sources	6	8	3	4
Level 02 Variable References	10	10	4	4
Variable (Right) Interviewee code (Below)	V01-04-02-01. Structured approach	V01-04-02-02. Flexibility	V01-04-02-03. Assurance	V01-04-02-04. Common approach
I01				
I02				
I03	x		x	x
I04	x	x		
I05				
I06				
I07	x	x		
I08	x	x		
I09	x	x		x
I10				
I11		x		
I12				x
I13				
I14				
I15				
I16				
I17				
I18		x	x	
I19				x
I20				
I21	x			
I22				
I23				
I24		x		
I25		x	x	
I26				
I27				
I28				
I29				
I30				
I31				
Variable type 1				
Variable type 2				
	Relationship with node(s)			
	N01-01, N01-02, N01-05, N01-09, N01-16, N01-19, N01-24			

Variable “V01-04-02-02. Flexibility” allows the conclusion that there is agreement that the project management framework must allow an amount of

flexibility, otherwise it is not useful, which shows links with systems thinking. The idea that contextualization is necessary comes through from the data:

> *"… if you're following a framework you're, you know, you're not able to step out of… I think some of it is more applicable to a larger organisation, but obviously, you know, so I think sometimes, working within that, it's not… frameworks aren't individual to different organisations, you know, they're generic, or they can be. Whereas, you know, it pays to have slight differences in things like that, according to, you know, what kind of… where you're operating."* (I04)

> *"I'm taking a very light touch to it, so it's a very basic framework we're trying to put around it, so that it gives people the flexibility to… To work how they need to work."* (I18)

"V01-04-02-01. Structured approach" leads to the conclusion that there is agreement that using a framework for managing a project is better than not using one. There are difficulties defining what advantages there are by doing so and there is some confusion with project management methods:

> *"So I actually think a project framework is a positive thing; it far outweighs not having any methodology, or guidance, or framework..."* (I08)

> *"The framework or the method gives you the structure around which you can build the project. So, I think all that the project management methodologies like Prince do is to give you a common approach and a suggested way forward, but I don't think they are, they are not anything like when you are doing an engineering project and you are working with some of the physics laws and someone is giving you some of the things and you are thinking 'I couldn't have figured this out myself', I couldn't have figured out Boyle's Law and things you need to know as an engineer someone has gone away and done that before."* (I09)

For this reason, this variable is designated as "Difficult".

The last two variables identified in this node are:

- "V01-04-02-03. Assurance"
- "V01-04-02-04. Common approach"

which are supported by small amounts of data. There are some suggestions that using a framework is seen by some as a form of assurance, to make sure that things are not missed and that project management frameworks lead to a common approach, but also that flexibility is required, an idea that is similar to previous results that have emerged whilst discussing the advantages of project management methods.

5.6.3 Disadvantages of project management methods

The “Disadvantages of project management methods” node is shown in Table 5.34:

Table 5.34: The “Disadvantages of project management methods” node

Level 01 Node Sources	26					
Level 01 Node References	115					
Node	N01-10. Disadvantages of project management methods					
Level 02 Variable Sources	3	15	7	5	8	5
Level 02 Variable References	6	30	15	7	16	11
Variable (Right) Interviewee code (Below)	V01-10-02-01. Practical limitations	V01-10-02-02. Complexity of method	V01-10-02-03. Suitability of method	V01-10-02-04. Stakeholder engagement	V01-10-02-05. Prescriptiveness	V01-10-02-06. Training requirements
I01	x	x	x			
I02		x				
I03				x		
I04						
I05		x				
I06		x				
I07						
I08						
I09		x			x	
I10			x			
I11		x	x	x	x	
I12		x	x			
I13		x	x	x		x
I14					x	
I15		x	x		x	
I16		x				
I17					x	
I18			x			
I19					x	
I20						
I21		x				
I22					x	
I23						x
I24	x	x				
I25						
I26		x				
I27		x				
I28	x	x		x		x
I29				x		x
I30					x	
I31						x
Variable type 1						
Variable type 2						
	Relationship with node(s)					
	N01-02, N01-03, N01-04, N01-09, N01-11, N01-16, N01-17, N01-22					

This area complements the previously explored advantages of project management node. We will start by discussing the "V01-10-02-02. Complexity of method" which is represented in a large number of data items available for analysis and is also classified as a "Difficult" variable. The view emerging is that project management methods tend to be quite complex. There is some confusion between methods and frameworks. There is shared concern that running the project management method may introduce a significant time penalty for the project manager - more time spent using the method than on the project. Some supporting statements are given:

> *"I've used MS Project, I think it's very, very good, it's very, very complicated. But for the size of the projects I tend to do here, I find you end up… the task of operating MS Project becomes a bigger job than doing the project itself…"* (I05)

> *"I think there's bits and pieces I've picked up from Prince, but a lot of it was there really. In fact I came away from it thinking this is probably too much for the type of project we do. I would find it too time-consuming. I would find I'd be… if I had to work within that methodology then it would be racking up costs for me to the customer, because of the time I'd be spending on the project management bit of the project..."* (I12)

> *"...a negative side to that can be is that the system could grow, and could grow and could grow; and sometimes it's not… the system never gets smaller… It always gets bigger… I started a couple of years ago in this company, and they only had 13 appendices; now they've got 17 or 18..."* (I28)

The next variable to be discussed is "V01-10-02-05. Prescriptiveness", where the dominant view is that there is a danger that the project management method leads to a mechanistic, prescriptive approach which is not conducive to a creative mind set needed when running a project, as evidenced in the following statements:

> *"It is prescriptive, but if you use your common sense and intelligence and if you have done projects for a while you know you can pull out elements of it that are appropriate to the project and you can disregard others and you can scale down things."* (I09)

> *"...the emerging project management methodologies just don't work in the contractual environment you currently come across. Prince, you know, do you use a particular project management method at all? No. For the reason I've described… Doesn't work. The disadvantages of a waterfall rather than an iterative project management model are that you as the purchaser have very little chance to change your requirements after the job has started."* (I22)

The next conclusion to emerge from the data is that there is a clear view that using a project management method needs to be weighed in relation to the project that it is going to be used for which establishes again a good link to systems thinking, contextualization in particular. Variable "V01-10-02-03. Suitability of method" illustrates this view, supported by:

> *"...horses for courses, isn't it, in terms of advantages and disadvantages. Depending really, unless I've got a project there, I can say well, that is good to use that method, that one might not work."* (I01)

> *"But I'm not sure that Prince2 is necessarily appropriate, particularly for smaller projects. I don't think it's appropriate for everything. I think it's a bit heavy-handed."* (I13)

There is a link between "V01-10-02-04. Stakeholder engagement" and project management methods' disadvantages as this variable emerged under this node and the prevailing view is that project management methods are not useful at capturing the human relations aspects or at engaging people, which are really important for running any project. This is an important conclusion, indeed projects are human, social activities, as identified in this work. Supporting statements are given*:*

> *"Because the thing I like to pay attention to most is involving people, and making sure that they dynamics are right between the people in the team on the project, making sure that we've got the right set of skills, and that, as I said before, you know, that people feel that they're in the loop, they know what's happening, that their role and contribution is valued, and they'll be consulted on things. And although Prince allows you to track and keep, you know, keep the formal information clearly organised, I'm not sure how much it helps you with that really."* (I13)

> *"They might be very good with the Gantt charts, and the organisation-side, and knowing, you know… and deadlines, and timescales, and they're organised in that sense; but they would be more effective, in my view, if they focused equally important on managing the relationships of the people that are working with them, the dynamics of the group…"* (I29)

Lack of training is identified in certain cases as an obstacle to using project management methods, as evidenced by variable "V01-10-02-06. Training requirements". No project management methods will yield any benefits if the people applying it do not understand how to use it:

> *"We don't use Microsoft Project or anything like that. I think they did use that though once but I think due to the whole team not being familiar with the software I think it got dropped and I have never gone back to using it..."* (I23)

> *"...if you go on the Internet, you see all these project plans with all these phases broken down; it was gobbledygook as far as I was concerned, it was written in IT-speak and I didn't understand it… ...if you don't understand it, there's no point in even trying to follow it. ...did a bit of delving into Prince… But never really following it as a methodology, because I'd not been trained to do it… And the people I was working with certainly wouldn't have understood it..."* (I31)

The last variable to be discussed is "V01-10-02-01. Practical limitations", supported by a small amount of data. There is a need for further inquiry into this area, supported by:

> *"Now some people will tell you, oh you can do that on Microsoft Project, or something like that, but you can't because you don't have enough screen..."* (I01)

> *"Microsoft Project. I mean I find it a bit of a pain, to be honest with you! I don't think it's the best tool in the world, particularly if you're trying to print information to give to clients. I think it's… it doesn't always fill everything that you need it to do..."* (I24)

There are some perceived practical limitations around project management methods and tools, linked to the technologies that underpin these which require further exploration.

5.6.4 Project management methods employed

The “Project management methods employed” node is shown in Table 5.35:

Table 5.35: The “Project management methods employed” node

Level 01 Node Sources	26						
Level 01 Node References	109						
Node	N01-22. Project management methods employed						
Level 02 Variable Sources	9	2	5	7	9	5	4
Level 02 Variable References	16	2	5	14	18	6	5
Variable (Right) Interviewee code (Below)	V01-22-02-01. Prince 2	V01-22-02-02. Gantt Charts	V01-22-02-03. Other methods	V01-22-02-04. Organisation specific	V01-22-02-05. Project or Project Manager specific	V01-22-02-06. Not known or not specified	V01-22-02-07. Avoids using
I01		x	x	x			
I02							x
I03	x					x	
I04							
I05				x			
I06				x			
I07	x		x				
I08				x			
I09	x		x			x	
I10						x	
I11	x						
I12	x		x				
I13					x		x
I14							
I15	x						
I16				x			
I17							
I18							
I19					x		x
I20	x				x		
I21						x	
I22							
I23					x		
I24		x			x		x
I25					x		
I26	x				x		
I27			x		x	x	
I28				x			
I29							
I30				x			
I31	x				x		
Variable type 1							
Variable type 2							
	Relationship with node(s)						
	N01-02, N01-03, N01-04, N01-10, N01-11, N01-17, N01-19						

The last node to be analysed in the current theme has yielded a good amount of conclusions and there is a hint that there is a degree of difficulty associated with

the project management methods employed by various project managers as two of the variables have emerged as being of the “Difficult” type.

Variable “V01-22-02-05. Project or Project Manager specific” illustrates that a significant number of project managers use project or project manager specific project management methods and this conclusion links in well with the contextualization idea of systems thinking. This is a recurring theme across the data explored so far. Supporting statements include:

> *“So we use a combination of what I’d call, you know, fairly organised and systematic logging of all the projects, and managing that through an over-arching matrix, with delegated responsibility for each one, so we know who’s in charge of each one, and they’re expected to be on top of that… And people will use their own methods of doing that.”* (I13)

> *“The way that you would manage any project management discipline we have as well, to that toolset is there… Ideas, ways that you can do things… So they can pull down them, customise them for their own particular project.”* (I26)

> *“But I don’t follow any particular strict methodology in going from one side to the other, you know… It’s structured thinking rather than anything else.”* (I31)

Variable “V01-22-02-01. Prince 2” shows that the Prince methodology is used by a significant number of project managers and the conclusion that emerges from the data is that that project managers attempt to modify Prince 2 in their practice to suit their own purposes and contexts. Supporting statements are given:

> *“It’s based on Prince2 principles, but they’ve actually developed their own documentation templates and various other processes...”* (I11)

> *“I think what I would be doing is looking at some aspects of the Prince methodology. But, we don’t need it in sort of, it can be scaled back quite substantially.”* (I12)

> *“The project one that I use is very, very roughly based on Prince2. It was nowhere as detailed as Prince2, and have corrupted it, sort of thing...”* (I15)

The idea of contextualization appears again through variable “V01-22-02-04. Organisation specific”. A number of project managers use proprietary (or company specific) project management methods, as illustrated in the following:

"...everything has a procedure behind it in our management system. It's an integrated management system, is what it is, and each company will create its own…" (I06)

"We're just looking at developing our own project management standards that staff would have to have within the organisation, but that probably won't be as complex as Prince 2." (I30)

A number of project managers are not sure of what project management method they are using for some of the projects, as illustrated by the "V01-22-02-06. Not known or not specified" variable. Some relevant comments are given:

"I'm not sure of the method." (I03)

"No I don't. I don't know any. I just don't know any." (I10)

Some project managers seem to confuse the tools and technology used to represent project with a method - for example Microsoft Project, as illustrated in variable "V01-22-02-03. Other methods" by:

"I've always used project management, Microsoft Project…" (I12)

A small variety of other tools and methods are being used by project managers, including Program Evaluation Review Technique (PERT) diagrams and Project Portfolio Management (PM3), but it is not clear how well acquainted they are with these.

A small number of project managers use Gantt charts as can be found through the "V01-22-02-02. Gantt Charts" variable:

"If necessary we'll use Microsoft Project to do Gant charts and all that sort of thing." (I24)

Again, there seems to be some confusion in terms of use of terminology among some project managers – some refer to various project management support tools as methods.

One interesting area for further exploration is given by variable "V01-22-02-07. Avoids using", which suggests that some project managers actively avoid using certain project management methods:

"I don't use Prince!" (I13)

"...we don't use Prince or anything like that because project management here takes so many different formats... I mean I know Prince, I have never used it..." (I19)

"I am aware of things like Prince2 and that sort of thing, but it's not really something that we're at, and the projects that I've worked on previously have generally not required that level." (I24)

While Prince 2 appears with some consistency in the interviewees' statements, this is in contrast with a larger number of project managers that do use Prince 2, as seen in variable "V01-22-02-01. Prince 2". Looking back at results obtained from data so far this could perhaps be attributed to the complexity and inflexibility of the method, but this cannot be stated with certainty given the small amount of data supporting this area. Avoidance of other methods is not transpiring from data.

5.6.5 Summarizing the "Project Management Framework and Methods" theme

Having analysed the "Project Management Framework and Methods" theme, its nodes and variables a view of project management practice emerges in this area. It is useful to present a count of variables under this area in Table 5.36:

Table 5.36: Variables underpinning the "Project Management Framework and Methods" theme

Variable type	**Colour**	**Number of variables in the "Project Management Framework and Methods" theme**
"High interest" variable	**Green**	5
"Regular" variable	**Grey**	6
"Difficult" variable	**Orange**	4
"Difficult and High interest" variable	**Orange + Green**	2 (not counted twice in the total)
"Deficient" variable	**Red**	7
Total		22

Consistent with the results obtained in the "Project", "Project Manager" and "Project Stakeholders" themes a number of "Deficient" variables are identified. In addition to these "Deficient" variables there are 4 "Difficult" variables present, which will require frequent actualization to ensure that the complexities of a project are captured adequately.

The “Project Management Framework and Methods” theme constitutes a major component of the framework to be developed in this work.

The need for an inquiring approach continues to be supported by the analysis of the variables found under this theme, which are summarized in Table 5.36.

5.7. Identifying “Project Measurement Criteria”

At this stage, it can be noted that the project management framework developed so far does not have explicit monitoring and performance criteria in place yet, as required (Checkland, 1999; Checkland and Scholes, 1999) by models produced using systems thinking, see Figure 3.1.

Such performance criteria were, however, already identified from data in Table 5.10 and Table 5.11 and are extracted below in Table 5.37:

Table 5.37: Project measurement criteria

Node	N01-14. Measures for project failure								
Variable	V01-14-02-01. Project scope creep	V01-14-02-02. Short term benefit realization	V01-14-02-03. Long term benefit realization	V01-14-02-04. Stakeholder views	V01-14-02-05. Not measured	V01-14-02-06. Timescales for delivery not achieved	V01-14-02-07. Risk assessment	V01-14-02-08. Valid business case	V01-14-02-09. Financial and numerical measures
Variable type									
Node	N01-15. Measures for project success								
Variable	V01-15-02-01. Risk assessment	V01-15-02-02. Short term benefit realization	V01-15-02-03. Long term benefit realization	V01-15-02-04. Financial and numerical measures	V01-15-02-05. Objectives and quality achieved	V01-15-02-06. Stakeholder views	V01-15-02-07. Not measured	V01-15-02-08. Timescales for delivery achieved	V01-15-02-09. Learning
Variable type									

It is clear from the data analysis that some of these factors can be measured more easily than others. For example, financial and numerical measures will be easier to measure than long term benefit, which cannot easily be represented numerically.

Whilst these performance criteria relate to the more intrinsic aspects of the project, there are other factors that should be considered as measurement criteria since the data points towards their importance. Whilst these measurement criteria are not gauging factors that are directly contributing to the

achievement of project objectives they seem to be an illustration of some quite powerful motivating factors for the engagement of project stakeholders. The project managers who were interviewed in this research see these non-project objective related factors as quite important and possibly contributing to project success and therefore it is argued that they need to be added to the project measurement criteria.

Such factors, as identified from Table 5.12 and Table 5.26 are presented in Table 5.38 and Table 5.39.

Table 5.38 Further project measurement criteria 1

Node	N01-24. Assertions on a project's end			
Variable	N/A	V01-24-02-02. Relationships resulting from project	N/A	N/A
Variable type				

Table 5.39: Further project measurement criteria 2

Node	N01-11. Engagement and motivation of project stakeholders						
Variable	V01-11-02-01. Direct stakeholder benefit or relevance	V01-11-02-02. Consultative approach, empowerment	V01-11-02-03. Enjoyable working relationships and environment	V01-11-02-04. Publicising project	V01-11-02-05. Financial rewards	V01-11-02-06. Worthwhile projects	V01-11-02-07. Senior stakeholder influence
Variable type							

Given the highly contextual nature of projects it is recommended that project management practitioners using this framework conduct a full inquiry in all of the performance measures identified above as well as looking to capture any others that may be identified during the running of specific projects.

Therefore, the “Project Measurement Criteria” area emerges from the four main components identified so far to become a distinct component of the inquiring project management framework, alongside “Project”, “Project Manager”, “Project Stakeholders” and “Project Management Framework and Methods”. The areas of inquiry represented by the components of the “Project Measurement Criteria” form part of the “Project” and “Project Stakeholders” themes, as per data analysis and it is proposed that they are shown separately, in the project management framework, to draw attention to the need for

measuring various aspects of the project to assess whether it is successful. The identification of measurement criteria satisfies the need for monitoring and performance criteria required by systems thinking.

Having discussed the “Project Measurement Criteria” presented in Table 5.37, Table 5.38 and Table 5.39 a count of variables grouped in this area is given in Table 5.40. This will help to assess the nature of the variables considered in the “Project Measurement Criteria”.

Table 5.40: Variables breakdown for “Project Measurement Criteria”

Variable type	**Colour**	**Number of variables under the “Project Measurement Criteria”**
“High interest” variable	**Green**	5
“Regular” variable	**Grey**	9
“Difficult” variable	**Orange**	3
“Difficult and High interest” variable	**Orange + Green**	0
“Deficient” variable	**Red**	9
Total		26

5.8. Data saturation

It can be observed throughout this chapter that a number of variables resulting from the data set and used to build the inquiring project management framework are named as “Deficient”. This has occurred in spite of the fact that the researcher has followed advice and practice from a range of authors in relation to the size of the data set (Saunders et al., 2012; Lincoln and Guba, 1985; Mason, 2010).

The main reason for the existence of the “Deficient” variables is that some interviewees had provided no useful comments in the areas represented by these variables. However, the very fact that these variables have been identified in data is an argument for their consideration in the construction of the project management framework.

The number of “Deficient” variables that have been identified in this work represents less than one third of the total variables. Since all of the themes identified from the data exhibit such “Deficient” variables, it is argued that this supports the case for the development of an inquiring project management framework, to allow project managers to explore these areas further. Adopting an inquiring approach whilst applying the framework will allow project management practitioners to learn data / information / knowledge contextualized to their project to support decision-making leading to advancing the project.

The overall picture in relation to the nature of all variables identified from data is presented in Table 5.41. These variables are used to construct the project management framework.

Table 5.41: Nature of variables for framework construction

Variable type	**Number of variables under the “Project” theme**	**Number of variables under the “Project Manager” theme**	**Number of variables under the “Project Stakeholders” theme**	**Number of variables under the “Project Management Framework and Methods” theme**	**Total**
“High interest” variable	10	9	3	5	**27**
“Regular” variable	21	12	7	6	**46**
“Difficult” variable	13	9	6	4	**32**
“Difficult and High interest” variable	4 (not counted twice in the total below)	5 (not counted twice in the total below)	3 (not counted twice in the total below)	2 (not counted twice in the total below)	**14 (not counted twice in the total below)**
“Deficient” variable	20	19	6	7	**52**
Total	**64**	**49**	**22**	**22**	**157**

It can be noted that for most of the variables that have emerged, data saturation has been achieved. However, for the “Deficient” variables, given the relatively small amount of data underpinning them, there is a need for future research into these, to allow their categorisation into one of the other types: “Regular”, “High interest”, “Difficult” or “Difficult and High interest”.

The inquiring nature of the framework proposed in this work will mitigate the impact of the “Deficient” variables as these constitute areas of inquiry and the users of the framework will be able to explore the specifics of their projects through their own inquiry process using the areas of inquiry represented by these variables as a starting point. Indeed, through the very nature of an inquiring framework, its users are asked to examine their own projects thoroughly to ensure that they identify the relevant aspects of their OWN projects whilst being guided through this process by the project management framework proposed in this work.

5.9. Relationships between the nodes elicited from the data

The process of structuring the data is continued in this section, with the purpose of achieving the relationships between the building blocks of the project management framework. It has been established in throughout this chapter, in the tables representing nodes, that there are multiple relationships between the nodes identified in the data. This network of relationships suggests that the final project management framework will be a structure with interconnected entities. It has already been established (from the data) that the four main themes that have emerged in the area of project management are the “Project”, the “Project Manager”, the “Project Stakeholders” and the “Project Management Framework and Methods”.

The relationships between the data nodes obtained previously have emerged though the analysis carried out based on key concepts that the data provided by the interviewees has offered. The relationships between the nodes have been established through theoretical coding by identifying conceptual links between the nodes via the conclusions emerging from the numerous variables analysed up to this point. This process required moving forward and backward through the data as recommended by Charmaz (2006). This was quite a lengthy process given the amount of data that required analysis. The purpose of establishing these relationships is to inform the users of the framework that making a change or an intervention in one area is likely to introduce an effect in another, as illustrated by the relationships between the nodes identified in this work. This will help to inform both the inquiry process undertaken by the project

management practitioners using this framework and their ulterior decision making and it is hoped that it will engender an integrative approach in the user's project management practice.

The fact that such relationships exist between the nodes strengthens the case for a framework based on an inquiring approach as only through inquiry can the full extent and importance of these relationships in any given context of a project be determined. It may well be that for different projects (and therefore different contexts that the project management framework will be applied to) the importance of these relationships will be different.

The relationships between the nodes are given in Table 5.42, which illustrates the interrelated nature of the four main themes identified from the data. Table 5.42 was constructed on the basis of the information from the node and variables tables presented throughout this chapter, an example of what information was used is given in Figure 5.2.

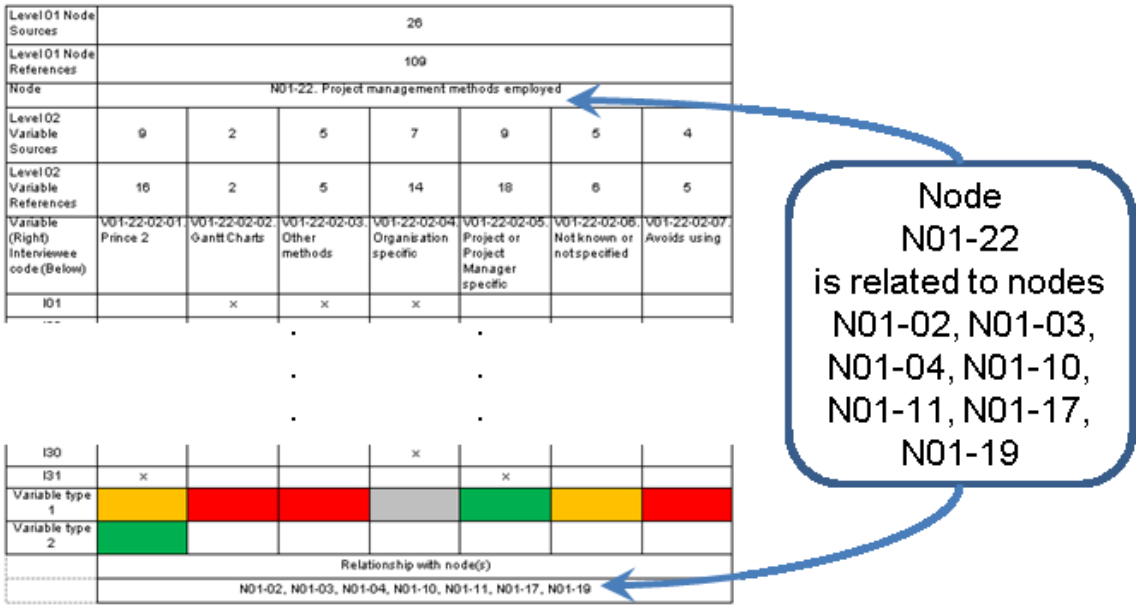


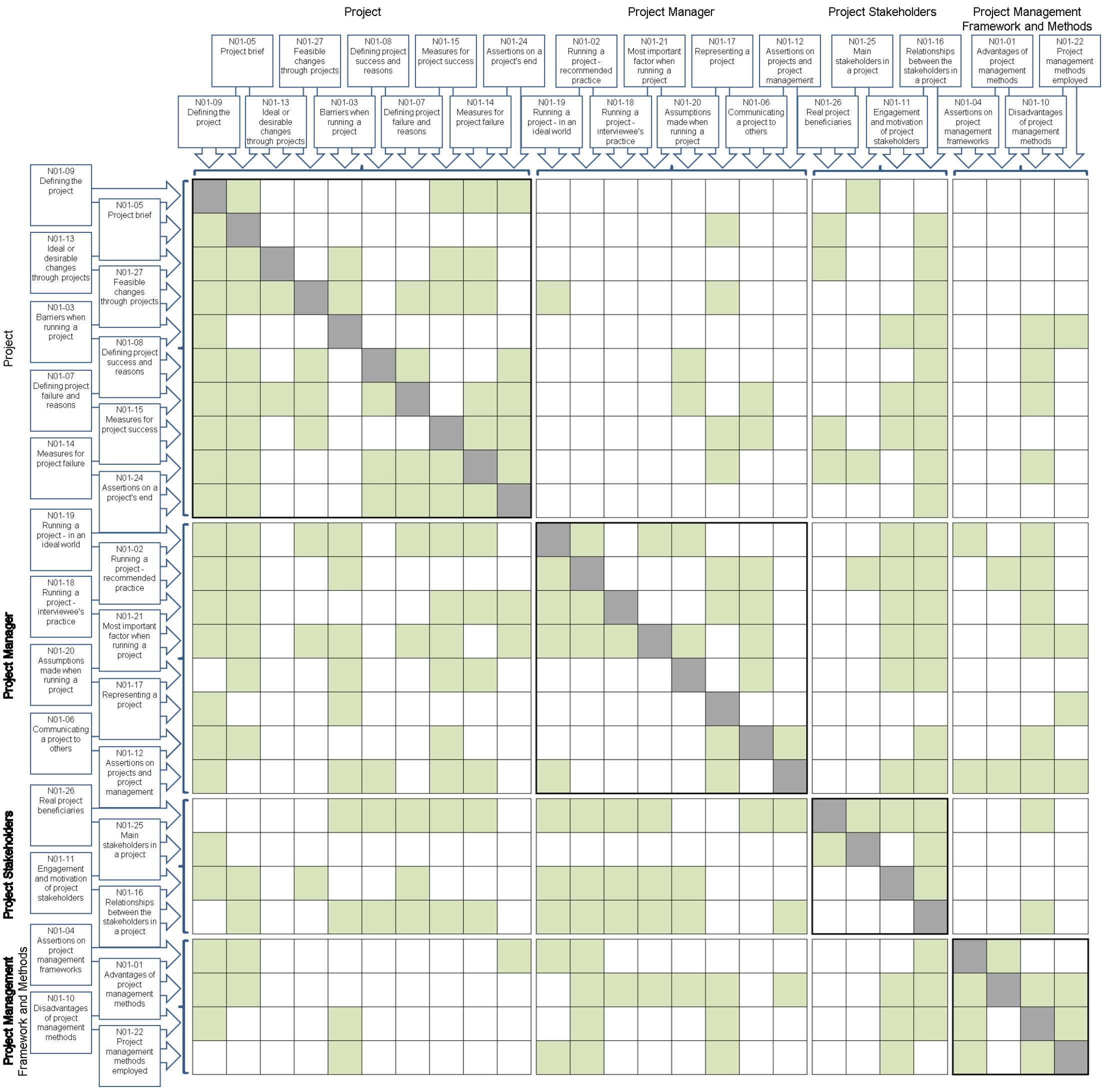
Figure 5.2: Node relationships information

A large scale version of Table 5.42 is presented (on A3 sized paper), to allow for a more comfortable view of the relationships identified from the data, as on a standard A4 sized page the table's axes are not legible well given its size relative to its complexity. The purpose of this table is best explained in the context of the process of building the project management framework, which

addresses the question of this research. To this end, Table 5.42 summarizes what the main components of the framework will be and the important conclusion that these areas are related to each other and as such they influence each other. In other words inquiry and action taken in these areas is likely to result in effects in the other areas that they have a relationship with, as illustrated by the green cells in the table. The components summarized in this table and their relationships will form the basis for the project management framework developed in Chapter 6.

A version of Table 5.42, which excludes the nodes indexes (as indexes as represented in this research are not relevant to external users) is presented in Appendix 3 and becomes part of the framework user guide for practitioners available in Appendix 2.

Table 5.42: Nodes relationship matrix



5.10. Conclusion

An identification of the themes, nodes and variables that will form the components of the project management framework was presented in detail in this chapter.

Research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” was advanced through identifying the details of the relationships between the components of the framework represented by nodes. The broad range of components of the framework identified from the data lead to its integrative nature. A summary of these components is given in Table 5.1.

Further progress was made towards achieving research objective 3 “To identify key components of a project management framework” through a detailed exploration of data. The nature of the variables that will constitute areas of inquiry underpinning the project management framework was established; this allows further guidance to be given to its users relating to the nature of what they may find when carrying out their inquiry. The possible nature of the inquiry is determined by the nature of the variable that it represents: “High interest”, “Regular”, “Difficult”, “Difficult and High interest” or “Deficient”.

Research objective 4 “To explore the role of inquiry in a project management framework” was progressed by providing further evidence that a process of inquiry is necessary during the application of the project management framework in order to ensure a thorough exploration of complexities introduced by people. The areas of inquiry represented by the themes, nodes and variables identified as the components of the framework will lead to acquisition of data / information / knowledge that will allow a project to be progressed, from its initial to its final state, by supporting decision making.

6. Constructing the project management framework

6.1. Introduction

In this chapter, progress will be made towards constructing the project management framework.

The integrative nature of the framework is given by the components identified in Chapter 4 and Chapter 5.

The inquiring nature of the framework is provided by the necessity of dealing with the complexity introduced by people in project management and this is a view supported by the results of data analysis in Chapter 5.

The way in which the results of the data analysis are incorporated into the project system that underpins the project management framework, represented in Figure 4.2, is presented and discussed in this chapter.

The focus of this chapter is on research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” and this will be advanced through the construction of the project management framework.

6.2. Aggregating the results of data analysis for inclusion in the project management framework

Whilst the idea of a dynamic, evolving, project system to form the basis of the project management framework was discussed earlier in this work, the analysis and discussion carried out in Chapter 4 and Chapter 5 provides the components for constructing the project system that underpin the project management framework.

As presented earlier in Table 5.42, the four main themes (“Project”, “Project Manager”, “Project Stakeholders” and “Project Management Framework and Methods”) that form the components of the project system are interrelated. This

is an important find and, using as a starting point Figure 4.2, leads to the first iteration of the project management framework, presented in Figure 6.1.

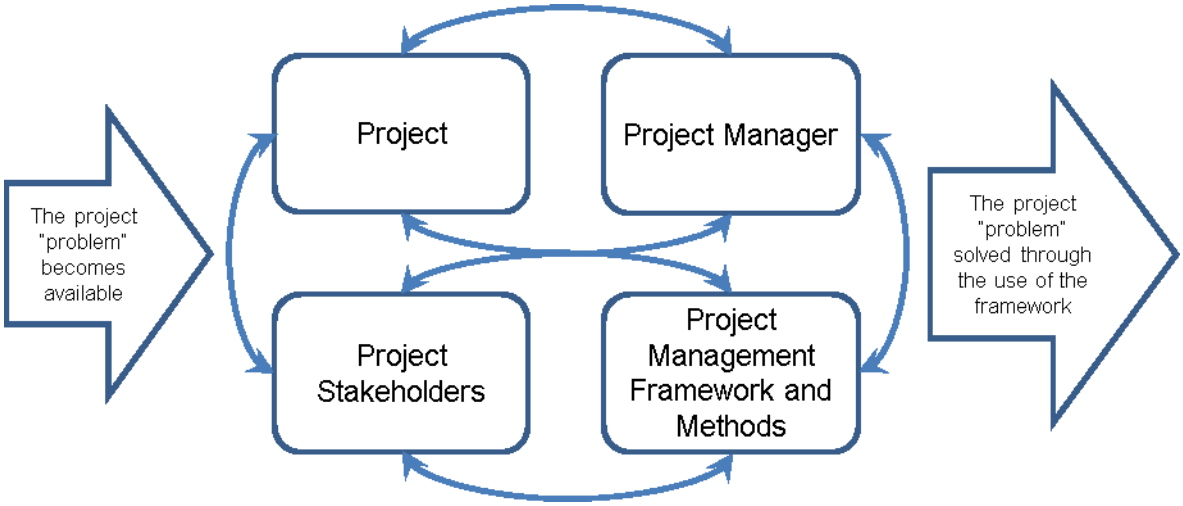


Figure 6.1: The first iteration of the project management framework

The purpose of the framework is to offer a problem solving approach and the four main themes, the nodes and the variables identified from the data have offered the building blocks for achieving this.

To achieve a useful project management framework, from a practical perspective, further level of detail is necessary and this is provided by aggregating the results obtained from data analysis. Tables of inquiry that contain the components of the project management framework, as represented by themes, nodes and variables provide this level of detail. These tables of inquiry will guide the users of the project management framework through the inquiring process necessary to solve the project “problem”, to move the project from its initial state to a final state.

Table 6.1 to Table 6.4 show the components of the project management framework that will guide the different areas of inquiry and are part of the project management framework. The inquiry tables will be presented in the order of the themes shown in Table 4.6, introduced in Chapter 4 and are based on the results of the data analysis.

The framework shown in Figure 6.1 is developed further, based on the components provided by themes, nodes and variables given in Table 6.1 to Table 6.4. An initial, “expanded” view of the second iteration of the framework is presented in Figure 6.2.

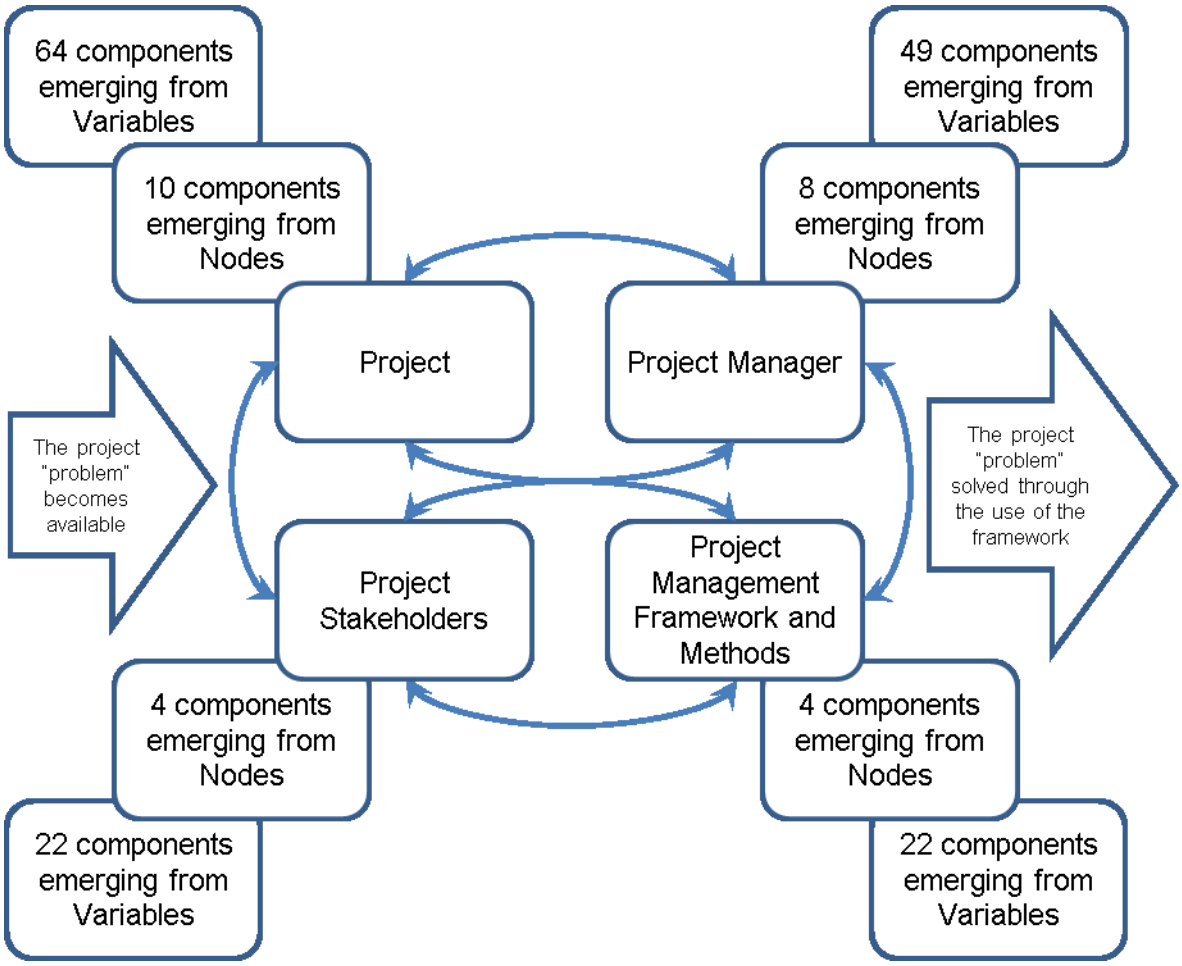


Figure 6.2: Initial view of the second iteration of the project management framework

The components of the framework represent areas of inquiry.

At this stage, it is useful to explain what the various areas of inquiry represented in Table 6.1 to Table 6.4. by the coloured table cells are potentially going to mean in practice for the users of the framework. The interpretation of the areas of inquiry results from the type of variables that they represent, and these types have been identified earlier as being “High interest”, “Regular”, “Difficult” and “Deficient” (see Table 4.9). Areas of inquiry that combine the characteristics of “Difficult” and “High interest” are possible and are represented by the “Difficult and High interest” variables.

The interpretation of the areas of inquiry for the users of the framework is presented in Figure 6.3.

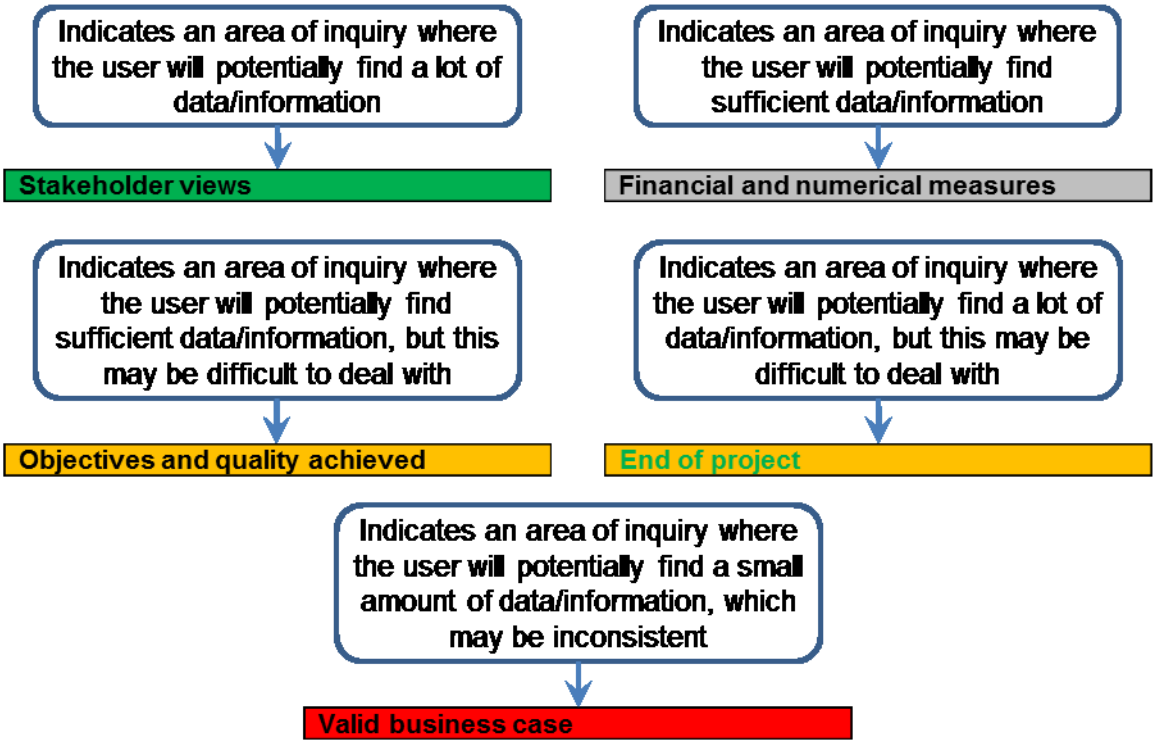


Figure 6.3: Interpretation of the areas of inquiry in the project management framework

A user guide is presented in Appendix 2 and this provides a step-by-step approach to the practical use of the project management framework.

The results of the data analysis have been reorganised into what is seen as a more helpful structure for the users of the framework. Previously, the nodes and variables were indexed according to the order in which they emerged from the data. Such indexing is not seen as useful for practical purposes and has been removed in the tables representing the components of the framework.

The first main component of the project management framework is based on the “Project” theme and is shown in Table 6.1, including all of the areas of inquiry resulting from the nodes and variables identified from data.

Table 6.1: “Project” theme inquiry areas

Inquiry theme	Inquiry node	Inquiry variable and type
Project	Defining the project	A change
		Defined time
		Has objective and/or outcomes
		Needs resources
		Defined activities
		Boundary
	Project brief	Flexibly defined specification
		Tightly defined specification
		Project and External team specification
		Project team specification
		External team specification
	Ideal or desirable changes through projects	Ideal objectives and/or deliverables
		Feasible objectives and/or deliverables
		Constraints
	Feasible changes through projects	Ideal objectives and/or deliverables
		Realistic objectives and/or deliverables
		Time constraints
		Budget constraints
		Quality constraints
		Adjusted objectives and/or deliverables
	Barriers when running a project	Communication and information
		Ownership
		Work priorities
		Stakeholder relationships
		Changes in environment
		Unclear and changing objectives
		Cumbersome processes
	Defining project success and reasons	Planning
		Benefits realisation
		Financial measures
		Stakeholder relationship
		Objectives and scope
		Skills mix
	Defining project failure and reasons	Planning
		Scope suitability and understanding
		Stakeholder relationship
		Valid business case
		Benefits realisation

Inquiry theme	Inquiry node	Inquiry variable and type
		Project budget
		Environment changes
		Time
		Did not fail
	Measures for project success	Risk assessment
		Short term benefit realization
		Long term benefit realization
		Financial and numerical measures
		Objectives and quality achieved
		Stakeholder views
		Not measured
		Timescales for delivery achieved
		Learning
	Measures for project failure	Project scope creep
		Short term benefit realization
		Long term benefit realization
		Stakeholder views
		Not measured
		Timescales for delivery not achieved
		Risk assessment
		Valid business case
		Financial and numerical measures
	Assertions on a project's end	End of project
		Relationships resulting from project
		Long term aspects
		Short term aspects

The second main component of the project management framework is based on the “Project Manager” theme and is shown in Table 6.2, including all of the areas of inquiry resulting from the nodes and variables identified from data.

Table 6.2: “Project Manager” theme inquiry areas

Inquiry theme	Inquiry node	Inquiry variable and type
Project Manager	Running a project - in an ideal world	Objectives
		Resources
		Senior stakeholder support
		Competence and professionalism
		Time
		Budget
		Planning
		Stakeholder relationships
		Flexibility of action
	Running a project - recommended practice	Planning
		Communication and information
		Sponsors and stakeholder engagement
		Objectives
		Flexibility
		Qualification and training
	Running a project - interviewee's practice	Project planning and scope
		Being proactive
		Relationships with stakeholders
		Learning and building understanding
		Monitoring
		Communication to others
		Iterative process
	Most important factor when running a project	Objectives and deliverables
		Ownership
		Senior stakeholder engagement
		Communication
		Timescales
		Relationships with stakeholders
		Planning
		Quality
		Right team
		Decision making and management
	Assumptions made when running a project	Understanding communications and information from project stakeholders
		Capability and willingness of project stakeholders
		Project progress and stakeholders engagement
		Capability of systems

Inquiry theme	Inquiry node	Inquiry variable and type
		External influences
		Effective and accurate information
	Representing a project	Representing a project
	Communicating a project to others	Stakeholder benefits resulting from project
		Project success
		Lessons learned
		Project objectives
	Assertions on projects and project management	Complexity
		Stress
		Dependence on other stakeholders
		Usefulness and/or benefits
		Variety of work practices
		Consistency of work practices

The third main component of the project management framework is based on the “Project Stakeholders” theme and is available in Table 6.3, including all of the areas of inquiry resulting from the nodes and variables identified from data.

Table 6.3: “Project Stakeholders” theme inquiry areas

Inquiry theme	Inquiry node	Inquiry variable and type
Project Stakeholders	The real project beneficiaries	Project related organisational stakeholders
		Other organisational stakeholders
		Direct project customers
		3rd Party stakeholders
	Main stakeholders in a project	Main stakeholders in a project
	Engagement and motivation of project stakeholders	Direct stakeholder benefit or relevance
		Consultative approach, empowerment
		Enjoyable working relationships and environment
		Publicising project
		Financial rewards
		Worthwhile projects
		Senior stakeholder influence
	Relationships between the stakeholders in a project	Organisational structures and processes
		Cultural and perspective differences
		Assumptions about others
		Senior stakeholder involvement
		Effective working relationships
		Ineffective working relationships
		External influences
		Authority to make decisions
		Reluctance to communicate
		Ineffective communication

The fourth main component of the project management framework is based on the “Project Management Framework and Methods” theme and is available in Table 6.4, including all of the areas of inquiry resulting from the nodes and variables identified from data.

Table 6.4: “Project Management Framework and Methods” theme inquiry areas

Inquiry theme	Inquiry node	Inquiry variable and type
Project Management Framework and Methods	Assertions on project management frameworks	Structured approach
		Flexibility
		Assurance
		Common approach
	Advantages of project management methods	Structure and consistency
		Common platform and portability
		Familiarity of process
		Focus
		Visibility of project and monitoring
	Disadvantages of project management methods	Practical limitations
		Complexity of method
		Suitability of method
		Stakeholder engagement
		Prescriptiveness
		Training requirements
	Project management methods employed	Prince 2
		Gantt Charts
		Other methods
		Organisation specific
		Project or Project Manager specific
		Not known or not specified
		Avoids using

The aggregation of all of the themes, nodes and variables, which represent the components of the project system shown in Figure 6.1, allows progression to the next stage of the development the project management framework.

6.3. Developing the project management framework

The development of the project management framework can now be progressed on the basis of the components of the project system obtained from data.

The framework presented in Figure 6.2 is developed further and becomes the second iteration of the project management framework, as shown in Figure 6.4.

To ensure that users of the framework get as much support as possible, the expectation as to what they may find during the inquiry process is set through the interpretation given in Figure 6.3. The components of the framework are given by Table 6.1 to Table 6.4.

In the second iteration of the project management framework, the “Project Measurement Criteria” are not shown separately, they are still part of the “Project” and “Project Stakeholders” components. However, given the discussion in Section 5.7, as performance criteria are required in models using systems, it is argued that “Project Measurement Criteria” need to be represented distinctly in the framework and this will be carried out in the next section. This ensures that the users of the framework are aware of the measurement criteria from the outset, in order to be able to assess whether their project is successful.

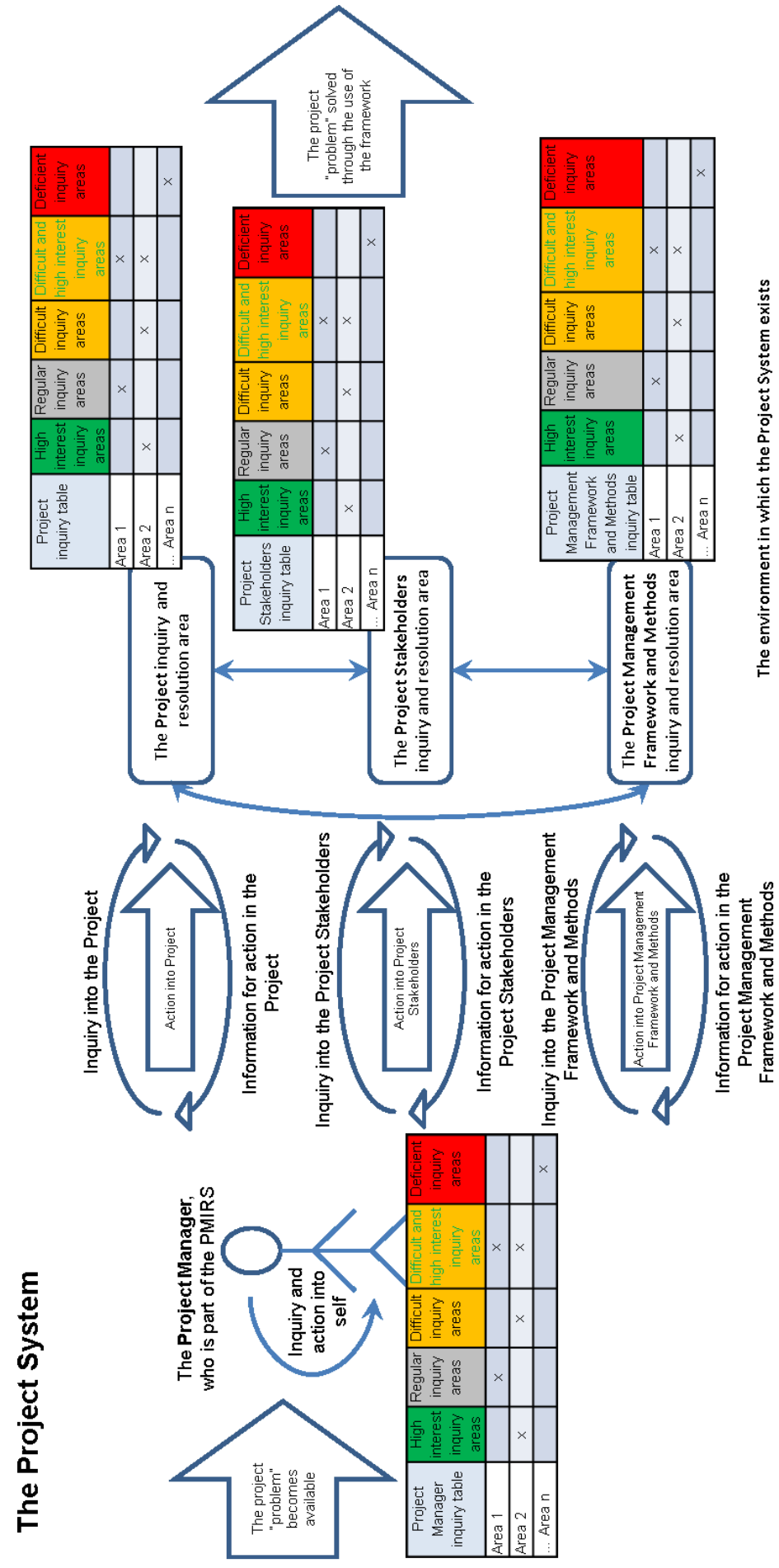


Figure 6.4: The second iteration of the project management framework

6.4. Representing "Project Measurement Criteria" in the framework

"Project Measurement Criteria" were identified earlier in Table 5.37, Table 5.38 and Table 5.39. These criteria will be grouped together in Table 6.5:

Table 6.5: Project Measurement Criteria

Project Measurement Criteria		
Inquiry theme	**Inquiry node**	**Inquiry variable and type**
Project	Measures for project success	**Risk assessment**
		Short term benefit realization
		Long term benefit realization
		Financial and numerical measures
		Objectives and quality achieved
		Stakeholder views
		Not measured
		Timescales for delivery achieved
		Learning
	Measures for project failure	**Project scope creep**
		Short term benefit realization
		Long term benefit realization
		Stakeholder views
		Not measured
		Timescales for delivery not achieved
		Risk assessment
		Valid business case
		Financial and numerical measures
	Assertions on a project's end	**Relationships resulting from project**
Project Stakeholders	Engagement and motivation of project stakeholders	**Direct stakeholder benefit or relevance**
		Consultative approach, empowerment
		Enjoyable working relationships and environment
		Publicising project
		Financial rewards
		Worthwhile projects
		Senior stakeholder influence

The project management framework is progressed so that the “Project Measurement Criteria” are now shown distinctly, leading to its third iteration. An initial, “expanded” view of the third iteration of the proposed project management framework, showing the detail of its components emerging from data, including the “Project Measurement Criteria”, is given in Figure 6.5.

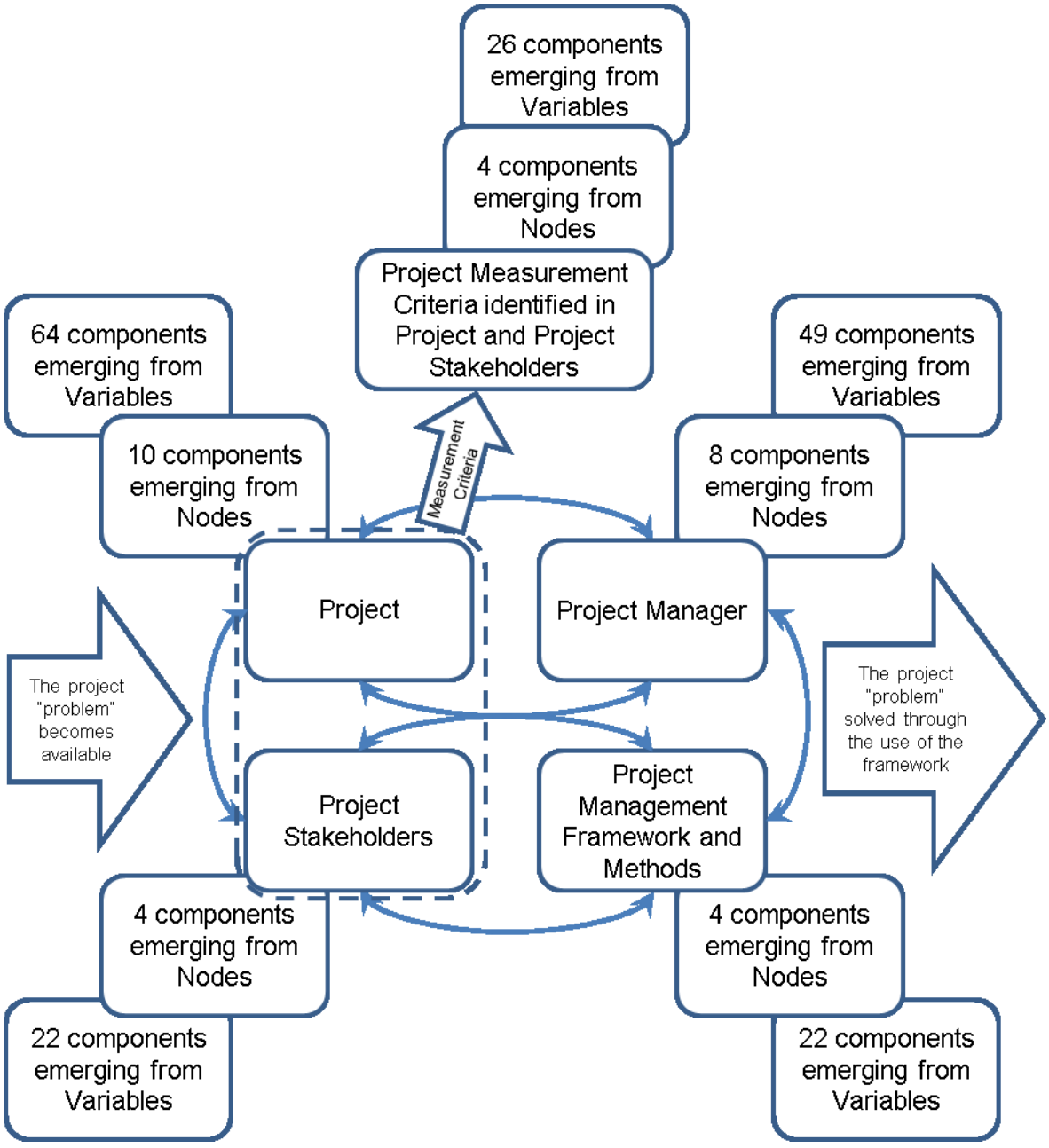


Figure 6.5: Initial view of the third iteration of the project management framework

Now considering the performance measures presented in Table 6.5, the third iteration of the proposed project management framework can be achieved and this is shown in Figure 6.6.

The “Project Measurement Criteria” are “extracted” from the “Project” and “Project Stakeholders” and will be represented separately, for simplicity, in the user guide provided in Appendix 2.

The inquiring project management framework has been titled Project Management Inquiry and Resolution System (PMIRS) to reflect both its inquiring nature and its systems roots. The iterative nature of the framework has emerged from the process used to construct it, which is based on the concept of a project system that will have intermediate states.

It is noted that the project manager using the framework plays a pivotal role in ensuring that it produces the desired effect, a successful project through solving of the project problem.

It is the role of the project manager to ensure that all of the components of the project system are properly inquired upon, not forgetting the inquiry into the project management practitioner him/herself.

The key characteristics of the inquiring, integrative project management framework developed in this chapter are:

- Contains four main areas of inquiry (“Project”, “Project Manager”, “Project Stakeholders” and “Project Management Framework and Methods”) that allow understanding of the intermediate states of the projects and support decision making,
- A fifth area of inquiry, based on “Project” and “Project Stakeholders”, is represented as “Project Measurement Criteria”. This satisfies the requirement of performance measurement of systems and draws attention to measurement criteria to allow assessment of project success,
- The inquiry areas are inter-related,
- The application of the framework allows contextualization for each specific project, through inquiry.

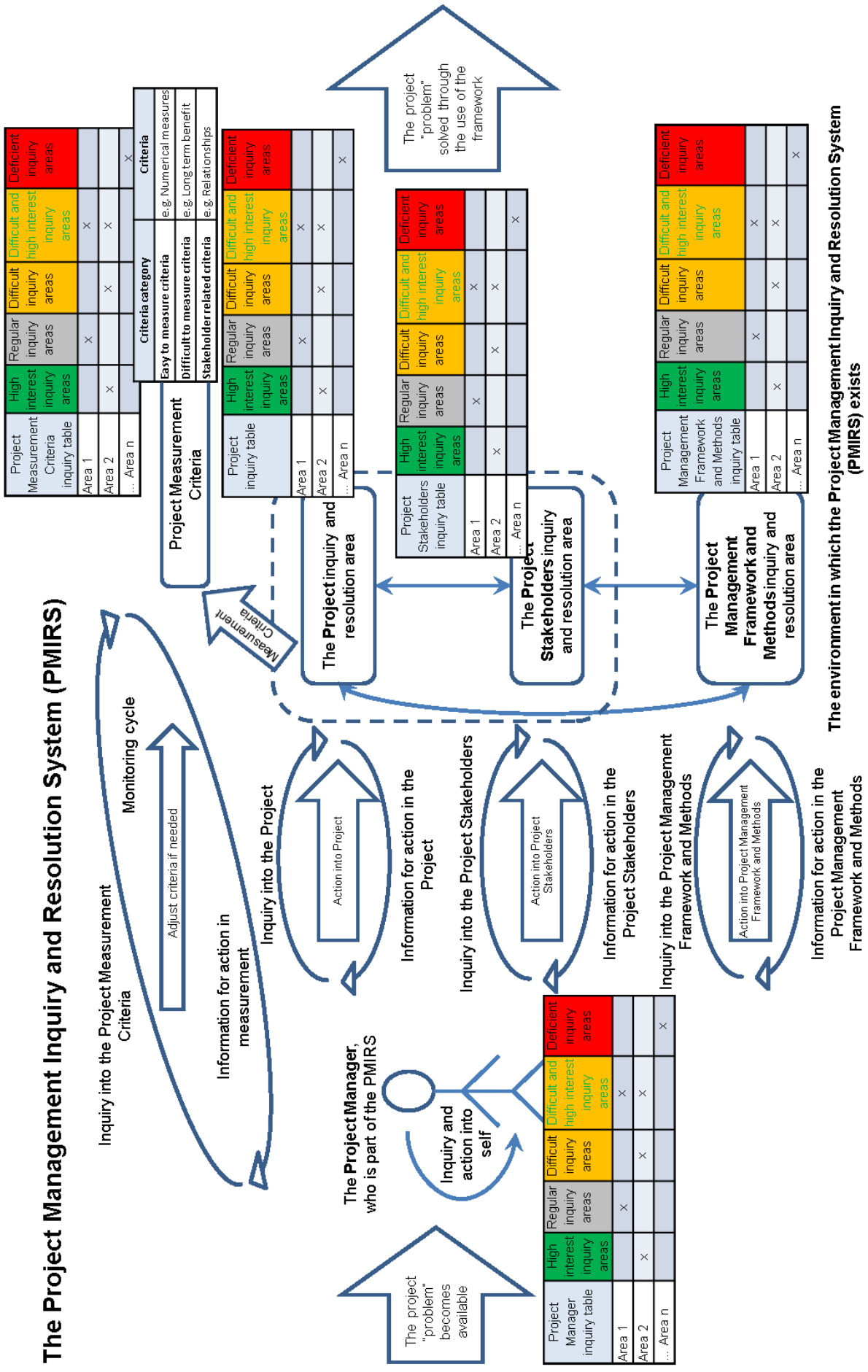


Figure 6.6: The third iteration of the project management framework

6.5. Progress so far

Considering the SSM cycle as discussed in Section 2.7.3, this research has progressed the research question, the production of a project management framework through completing steps 1 to 4 of the SSM cycle proposed in this work, a per Figure 3.1. This is shown in Figure 6.7 and the steps taken so far in this research are highlighted in blue.

By producing the project management framework presented in Figure 6.6, the sometimes cumbersome language and concepts that accompany systems thinking is avoided, whilst giving its users a good level of support in terms of the areas that should be inquired upon during the running of a project. Such an approach seeks to remove some of the criticisms that systems thinking in project management is facing in relation to its practical applicability by practitioners.

Problems identified with the use of systems thinking are a level of conceptual thinking that is, at times, impenetrable (Sheffield et al., 2012) and the lack of detail to guide the practitioner user through the inquiry process, giving the impression that, in effect, there is no consistent method (Jackson, 2001) that they can apply to their day to day problems. These problems are avoided by developing the project management framework proposed in Figure 6.6 which is supported by the use of detailed tables that define the areas of inquiry and guidance as to what the inquirer may find during the inquiry process.

To facilitate practical use of the framework, further guidance is provided in the user guide presented in Appendix 2.

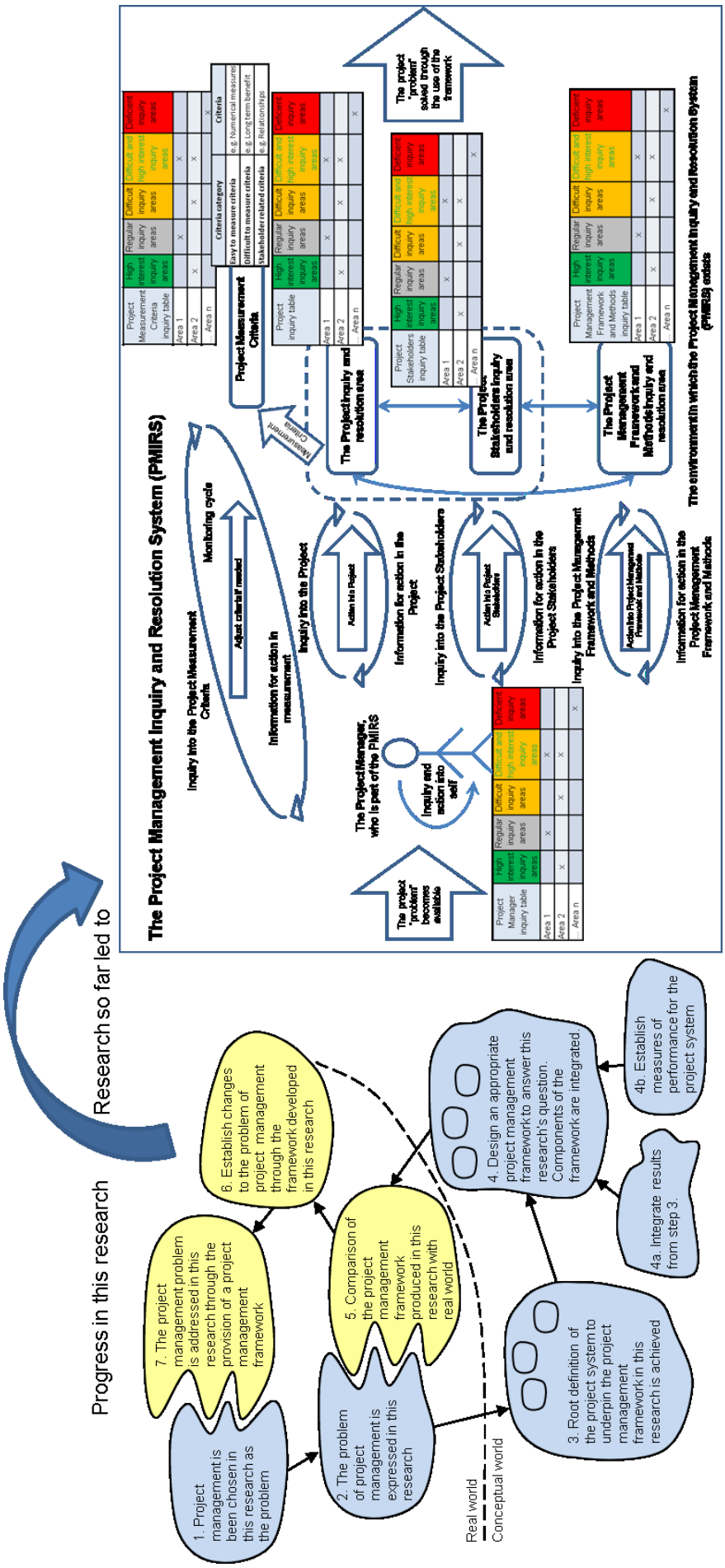


Figure 6.7: This research so far

6.6. Conclusion

In this chapter, the project management framework was constructed and this ensures progress towards answering the research question “Is it possible to produce an inquiring, integrative conceptual project management framework that has the potential to improve project management theory and practice?”. The framework was built in stages, adding complexity throughout this chapter, to ensure the clarity of the process of aggregating its components.

The integrative nature of the framework is given by the broad range of components identified in Chapter 4 and Chapter 5, leading to an approach to project management that is not considering only partial aspects.

The inquiring nature of the framework is supported by the necessity of dealing with the complexity introduced by people in projects and this is a view confirmed by the results of the data analysis presented in Chapter 5.

Research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” was advanced through the construction of the project management framework.

The next step in the research process is the validation of the inquiring, integrative project management framework by comparing it with a real world view of project management practitioners. This is step 5 of the SSM process (see Figure 6.7) and it is desirable to test the framework by relating it to the real world, with project management practitioners providing comments on its validity and usability as well as providing further suggestions for its refinement.

7. Validating the project management framework

7.1. Introduction

An inquiring, integrative project management framework was produced in the previous chapter, based on the concept of a project system with components emerging from the data collected from a range of project management practitioners. The framework provides both theoretical and practical insights into project management.

A comparison of the project management framework with the real world view of project management practitioners is carried out to ensure that Soft Systems Methodology (SSM) step 5 is satisfied, see Figure 6.7. This will provide increased confidence that the framework produced in this work is reliable, in relation to the research question, that it has practical usability and any suggestions for its improvement, offered by interviewees, are used to develop the framework further or to set up future research directions.

Validation of models is recommended by Sofia et al. (2013), while a set of areas for exploration in a qualitative validation process is recommended by Gallardo-Vázquez et al. (2014). To meet the credibility (confidence in the findings) evaluation criteria (Johnson et al., 2006) a validation of the project management framework presented in Figure 6.6 is carried out in this chapter. Further data will be collected, analysed and incorporated into the project management framework as necessary to provide further insights and refinements.

Research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” will be progressed through assessing whether there are any issues with the project management framework and by developing it further based on interviewees’ suggestions.

Research objective 3 “To identify key components of a project management framework” will be addressed through exploring whether the main components of the project management framework, emerging from the themes identified earlier from data, are appropriate.

Research objective 4 “To explore the role of inquiry in a project management framework” will be progressed by providing further evidence that a process of inquiry is seen as desirable during the application of the framework.

7.2. Further data for framework validation

The theoretical results emerging from the data previously collected in this work have contributed to the production of an inquiring, integrative project management framework that advances knowledge in the area of project management and it constitutes a practical support tool for project management professionals.

The data obtained through the validation interviews shows a good degree of consistency between the answers provided by the interviewees. Given the similarities of the messages received from respondents, a small number of validation interviews is considered to be sufficient, given that the project management practitioners interviewed for validation purposes are experienced and represent different industries, see Table 7.1.

Validation interviewees are represented by Vxx, where xx represents the index given to respective interviewees (e.g. V03 represents interviewee three).

Table 7.1: List of validation interviewees

Inter-viewee index	Job title	Sector	Type of projects	Projects Experience (Years)	Complexity of projects	Duration of projects (Years)
V01	Project Manager	Banking	IT	10-15	High	0-5
V02	Head of Faculty Professional Services	Education	Business Transformation, Change Management	10-15	High	0-5
V03	Project Manager, Advisory Practice	Consultancy	Various, multiple industries	10-15	High	0-5
V04	Business Head, Projects	Automotive	Various, multiple industries	15-20	High	0-2
V05	Managing Director	Professional development	Various, multiple industries	10-15	High	0-3

The data from the interviews facilitated further insights into the framework proposed and these are discussed in the following section.

7.3. Analysis of validation data

The validation interviews were focused on five areas of exploration:

1. Whether the four themes, constituting the main components of the framework are appropriate. The themes that underpin the project management framework are “Project”, “Project Manager”, “Project Stakeholders” and “Project Management Framework and Methods”;
2. Whether there are obvious problems with the project management framework;
3. Whether the project management framework can be seen as useful for project management practitioners;
4. Whether any suggestions for the improvement of the project management framework can be given;
5. Whether there are any other comments offered by the interviews in relation to the proposed framework.

The data collected through the validation process will be organized in the order of the five areas of exploration identified above. Insights from the data are incorporated into the project management framework following analysis.

The data extracted from the validation interviews is presented in five corresponding tables (Table 7.2 to Table 7.6), followed by a discussion illustrating how this data has added to the understanding and refinement of the project management framework.

7.3.1 Are the main components of the framework appropriate?

The data for the first area of exploration for framework validation is presented in Table 7.2.

Having explored whether the four main areas identified in the framework, the “Project”, the “Project Manager”, the “Project Stakeholders” and the “Project Management Framework and Methods” are suitable, there is very good agreement between the validation participants that this is indeed the case:

“I do think they are…” (V01)

“Yes they are, I really can’t see how you would fit more in there …” (V04)

"Yeah, for me those are the four key ones that I would have put in there, yeah, definitely." (V05)

Table 7.2: Data resulting from the first exploration area for framework validation

Inter-viewee code	**Exploration of whether the four areas identified in the project management framework are suitable**
V01	*"I do think they are and I think the project holds a lot of information and I think that's a lot more of the stuff that comes into you, erm, the project manager is, is the way that particular person is, is going to be approaching and what they are going to be doing to deliver the project or how do you call it the problem, problem available to him, available. Erm, project stakeholders are just a complete (pause) pot of their own aren't they and you get stakeholders and I think the more I've worked on different things and in different methodologies the more you understand that there are stakeholders in areas that you never considered so are they all very worthy of their own, their own area and then yes project management framework and methods, there will be people who have assumptions on things that you're doing, erm and there will be different ways that people will want you to work and it might be, I think, sometimes is dictated to you by organisation, sometimes people throw you in and say run a project and you've got to find your own and I think yes, they are all very valid areas in order to get from the problem to the solution."*
V02	*"Well, from what you've described to me and my experience of project management I would say that they have certainly captured, erm, all the key aspects from a project management perspective or in my case from a business lead perspective certainly, erm, I can't think of anything particularly that would be missed by the category that you've used shall we say."*
V03	*"Erm, yeah, I do, I think they are, in my experience they are the, the two of the four areas that you, you really need to concentrate on, erm, so I'm more than happy that if, you know, it's a good, it's a good way, a good first level way of looking at a project, erm, I think particularly the defining the project, defining the success criteria, the baseline performance, measuring what success looks like and agreeing what success looks like is really, really important, erm …particularly and then engaging with stakeholders throughout the project as well, erm, and then the, you know, the framework and tools, they shouldn't, they shouldn't be too prescriptive, the framework and tools, but I think they should be a reference point that people can go to, erm, to sort of say have I covered all the bases… have I looked in, you know of all the risks am I aware of them, what, this is going to help me identify my unknown unknowns."*
V04	*"Yes they are, I really can't see how you would fit more in there I think they cover that, I mean that's, that's a project, I mean that's what it looks like and you got the flexibility in here in terms of the, the different models that you would use, erm, so that's, it , it, it works very well for me."*
V05	*"Yeah, for me those are the four key ones that I would have put in there, yeah, definitely."*

Various other elements of the framework (constituents of the four main themes) are also identified as suitable and three of the interviewees, V01, V03 and V04, identified (without prompting) the flexibility and the inquiring nature of the framework as one of its strengths. This relates well to the results obtained from the initial data set and some of the literature where many of the current, established project management methods are seen as too prescriptive, and therefore cannot address the complexity found in real life projects.

Interviewee V04 suggests that whilst the framework is not prescriptive, it does actually provide a reference point for project management practitioners in terms

of the areas of inquiry that are needed to run a project from its initial to its final state:

> *"…you got the flexibility in here in terms of the, the different models that you would use, erm, so that's, it , it, it works very well for me."* (V04)

The main point to emerge from this exploration is the need for flexibility and freedom of inquiry for project management practitioners. Whilst this is an innate feature of the framework proposed in this work, perhaps there is some room for clarifying this to its users. In other words, making it clear in the framework that whilst there are many inquiry areas proposed in the framework, it should not be taken as given that this is an absolute, closed list, that might prevent its users from identifying further avenues of inquiry that may be specific to their projects and that may not have emerged from the data set used to construct the framework.

This insight is represented in the final iteration of the framework by the "Further contextual inquiry areas" aligned to the inquiry tables previously presented in Chapter 6, as shown in Figure 7.1.

7.3.2 Are there obvious problems with the project management framework?

The data for the second area of exploration for framework validation is concerned with any problems that may have been identified in the framework by the interviewees and is shown in Table 7.3.

There is consistent agreement among the interviewees that the framework is suitable for its purpose and the two aspects identified earlier (its flexibility and its ability to provide non-prescriptive guidance to its potential users) are identified as strong points:

> *"…it's a framework as opposed to being a specific this is exactly how it is done. …Absolutely, it gives the pointers and then, then it, then it's picked up from there, so it seems eminently appropriate and sensible from that side"* (V02)

> *"…I didn't see any, any large gaps. All the things in there that I typically see as key areas were in."* (V03)

All validation participants have been encouraged during the interview process to relate any further suggestions for improvements even after the interviews, should these emerge, however none were received.

Table 7.3: Data resulting from the second exploration area for framework validation

Inter-viewee code	**Exploration of whether there are any obvious problems with the project management framework**
V01	*"Nothing that springs to mind, nothing that springs to mind at the moment, but I'll, I'll take it away and do some thought if that's allright, I'll come back you, if there's anything that springs to mind, I will come back to you, no. …No, nothing, as I say, nothing that springs to mind at all"*
V02	*"Well, to be perfectly honest Lucian on the, on the brief look through and your, your description the answer would be no obvious, erm, issues as far as I can see at this particular point in time because with it being ultimately a framework it's not a prescriptive is it, it's giving that over, over perspective and, and by starting out with the four key categories there and capturing that it's, it's giving that, that, that framework context, which for me appears and then seeing the backup information around it to be fairly comprehensive, but without looking at it in thorough for a detail it would be difficult to say, but no I would, would suggest from that it wouldn't throw up and say that's going to cause a problem. …I couldn't see it an obvious issue with it as far as that's concerned and as you say it's a framework as opposed to being a specific this is exactly how it is done. …Absolutely, it gives the pointers and then, then it, then it's picked up from there, so it seems eminently appropriate and sensible from that side"*
V03	*"Erm, …pause… not from what I've looked at, what I'd like to do is to look at the next level down, the level 3, cause I think we've just got levels one, one and two haven't we for the moment … data variable and type…I guess it's level four that I would like to sort of say what are the four or five things behind each criteria, erm, because actually in my experience I probably default to level four to use it as a bit of a checklist to make sure I've covered all the bases… or, or , or I would, I mean in terms of level three, I'm, I look down to those and I thought, erm, if, if I think what it's in it is what I think's in it, then I think you've covered all the bases…I would probably use level four, I'd probably get my teams to use level four as a way of a controlling, quality mechanism over their project … and to say, you know, guys can you make that you're using level four to make sure all the bases are covered … giving it a bit of a rag read you know we talked about this earlier…a bit, a bit of a sort of a risk assessment against each one, use up for it, you know, exception reporting to me as a project manager to make sure that we're on track, there's no risks coming up, like, almost like a risk register, erm, but I think that from the three levels that are presented, I, I didn't see any, any large gaps. All the things in there that I typically see as key areas were in.*
V04	*"Nothing that comes to mind."*
V05	*"So, I think, I think the thing with project stakeholders is, erm, for me the solution for the project stakeholder is what I outlined to your before, which is too many people consult too widely… and actually what you want to do is once you've identified your project stakeholders, is to split them into two groups in terms of those who you are going to consult with and those who you are just going to inform and you need to keep your consultation to a minimum, erm, the more people you consult with, the more disappointed people you are going to have at the end, because if I ask ten people I am going to get ten opinions."* *"...I need to reiterate that informing people is not about just saying I am doing this, it's more about saying this is what I'm going to do, if you 've got a major problem, come and tell me…"*

Interviewees V02 and V03 discuss the detailed inquiry levels of the framework and V03 emphasizes the supportive nature of the areas of inquiry to ensure that no important areas are missed when running a project:

> *"…by starting out with the four key categories there and capturing that it's, it's giving that, that, that framework context, which for me appears*

and then seeing the backup information around it to be fairly comprehensive…" (V02)

"I would probably use level four, I'd probably get my teams to use level four as a way of a controlling, quality mechanism over their project … and to say, you know, guys can you make that you're using level four to make sure all the bases are covered…" (V03)

The data in this validation area is therefore re-assuring and provides confidence that the framework is constructed such that it might meet the needs of project management practitioners.

Whilst all of the inquiring areas captured in the framework can be seen as risk areas, if not understood properly, V03 sees the framework as actively contributing to the risk management of the project by carrying out the actual inquiry process and updating the project system accordingly along the way. This is an interesting result, and, whilst not a stated purpose of the framework, it can be highlighted as such to its potential users. The framework is seen as capable of addressing risk in project management as it will, in effect, give a multilevel checklist that is beneficial to project management practitioners, particularly inexperienced ones.

In terms of project stakeholders, V05 advocates an early identification of two main categories of stakeholders – those that will be, in effect, consistently consulted for input into the project and those that will be informed of the project status and provide input only in exceptional circumstances:

"…what you want to do is once you've identified your project stakeholders, is to split them into two groups in terms of those who you are going to consult with and those who you are just going to inform…" (V05)

This insight is represented in the new iteration of the framework by allowing that stakeholders can be of two types; to be consulted and to be informed, as shown in the "Project Stakeholders inquiry and resolution area" in Figure 7.1.

7.3.3 Is the framework useful for project management practitioners?

By this stage in the validation discussion, there is already evidence that the framework may be seen as useful for project management practitioners and this

aspect is explored further through the data acquired for this specific purpose, in the third area of exploration for framework validation, Table 7.4.

All of the interviewees agree that the proposed framework can be useful for project management practitioners:

> *"Yes, I think it could be, erm, I like the fact that it's not dic, what's the word , dictative, yeah, yeah"* (V01)

> *"Yeah, actually I think it's, it's probably more useful than the traditional frameworks which are very prescriptive…"* (V03)

> *"If they are going to take the time to go through it, yes."* (V05)

All of the participants in the validation process highlight its flexibility and ability to guide project management practitioners though the process of moving the project system from its initial to its final stage, through a process of inquiry. This is important, as it addresses one of the main discussion areas taking place in the project practitioner community, as discussed earlier in Section 2.6 in relation to the Agile agenda.

Even though the interviewees were not yet asked, at this stage, whether they had any suggestions for the improvement of the framework, such suggestions started to emerge at this point. V03 sees the framework as a reference-supporting tool for project management practitioners:

> *"I can see this as being used as a framework for them, as a reference point rather than a prescriptive guide … yeah, so I, I, if that's what it's intention is then I think, I, I like what I'm seeing."* (V03)

There are suggestions from V04 that further development work could be carried to give further clarity to the priorities that project management practitioners may place on the various areas of inquiry present in the framework.

Interviewee V05 is quite clear about the importance of the measurement criteria attached to the project, both qualitative and quantitative and the importance of measuring the long term aspects of a project, not only the shorter term, quantitative (e.g. cost) parameters:

> *"…the qualitative ones are often far more difficult and finally you know the long term objectives, the organisation needs to have a culture of actually measuring long term objectives…"* (V05)

Table 7.4: Data resulting from the third exploration area for framework validation

Inter-viewee code	Exploration of whether the project management framework can be seen as useful for project management practitioners
V01	*"Yes, I think it could be, erm, I like the fact that it's not dic, what's the word , dictative, yeah, yeah, that word. …it's inviting thought and I think as a project manager sometimes you can either be trained or so focused on what you filled in, that form, that piece of paper that you forget to use your own judgement and you forget to dig a bit deeper and follow your gut sometimes and I think it invites you to (pause) problematic areas, erm and it's inviting you to use your own intelligence and common sense (laughs) and you know, dig down into it yourself."*
V02	*"Again, from my experience, erm, which isn't, you know, as I said at the beginning I'm not a full blown project manager, but from my experience absolutely, erm, and if I had perhaps had something of this ilk when I was taking on shall we say the placements project, looking at that and working that through would have been a very useful tool in order to prompt me to be thinking about some of the key things, whereas I felt, erm, quite often, you set off down a road and you learn about things as they happen where this is about being able to give you some forethought around that and to be considering those in advance and being able to explore it a little bit further and, and a bit more planning around that and anticipating, so I, from my perspective I think that would have been a really helpful tool, erm, to, to have certainly. I mean I think any, any framework gives you a, a starting point and an opportunity to do that. As I said without going into finer detail I could not be more specific, but what I see, that to me would be, looks, looks sensible and, erm, and understandable, I think it's the key part."*
V03	*"Yeah, actually I think it's, it's probably more useful than the traditional frameworks which are very prescriptive, erm, in my experience it's the project management philosophy that's more important because projects are so highly contextualized to the challenge in front of you and that I could see a prescriptive framework actually increasing the, the risk of failure in a project because you're tied up trying to follow procedure, follow process, where I want my guys to be using, this is a guide, but using, applying that in the context they find themselves in, not rigidly following stuff, because it, I could see a rigid framework as quite non-value adding … that will soak up a lot of time and that's why I'm, I'm, I can see this as being used as a framework for them, as a reference point rather than a prescriptive guide … yeah, so I, I, if that's what it's intention is then I think, I, I like what I'm seeing."*
V04	*"I, I, I do, I see it as useful, however, I think as we, we spoke about earlier, further, further development beyond the model as it sits in terms of having…so, ranking in terms of something's orange and green in here, you know it needs to be looked at, but why should that take preference over another orange and green one and how you would present that in a way that would make it very easy for a project manager to see, alright, OK, here is the, all the really important ones, here is the ones that are doable, here is the ones that are going to provide me a, a challenge and I can, I can categorize them, or he or she can categorize them, and again, cause I think what this is also doing if, I think about it, is going to develop in a stakeholder management tool. …And I understand, I fully understand that, you know that there needs to be a tight, a tight framework and the need to eliminate distractions and getting pulled into some of the areas that I'm suggesting at the moment, so the answer to that question then is at the moment no."*
V05	*"If they are going to take the time to go through it, yes. There are lots of things here which when I went through it were things which you think, yeah, these are things that I've suffered from, experienced myself, we've talked for example about the difference between quantitative and qualitative performance measures and actually getting that right up front, erm, for, for a lot of project managers, I, I sometimes think they actually don't … they're quite comfortable with loose KPI's at the end of it, because the great thing with loose KPI's is you can prove you've achieved them, whereas actually if you make them too tight it's like, oh god, I'm actually gonna have to prove that I've done all this stuff, erm, but again that's why I think it disappoints for a lot of organisations, quantitative ones are very easy to do, you know, if you do stuff, things that I've been involved in, you can turn around and say we want the new standard cost of a product to be x when it comes through this new facility, we want it to cost this much to build the facility, we want the operating cost to be this, and that's, that's very easy to do, the qualitative ones are often far more difficult and finally you know the long term objectives, the organisation needs to have a culture of actually measuring long term objectives…"*

The “Project Measurement Criteria” area is therefore highlighted in purple in the new iteration of the framework, as shown in Figure 7.1, to draw attention to its importance.

7.3.4 How can the framework be improved?

Given the iterative nature of this research, it is expected that future work may be carried out to develop the project management framework further. What this work might be has emerged as a result of analysing the data obtained in the next area of exploration, where explicit suggestions for framework improvement were asked for from participants and are presented in Table 7.5.

Table 7.5: Data resulting from the fourth exploration area for framework validation

Inter-viewee code	**Exploration of whether any suggestions for the improvement of the project management framework can be given**
V01	*"Yeah, I think, I think one of its strengths is the fact that it does not come with a pile of you must fill in this document with all these headings and, and provide this information, so I think one of its strengths is the fact that it could be picked up by (pause) someone who is running a project for a hospice in order to get x, y and z done on a voluntary basis or it could be used in a far deeper level by people elsewhere because it’s inviting you to think, it’s inviting you to dig into areas that have been identified by professionals as (pause) things that could trip you up, so I think rather than try to write a methodology, it’s a better way to present project management to those who either…don’t have experience in it, or just to refresh people perhaps and say right, bring, bring the forms into this behind you, whatever your organisation wants, but don’t forget that there’s these four key areas and this is a way of making sure that you’ve fulfilled, you’ve fulfilled your, erm, obligations or at least you’ve dismissed things in areas and you’ve not, you’ve not dismissing them because you’ve forgotten it, it’s a known unknown … you know, so it’s a, it’s a known, no, it’s an un.. that’s not what I want, yeah, it’s a known known rather than an known unknown, you’re not in a position where you’ve forgotten something, you’ve, you’ve consciously decided not to do something about it because it’s not a problem to you"*
V02	*"I was going to say, it would be useful to be able to have a, a time to read through the little bit more and I will be happy to come back and, and give any suggestions, sure, for improvement, I mean at the present moment in time from what I have briefly looked at while you were away up there and what you have explained, it seems eminently sensible and obviously the, the grid reference I think it’s a really powerful aspect to it and really hones in on those areas that are important across the whole project which I think it's a really useful thing to draw at, those, those key aspects isn't it"*
V03	*"Erm, …pause… I think without seeing the level four, particularly behind the defining project success, erm, the headings around benefits realisation, financial measures, they, I mean they, they are particularly, and a valid business case they particularly resonate with me because of the business I work in…erm, I, I, people like to say, you know, I know this project has been a success because it’s increased my profitability from x to y, it has increased my sales from a to b against an agreed baseline of z or whatever…. so it’s the hard, erm, is this framework going to support the hard quantification of, of benefits of the project…. erm, you’ve definitely got it here, I’m not surprised it’s in red, because that is a difficult area that a lot of people, that it gets, it tends to get lost in the mist of the project itself, … in, in the fog of war. But, no I, I, I think as long as that’s there I’m really happy with what, what I’m seeing here. I could, I could see this being used, erm, what I’d like to see below this is almost a series of questions behind each of the level threes …cause at the moment these are, they don’t tell me what I, I need to do or need to check or need to assure or whatever, but I think if that sits below, this is level four, then that’s fine."*

Inter-viewee code	Exploration of whether any suggestions for the improvement of the project management framework can be given
V04	*"Again, it's, I think it's fine how it is and with the limitations that you've actually got in the research to do it, but the mind keeps moving to front in terms of moving forward and we spoke earlier about funnelling,… right, where something is achievable and can be done it's likely to be chosen by the project manager…something is important but it's unlikely to be achieved it's less likely to become a focus for the project manager, so what you I think what you, the one hundred and sixty three components of this will narrow over time, …well, and that would be, whether it's streamlined or what, but probably further research down the line which would for the want of a better term, streamline how you undertook that, I think it would prioritize a, or give project managers, again a framework or a toolkit so they can most easily prioritize, cause what you could be saying is there's one hundred and sixty three in here, but if you pick the top twenty your project will likely to be a success, … at, at minimum disruption and cost if you go to thirty five then success is improved by x amount… right, but it's going to cost you more… right, because you've got more objectives then to actually, in terms of what you're, more areas to focus… in there, so, so that's what I'm seeing in terms of a, a very simple and explicit toolkit for a project manager, you see, here's, you know, here's your top, so the top ten you cannot do without,… but, but it came from project managers,… so for me this is achievable and could be done this right and then you would do that with your list of one hundred and sixty three items, and and here you go you know and down the bottom would be a lot of the red ones, whether they are important, but unachievable or you don't have enough…data…and that may be in twenty five years when you are doing the next iteration of it in terms of digging in there but I'm looking forward in this and saying it's, it's excellent because I can do see how it's going to move forward and progress and mature….I'm an engineer as well, I like a spreadsheet, so I'm thinking that sort of stuff in terms of just being able to throw up and people get it right away, you know."*
V05	*"I've already kind of talked about, so for example on that project stakeholders, I do think people underplay it, erm, and I do think they think, erm, people don't get that big difference and I really would for me, pull it out in terms of as a project framework you've got to be prepared to decide who you are going to consult with and who you are going to inform and I think that really is for me a, a key thing to bring into it very early on…"* *"…the other one that you've already got in there and I just would definitely re-iterate, again, it's really important for me is that benefit realization, is making sure there is a proper framework to measure that at the end, erm, and that, that will actually focus a project management team if they know what they are being measured on at the end…"*

Whilst V01 and V02 do not identify any particular improvement areas for the framework, the flexibility and guiding nature of the framework is pointed out again by these interviewees. The guiding, supportive nature of the framework is seen by V01 as being particularly useful to less experienced project management practitioners, whilst acting as a reference point for all project management practitioners:

> *"…it's a better way to present project management to those who either…don't have experience in it, or just to refresh people perhaps…"* (V01)

V03 sees as a further development of the framework the identification of a relationship between the various inquiry areas and project success and even quantifiable project benefits such as return on investment or project cost elements. This idea emerges in a slightly different way from the discussion with V04 who would like to see priorities assigned to the various inquiry areas (in

effect a ranking of the importance of the inquiry areas) and the linking of these areas to project cost:

> *"…people like to say, you know, I know this project has been a success because it's increased my profitability from x to y, it has increased my sales from a to b against an agreed baseline of z or whatever…. so it's the hard, erm, is this framework going to support the hard quantification of, of benefits of the project…"* (V03)

> *"…or give project managers, again a framework or a toolkit so they can most easily prioritize… if you pick the top twenty your project will likely to be a success,… at, at minimum disruption and cost"* (V04)

Both V03 and V04 see the provision of a ranking of the importance of the inquiry areas identified in the framework as potentially very useful to practitioners. Whilst this is not possible to achieve in this work due to its qualitative nature, this insight opens up a very clear direction of future investigation. Employing further quantitative research using, as a starting point, the detailed inquiry areas present in this framework could provide a ranking of these. A similar approach could be employed to determine whether any relationships can be established between the inquiry areas and their impact on project cost.

One of the reasons why V04 indicated that a ranking of the inquiry areas will be beneficial is a reduction in the complexity of the inquiring process required by this framework, though this introduces obvious perils as it may persuade a project management practitioner to ignore certain inquiry areas, thus reducing the integrative nature of the inquiry process.

Interviewee V05 sees two areas of the inquiring framework as being particularly important and therefore, these areas may need developing further in the future:

- Stakeholder management within the inquiring framework,
- "Project Measurement Criteria".

These insights are therefore represented by highlighting the "Project Measurement Criteria" and the "Project Stakeholders inquiry and resolution area" in purple in the new iteration of the framework, as shown in Figure 7.1, to draw attention to their importance.

7.3.5 Other insights resulting from validation

A small number of other comments have emerged during the interviews and these are presented in Table 7.6, as they offer further insights. Interviewee V01 continues to see, as one of the main strengths of the framework, its flexibility, as opposed to the more established project management methodologies currently available, for example Prince 2:

> *"…that's great (pause) I think so often you get these methodologies which are (pause) very prescriptive erm, certainly my experience of Prince and work I've done on…"* (V01)

Interviewee V02 identifies the project manager as pivotal to the process of project management, suggesting that their commitment to a project management framework whilst running a project is important:

> *"…the project manager is absolutely the key part…"* (V02)

Table 7.6: Data resulting from the fifth exploration area for framework validation

Inter-viewee code	**Other relevant comments**
V01	*"No, that's great (pause) I think so often you get these methodologies which are (pause) very prescriptive erm, certainly my experience of Prince and work I've done on, unfinished work on PMI [Project Management Institute], but (pause), you've got to think about how you do it the more you're doing… which doesn't fit very well when you're trying to get on with stuff and (pause) I think some of the strengths, some people have got very, very fine strengths in that area and some people would rather talk to people and get on with stuff and talk to it and get it, get that buy in and get that thing going and you can't necessarily do them both, so this is a… a good think to think about"*
V02	*"I think as you pointed out at the beginning, the key part, the project manager is absolutely the key part, erm, without that person, erm, thoroughly understanding and being in control and it's that control element I think sometimes, erm, can be difficult because you are dealing in a lot of projects as I said in the beginning with quite varied stakeholder groups who have different interests, lobbying rights or not as the case may be. That project manager has to be a, a consummate professional and the ability to negotiate, erm, establish relationships and gain confidence of people so that things could happen, so, so having that as the key connectivity is, for me is the key one, definitely…. I suppose that is the point I think a lot of project failures probably happen because that commitment to proper project management, to taking a framework, no matter how large or small a proportion you take of it, cause that's the point, you can adapt it, I mean this is what it appears to be to me, depending on the size of the project you can adapt it to suit what is needed and I think that's, that's a really important thing cause I think that a lot of people are given projects as a project lead and, and not comfortable or familiar and therefore things do go awry or fail, erm, I think something that you would be able to provide and support somebody with would be a really good benefit, definitely."*
V03	- no further comments offered by V03
V04	*"I like the, I just like what you've done, even the, even the aspect, the matrix, in terms of impact, you know, as where IT systems get more complex and, and a greater ability to demonstrate stuff in a graphical fashion, you know, you could have a, a 3D model, of, of this type of stuff, and even again, that sees all that impact, and, and stick a dollar not a pound sign on them as well in terms of potential cost, you know, so I think there's lots of opportunities in here in terms of data, data manipulation… to, to probably show, show things to people so they know you know the diagrams, the flow charts, make things easy."*
V05	- no further comments offered by V05

Interviewee V04 suggests that the visual, graphical representation of the project areas of inquiry, as shown in Table 5.42, combined with a ranking and a project cost implication of the inquiry areas could enhance the framework further:

> *"…I think there's lots of opportunities in here in terms of data, data manipulation… to, to probably show, show things to people so they know you know the diagrams, the flow charts, make things easy."* (V04)

Whilst this might be possible to achieve, further research to generate suitable data to this end is needed. This insight provides a possible future research direction and is discussed in Section 8.7.

7.4. Implications for the project management framework

Following the validation process for the framework a number of insights emerge from the data:

- There is good agreement among the interviewees that the framework is credible, as required by Johnson et al. (2006) and has practical use,
- No problems with the framework are identified as it is given, however, future work is proposed to develop the framework further; this will be discussed in the last chapter,
- The flexibility of the framework is highlighted in a sustained way by the interviewees and is seen as one of its main strengths,
- The supportive, guiding nature of the framework is seen as important for project management practitioners, regardless of their level of experience,
- The detailed list of areas of inquiry is seen as a way of controlling risk in a project by making sure that important elements are not missed,
- The "Project Measurement Criteria" and the "Project Stakeholders inquiry and resolution area" are identified as particularly important and will be marked distinctly (in purple) in the final iteration of the framework, as shown in Figure 7.1. This will help to draw attention to their importance to the users of the framework,
- "Further contextual inquiry areas" are aligned to the inquiry tables previously presented in Chapter 6 and are added to the framework to ensure that its users allow for this possibility and do not see the inquiry tables provided in this work as exhaustive. Such areas of inquiry may

emerge during the application of the framework and may not have been identified from the data collected in this research,

- The “Project Stakeholders inquiry and resolution area” will show two different types of stakeholders; to be consulted and to be informed.

Following on from these insights, refinements are proposed to the project management framework presented in Figure 6.6.

One point of clarification, to be represented in the final iteration of the framework, emerges and it is related to its flexible nature. Based on the importance given to the flexible nature of the framework, it is proposed to explicitly illustrate this. The addition of “Further contextual inquiry areas” for each of its four main components and project measurement criteria will prompt explicitly full contextualization of projects given that it is conceivable that not all of the possible areas of inquiry may have been identified in the data used to produce the framework. The introduction of the “Further contextual inquiry areas” will ensure that the users of the framework do not ignore other possible avenues for inquiry by feeling constrained by the inquiry tables provided.

Therefore, it is proposed that the project management framework, as presented earlier in Figure 6.6, is amended to include the insights gained through validation and the final iteration of the framework is shown in Figure 7.1.

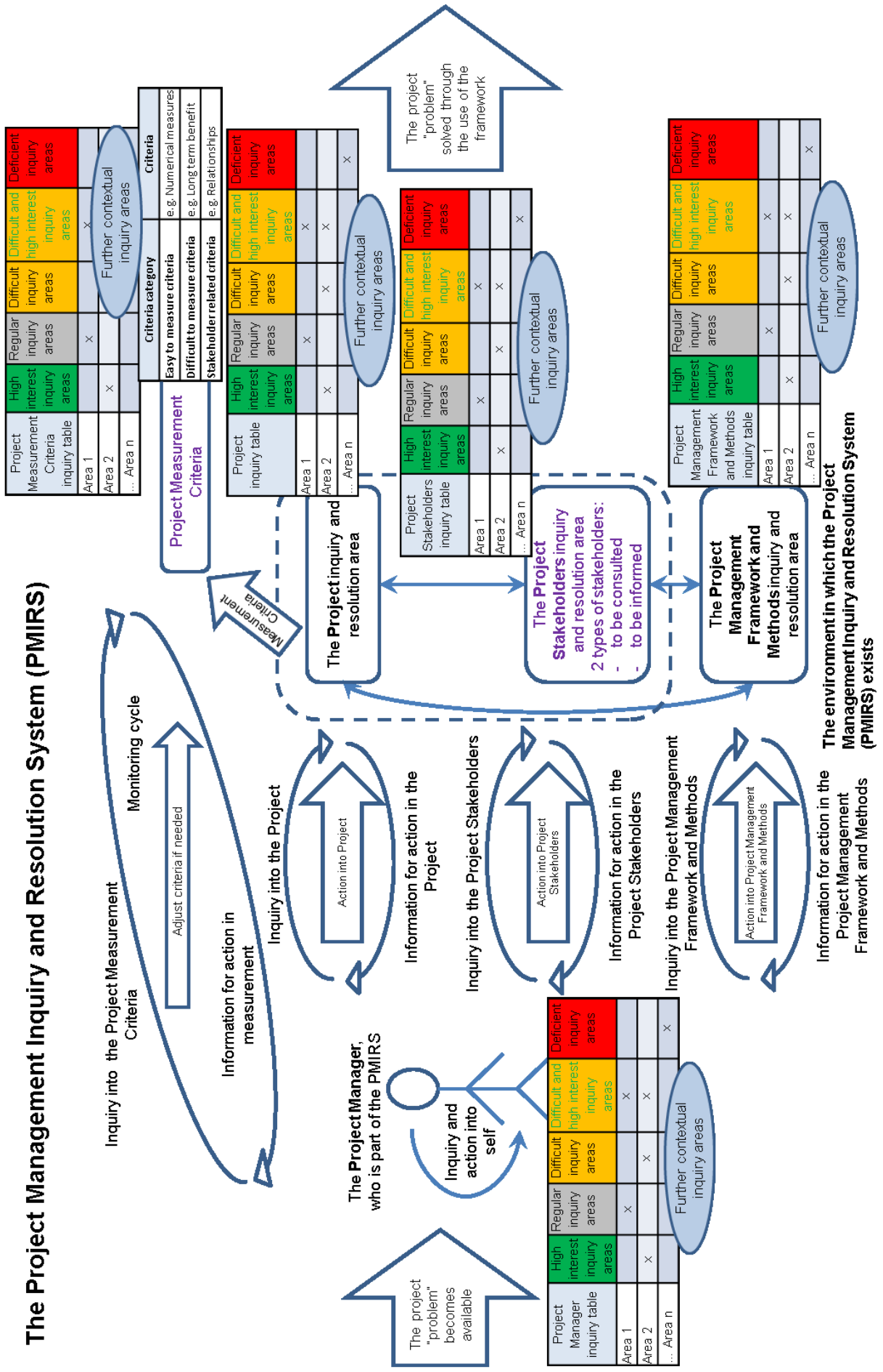


Figure 7.1: The final project management framework following validation

7.5. Conclusion

The validation of the project management framework, by exploring the views of experienced project management practitioners, was carried out and allowed insights leading to refinements of the framework, that were included in the development of its final iteration, presented in Figure 7.1. Analysis of the data acquired for validation has also informed future areas of research for further development of the project management framework.

“Project Measurement Criteria” and “Project Stakeholders” have been identified as areas of particular interest.

Research objective 2 “To develop, design and validate an integrative project management framework for theoretical and practical use” was addressed through confirming that there are no issues with the project management framework and it is seen as being useful. The project management framework was refined based on insights gained from the new data.

Research objective 3 “To identify key components of a project management framework” was addressed through confirming that the main components of the project management framework are suitable and that the framework is seen as credible by project management practitioners.

Research objective 4 “To explore the role of inquiry in a project management framework” was addressed by providing further evidence that a process of inquiry is seen as desirable during the application of the project management framework. New areas of inquiry, not obtained from the data analysed in this research, may be found during its application and these are represented by the “Further contextual inquiry areas” shown in Figure 7.1.

The principal contribution to theory and practice of this work is represented by the novel inquiring, integrative project management framework developed in this thesis and the contributions to theory, practice and methodology will be discussed in detail in Chapter 8.

8. Conclusions and future work

8.1. Introduction

The contribution to knowledge and practice of this work in the area of project management emerges from the production of an inquiring, integrative project management framework, as proposed in this thesis and presented earlier in Figure 7.1.

The foundations of this research designed for project management theory and practice lay in three broad conclusions arising from the review of literature.

The first conclusion is that project failures, resulting in significant costs to organisations, justify the need for further research in project management.

The second conclusion is that much project management research is focused on partial aspects of projects and do not take an integrative view. This work seeks to contribute to theory and practice in project management through a project management framework that integrates a broader range of components in a novel way, through the use of the concept of the project as a system.

The third conclusion is that inquiry is necessary in project management, in order to access the complex nature of people, who are part of project related activities. The framework proposed in this work makes inquiry central to its use, allowing access to the complexities introduced by people.

Specific contributions to theory, methodology and practice that this research has led to are presented in this chapter, as well as the research limitations and how they inform future research.

Future research, emerging from the limitations of this research and suggestions obtained during the framework validation process are then discussed.

A reflection on the researcher's journey to produce this thesis is included in order to evaluate how this work has contributed to improving his overall profile as an academic.

8.2. How the research aim, question and objectives were addressed

The research was designed to address an overall aim and a research question supported by a set of specific research objectives, as follows:

Research aim:
To contribute to the state of knowledge and practice in project management by developing a theoretical and practical tool.

This research improves the portfolio of knowledge and practical tools available in project management through answering the research question and addressing its objectives; how this was achieved is discussed in the following paragraphs.

Research question:
Is it possible to produce an inquiring, integrative conceptual project management framework that has the potential to improve project management theory and practice?

An inquiring, integrative project management framework has been developed (Figure 7.1), and it has been subjected to some initial validation with project management practitioners, with some encouraging responses.

The framework proposed in this work contributes to research in the area of project management through its theoretical underpinning, based on the use of the concept of the project system. The components of the project system have been determined through a grounded theory analytical process, giving the framework a strong theoretical underpinning.

A user guide (available in Appendix 2) is provided to ensure that the practical use of the framework is supported by explaining its nature and modes of use.

Research Objectives:

1. **"To examine possible gaps and areas of interest in project management."** This was achieved through a critical review of academic and practitioner literature in Chapter 2. The areas of interest identified through exploration were summarized in Table 2.1 and re-stated as areas of exploration in Table 2.4.

   A gap in relation to a piece meal approach taken in much of the literature studied in this research has taken shape. This led to the idea of producing an integrative project management framework. The integrative nature of the framework is given by its broad range of components which ensure that the efforts of project management practitioners cover a broad range of relevant areas, not just some as in existing research.

   Since projects and systems are both goal driven, an exploration of the possibility of using the concept of system, and the use of Soft Systems Methodology (SSM) for the creation of the framework was carried out, resulting in the use of a project system to underpin it.

2. **"To develop, design and validate an integrative project management framework for theoretical and practical use."** This was addressed through the production of the conceptual framework through two major stages.

   The first stage consisted of building the framework from the initial data set, acquired through data obtained by interviewing project management practitioners. This allowed the development of a framework underpinned by a high level of detail in terms of the areas of inquiry (Figure 6.6). The areas of inquiry, which constitute the components of the framework, cover a broad range of project management areas, and give the framework its integrative nature.

   The second stage consisted of a validation process and was carried out to enhance the credibility of the framework and assess its practical usability, by taking views from experienced project management practitioners. The

validation process confirmed that the framework is credible and is useful for practical purposes.

The final project management framework, which includes refinements emerging from validation, is presented in Figure 7.1.

3. **"To identify key components of a project management framework."** This was initially progressed through the identification of the areas for data acquisition relevant to project management.

   An interview framework was developed and used to collect data.

   Data was analysed and resulted in the identification of the components of the project management framework, these are available in Table 6.1, Table 6.2, Table 6.3, Table 6.4 and Table 6.5. The framework is underpinned by four major components: "Project", "Project Manager", "Project Stakeholders" and "Project Management Framework and Methods". "Project Measurement Criteria" emerging from "Project" and "Project Stakeholders" are represented as a distinct area.

   The interrelated nature of the components of the framework has emerged from the data analysis and is presented in Table 5.42. The implications of the relationships identified in this table are that inquiry and action taken in one area will likely have an effect in other areas that it is related to.

   The components of the project management framework proposed in this work emerge from the views of project management practitioners and are combined in a novel way in this work, by using the concept of a project system, not found by the researcher in the literature so far.

4. **"To explore the role of inquiry in a project management framework."** This was completed by arguing that inquiry is essential for the use of the project management framework. Inquiry allows project management practitioners to explore the complexity introduced by people in projects, due to their inner logic (which is not deterministic). Inquiry will also allow project

management practitioners to achieve the flexibility needed to contextualize real life projects. Inquiry allows data / information / knowledge to be acquired to support decision making necessary to progress projects.

Considering inquiry in a project management framework where it is central to its use has not been identified by the researcher in the project management literature. This approach is novel, and is argued to be important due to the non-deterministic nature of people.

8.3. Contributions to theory through an inquiring and integrative approach

A closed systems view (Gomes et al., 2008) is taken in traditional project management; this view is challenged here by the provision of a framework based on a project system, which is an open structure, that can be updated through inquiry, necessary for project based open systems (Oyegoke, 2011). White and Fortune (2009) argue that the most well-known project management methods are not anchored in the complexities of their environments; this is addressed in this work by providing an inquiry mechanism to capture complexity.

People are both a source of project complexity as well as the key element to project success. Whilst a great deal of complexity can be found in the technical aspects of a project, it is typical that the complexity found in the relationships between the project stakeholders easily exceeds any technical complexity (Cervone, 2005a). Identifying the project stakeholders and establishing useful relationships between them is not straightforward and accessing them is necessary to address complexity; this can be achieved through inquiry. The usefulness of an inquiring approach is depicted by the need for interaction with the project stakeholders (Berg and Karlsen, 2014; Cavaleri et al., 2012; Cervone, 2011; Jones and Deckro, 1993; Hekkala and Urquhart, 2013; Ivory and Alderman, 2009; Smith et al., 2011; Wang et al., 2005).

The framework proposed in this work considers inquiry as central to its application to address complexities introduced by people.

The framework has at its core a process of inquiry based on a broad range of project related aspects (e.g. “Project” and “Project Stakeholders”) and this allows its users to capture the complexity introduced by people, as this had been established as important earlier in Chapter 2 and Chapter 3 and confirmed by analysis carried out in Chapter 5 and Chapter 7. Inquiry represents the process of updating the project system by acquiring data / information / knowledge to support decision making necessary for progressing a project.

The frameworks / methods / tools that exist in project management seem to come from a positivistic standpoint and are largely mechanistic (Hällgren et al., 2012). They prescribe a range of steps that must be followed in a rigid manner. These are backed by large form / paper-based back office activities that must be carried out in order to run the project to such an extent that managing the running of the project can take over. In contrast, the inquiring framework proposed in this work seeks to free project management practitioners and other relevant stakeholders from the shackles of a mechanistic approach (Hällgren and Wilson, 2007), by empowering them to carry out their own tailored inquiry into the projects that they are engaged in. The users of the framework are able to apply the framework in a way that will deliver the best outcome for their particular project, whilst being able to disregard the components of the framework that are proven not to be relevant, upon carrying out the inquiry process.

A rigid, theoretical, simplified, approach can only ever explain a part of what we encounter. Therefore the gap between what is offered by the theory and the reality of projects must be filled through practice (Dalcher, 2012; Hällgren et al., 2012); in this case through an inquiring, integrative framework.

The framework proposed in this work supports an integrative approach, based on a broad range of project management components, to complement the significant amount of project management literature that looks at specific aspects of projects, trying to ascertain the impact of dealing with isolated project elements on the project outcomes and success or failure.

This work seeks to fill the identified gap (Babu and Suresh, 1996; Shipley and Johnson, 2009; Tavares, 2002; Tiwari et al., 2009; Tsai et al., 2003; Xia and Lee, 2005; Yang and Zou, 2014; Zhang et al., 2003) where there seems to be a lack of practical and holistic (integrative) project management frameworks available to project management practitioners; ones that are anchored into a strong theoretical underpinning. A significant amount of project management research is theory free or not sufficiently embedded in theory (Morris, 2010). This research provides a framework with strong theoretical underpinnings to address these issues.

Whilst some of the areas that make up the project management framework proposed in this work have been identified as important in other research works (having consulted over 300 research outputs in the area of projects and project management) no project management framework was found that includes all of the elements presented in this work.

The project management framework proposed in this thesis addresses one of the main concerns identified in the application of systems thinking to project management practice; that is the low specificity in models resulting from systems thinking which means that there are difficulties in applying such models (Kapsali, 2013). The framework presented in this work overcomes such shortcomings, through the provision of specificity through a large number of detailed components that define the areas of inquiry necessary in order to apply the framework.

The integrative nature of the framework proposed in this work facilitates a more complete understanding of a given project and is supported by the number of areas of inquiry proposed in the framework. The areas that project management practitioners are advised to engage with when applying the framework are not narrowly focused into just parts of a project, its project manager, its stakeholders or framework and methods, but rather all of these elements are integrated through a process of inquiry to facilitate as good an understanding as possible of a project in its context.

8.4. Contributions to methodology

A claimed methodological contribution of this work is through the use of a grounded theory approach for construction of new knowledge within a systems theory framework based on application of Soft Systems Methodology (SSM). The main reason for employing a combination of grounded theory and systems thinking results from the strengths of each method - a high level of detail provided by the theory elicited from data combined with the inquiring, integrative nature of the thinking proposed by a systems approach.

An SSM approach (Checkland, 1999) was taken towards answering the “project management problem”. Its stages, as represented in Figure 3.1, were followed to produce a solution represented by the project management framework. The SSM cycle employed in this work addressed the theoretical concept of project management, and this is a valid use of the methodology (Checkland, 1999, p.202). The SSM approach is not prescriptive in terms of the possible approaches to develop a model for solving the problem under study and, therefore, a way of providing a high level of detail in the project management framework, through a grounded theory analytical process, was sought, as this would facilitate its practical usability.

To provide the high level of detail necessary to underpin the project management framework a grounded theory approach was employed in this research, seen as particularly suitable for project management research (Hekkala and Urquhart, 2013).

Only one attempt is made (Rose, 1997) at proposing the use of a combination of grounded theory and systems thinking, but no actual research outputs that employ such a combination of methods has been found by the author. As evidenced from literature (Rose, 1997) and discussed above, a unique characteristic of this research is the successful blending of grounded theory with systems thinking. The concept of project system is used to underpin the framework proposed in this work, its detailed components being provided by the application of grounded theory.

An inquiring, integrative project management framework suitable for supporting project management practitioners has been produced, strongly underpinned by the idea of project contextualization. The framework that has resulted from this work is a conceptual model, given its reliance on a project system (Checkland, 1999), whilst also allowing a mechanism for detailed, practical inquiry processes (see user guide in Appendix 2).

The framework can be seen as useful for project management theorists and practitioners alike, given the conceptual model view of projects supported by the framework. The framework is able to provide project management practitioners with a very detailed view of a project, by allowing contextualization through inquiry of any real world project. The framework developed in this work overcomes shortcomings such as a lack of detail provided by most systems thinking approaches (Kapsali, 2013). Through a good degree of specificity in terms of boundary definition in relation to the areas of inquiry necessary to apply the framework, it fully allows for equifinality (achieving the same outcome through different possible means) necessary for open systems.

This novel methodological approach led to the successful production of the inquiring, integrative project management framework, which answers the research question “Is it possible to produce an inquiring, integrative conceptual project management framework that has the potential to improve project management theory and practice?.”

8.5. Contributions to practice

The costs incurred by organisations due to unsuccessful or unrealized projects is very significant, running into tens of billions of pounds worldwide (Cantarelli et al., 2012; Doloi, 2011; Guah, 2008; Keil et al., 2002; Ojiako et al., 2008; Rosacker and Rosacker, 2010). Estimations show that 30% of the global economy uses project-based management (Parker et al., 2013) and this supports further research in this area, as presented in this thesis. The framework developed in this research seeks to improve this state of affairs.

The process of validation undertaken in Chapter 7 has shown that the framework can be seen as useful for project management practitioners and no obvious problems were identified in relation to its construction or components.

The framework proposed in this work can support project management practitioners to progress projects, in a variety of contexts, by allowing them to access complexity introduced by people through inquiry, in order to facilitate decision making necessary for delivering said projects.

The framework may be seen as a good practical guide for project management practitioners. The framework draws on strong theoretical underpinnings and practical support for its application is provided through the user guide available in Appendix 2. The user guide builds understanding of the framework and introduces complexity gradually, allowing familiarization and then the application of the framework to actual projects.

The framework is designed to act as both a supporting and guiding resource useful for all levels of project management practitioner engagement and experience, as well as a resource that all project stakeholders can draw upon. It is anticipated that project management practitioners with any degree of experience will be able to use the framework given the amount of detail provided, in the user guide, to support its application.

It is useful to discuss how the project management framework addresses some of the current discussions in the project management practitioner communities, as explored in Section 2.6 of this work. Three areas of project management practitioner interest are addressed by the framework:

- the need for an integrative approach; addressed by the framework through the broad range of areas of inquiry supporting it which allow the collection of data / information / knowledge necessary for decision making,
- the need for flexibility; addressed by the framework through providing an inquiry mechanism supported by detailed inquiry areas that ensures that practitioners can progress projects rapidly. Inquiry can be applied at different levels of detail, see user guide provided in Appendix 2,

- the need for governance; addressed by the framework through the provision of a consistent approach to inquiry supported by tables (see Appendix 2).

The framework encourages an integrative approach to project management, through inquiry that will help to progress the project and support decision making along the way.

As opposed to established project management methods such as Prince 2, this framework actively advocates and encourages capturing the project context (Hällgren et al., 2012), the relationships between stakeholders (Cavaleri et al., 2012; Cervone, 2005b; Feeney and Sult, 2011; Gemino et al., 2007) and a continuous updating of the project system, adding new elements as needed and discarding elements that may no longer be relevant, whilst always maintaining the possibility of re-introducing these if necessary as a result of further inquiry.

Given the inquiring, integrative nature of the project management framework proposed in this work, it is argued that it can be used in any project context and it is contended that it is suitable for supporting project management practitioners to progress projects in any area.

8.6. Limitations of this research

A range of possible limitations that may have impacted on the conclusions of this research are explored in the following sections. Given that a range of limitations will be discussed in the following sections of this chapter, the findings presented in this thesis should be viewed as informing theory and practice and should be used as a starting point for further discussion, thinking and research into project management frameworks.

An exploration of the limitations of this research allows the identification of a range of areas of future research and these are explored in Section 8.7.

8.6.1 Researcher related (including bias)

The researcher's experiences in the area of project management may have had an impact on the range of literature that he had engaged with initially in terms of the project management areas of knowledge. Initially, the researcher only engaged with academic literature, given that he works in an academic environment. The academic literature consulted has led to the basis for the data collection process undertaken in this research and has informed the areas to be explored with the project management professionals interviewed for this purpose. However, the researcher did explore a broad range of academic and practitioner literature (to ensure completeness) to confirm that the range of project management areas of interest leading to data collection was appropriate and that this research addresses project practitioner concerns.

The researcher's experience with projects may have influenced the choice of using a systems approach, to ensure the possibility of integration of various aspects of project management through a process of inquiry. A criticism of using a systems approach is the lack of detail to support practical application of the results. This problem has been mitigated in this research by providing a detailed range of components to underpin the project management framework.

The researcher's personal experience of project management (given his project management and general management background) may have contributed to a distorted interpretation of data, due to a biased view of project management related concepts. To mitigate this, an amount of data consistent with recommendations from literature was collected (Saunders et al., 2012; Lincoln and Guba, 1985; Mason, 2010). Further data was collected for framework validation. This helps to ensure that the results are based in data and not the researcher.

8.6.2 Inductive/qualitative research process related

Personal perception may have affected the analysis of the data as this is seen as a characteristic present in inductive, qualitative analysis work. This is a general limitation of inductive approaches, which are considered appropriate when exploring problems where people are an important element, as is the case in this research. To mitigate this effect, an iterative process, involving

multiple passes through the data was employed and a comparison of results emerging from the different areas of data was carried out to ensure their consistency.

8.6.3 Data related - general

In terms of project management practice, not all industry sectors are represented in the data collected in this work. However, a good mix of industries is represented by the data set and the project managers interviewed have a good mix of project management expertise and experience.

The data provided by the interviewees may contain inconsistencies given the use of an interview framework and the difference in terms of the individual project management practitioners' experience in relation to the length of projects, project sizes, complexity, etc. However, this is mitigated by the depth of the discussions that took place during the interview process.

The wide range of terminology used by process managers to describe projects and project management may have contributed to misinterpretation of data. The complexity of the data set may have led to some aspects of the data being missed or not fully interpreted.

The production of the framework developed in this work relies on data collected some years ago. The conversation around project management methods is ever evolving and the list of project management methods employed resulting from the data analysed in this research has not revealed recent agile innovations.

Further data collection, in industry sectors not explored in this work, is recommended to ensure a more complete representation of project management.

Future quantitative data collection may be useful; this is supported by suggestions obtained during validation, to complement the qualitative data acquired in this work in order to provide further refinements to the framework.

8.6.4 Data related – achieving data saturation

It can be observed that throughout Chapter 5 and Chapter 6 a number of variables resulting from the data set and used to build the inquiring project management framework are identified as “Deficient”. In hindsight, naming these variables as “Deficient” was perhaps not the best course of action as their name may suggest that they provide no value to this research. This is not the case. Whilst these variables are underpinned by smaller amounts of data and do not provide as clear an interpretation as the “High interest”, “Regular”, “Difficult” and “Difficult and High interest” variables, they have been identified by project management practitioners as areas of concern in project management and therefore constitute valid components of the project management framework. Whilst this is a notable limitation of this research it has occurred in spite of the fact that the researcher has followed advice and practice from a range of authors in relation to the size of the data set (Saunders et al., 2012; Lincoln and Guba, 1985; Mason, 2010).

The existence of the “Deficient” variables is due to the fact that the data was collected in blocks of interviews and that the number of concepts emerging from the data is high, therefore, not all of the project management practitioners interviewed were able to contribute to all of the areas of interest identified in the data. Caution must, therefore, be used when undertaking inquiry in these areas.

The inquiring nature of the framework proposed in this work will mitigate the impact of the “Deficient” variables, as these constitute areas of inquiry and the users of the framework will be able to explore the specifics of their projects through their own inquiry process using these variables as a starting point. Indeed, through the very nature of an inquiring framework, its users are asked to examine their own projects thoroughly to ensure that they identify the relevant aspects of their OWN projects whilst being guided through this process by the inquiring, integrative project management framework proposed in this work.

Further data collection is proposed to address the issue of “Deficient” variables in the future research section.

8.6.5 Framework validation process related

The validation process undertaken in this work (Chapter 7), presented the project management framework to five experienced project management practitioners and has helped to establish its practical usability by exposing it to their “real” world view. However, there are some limitations around this process, arising mainly from the fact that the framework has not been tested by applying it to real world conditions, but presented to a range of experienced project management practitioners, whose views on the framework were then collected and analysed, leading to some refinements of the framework and future research directions.

The validation allowed some valuable insights in relation to the “Project Stakeholders” and “Project Measurement Criteria” inquiry and resolution areas in relation to their importance and the need to emphasize the possibility of inquiry into further areas not identified from the data obtained in this research and represented in the framework by “Further contextual inquiry areas”.

Whilst the validation process, as required by SSM step 5. (Figure 3.1), is based on the views gathered from experienced project management practitioners working in a range of industries, based on their thorough, but theoretical understanding of the framework, this does not provide the same degree of confidence as testing the framework in a real project context.

Validation of the framework through its application to real life projects is proposed to address this limitation.

8.6.6 Project management framework related

One of the major strengths of the inquiring, integrative project management framework is the ability to guide project management practitioners through a very detailed inquiry process. However, this could be seen as introducing a level of complexity that might prevent or impede its use in practice. This aspect did not come through in the validation process as carried out in this work, although it must be considered as a possible practical barrier to the use of the framework.

The growing use of programme and portfolio management in association with the project level by many organisations has not been addressed in this work. This is a limitation of the project management framework proposed in this research, given that programme/portfolio management is a key contextual factor.

Project stakeholders have been identified as a key component of the project management framework. After the validation process, a key finding was that stakeholders should be disaggregated into internal and external. However, no new data was acquired in this work to allow a detailed investigation of this aspect.

Whilst the researcher argues that the inquiring, integrative project management framework proposed in this work contributes to advancing project management theory and practice, due to the limitations discussed in this chapter, its users are advised to use it as part of a portfolio of tools to achieve their purposes. Further developments of the framework are proposed in the future research section, to allow for strengthening of its credibility (Johnson et al., 2006).

8.7. Future research

Having explored limitations of this work in the previous section, a number of areas for future research emerge. Whilst progress was made in terms of providing additions to theory and practice, there is still a considerable amount of work that needs to be undertaken, to allow for further progress towards advancing the completeness and usefulness of the framework proposed in this work.

Some of the areas of exploration presented in the following have emerged from suggestions offered by the interviewees during the validation process.

The following future research directions are proposed:

- Undertaking further exploration of the areas of inquiry underpinning the project management framework that have resulted from the “Deficient” variables. This needs to be achieved through further collection of data to

explore specifically these areas. By analysing further data in these areas, the “Deficient” variables should become of the other types identified in this work: “High interest”,” Regular”, “Difficult” or “Difficult and High interest”,

- Testing the framework in real project contexts is advisable. This will allow further development of the project management framework to take place and will provide insights that will allow its user guide to be revised to provide increased support for project management practitioners,

- A continuing process of validation of the framework to ensure its currency and relevance. This process of validation needs to extend to the very core of the areas of inquiry underpinning the framework to ensure their continuous currency and relevance,

- A quantitative exploration of the areas of inquiry identified in this work, underpinning the project management framework, to achieve a ranking of the importance of the inquiry areas. This avenue of research has emerged from the validation process and it is seen as a way to potentially reduce the complexity of the inquiring framework. Care must be taken with this approach, as reducing complexity will inevitably limit the scope of inquiry in any further projects that the framework will be used to support and will therefore potentially reduce the completeness of the project views,

- Production of a project dash-board type software application based on the inquiring, integrative project management framework as an applied tool for project management practitioners to give a “health” view of any project supported by the use of the framework,

- Further exploration, specifically in the inquiry and resolution areas of “Project Stakeholders” and “Project Measurement Criteria” would be beneficial, as these areas have been identified as being particularly important during the validation of the framework,

- Refinement of the project management framework for specific industries to explore whether further contextualized development of the framework is possible,

- Exploration of the possibility of extending and adapting the framework proposed in this thesis for programme management and/or project portfolios within organisations. Most projects take place within an organisational context and given the limited amount of organisational resources available, project selection must occur. Using an inquiring framework at organisational level could help with project selection, to ensure maximum alignment with organisational strategy,

- In order to ensure that the framework components (particularly related to project management methods) represent current and most advanced innovations in project management new data needs to be collected with some regularity,

- New data should be acquired to allow a detailed investigation of project stakeholders with the specific view to disaggregate them into internal and external stakeholders.

Having examined high project failure rates and the significant financial impact that such failures exert at organisational and governmental level, it is suggested that the current state of knowledge and practice in project management is inadequate and that further work is needed to develop the project management area as an academic and applied discipline. This thesis is part of the body of work that contributes to this end and the future work that emerges from it will help to advance project management.

8.8. Reflections on the researcher's research experience

The researcher presents here a narrative of the research journey as experienced in the last few years. This is a very personal account, to include reflections on the research journey and lessons learned along the way.

Given the experiential nature of the learning emerging from this journey, reflections are anchored in the conceptual experiential learning cycle as given by Kolb (2015, p.88).

The researcher's motivation for conducting this research has its origins in his day to day experiences whilst working in the corporate and then academic sector, which constitutes the "Concrete Experience" (Kolb, 2015, p.88) of the learning cycle. This motivation led to the belief that a contribution to theory and practice can be achieved through the research presented in this thesis.

The researcher started with the "ideal" that this research will fundamentally change the project management theory and practice. The "Reflective Observation" (Kolb, 2015, p.88) element of the learning cycle led to the conclusion that this ideal has been tempered by the practicalities of conducting the research (the research limitations explore the boundaries of what was achieved) whilst being in a full time job which with management responsibilities that have increased over the duration of this research.

Looking back to the research experience, the challenges experienced by the researcher are not different to the challenges found in any lengthy project (which this research was) where the external environment that one operates in changes over time, sometimes unexpectedly so. As such, the researcher's priorities over the last few years were in a constant state of flux, with this research being "reinserted" into the agenda repeatedly to ensure progress. The lesson of managing one's time effectively was in effect re-learned by the researcher, in this case to ensure that time is allocated to the research activity.

The aspects of this research programme that the researcher found the most difficult were the literature review and the data analysis using grounded theory. The processes associated with these were found to be complex and it took some time for the researcher to achieve the level of clarity required to make the necessary progress leading ultimately to the construction of the inquiring, integrative project management framework, which is the main contribution of this work.

The project management framework developed in this thesis and the content of the thesis itself addresses the “Abstract Conceptualization” element of the learning cycle provided by Kolb (2015, p.88).

There were many things that the researcher learned about a research journey and one notable point is that, when research is written up and presented to be defended, this needs to be carried out with a consideration for the readers that will not be familiar with the researcher’s ideas, content of their mind and work, not for self. Therefore, the writing style is very important and must ensure rigour, clear communication and consistency of ideas throughout the research work presented to others. This is one of the new lessons learned along the research journey and resulted from the “Active Experimentation” component of the learning cycle (Kolb, 2015, p.88).

Another new lesson learned and worth mentioning here is that the researcher felt that his research journey was a “selfish” experience, in other words other priorities had to give way if this research was to be carried out. This lesson is similarly anchored in “Active Experimentation” (Kolb, 2015, p.88).

The personal research journey has now nearly come to an end. A high degree of personal satisfaction was experienced by the researcher upon finalizing the further work required and re-submitting this thesis for re-examination as he believes that the new submission clarifies and strengthens the work presented in it on the basis of the further work required by the examination panel.

Following re-examination, the examiners have granted the researcher the degree of Doctor of Philosophy subject to minor amendments and corrections being made to the thesis. This can be considered as the formal positive outcome of the research related learning journey undertaken by the researcher and a successful application of the experiential learning cycle (Kolb, 2015, p.88).

The researcher strongly believes that this thesis provides a contribution to project management theory and practice.

The research journey undertaken by the researcher adds to his overall journey towards becoming a well-rounded academic, with contributions in his teaching practice and research. A strong research contribution is seen by the researcher as beneficial by informing his teaching practice and as such key to his overall career development.

8.9. To conclude

The contribution to knowledge and practice (including potential for material benefits to organisations) of this work in the area of project management emerges from the production of a novel, inquiring, integrative project management framework presented in Figure 7.1. A user guide for the framework is provided in Appendix 2.

Project failures, resulting in significant costs to organisations, justify the need for this research, which contributes to theory and practice.

An integrative approach is underpinning the framework proposed in this work, using the concept of a project system with a broad range of components. Inquiry is revealed as necessary in project management, in order to access the non-deterministic nature of people that are involved in project activities and the framework proposed in this work makes inquiry central to its use.

The researcher has developed his overall academic credibility through this research and intends to carry out future research in project management.

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10. Appendices

10.1. Appendix 1 - Data Nodes, Variables, Sources References and Coding Memos

N01-01. Advantages of project management methods

Level 01 Node Sources	22					
Level 01 Node References	59					
Level 01 Node Area	N01-01. Advantages of project management methods					
Level 02 Variable Sources		8	5	7	1	8
Level 02 Variable References		14	5	7	1	14
Variable coding data -->		V01-01-02-01. Structure and consistency	V01-01-02-02. Common platform and portability	V01-01-02-03. Familiarity of process	V01-01-02-04. Focus	V01-01-02-05. Visibility of project and monitoring
Coding memos		Consistency of approach and improved ability to communicate the project to others are the key benefits here	Portability is seen as an advantage by some project managers	Familiarity with the processes surrounding the project is seen as a clear advantage	It is seen as a time saver, due to familiarity - but very little discussion here	Very good agreement with the idea that using a project management method will allow for good monitoring and communication of the project

N01-02. Running a project - recommended practice

Level 01 Node Sources	29						
Level 01 Node References	79						
Level 01 Node Area	N01-02. Running a project - recommended practice						
Level 02 Variable Sources		10	12	10	8	7	3
Level 02 Variable References		14	18	19	10	7	7
Variable coding data -->		V01-02-02-01. Planning	V01-02-02-02. Communication and information	V01-02-02-03. Sponsors and stakeholder engagement	V01-02-02-04. Objectives	V01-02-02-05. Flexibility	V01-02-02-06. Qualification and training
Coding memos		Planning, being organised and communicating the project seem to be quite important. The project should have clarity and simplicity at its core. There are suggestions that this is not always easy to do.	Communication with all project stakeholders is essential, and it must be effective. It helps with engagement of stakeholders and therefore the delivery of the project	There is a whole range of stakeholders that need to be engaged and that is a key aspect of running a project - there is a view that running a project is actually running people and their relationships, not "hammers and spanners"	Good agreement that a clear project objective is essential and there is also the idea that the project objective may evolve iteratively if needed	Flexibility is identified as essential - again suggests an iterative process is inevitable	Little discussion around formal qualifications - perhaps this is an area of concern? The interviewees that mention this area support it strongly

N01-03. Barriers when running a project

Level 01 Node Sources	19							
Level 01 Node References	95							
Level 01 Node Area	N01-03. Barriers when running a project							
Level 02 Variable Sources		4	2	4	13	5	3	4
Level 02 Variable References		6	4	6	28	10	4	8
Variable coding data -->		V01-03-02-01. Communication and information	V01-03-02-02. Ownership	V01-03-02-03. Work priorities	V01-03-02-04. Stakeholder relationships	V01-03-02-05. Changes in environment	V01-03-02-06. Unclear and changing objectives	V01-03-02-07. Cumbersome processes
Coding memos		The predominant view is that communication is difficult between the stakeholders of the project	Not much said in this area, this is a problem!	Stakeholder priorities are liable to change during the project meaning that engagement in the project drops	Relationships between people is identified as a potential major barrier when running a project	Changes in environment over a period of time is a problem as this cannot be controlled by the project stakeholders	Some potential problems with unclear and changing objectives identified	Some issues with processes around running projects, chiefly the concern is related to an overburden of too many processes, some resources related

N01-04. Assertions on project management frameworks

Level 01 Node Sources	13				
Level 01 Node References	42				
Level 01 Node Area	N01-04. Assertions on project management frameworks				
Level 02 Variable Sources		6	8	3	4
Level 02 Variable References		10	10	4	4
Variable coding data -->		V01-04-02-01. Structured approach	V01-04-02-02. Flexibility	V01-04-02-03. Assurance	V01-04-02-04. Common approach
Coding memos		There is agreement that using a framework for managing a project is better than not using one, however there seems to be some difficulties with defining what advantages there are and some confusion with project management methods	There is excellent agreement that the project management framework must allow a good amount of flexibility, otherwise it is not useful - good link with the soft systems thinking - contextualize and understand the limits	Using a framework is seen by some as a form of assurance, making sure that things are not missed	There are views that suggest that project management frameworks lead to a common approach, but also that flexibility is required

N01-05. Project brief

Level 01 Node Sources	20					
Level 01 Node References	124					
Level 01 Node Area	N01-05. Project brief					
Level 02 Variable Sources		3	7	9	3	9
Level 02 Variable References		3	11	14	4	14
Variable coding data -->		V01-05-02-01. Flexibly defined specification	V01-05-02-02. Tightly defined specification	V01-05-02-03. Project and External team specification	V01-05-02-04. Project team specification	V01-05-02-05. External team specification
Coding memos		The iterative nature of the process of defining the project specification is identified by the interviewees	Detailed project brief specification, often driven by external constraints is commented upon here.	A very diverse range of stakeholders identified at this point, however, the ultimate beneficiaries do not seem to feature extensively in the project brief specification teams - this is an issue!	The specification of the project brief does seem to come from the project team at times	The specification of the project seems to come from people external to the project team most of the time

N01-06. Communicating a project to others

Level 01 Node Sources	16				
Level 01 Node References	36				
Level 01 Node Area	N01-06. Communicating a project to others				
Level 02 Variable Sources		6	2	1	9
Level 02 Variable References		10	4	1	10
Variable coding data -->		V01-06-02-01. Stakeholder benefits resulting from project	V01-06-02-02. Project success	V01-06-02-03. Lessons learned	V01-06-02-04. Project objectives
Coding memos		When communicating the project, the emphasis must be on highlighting the benefits that it brings to them	Very few people discuss the success of the project - is this related to the low success rate of the projects?	Very little learning is taken from projects and previous projects, seems to be linked only to success?	The project objectives are the most important thing that needs communicating

N01-07. Defining project failure and reasons

Level 01 Node Sources	20									
Level 01 Node References	124									
Level 01 Node Area	N01-07. Defining project failure and reasons									
Level 02 Variable Sources		3	14	7	3	3	4	5	7	14
Level 02 Variable References		5	29	17	5	4	10	20	12	22
Variable coding data -->		V01-07-02-01. Planning	V01-07-02-02. Scope suitability and understanding	V01-07-02-03. Stakeholder relationship	V01-07-02-04. Valid business case	V01-07-02-05. Benefits realisation	V01-07-02-06. Project budget	V01-07-02-07. Environment changes	V01-07-02-08. Time	V01-07-02-09. Did not fail
Coding memos		The idea of planning is not identified by many project managers as being important - this could be a problem	The scope of the project seems to be changing regularly - is this to avoid failure as suggested by some interviewee's comments? The iterative nature of the redefinition of the project is evident from comments also	Breakdown in relationships will constitute a serious problem	Very little discussion around a valid business case - this is an obvious problem!	Very little discussion around the benefits realisation - this is an obvious problem!	Not much evidence here, but exceeding the budget will stop the project. An interesting point is that sometimes budget is allocated without a clear benefit/outcome in mind	Organisational changes seem to be the biggest environmental threat to a project.	Time available is identified as a challenge and there are links drawn to the quality of the outcome	The main idea coming through is that instead of conceding that a project has failed, the scope of the project is altered generally to avoid acknowledged failure! Also - the acceptance of a different outcome from what was defined originally

N01-08. Defining project success and reasons

Level 01 Node Sources	8						
Level 01 Node References	31						
Level 01 Node Area	N01-08. Defining project success and reasons						
Level 02 Variable Sources		3	4	1	2	2	2
Level 02 Variable References		4	6	2	5	2	5
Variable coding data -->		V01-08-02-01. Planning	V01-08-02-02. Benefits realisation	V01-08-02-03. Financial measures	V01-08-02-04. Stakeholder relationship	V01-08-02-05. Objectives and scope	V01-08-02-06. Skills mix
Coding memos		This issue is discussed by very few project managers!	Very little discussion around the benefits realisation - this is an obvious problem!	Virtually no discussion here - an obvious problem!	Virtually no discussion here - an obvious problem!	Virtually no discussion here - an obvious problem!	Virtually no discussion here - an obvious problem!

N01-09. Defining the project

Level 01 Node Sources	28						
Level 01 Node References	87						
Level 01 Node Area	N01-09. Defining the project						
Level 02 Variable Sources		7	18	18	4	3	2
Level 02 Variable References		11	34	26	4	4	2
Variable coding data -->		V01-09-02-01. A change	V01-09-02-02. Defined time	V01-09-02-03. Has objective and/or outcomes	V01-09-02-04. Needs resources	V01-09-02-05. Defined activities	V01-09-02-06. Boundary
Coding memos		The predominant view is that a change will happen as a result of the project - but some difficulties with clarifying the concept of a project	The predominant view is that the project is well defined in terms of time. 2 interviewees identify projects that "run forever". To link in with the idea that the goal of the project may not be easy to be defined in terms of time	The predominant view is that the project should have a clear outcome - to link in with the idea of being able to measure the outcomes. Also - a project is a goal driven system, a transformation. There are virtually no comments made about quality of the outcome and ultimate beneficiaries!	The project will need resources - to link with the idea of transformation in systems thinking, the resources will achieve the transformation	The project achieves its goal by a series of transformations - the project activities	Some ideas of boundary, though this does not seem to be very strong

N01-10. Disadvantages of project management methods

Level 01 Node Sources	26						
Level 01 Node References	115						
Level 01 Node Area	N01-10. Disadvantages of project management methods						
Level 02 Variable Sources		3	15	7	5	8	5
Level 02 Variable References		6	30	15	7	16	11
Variable coding data -->		V01-10-02-01. Practical limitations	V01-10-02-02. Complexity of method	V01-10-02-03. Suitability of method	V01-10-02-04. Stakeholder engagement	V01-10-02-05. Prescriptiveness	V01-10-02-06. Training requirements
Coding memos		There are some perceived limitations around project management methods, linked to the technology that underpin these	There is an overwhelming view that project management methods tend to be quite complex. There is some confusion between methods and frameworks. There is shared concern that running the method may introduce a significant time penalty for the project manager - more time spent using the method than the project	There is a clear view that using a project management method needs to be weighed in relation to the project that it is going to be used for - good link to systems thinking, contextualization	There is a clear view that project management methods are not useful at capturing the human relations aspects or at engaging people, which are really important	There is a danger that the project management method leads to a mechanistic, prescriptive approach which is not conducive to a creative mindset needed when running a project	Lack of training is identified in certain cases as an obstacle to using project management methods

N01-11. Engagement and motivation of project stakeholders

Level 01 Node Sources	30							
Level 01 Node References	143							
Level 01 Node Area	N01-11. Engagement and motivation of project stakeholders							
Level 02 Variable Sources		18	10	6	3	5	11	2
Level 02 Variable References		33	19	7	3	5	14	8
Variable coding data -->		V01-11-02-01. Direct stakeholder benefit or relevance	V01-11-02-02. Consultative approach, empowerment	V01-11-02-03. Enjoyable working relationships and environment	V01-11-02-04. Publicising project	V01-11-02-05. Financial rewards	V01-11-02-06. Worthwhile projects	V01-11-02-07. Senior stakeholder influence
Coding memos		Overwhelming view that people will engage well with a project if there are benefits for them and their personal or professional lives, linked with creating good relationships	Consulting people is a key element for engagement, even when the project does not affect them directly	The social aspect of work is important and people enjoying themselves whilst working on a project is important	Not much discussion around publicising the project, even though communication has been identified as important before!	Financial incentives are identified as relatively important, but only a small number of project managers commented on this point	The idea that the project is going to make a positive difference (or perceived positive difference) is quite important and it seems to motivate people a lot	There is not much of a link between people's motivation and senior management support, it corresponds with previous findings!

N01-12. Assertions on projects and project management

Level 01 Node Sources	27						
Level 01 Node References	208						
Level 01 Node Area	N01-12. Assertions on projects and project management						
Level 02 Variable Sources		13	8	14	6	8	3
Level 02 Variable References		26	14	21	11	13	7
Variable coding data -->		V01-12-02-01. Complexity	V01-12-02-02. Stress	V01-12-02-03. Dependence on other stakeholders	V01-12-02-04. Usefulness and/or benefits	V01-12-02-05. Variety of work practices	V01-12-02-06. Consistency of work practices
Coding memos		There is a very strong acceptance that projects and project management are very complex and difficult. The idea that managing people is quite difficult appears clearly in here	Running a project is a stressful undertaking and it is not easy for the people that have to do it. One of the major causes of stress seems to be the fact that people cannot focus exclusively on one project at any one time.	The most important discussion point seems to be the dependence on other people who may not have a rational, business mind or may have individual issues that will need addressing	The issue of project benefits is neglected at times and does not seem to attract a lot of interest	There is a very clear view that almost everything needs tailoring to a specific project and that most people use different work practices - this will be a serious practical difficulty! Good link to systems thinking in the sense that contextualization is necessary, one size does not fit all	Little support for standardization of work practices, there seem to be some links between standardization and larger organisations

N01-13. Ideal or desirable changes through projects

Level 01 Node Sources	13			
Level 01 Node References	23			
Level 01 Node Area	N01-13. Ideal or desirable changes through projects			
Level 02 Variable Sources		12	5	2
Level 02 Variable References		19	5	2
Variable coding data -->		V01-13-02-01. Ideal objectives and/or deliverables	V01-13-02-02. Feasible objectives and/or deliverables	V01-13-02-03. Constraints
Coding memos		Whilst many projects have ideal changes that they are hoping to achieve, there is a realisation that these may not be realistic or entirely achievable	There is a realisation that ideal changes achieved through a project almost always end up being morphed into more feasible changes	Very little discussion on constraints - which will in fact determine how ideal changes will become feasible changes!

N01-14. Measures for project failure

Level 01 Node Sources	20									
Level 01 Node References	51									
Level 01 Node Area	N01-14. Measures for project failure									
Level 02 Variable Sources		2	6	5	14	2	6	1	2	5
Level 02 Variable References		2	6	7	25	5	7	1	3	6
Variable coding data -->		V01-14-02-01. Project scope creep	V01-14-02-02. Short term benefit realization	V01-14-02-03. Long term benefit realization	V01-14-02-04. Stakeholder views	V01-14-02-05. Not measured	V01-14-02-06. Timescales for delivery not achieved	V01-14-02-07. Risk assessment	V01-14-02-08. Valid business case	V01-14-02-09. Financial and numerical measures
Coding memos		Very little discussion on this item, even though there seems to be a lot of discussion on project scope changes at V01-07-02-09. Is it almost accepted that there will be changes in the project scope as suggested elsewhere?	Clear links here with the project objectives and the usability of the output. It is easier to define short term benefits realization, than long term benefits realization	Some attempts to discuss long term benefit realization, but it is clear that there are problems in defining long term benefits - seems to be harder than short term benefit realization	It seems that most project failure is linked clearly to the customer's perception of the project output, but some links are being made with other project stakeholders, for example the project team - they need to draw satisfaction out of the project. Failure seems to be harder to define than success	Some projects do not have clear measures that indicate failure!	There seems to be a reasonable discussion around being able to measure a project on whether it has achieved an easily measurable indicator - time, as opposed to a much harder to measure indicator such as benefits realization	Very little discussion about risk assessment - a real problem!	Very little discussion about using the business case as an indicator of failure - there is even a suggestion that business cases should be ignored on other grounds!	There seems to be a reasonable discussion around being able to measure a project on whether it has achieved an easily measurable indicator - financial, budget, as opposed to a much harder to measure indicator such as benefits realization.

N01-15. Measures for project success

Level 01 Node Sources	31									
Level 01 Node References	146									
Level 01 Node Area	N01-15. Measures for project success									
Level 02 Variable Sources		3	4	10	19	11	20	3	6	4
Level 02 Variable References		4	9	18	34	19	41	3	10	4
Variable coding data -->		V01-15-02-01. Risk assessment	V01-15-02-02. Short term benefit realization	V01-15-02-03. Long term benefit realization	V01-15-02-04. Financial and numerical measures	V01-15-02-05. Objectives and quality achieved	V01-15-02-06. Stakeholder views	V01-15-02-07. Not measured	V01-15-02-08. Timescales for delivery achieved	V01-15-02-09. Learning
Coding memos		Very little discussion about risk assessment - a real problem!	Whilst there seems to be some reasonable discussion around benefits realisation in the short term, there seems to be also some uncertainty around what constitutes success	It seems to be difficult to pinpoint long term benefit realisation and there are some suggestions that sometimes long term benefit means further work for the project team - so a disconnect from the real beneficiaries	It seems to be very easy to measure numerical indicators - these are categories of measures that are easy to represent consistently and measure relatively accurately!	It seems to be a lot harder to define qualitative indicators!	There is a lot of thinking that project success is linked to the project stakeholders (of all sorts) and that their "happiness" is ultimately what matters	Some projects do not have clear measures that indicate success!	A much smaller number of responses indicate that time is as important as the stakeholder's views for example	Organisational learning is seen as a measure of project success in some cases - is this part of the definition of the project? (it has not been identified as such in this data set, so that means that some people use measures of success not defined in the project!) Learning does not seem to be happening from failure!

N01-16. Relationships between the stakeholders in a project

Level 01 Node Sources	31										
Level 01 Node References	392										
Level 01 Node Area	N01-16. Relationships between the stakeholders in a project										
Level 02 Variable Sources		6	10	6	17	27	15	6	1	2	6
Level 02 Variable References		17	19	11	59	92	41	14	2	6	14
Variable coding data -->		V01-16-02-01. Organisational structures and processes	V01-16-02-02. Cultural and perspective differences	V01-16-02-03. Assumptions about others	V01-16-02-04. Senior stakeholder involvement	V01-16-02-05. Effective working relationships	V01-16-02-06. Ineffective working relationships	V01-16-02-07. External influences	V01-16-02-08. Authority to make decisions	V01-16-02-09. Reluctance to communicate	V01-16-02-10. Ineffective communication
Coding memos		Some discussion around organisation structures and processes, but it does not seem to be identified as a key factor in relationships between the stakeholders of a project	It is widely acknowledged that different cultural standpoints lead to different perspectives on the project and ultimately the difficulty is reconciling these different views	Most assumptions seem to be about people's competency and ability to achieve what they are supposed to achieve	Relationships between senior stakeholders themselves and also other people are identified as a key factor, but also that organisational politics plays a huge role in decision making	Effective working relationships are identified as both essential to the running of projects and difficult to achieve!	The fact that people take a personal view instead of a business like view to things leads to a lot of ineffective relationships and it will ultimately affect the way in which the project runs	Whilst not a lot of discussion around external influences, there seem to be a view that it is a difficult area	Very little discussion around the authority of the project manager - or indeed everyone else in the project to make decisions!	Little discussion around people's reluctance to communicate	Ineffective communication seems to occur with some regularity and it seems to be related to the issue of maintaining good relationships, people are reluctant to say things that may cause difficulties

N01-17. Representing a project

Level 01 Node Sources	3	
Level 01 Node References	7	
Level 01 Node Area	N01-17. Representing a project	
Level 02 Variable Sources		3
Level 02 Variable References		7
Variable coding data -->		V01-17-02-01. Representing a project
Coding memos		Little discussion here, there are some suggestions that some project representation tools are too abstract to be understood widely

N01-18. Running a project - interviewee's practice

Level 01 Node Sources	25							
Level 01 Node References	188							
Level 01 Node Area	N01-18. Running a project - interviewee's practice							
Level 02 Variable Sources		19	4	12	14	11	4	6
Level 02 Variable References		31	5	19	22	20	6	14
Variable coding data -->		V01-18-02-01. Project planning and scope	V01-18-02-02. Being proactive	V01-18-02-03. Relationships with stakeholders	V01-18-02-04. Learning and building understanding	V01-18-02-05. Monitoring	V01-18-02-06. Communication to others	V01-18-02-07. Iterative process
Coding memos		A lot of discussion around project planning, focused on positivist ideas such as strict successions of tasks and timelines.	Very little discussion around being proactive around issues - link to risk - perhaps an area of concern?	Very strong discussion around the idea that running a project is running people and that this is quite a hard thing to do	There is strong support for contextualization and understanding the environment that the project will be delivered into - very good link to systems thinking	Significant amount of discussion around the monitoring of the project, but it seems to be focused on milestones and tasks, not that much on the final objective	It is interesting that even though project managers recommend that communication is essential, they don't seem to be doing too much of it themselves! little discussion here	Some support for the idea that the running of the project is an iterative process, links well with systems thinking

N01-19. Running a project - in an ideal world

Level 01 Node Sources	23									
Level 01 Node References	55									
Level 01 Node Area	N01-19. Running a project - in an ideal world									
Level 02 Variable Sources		4	3	2	4	7	4	11	8	12
Level 02 Variable References		4	4	5	4	12	6	14	10	20
Variable coding data -->		V01-19-02-01. Objectives	V01-19-02-02. Resources	V01-19-02-03. Senior stakeholder support	V01-19-02-04. Competence and professionalism	V01-19-02-05. Time	V01-19-02-06. Budget	V01-19-02-07. Planning	V01-19-02-08. Stakeholder relationships	V01-19-02-09. Flexibility of action
Coding memos		Ideally the project objectives and brief would be very good - not much discussion on this point, this is a problem	Not much discussion on resources - this is a problem	Not much discussion on executive support - this is an issue!	Not much discussion on people's competency and professionalism	Quite a bit of discussion on the time indicator - something that people find easy to measure - positivist idea	Not much discussion on budget - this is a problem	Planning is seen as very important, but, as before it is seen as difficult	Very good, long lasting and engaging on both sides relationships would be desirable	Strong ideas around the need to be able to do your own thing and there is a clear preference towards working alone so that things can be controlled 100% - this is wishful thinking and could indicate that project managers see others as a barrier

N01-20. Assumptions made when running a project

Level 01 Node Sources	23						
Level 01 Node References	86						
Level 01 Node Area	N01-20. Assumptions made when running a project						
Level 02 Variable Sources		11	10	13	3	4	4
Level 02 Variable References		22	22	19	3	7	4
Variable coding data -->		V01-20-02-01. Understanding communications and information from project stakeholders (and engagement with these)	V01-20-02-02. Capability and willingness of project stakeholders	V01-20-02-03. Project progress and stakeholders engagement	V01-20-02-04. Capability of systems	V01-20-02-05. External influences	V01-20-02-06. Effective and accurate information
Coding memos		There seem to be issues identified around the communication between the project manager and other project stakeholders - there are assumptions that project managers know more, but also that they know less than other stakeholders	There seem to be a lot of assumptions that all project stakeholders know what they are doing or what needs doing, but this is not correct in most cases!	A lot of discussion around assuming that people are engaged in the project, when in fact they may not be. There are some clear ideas that there needs to be an inquiry as to whether this is true or not.	Some comments made about assumptions about the capability of technological systems, but nothing is said here about the capability of people (as part of systems)!	Some discussion about external influences here, but no clear idea emerges	The effective and accurate information is referring to largely numerical data, what about data and information that is not so easy to quantify through numbers?

N01-21. Most important factor when running a project

Level 01 Node Sources	29										
Level 01 Node References	91										
Level 01 Node Area	N01-21. Most important factor when running a project										
Level 02 Variable Sources		7	3	1	14	6	9	7	2	2	2
Level 02 Variable References		10	7	1	31	7	19	9	2	3	2
Variable coding data -->		V01-21-02-01. Objectives and deliverables	V01-21-02-02. Ownership	V01-21-02-03. Senior stakeholder engagement	V01-21-02-04. Communication	V01-21-02-05. Timescales	V01-21-02-06. Relationships with stakeholders	V01-21-02-07. Planning	V01-21-02-08. Quality	V01-21-02-09. Right team	V01-21-02-10. Decision making and management
Coding memos		Consensus in terms of the importance of very clear objectives	Very little discussion around ownership - that is a problem!	Not much discussion on executive support - this is an issue!	Communication is identified as the most important and difficult element when running a project	Ideas about keeping things to time, but of course the problem is that people refer only to the easily measurable numerical dimension of time	People relationships in a project are seen as going hand in hand with engagement	Planning is seen as important, though for example nowhere near as important as communication	Very little discussion around quality - as previous!	Very little discussion around having the right team, this is in contrast with the idea that people relationships are essential - so is a relationship better than having competent people?	Not much discussion around decision making and this is a problem! Who makes decisions after all? Is this at the expense of the relationships again?

N01-22. Project management methods employed

Level 01 Node Sources	26							
Level 01 Node References	109							
Level 01 Node Area	N01-22. Project management methods employed							
Level 02 Variable Sources		9	2	4	7	9	5	4
Level 02 Variable References		16	2	4	14	18	6	5
Variable coding data -->		V01-22-02-01. Prince	V01-22-02-02. Gantt Charts	V01-22-02-03. Other methods	V01-22-02-04. Organisation specific	V01-22-02-05. Project or Project Manager specific	V01-22-02-06. Not known or not specified	V01-22-02-07. Avoids using
Coding memos		Many project managers are familiar with and/or using Prince 2, However, it is clear that project managers are attempting to modify Prince 2 in their practice	Some project managers use Gantt charts	Some project managers seem to confuse the technology used to represent project with a method - for example Microsoft project	A number of project managers use proprietary (or company specific) project management methods	A significant number of project managers use project or project manager specific project management methods, this links in well with the contextualization idea of systems thinking	A number of project managers are not sure as to what project management method they are using for some of the projects	A number of project managers would explicitly avoid using Prince 2

N01-23. Types of projects undertaken and experience

Level 01 Node Sources	31						
Level 01 Node References	118						
Level 01 Node Area	N01-23. Types of projects undertaken and experience						
Level 02 Variable Sources							
Level 02 Variable References							
Variable coding data -->		V01-23-02-01. Job title	V01-23-02-02. Sector	V01-23-02-03. Type of projects	V01-23-02-04. Projects Experience (Years)	V01-23-02-05. Complexity of projects	V01-23-02-06. Duration of projects (Years)
Coding memos		N/A	N/A	N/A	N/A	N/A	N/A

N01-24. Assertions on a project's end

Level 01 Node Sources	15				
Level 01 Node References	33				
Level 01 Node Area	N01-24. Assertions on a project's end				
Level 02 Variable Sources		7	4	7	4
Level 02 Variable References		11	4	10	5
Variable coding data -->		V01-24-02-01. End of project	V01-24-02-02. Relationships resulting from project	V01-24-02-03. Long term aspects	V01-24-02-04. Short term aspects
Coding memos		Most comments are related to easy to measure items such as payment for the work done, only some discussion about achieving the objectives of the project	While the project has ended, the relationships built along the way do not end when the project does	It is widely acknowledged that for many projects the benefits or effects of their outputs take a long time after the end of the project to materialize - the question is then who is there to measure these benefits or effects?	Less discussion than for long term aspects and it seems that it is clearer in the short term what the effects of the project are

N01-25. Main stakeholders in a project

Level 01 Node Sources	2	
Level 01 Node References	16	
Level 01 Node Area	N01-25. Main stakeholders in a project	
Level 02 Variable Sources		2
Level 02 Variable References		3
Variable coding data -->		V01-25-02-01. Main stakeholders in a project
Coding memos		There is a clear difficulty for project managers to identify who the main stakeholders are in a project - this is an obvious problem!

N01-26. Real project beneficiaries

Level 01 Node Sources	25				
Level 01 Node References	52				
Level 01 Node Area	N01-26. Real project beneficiaries				
Level 02 Variable Sources		4	9	20	7
Level 02 Variable References		7	9	27	14
Variable coding data -->		V01-26-02-01. Project related organisational stakeholders	V01-26-02-02. Other organisational stakeholders	V01-26-02-03. Direct project customers	V01-26-02-04. 3rd Party stakeholders
Coding memos		There is a lack of clarity about the project stakeholders - who are they?	There is a reasonable amount of knowledge and awareness as to who the stakeholders in the organisation are as opposed to the project related stakeholders	A lot of customers are identified, but it is clear that the real project beneficiaries are in many cases disconnected from the active project stakeholders	A significant number of project managers have identified a range of 3rd party stakeholders who may benefit from the outputs of the project, but are clearly not involved in the project

N01-27. Feasible changes through projects

Level 01 Node Sources	23						
Level 01 Node References	63						
Level 01 Node Area	N01-27. Feasible changes through projects						
Level 02 Variable Sources		5	17	5	6	3	6
Level 02 Variable References		6	37	8	13	3	10
Variable coding data -->		V01-27-02-01. Ideal objectives and/or deliverables	V01-27-02-02. Realistic objectives and/or deliverables	V01-27-02-03. Time constraints	V01-27-02-04. Budget constraints	V01-27-02-05. Quality constraints	V01-27-02-06. Adjusted objectives and/or deliverables
Coding memos		There is a mix of views - for some the ideal changes through projects are always "in some way better" than the feasible changes and constitute a starting point for expectations, whilst for others the feasible changes are the only ideal changes	The idea is that feasible changes may be the changes that can be achieved after reviewing the progress of the project - the iterative nature of the process is evident here. Also - feasible changes are the ones that deliver the project objectives, they don't need to be "gold plated", but rather functional at times. There has to be a connection between what the client's expectations and the project team's view on what can be delivered	There is an inverse relationship between the time constraints and the "quality" of the output, leading to a pragmatic approach	There is an inverse relationship between the budget constraints and the "quality" of the output, leading to a pragmatic approach	Little discussion about quality, with acceptance that it is linked to time and cost (budget)	Very strong agreement that the objectives of the project are refined often, with the client (the ultimate beneficiary is not mentioned!)

10.2. Appendix 2 – User guide for the project management framework

Introduction

The inquiring, integrative project management framework presented in this user guide is designed to support project manager practitioners. The framework is based on the use of the concept of system. The reason for this is that both systems and projects are transformative, goal oriented.
The main features of this framework, from a practitioner perspective, can be summarized as follows:

- it can be applied in three modes,
- it requires continuous actualization, ensuring that the state of a project is captured in the most accurate way,
- it allows users to capture complexities introduced into projects by people, through inquiry. Inquiry allows recording of data / information / knowledge to support decision making,
- it is integrative, as it provides a lot of detail in relation to the inquiry areas and process, thereby allowing beginner project management practitioners to be guided through the inquiry process with some ease. Experienced project management practitioners may decide to be selective in their areas of inquiry, based on their relevant knowledge in the project areas they work in. It is, however, advisable that all project management practitioners engage with all areas of inquiry during the first "pass" of actualization to ensure that relevant areas are not missed,
- it allows project management practitioners to indentify areas where, if a change is made, an effect is likely to be felt in other related areas, as shown in the relationship matrix available in Appendix 3,
- it incorporates "Project Measurement Criteria", to include both easy to measure (e.g. numerical) criteria as well as more difficult to measure, non-numerical criteria.

In the following section, the three modes of using the framework will be shown. The various modes of use are based on the way in which project magement practitioners may want to engage with the framework, to support them to take a project from its initial to its final state.

Mode of use I – understanding the nature of projects

The first possible mode of using the project management framework is based on an intial representation of the project system used to underpin it:

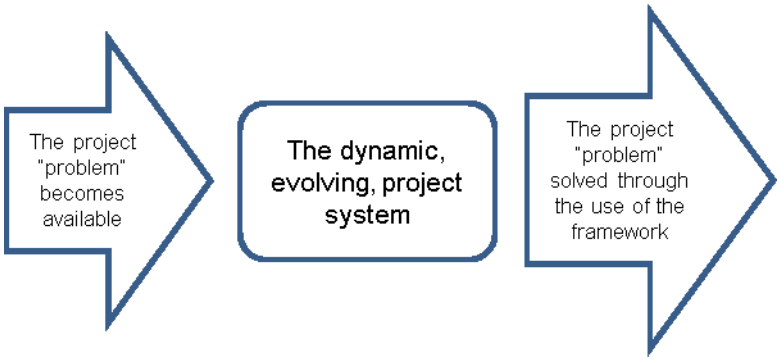

Figure 1: Projects as systems

In this mode, project management practitioners engage with the framework at a learning level. This provides the user with an undestanding of the dynamicity of the project system, without providing any detail in terms of what the components of the project may be. It is up to the project management practitioner to determine what the relevant areas of inquiry might be for their projects. Inquiry will lead to the exploration of project complexity, resulting from people, through allowing the recording of project related data / information / knowledge to allow decision making to take place.

This mode of use can offer some practical value to users; to achieve this the contextualization of the definition of the project system is necessary, see Table 1. This mode of use also has value in terms of informing project management practitioners of the nature of the framework to be used and the kind of thinking needed to use it – that is a systems view of projects. To enhance this understanding, the following table is presented:

Table 1: Definition of the project system

What is the Definition of the project system to be used in practice?	
A system owned by the project owner that allows a project to be progressed successfully through acquiring data, information and knowledge needed for decision making in a broad range of relevant areas. Projects contain complexities introduced by people that will impede decision making by project management practitioners and will need exploration. A broad range of project specific constraints will need to be satisfied. (needs contextualizing)	
Who are the project Customers?	Who are the project beneficiaries? (needs contextualizing)
Who are the project Actors?	Who are all project stakeholders? (needs contextualizing)
What Transformation is the project supposed to achieve?	What is the transformation, through a project, that the application of the project system allows to be solved, through decision making based on data, information and knowledge obtained via a thorough inquiry into its complexities? (needs contextualizing)
What is the World view taken?	To solve a project problem successfully, in other words to deliver a successful project (needs contextualizing)
Who is the project Owner?	Who is the project owner? (needs contextualizing)
What Environment is the project delivered in?	What is the specific context in which the project exists? Likely to be complex, dynamic, with people contributing significantly to its complexity. (needs contextualizing)

Table 1 gives an overview of the project system used to underpin the framework and allows the clarification of its purpose, as expressed by its transformation. The areas indicated as needing contextualization need updating with project

specific information, based on actual projects. Contextualization of Table 1 allows a better understanding of a project to take place.

Mode of use II – introducing some detail into projects

The second possible mode of using the project management framework is based on a more detailed representation of the project system used to underpin it:

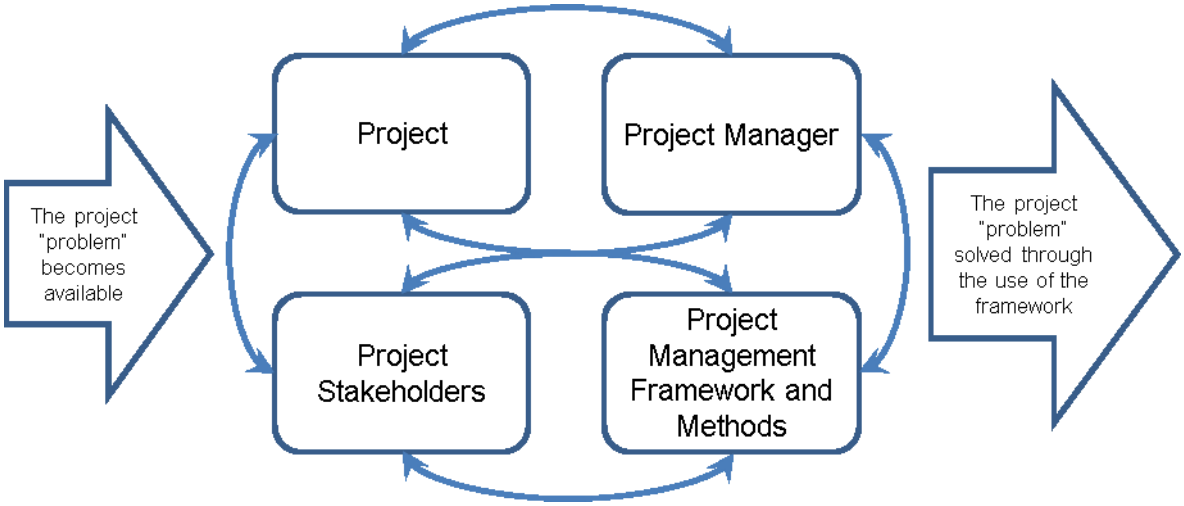

Figure 2: Projects as systems with components

If using the framework in this mode, the project management practitioner is provided with four main areas for inquiry as well as with the idea that these four areas of inquiry are interelated. It would be up to them to decide which aspects to inquire upon, in each of these areas. It can be noted that project measurement criteria are not explicitely stated in this mode, it is up to the project management practitioner to assess and evaluate what these may be, as part of the inquiry in each of the four main areas represented above.

Whilst this mode provides more insight into the project system, its practical value as a support tool is limited and therefore it is envisaged that this mode of inquiry would be used for some initial discussions around what a future project system may be in a given context.

Mode of use III – a framework for progressing projects

From a practical perspective, the most useful mode to use the project management framework in is by engaging with the full range of areas of inquiry available. Project management practitioners are reminded that the reason for the inquiry process is the actualization of the project system with data / information / knowledge, as this will allow decision making to take place.

The project management framework is presented in Figure 3. The integrative nature of the framework results from the broad range of areas of inquiry that cover aspects of project management. Project Measurement Criteria and Project Stakeholders are identified as areas of particular interest and marked distinctively in the framework.

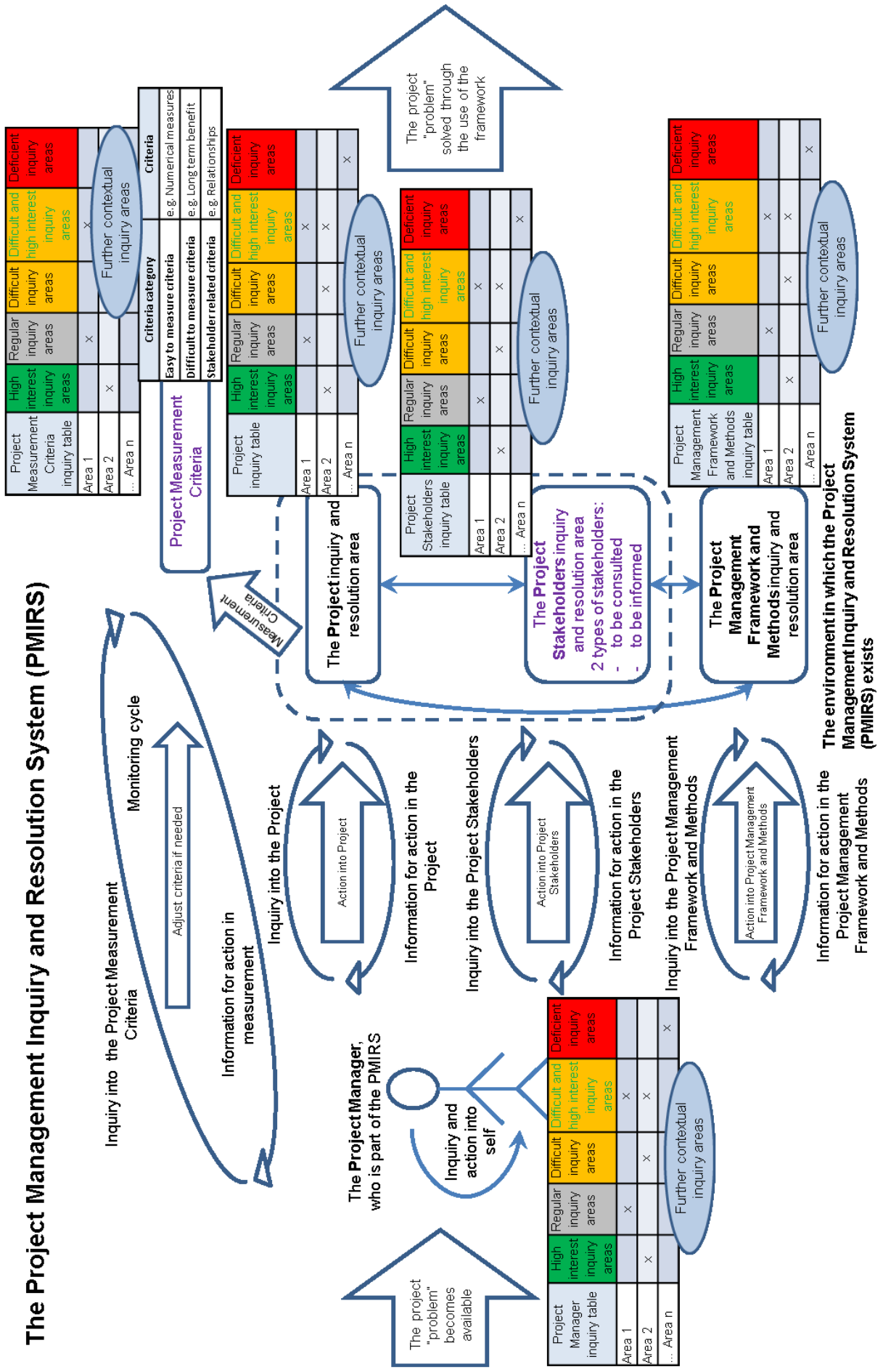

Figure 3: The inquiring, integrative project management framework

To support the process of detailed inquiry further information is needed. It is recognised that project managers practitioners may have different degrees of experience and therefore it is possible to engage with the framework in this mode of use in several ways, depending on the level of detail required or allowed by the practical circumstances that the users of the framework find themselves in.

The detail necessary to support inquiry is presented in the form of inquiry tables. Two levels of inquiry are indicated, based on the level of detail at which the users of the framework wish to carry out the process of inquiry necessary to update the states of the project system.

1. Increased level of inquiry detail

Inquiry based on this level of detail is recommended to experienced project management practitioners, given the lack of detail to underpin the inquiry process. In this approach, inquiry tables are to be used, as per Figure 4.

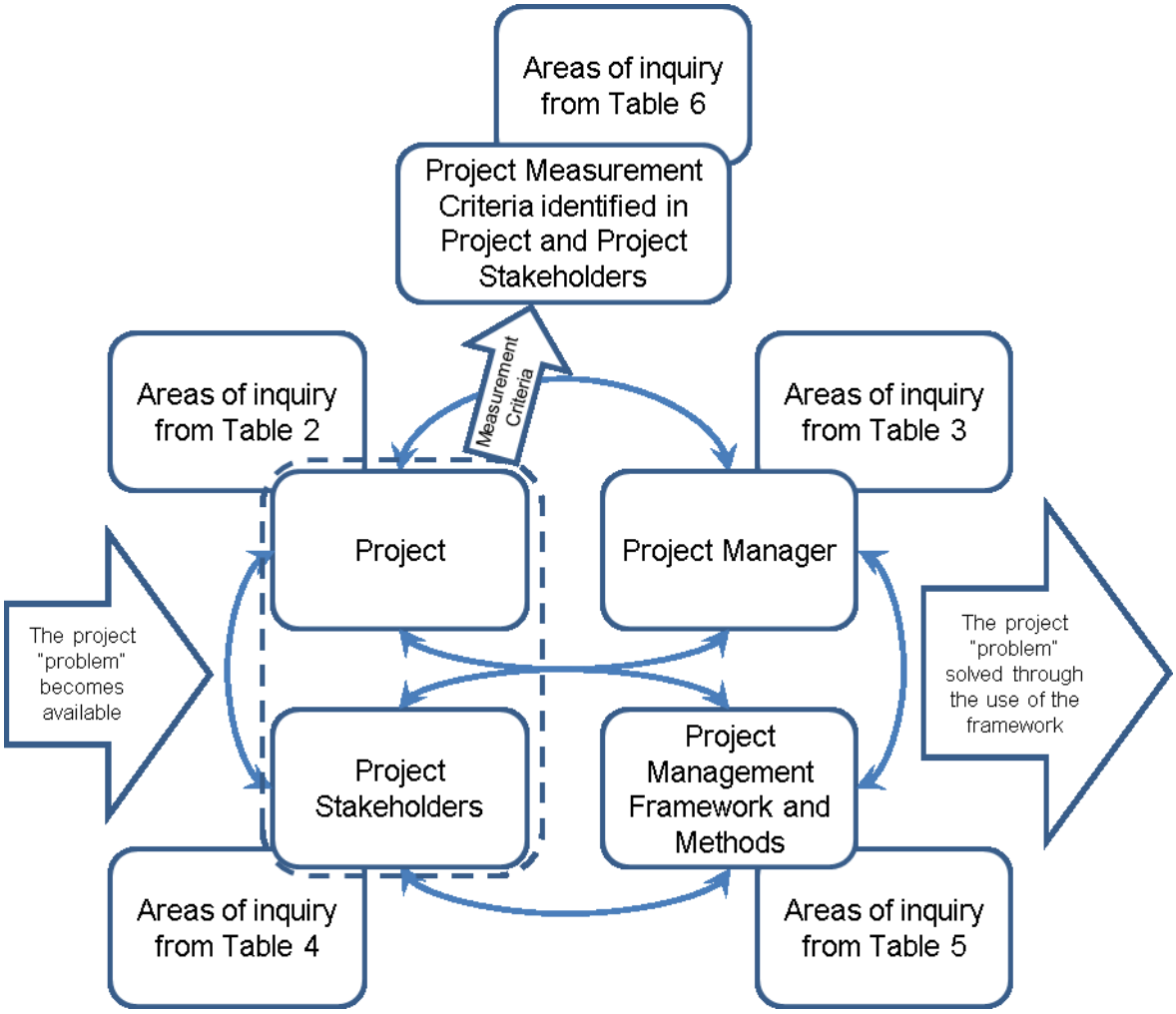

Figure 4: Using the framework with increased level of inquiry detail

The tables which provide the necessary detail for inquiry are provided as follows:

Table 2: “Project” inquiry areas

Project system area	Detailed area for inquiry	Record data / information / knowledge from inquiry
1. Project	1. Defining the project	
	2. Project brief	
	3. Ideal or desirable changes through projects	
	4. Feasible changes through projects	
	5. Barriers when running a project	
	6. Defining project success and reasons	
	7. Defining project failure and reasons	
	8. Assertions on a project's end	

Table 3: “Project Manager” inquiry areas

Project system area	Detailed area for inquiry	Record data / information / knowledge from inquiry
2. Project Manager	9. Running a project - in an ideal world	
	10. Running a project - recommended practice	
	11. Running a project - interviewee's practice	
	12. Most important factor when running a project	
	13. Assumptions made when running a project	
	14. Representing a project	
	15. Communicating a project to others	
	16. Assertions on projects and project management	

Table 4: “Project Stakeholders” inquiry areas

Project system area	Detailed area for inquiry	Record data / information / knowledge from inquiry
3. Project Stakeholders	17. The real project beneficiaries	
	18. Main stakeholders in a project	
	19. Relationships between the stakeholders in a project	

Table 5: “Project Management Framework and Methods” inquiry areas

Project system area	Detailed area for inquiry	Record data / information / knowledge from inquiry
4. Project Management Framework and Methods	20. Assertions on project management frameworks	
	21. Advantages of project management methods	
	22. Disadvantages of project management methods	
	23. Project management methods employed	

Table 6: “Project Measurement Criteria” inquiry areas

5. Project Measurement Criteria		
Project system area	**Detailed area for inquiry**	**Record data / information / knowledge from inquiry**
1. Project	24. Measures for project success	
	25. Measures for project failure	
	26. Assertions on a project's end	
3. Project Stakeholders	27. Engagement and motivation of project stakeholders	

Areas of inquiry 24, 25, and 26 in Table 6 are linked to the “Project” area whilst area of inquiry 27 is linked to “Project Stakeholders”. It can be noted that inquiry into “Assertions on a project’s end” appears twice, once in Table 2, representing the Project area, then in Table 6, representing the “Project Measurement Criteria”. This is due to the fact that some detailed components of the “Assertions on a project’s end” are identified as measurement criteria, see Table 11. This will be explained in the next section, where the full detail of the inquiry areas is given.

The inquiry tables above will provide a more detailed view of the project system throughout it’s life. It is recommended that the users of the framework are mindful of the table provided in Appendix 3. This table indicates the interrelated nature of the “Detailed areas for inquiry” listed above. If a change occurs in one such area, it is likely that there will be an effect in the areas that it is interrelated with.

It is expected that project management practitioners will apply the inquiry process continuously throughout the life of the project to ensure the actualization of the project system to support decision making. The frequency of inquiry into the areas indicated in the previous tables will be determined by the specific circumstances of a project and project management practitioner.

2. Highest level of inquiry detail

This level of inquiry is recommended to all users and in particular to less experienced project management practitioners, given the level of detail available for undertaking the inquiry process.

This level can (and should) be used by all project management practitioners to ensure the fullest inquiry into the state of their projects. In this approach, inquiry tables are to be used, as per Figure 5.

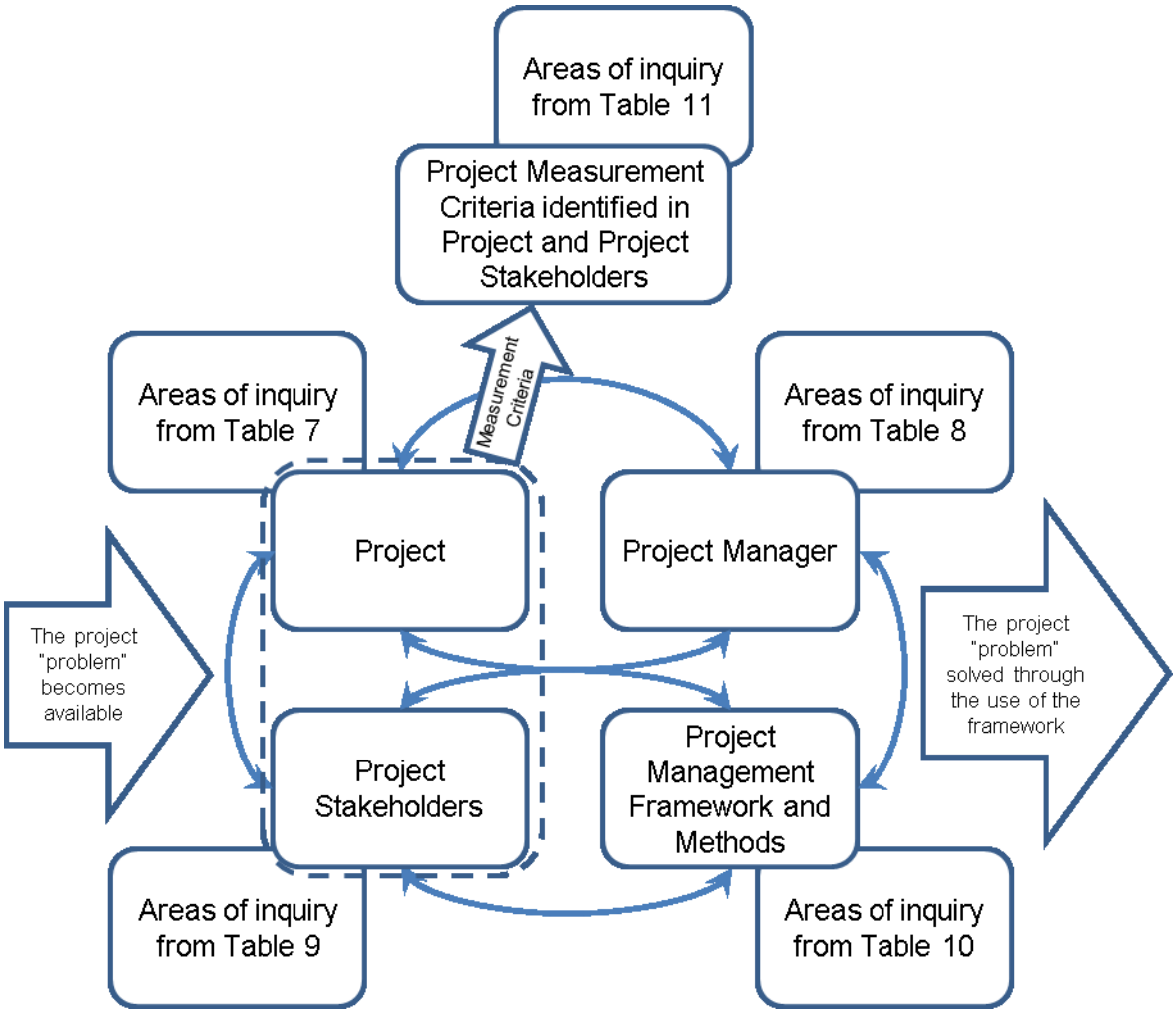

Figure 5: Using the framework with the highest level of inquiry detail

A key to the inquiry support tables, using a colour coded approach is given in Figure 6. The colour codes approach gives an indication to the user of the framework as to what they may find whilst inquiring into the various areas available in the inquiry support tables.

It is expected that due to the inquiring nature of the project management framework proposed here, the impact of the “red” areas will be mitigated by the very process of inquiry undertaken by the users of the framework into their own specific projects.

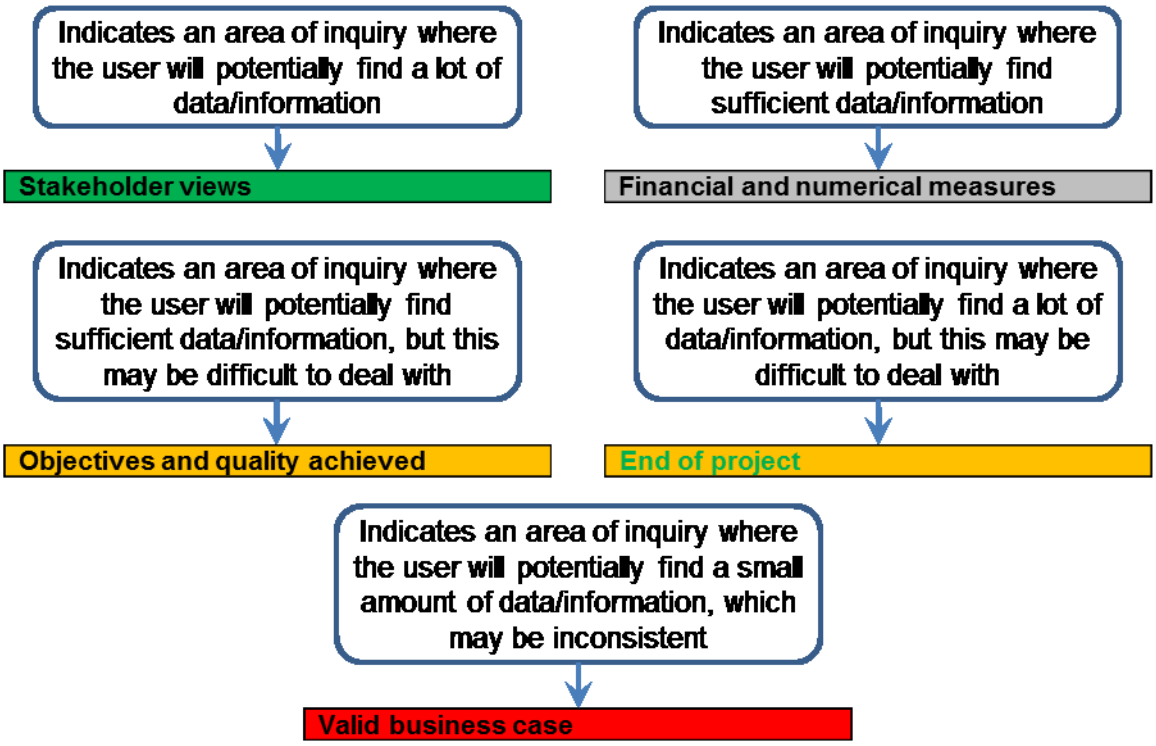

Figure 6: Interpretation of the areas of inquiry in the project management framework

Based on this colour coding system, the following inquiry support tables are to be used, for each of the main components of the project system areas:

Table 7: "Project" detailed inquiry areas

Project system area	Detailed area for inquiry – Level 1	Detailed area for inquiry – Level 2	Record data / information / knowledge from inquiry
1. Project	1. Defining the project	1. A change	
		2. Defined time	
		3. Has objective and/or outcomes	
		4. Needs resources	
		5. Defined activities	
		6. Boundary	
	2. Project brief	7. Flexibly defined specification	
		8. Tightly defined specification	
		9. Project and External team specification	
		10. Project team specification	
		11. External team specification	
	3. Ideal or desirable changes through projects	12. Ideal objectives and/or deliverables	
		13. Feasible objectives and/or deliverables	
		14. Constraints	
	4. Feasible changes through projects	15. Ideal objectives and/or deliverables	
		16. Realistic objectives and/or deliverables	
		17. Time constraints	

Project system area	Detailed area for inquiry – Level 1	Detailed area for inquiry – Level 2	Record data / information / knowledge from inquiry
		18. Budget constraints	
		19. Quality constraints	
		20. Adjusted objectives and/or deliverables	
	5. Barriers when running a project	21. Communication and information	
		22. Ownership	
		23. Work priorities	
		24. Stakeholder relationships	
		25. Changes in environment	
		26. Unclear and changing objectives	
		27. Cumbersome processes	
	6. Defining project success and reasons	28. Planning	
		29. Benefits realisation	
		30. Financial measures	
		31. Stakeholder relationship	
		32. Objectives and scope	
		33. Skills mix	
	7. Defining project failure and reasons	34. Planning	
		35. Scope suitability and understanding	
		36. Stakeholder relationship	
		37. Valid business case	
		38. Benefits realisation	
		39. Project budget	
		40. Environment changes	
		41. Time	
		42. Did not fail	
	8. Assertions on a project's end	43. End of project	
		44. Long term aspects	
		45. Short term aspects	
	Further contextual inquiry areas		

Table 8: “Project Manager” detailed inquiry areas

Project system area	Detailed area for inquiry – Level 1	Detailed area for inquiry – Level 2	Record data / information / knowledge from inquiry
2. Project Manager	9. Running a project - in an ideal world	46. Objectives	
		47. Resources	
		48. Senior stakeholder support	
		49. Competence and professionalism	
		50. Time	
		51. Budget	
		52. Planning	
		53. Stakeholder relationships	
		54. Flexibility of action	
	10. Running a project - recommended practice	55. Planning	
		56. Communication and information	
		57. Sponsors and stakeholder engagement	
		58. Objectives	
		59. Flexibility	
		60. Qualification and training	
	11. Running a project - interviewee's practice	61. Project planning and scope	
		62. Being proactive	
		63. Relationships with stakeholders	
		64. Learning and building understanding	
		65. Monitoring	
		66. Communication to others	
		67. Iterative process	
	12. Most important factor when running a project	68. Objectives and deliverables	
		69. Ownership	
		70. Senior stakeholder engagement	
		71. Communication	
		72. Timescales	
		73. Relationships with stakeholders	
		74. Planning	
		75. Quality	
		76. Right team	
		77. Decision making and management	
	13. Assumptions made when running a project	78. Understanding communications and information from project stakeholders	
		79. Capability and willingness of project stakeholders	
		80. Project progress and stakeholders engagement	
		81. Capability of systems	
		82. External influences	
		83. Effective and accurate information	

Project system area	Detailed area for inquiry – Level 1	Detailed area for inquiry – Level 2	Record data / information / knowledge from inquiry
	14. Representing a project	84. Representing a project	
	15. Communicating a project to others	85. Stakeholder benefits resulting from project	
		86. Project success	
		87. Lessons learned	
		88. Project objectives	
	16. Assertions on projects and project management	89. Complexity	
		90. Stress	
		91. Dependence on other stakeholders	
		92. Usefulness and/or benefits	
		93. Variety of work practices	
		94. Consistency of work practices	
	Further contextual inquiry areas		

Table 9: “Project Stakeholders” detailed inquiry areas

Project system area	Detailed area for inquiry – Level 1	Detailed area for inquiry – Level 2	Record data / information / knowledge from inquiry
3. Project Stakeholders	17. The real project beneficiaries	95. Project related organisational stakeholders	
		96. Other organisational stakeholders	
		97. Direct project customers	
		98. 3rd Party stakeholders	
	18. Main stakeholders in a project	99. Main stakeholders in a project	
	19. Relationships between the stakeholders in a project	100. Organisational structures and processes	
		101. Cultural and perspective differences	
		102. Assumptions about others	
		103. Senior stakeholder involvement	
		104. Effective working relationships	
		105. Ineffective working relationships	
		106. External influences	
		107. Authority to make decisions	
		108. Reluctance to communicate	
		109. Ineffective communication	
	Further contextual inquiry areas		

Table 10: “Project Management Framework and Methods” detailed inquiry areas

Project system area	Detailed area for inquiry – Level 1	Detailed area for inquiry – Level 2	Record data / information / knowledge from inquiry
4. Project Management Framework and Methods	20. Assertions on project management frameworks	110. Structured approach	
		111. Flexibility	
		112. Assurance	
		113. Common approach	
	21. Advantages of project management methods	114. Structure and consistency	
		115. Common platform and portability	
		116. Familiarity of process	
		117. Focus	
		118. Visibility of project and monitoring	
	22. Disadvantages of project management methods	119. Practical limitations	
		120. Complexity of method	
		121. Suitability of method	
		122. Stakeholder engagement	
		123. Prescriptiveness	
		124. Training requirements	
	23. Project management methods employed	125. Prince 2	
		126. Gantt Charts	
		127. Other methods	
		128. Organisation specific	
		129. Project or Project Manager specific	
		130. Not known or not specified	
		131. Avoids using	
	Further contextual inquiry areas		

Table 11: “Project Measurement Criteria” detailed inquiry areas

5. Project Measurement Criteria			
Project system area	**Detailed area for inquiry – Level 1**	**Detailed area for inquiry – Level 2**	**Record data / information / knowledge from inquiry**
1. Project	24. Measures for project success	**132. Risk assessment**	
		133. Short term benefit realization	
		134. Long term benefit realization	
		135. Financial and numerical measures	
		136. Objectives and quality achieved	
		137. Stakeholder views	
		138. Not measured	
		139. Timescales for delivery achieved	
		140. Learning	
	25. Measures for project failure	**141. Project scope creep**	
		142. Short term benefit realization	
		143. Long term benefit realization	
		144. Stakeholder views	
		145. Not measured	
		146. Timescales for delivery not achieved	
		147. Risk assessment	
		148. Valid business case	
		149. Financial and numerical measures	
	26. Assertions on a project's end	**150. Relationships resulting from project**	
3. Project Stakeholders	27. Engagement and motivation of project stakeholders	**151. Direct stakeholder benefit or relevance**	
		152. Consultative approach, empowerment	
		153. Enjoyable working relationships and environment	
		154. Publicising project	
		155. Financial rewards	
		156. Worthwhile projects	
		157. Senior stakeholder influence	
Further contextual inquiry areas			

The inquiry tables provided will allow a detailed state of a project to be built throughout it’s life, to support decision making.

It is recommended that project management practitioners are mindful of the table provided in Appendix 3. This table indicates the interrelated nature of the “Detailed areas for inquiry – Level 1” listed above. If a change occurs in one such area, it is likely that there will be an effect in the areas that it is interrelated with.

The inquiry in this mode of use will take place at “Detailed areas for inquiry – Level 2” from Table 7, Table 8, Table 9, Table 10 and Table 11, thus allowing the updating of a project at a very detailed level.

For practitioners who would like to gain even more insight in relation to the various areas presented in the inquiry tables (and the processes that have led to their identification), it is recommended that they read the full content of this research thesis. This will give insight into the processes that led to the production of this user guide, particularly in Chapter 4, Chapter 5, Chapter 6 and Chapter 7.

The inquiry process undertaken using this approach will result in a high degree of complexity and therefore a suitable recording system is required. Fortunately, modern software applications allow easy recording of even such complex structures. One such suitable application is Microsoft Excel or equivalent (including open source or cloud). These applications are readily available in organisations, so no difficulties are envisaged in obtaining access to allow appropriate recording of the project states as required.

It is expected that project management practitioners will apply the inquiry process continuously throughout the life of the project to ensure the actualization of the project system to support decision making. The frequency of inquiry into the areas indicated in the previous tables will be determined by the specific circumstances of a project and project management practitioner.

It is also expected that, depending on their specific context, practitioners may stop the inquiry in certain areas (as those areas may not be essential for a specific project) whilst possibly finding new areas inquiry that are not represented in the inquiry tables given in this user guide. These new areas of inquiry will likely emerge as a result of the initial process of inquiry necessary for the application of the project management framework presented in this user guide. This is due to the highly contextual nature of projects and is considered an inevitable effect of processes of inquiry.

10.3. Appendix 3 – Relationships matrix for user guide