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‘Innovation in Project Based Organisations: A Case Study on a Contract Research Organisation’

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Declaration

I, Josephine Jennings, declare that this dissertation is a presentation of my own original research work. It is being submitted in partial fulfilment of the requirements of the MBA in Project Management Degree at Dublin Business School, in conjunction with Liverpool John Moores University. Regarding contributions from others, working in this field: every effort has been made to reference their ideas and scholarship, and acknowledge collaborative research and discussion, within the main body of this dissertation and in the bibliography. The research was done under the guidance of Mr David Hurley, at Dublin Business School.

Signed: Josephine Jennings

Dublin, August 2014

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Abbreviations

PM – Project Management

CRO – Contract Research Organisation

PBO – Project Based Organisation

PMI – Project Management Institute

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Abstract

There is an increasing need for innovation throughout most industries in order to gain competitive advantage and survive international competition within the global markets (Drazin and Schoonhoven, 1996). This is especially relevant for the Contract Research Industry as innovation is a necessity to survive against the brutal force of external pressures such as regulation, governments, and scientific discovery. The increase in innovation strategies throughout organisations is paralleled with the increase in businesses evolving their structures to project based organisations which calls to question how supportive this organisational structure is at delivering successful innovation. This topic is debated throughout the literature with little research in this area.

Innovation management provides a best practise approach for all businesses and is based on functional traditional organisations. However many authors have called for a specific approach to innovation based on the organisation model and industry as it is believed a best practise approach is no longer relevant or useful (Tidd, 2001; Blindenbach-Driessen and van Den Ende, 2010).

Therefore the aim of this research is to investigate how effective Project Based Organisations are in the Contract Research Industry at providing a supportive context for innovation. In order to achieve this aim key areas highlighted from the literature are investigated such as management practises, knowledge transfer, slack resourcing and time constraints. The research will also consider how the organisation overcomes challenges in relation to these topics and makes recommendations for future research.

This thesis includes qualitative research by providing a case-study of a global Contract Research organisation. The research focusses on the insights and experiences of key personnel within the organisation that have an involvement in innovation.

Chapter 1: Introduction

1.1 Introduction

While innovation is considered by many as a key attribute to organisational success, innovation management theory is mainly based around traditionally structured organisations and has not to date included Project Based Organisations (PBO). This is indeed an issue especially for PBOs which operate in a highly regulated and process driven setting, which acts as a barrier to innovation. One example is Contract Research Organisations (CRO).

Innovation and Project Management have in the past been mainly seen as two separate management practices however current market trends see innovation as increasingly important in order to achieve competitive advantage. These innovations will in turn need to be managed in order to be brought to a successful outcome. In a similar fashion there has been a rapid increase in organisations forming themselves in a project based manner. Therefore the need to develop these two management styles is crucial within this context.

A study into the relationship between project management and innovation shows a curvilinear relationship which means that increasing levels of project management are shown to be correlated to increasing levels of innovation (Naughton and Kavanagh, 2009). However this study also highlights the fact that very high levels of project management can attenuate innovation performance (Naughton and Kavanagh, 2009). A recurring theme within the literature is that organisational structure plays a critical role in innovation. The supportive nature of the PBO's structure had been identified as a key event in innovation however certain practices can also negatively affect innovation. Some studies have shown that PBOs flexible structure and enhanced networking with customers and suppliers, supports and foster innovation (Hobday, 2000). However, other authors contradict this point of view stating that these organisations successfully innovate for clients but are less successful at innovating for their own products and services (Keegan and Turner, 2002)

Studies comparing developmental projects within Project Based and non-Project Based firms found specific management practices had different effects on project performance between these types of firms (Blindenbach-Drisesen and Van den Ende, 2010). This has called for

innovation management literature to evolve from the best practice approach and to be adapted specifically to PBOs (Cooper, 2001). A greater challenge to foster innovation within PBOs is one which is functioning within a highly regulated and process based industry. Specific constraints on the CRO industry such as increasing regulation and decreasing investment from pharmaceutical companies are a double edged sword for innovation in this industry. The need to innovate to create competitive advantage and reduce costs for customers has never been more important however the external factors in this industry are inhibitory. There is little research on PBOs functioning within these challenging circumstances in both innovation and project literature. While innovation management literature is based on a best practice approach, differences between industries have to be taken into account as these factors can affect the outcomes of innovation management (Tidd, 2001). Therefore the aim of the present study is to identify gaps within the literature surrounding innovation in PBOs within the context of the CRO industry. The hope is that this will provide a better insight into the association of innovation in PBO structures and to develop recommendations into this area.

In order to achieve this aim the present study investigated the effectiveness of PBOs in the CRO industry at providing an organisational context that is supportive of innovation using a singular case study approach to explore the topic. The research topic was explored within ICON Clinical Research by interviewing personnel in key positions. Although assumptions cannot be made from this research for all PBOs within the Contract Research Industry, the results of this investigation could provide a case for generalisation within similar organisations within the industry.

1.2 Research Definitions

In order to define the scope of this research it is important to define what is meant by both “PBO” and “Innovation” in the context of this research topic. The term PBO is defined within this research topic following the definition of Thiry (2007) who states that PBOs are:

“Organisations and other forms of organisations that privilege a project approach for conducting their activities”

These include matrix organisations and pure projectised organisations. There are many definitions for innovation however the boundaries of innovation within this research topic are in accordance with O’Sullivan (2002) and defined as the process of making changes, small

and large, to products processes and services that result in the introduction of something new for the organisation that adds value.

1.3 Research Questions

The research question is the most critical part of any research and the answers to these questions provides the purpose for the study. According to Saunders et al (2011) it is important that the question is sufficiently involved to ensure that the project is consistent of the standards expected in the research. According to Clough and Nutbrown (2002), the right research questions are those that suitable for the investigation at the current point in time by the researcher in the current setting. Saunders et al (2011) emphasis that research questions must be insightful.

The primary research question that motivated the researcher towards this study is as follows:

“How effective are PBOs in the CRO industry at providing a supportive context for innovation?”

1.4 Research Objectives

The research objectives are derived from the research question allowing the researcher to gain insight into specific information of the topic in question. Saunders et al (2009) define objectives as clear, specific statements that identify what the researcher wishes to accomplish as a result of doing the research. They are accepted as evidence to the research community as evidence of the researcher’s clear sense of purpose and direction.

In order to address the main project aim the following objectives have been developed.

(1) To investigate whether the PBO provides an organisational context that is supportive of innovation.

More specifically to provide insight into the following areas:

- The selection process of innovation projects

- The management of innovation projects
- The evaluation of outcomes on innovation projects

(2) To investigate how PBOs in the CRO industry address the question of slack resources in the context of innovation.

In particular to provide an understanding in the following areas:

- The way in which innovation projects are resourced
- The balance between client and developmental projects
- The effect of time pressure on innovation projects

(3) To investigate the effectiveness of Knowledge Management in the context of innovation within PBOs in the CRO industry.

In particular to provide insight into the following areas:

- The contribution of knowledge transfer to innovation projects
- The effect of time on knowledge management

1.5 Research Limitations

Limitations are defined by Simon (2011) as potential weaknesses in the research that is out of the researchers' control. Thus it is important to note the potential limitations of this research. In the present study time was an extremely limiting factor. Ideally a larger sample size would have been used and would thus provide more information and perspective to the research outcomes. In addition there was minimal prior academic research in the area of innovation within PBOs with no previous research within the context of CRO industry. This limited the amount of secondary data collection possible specific to this topic. However, the data was collected from other related research areas such as Innovation Management, Organisational Management, Knowledge Management and Project Management literature in order to piece together information surrounding the research topic. Another limitation is the possibility that

the participants of the interviews have a subjective view and may tend to show a positive view of the organisation.

1.6 Chapter Outline

Chapter 2 Literature Review: This chapter details the Literature Review which is divided into four separate sections. The Literature Review includes topics which are considered relevant to the researcher surrounding the topic of innovation within PBOs. An overview of the Contract Research Industry, the importance of innovation and market review of ICON Clinical Research are also included to provide context for this research.

Chapter 3 Research Methodology and Methods: This chapter details the research methodology and methods associated with this research topic. The research methods including research design, sample and justification of methods will be provided in this section.

Chapter 4 Data Findings: This chapter illustrates the data findings from the four interviews with key personnel performed within ICON Clinical Research in relation to the main objectives of this research topic.

Chapter 5 Discussion: This chapter provides a review of the research and an interpretation of the results. Implications of the findings are also discussed.

Chapter 6 Conclusions: This chapter concludes the research summarising findings from the research and makes recommendations for future work in the area of innovation in PBOs.

Chapter 7 Self Reflection and Skill Development: This chapter details the researchers' self-reflection and skill development. An overview is given of the skills and capabilities earned by research throughout the MBA programme and dissertation process.

Chapter 2: Literature Review

2.1 Introduction

The literature review section of this research provides an evaluative report of studies found in the area of innovation and project management that are closely connected to this topic. This review summarizes, evaluates and clarifies the literature (Boote and Beile, 2005). The aim of a literature review is to provide context and justify the research of this topic. It will highlight where this research topic fits into the existing body of knowledge, illustrate how the subject has been previously studied and outline gaps in the research.

2.2 Content of the Literature Review

There is relatively little research specifically in the area of innovation in PBOs as both innovation and project management literature are for most part based on functional traditional organisations. However, this is an important research area due to the increasing number of organisations developing into project based structures and the growing use of Project Management to deliver business strategy and is gaining some traction at least in academia. Therefore the literature presented within this review has been carefully selected, evaluated and pieced together from numerous knowledge areas which are connected to this topic including project management, organisational management, innovation management and knowledge management in order to provide a complete picture of the topic.

This literature review is divided into four parts. The first section provides an overview of innovation in relation to this research topic. Innovation can be defined in many ways therefore it was felt to be important to define innovation within the context of this research. A focused overview of the importance of innovation to organisations in today's markets is given along with some key drivers for innovation. The second section of this literature review explores the literature of modernisation of project management and the changing role of the project manager in business today. This area of literature provides relevance to innovation in

project management literature. The changing organisational structure is discussed in relation to the popularity of project management in business and the PBO is introduced. Research providing insight into the characteristics and functionalities of the PBO is discussed. The third section of the literature review provides a more focused look at innovation within PBOs. Innovation management literature is discussed surrounding the organisational context supportive for innovation. The debate within literature regarding PBOs ability to innovate and the level of support these complex organisational structures provide for innovation is discussed. Finally some key areas found within the literature which affect innovation within PBOs are highlighted and discussed such as knowledge management, time constraints and resourcing. The fourth and final section of the literature review provides an overview of the Contract Research Organisation (CRO) Industry. The researcher felt that it was important to provide an insight into the CRO industry in order to highlight the competitiveness of this industry and drivers for innovation. It is felt that capturing the essence of the market puts this research and its importance into context. In this section an overview of the researched organisation ICON Clinical Research PLC is given in order to provide a background into this company.

2.3 Innovation

2.3.1 Innovation and Strategy

In business, innovation is seen as a catalyst for growth and the pursuit for innovation has increased rapidly over the last 20 years. According to the Economist (1999) “Innovation has become the industrial religion of the late 20th century”. Lawson and Samson argue that compared to 1980s and 1990s “today’s organisations face an additional challenge- the requirement to innovate, not just occasionally but often, quickly and with a solid success rate”. Kim and Mauborgne (1997) explain that organisations need to innovate is due to the globalisation and outsourcing practices within markets. Innovation is seen as a means to allow companies to be more competitive and better able to survive international competition in the global market place (Drazin and Schoonhoven, 1996). The 2008-2009 recession is also seen as a driving force for strategic innovation due to increasing pressure on the world’s largest companies to differentiate their business in order to sustain growth (Wipro, 2011).

It is well documented that those organisations that innovate to create value are the most successful (Kim & Mauborgne, 1997). However, despite this many organisations fail to

deliver any meaningful results from their innovation strategies (Thiry and Deguire, 2007). When companies are experiencing periods of financial pressures innovation groups are generally the first to be dismantled (Moss-Kanter, 2006). It is therefore argued throughout the literature that innovation should be seen as a means of reaching strategic goals and not as a strategic goal itself. This is due to the assumption that innovation can increase the probability of success which in turn measured against the organisations stakeholders needs, creates value (Thiry and Deguire, 2007).

2.3.2 Definition of Innovation

There are many definitions of innovation throughout the literature. According to Naughton and Kavanagh (2009) “innovation is best defined as the exploration and exploitation of new ideas in pursuit of competitive advantage”. Taatilia (2005) on the other hand refers to innovation as “a phenomenon where a new idea has been implemented into action”. Dooley and O’Sullivan (2002) defines innovation as “the process of making changes, large and small, radical and incremental, to products, processes, and services that results in the introduction of something new for the organisation that adds value to customers and contributes to the knowledge store of the organisation.”

2.3.3 Types of Innovation

There are two main types of innovation that can impact an organisations capability which include incremental and radical innovation. These types of innovations can relate to products, processes or services.

Radical innovation involves making major changes to something established. It has the potential of transforming the industry and destroying the existing market (Utterback, 1996). This type of innovation can be highly beneficial for an organisation in terms of increased sales and profits. However it involves high risk and cost due to high resource intensity (O’Sullivan and Dooley, 2001). An alternative approach to innovation is incremental innovation which involves minor changes to something established and offers low risk, but can also offer less potential for returns for organisations.

Naughton and Kavanagh (2009) state the most common type of innovation is incremental innovation which stems from the expertise of employees through their knowledge of customers and competitors. It is these small adjustments to the business process that can add value to the customer with little cost to the business. However, it is also argued that a fierce approach to innovation is a necessity to be successful within competitive markets. Bloomberg (1999) argued that “What is likely to kill you in the new economy is not somebody doing something better; it is somebody doing something different.” According to O’Reilly and Tushman (2004) organisations must maintain both innovation strategies in order to remain relevant and successful within the markets. These organisations are expected to perform better than others (Raisch et al, 2009)

Organisations that simultaneously exploit existing competencies and explore new opportunities are known as an ambidextrous organisation (Dover and Dierk, 2010). Exploration and exploitation require different abilities within the firm, according to Dover and Dierk (2010) “firms must regularly assess their vision, encourage innovation and must be willing to adjust or change strategies, products and markets and more”. Exploitation however requires a different approach which requires the organisation to build on current capabilities. Raisch et al (2009) explain that the search for the appropriate balance is discussed throughout the literature and is at the heart of a research paradigm known as organisational ambidexterity. Applying innovation within an organisation can however be a complex and difficult task (Dooley and O’Sullivan, 2001).

2.3.4 Organisational Culture

Jaruzelski et al (2011) argue that a company’s culture is the most critical source of business success or failure. According to Yeşil and Kaya (2012) the organisational culture is one of the most important sources in order to create and support innovation within the business environment. Poskiene (2006) explains that organisation culture “refers to the complex set of ideologies, traditions, commitments, and values that are shared throughout the organisation and that influence how the organisation conducts its whole performance becoming a potential source of innovation, advance and advantage”. He argues that the values individuals bring to the organisation are not what are important but it is the values that the organisation brings to the individual that really counts.

The success of organisational innovation culture is discussed throughout the literature. Martins and Terblanche (2003) argue that successful organisations intertwine innovation into their management process and overall culture through two main methods. The first through socialisation processes within the organisation and the second by linking innovation to the structures, policies and management practices of the organisation. Kenny and Reedy (2007) state that in a successful organisation the philosophy of innovation is embedded throughout the organisation as innovation is not derived from a small number of employees but is present amongst all employees. March-Chordea and Moser (2010) describe four attitudes which are believed to be needed to create a successfully innovation culture. These include willingness amongst corporate managers to take risks, shared responsibility, participation of innovation amongst a wide variety of employees throughout the organisation and creativity stimulation.

Thiry (2007) also discusses risk in relation to fostering innovation within organisation. He argues that the organisations culture must communicate clearly how it will support innovators who take intelligent risks in order to promote innovation. According to Moss-Kanter (2006) many organisations say they want employees to take risks but only reward success or punish those who fall short. Thiry (2007) explains that some of the most innovative companies such as Google, Apple and 3M share high risk taking and initiative cultures, which include empowerment based decision making strategies and have a high tolerance to failures with a no blame culture.

2.4 Project Management

2.4.1 Strategic Role of the Project Manager

Thiry and Deguire (2007) highlight the shared characteristics between innovation and projects, such as their natural conceptual background which they believe make them intimately interlinked. They argue that a strong project outlook with the appropriate governance structures has the potential to enhance strategic goals, which in turn drives the development of innovation.

The practice of Project Management is increasingly popular and becoming a standard way of doing business for many organisations. According to the Project Management Institute (PMI) (2013) the organisations that thrive in the current global markets are the ones that value

project management. Both the profession of Project Management and the research area continues to develop with projects becoming the tools of implementing business strategy for many organisations (ESI, 2006). This alignment of Project Management and strategy has caused Project Management research to move from simply completing projects on schedule to tackling the more strategic issues (Thiry and Deguire, 2007).

The project management function has shifted to a shared management business partnership moving away from the position of project managers working for clients and clients being the decision-makers (Frame, 2002). This gives Project Managers the authority over strategic level decisions (Spradlin, 2004). Thiry and Deguire (2007) explain that with this evolving role of the Project Manager requires us to “understand the interactions needed in the making of strategic decisions and the development of new organisational and governance paradigms that reflect the dynamism and flexibility of projects”. One form of these newly developed organisational models includes the PBO which has evolved with the popularity of the project approach.

2.4.2 PBOs

The increasing adaption of the project approach is causing many traditional or functional businesses to mature into a PBOs (PBO) (Thiry and Deguire, 2007; Thiry, 2008).

In functional organisation projects occur in the companies structured departments. The functional manager is responsible for the project and resources are obtained within the department (Kerzner, 2001). However as an alternative to these traditional organisation structures is the PBO.

The PBO describes a variety of organisational forms that creates temporary systems to perform project tasks (Hobday, 2000). They include matrix organisations, pure projectised organisations and other forms of organisations that privilege a project approach for conducting their activities (Thiry, 2008). According to Kerzner (2001), the biggest advantage of the pure project structure, displayed in **Figure 1.0**, is that only one individual, the manager of projects, keeps a complete authority on the project as a whole. The matrix organisation however combines the characteristics of both functional and pure project structure (Slack et al, 2001).

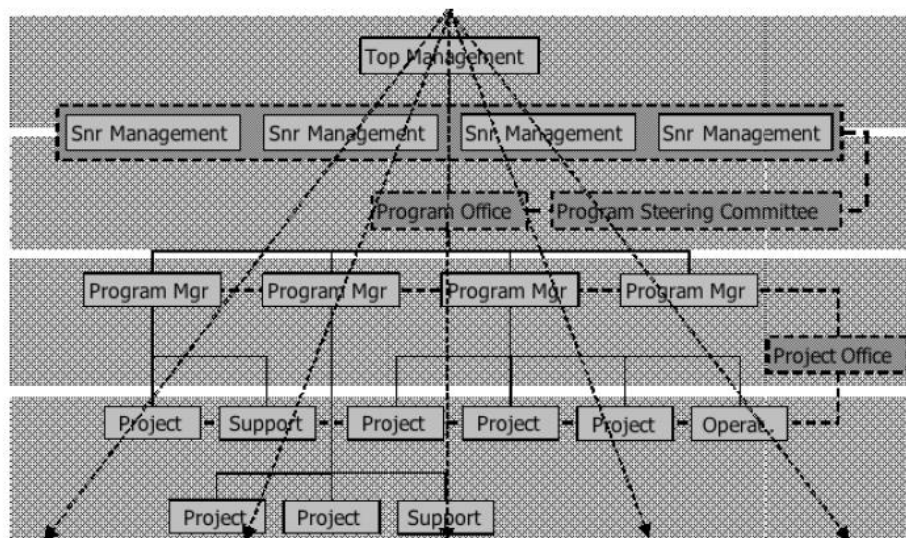


Figure 1.0: Typical mechanistic PBO model as described in recent PM literature

Source: Thiry, 2008

Minzberg (1983) explains that PBOs are flexible structures, which allow firms to combine skills and capabilities in new ways. DeFillippi and Arthur (1998) suggest that PBOs offer a new model for co-ordinating loose networks of highly skilled individuals, performing specific tasks. The PBO is receiving increasing consideration across organisational management literature (Gann and Salter 2000; Hobday, 2000) and project management literature (Gareis, 2004; Keegan and Turner 2002) as an emerging organisational form.

The changing role of Project Managers has also been discussed in regards to innovation in PBOs. According to Keegan and Turner (2002), the role of the Project Manager has transformed especially in PBO's from a singular Project Management role to a team function that provides both strategic and technical expertise. Thiry and Deguire (2007) explain that PBO's provide a distributed network within the organisation that takes on the role of much of the innovation work. They state that "Through projects and programs, individuals become connected to the network and generate their own ideas, conduct experiments, log the results, build support, and help transition some of the ideas to formal pilots or direct implementation."

Bayer and Gann (2007), describe the close link between work acquisition and innovation within project organisations. They state that while work acquisition is essential for short term

survival innovation is equally as important for adaptation to changing markets and exploitation of new markets. Researchers in the field are divided on how successful PBOs are at innovation in comparison to traditional functional forms.

2.4.3 PBO's compared to Traditional firms

Donaldson (2001) explains that project-based firms can be distinguished from other types of firms based on the characteristics of their organisational structure; their configuration, complexity and centralisation. Keegan and Turner (2000) highlight that these organisational structures feature enhanced networking with customers and suppliers and an increase in customer orientation. Hobday (2000) states that certain capabilities such as collaboration and competences in project management are characteristics of PBOs.

Some authors believe PBOs are supportive of innovation due to the decentralisation of decision making, communication patterns, and high levels of professionalism (Gann and Salter, 2000; Hobday 2000). However others have questioned the capability of these firms at innovating, arguing that PBOs are no more innovative than other firms (Keegan and Turner, 2002; Davenport 2010).

Minzberg (1983) is one of many commentators on PBOs who believes that this organisations structure is supportive of innovation. He highlights that the firm's flexible structure and ability to combine skills and capabilities in original ways provides an organisational context for innovation. A flexible structure is also highlighted as an important factor for successful innovations. Moss-Kanter (2006) state that this structure allows "teams across functions or disciplines organise around solutions, [which] can facilitate good connections".

Thiry and Deguire (2007) state that the project approach has an advantage of proposing internal networks between tasks and projects that when combined with program management and stakeholder partnerships can excel.

In traditional organisations strategy including innovation initiatives is formulated at the top and the development of innovative processes, products and services is performed within a dedicated R&D Department. Thiry and Deguire (2007) argue that the traditional organisational structure cannot adapt well to today's turbulent markets. Blindenbach-Drissen and Van den Ende (2010) comment that although PBOs have the structure to successfully

innovate for their clients they are less successful at innovating for their own products and services.

In a comparative study of innovation projects in both project based and non-project based firms by Blindenbach-Driessen and van deen Ende (2010), it was found that specific management practices had different effects on project performance between the two types of firms. The researchers suggest that the specific characteristics of the PBO are a reason behind this result. Characteristics such as high priority of business projects over other capabilities, capabilities in internal communication and autonomy of Project Managers relative to Senior Management were listed as contributing factors. The research therefore demonstrates that innovation management literature needs to be adapted for PBOs which contradicts the current innovation literature which believes that it is a best practice for innovation management that suits all types of firms (Cooper, 2001; Eisenhardt and Martin, 2000).

2.5 Innovation in PBOs

There are several parties that can be the source of innovation in firms which include clients, suppliers, universities, R&D institutions, regulations and government (von Hippel, 1988). Specific to project based firms however problem solving within projects and internal networks is said to be another source of innovation (Slaughter 1993). Gann and Salter (2000) were the first researchers to address the subject of innovation in PBOs. Their research highlights that innovation activities in project-based firm are closely aligned with business projects. Business projects are those projects that are executed by order of a specific external client. These project offer unique solutions to each client (Hobday, 2000). Development projects are projects aimed at innovation, and take place separately from business projects. In development projects new services are developed for a range of customers with the objective to commercialize these services. Execution of development projects with the same resources as used for business activities is typical for PBOs (Sundbo and Gallouj, 2000).

Bayer and Gann (2007) propose that innovative problem solving in PBOs occurs mainly within the context of client projects and rarely in dedicated research projects. Therefore opportunities for systematic problem solving are limited. Keegan and Turner (2002) have pointed out the reluctance of managers to develop innovations within business projects. They point out that for innovations developed within business projects, the application of

traditional linear project management practices have a negative impact on the success of these innovative activities an idea which is also shared by Naughton and Kavanagh (2009).

2.5.1 Organisational Context supportive of innovation

Organisational context is defined as the way the organisation is structured and how it operates. Organisational contexts that support or work against innovation are a major focus for innovation research (Keegan and Turner, 2002). Burns and Stalker (1961) established the importance of organisational context to innovation within their research. According to Holmstrom (1989) the encouragement of excessive control and reporting in many organisational models can be hostile to innovation.

Moss-Kanter (2006) highlights organisations lack of sound innovative investment, tight controls, lack of connections between innovation areas and the rest of the organisation and lack of skills within the organisation as the main reasons for failure to innovate. Keegan and Turner (2002) state that certain organisational contexts provide support for innovation which includes the innovative organisation, the organically managed organisation and the holographic organisation. These organisations and their supportive context for innovation have been studied for many years. However, there is little research in relation to PBOs and whether they provide an organisational structure supportive of innovation.

The supportive nature of PBO's for innovation is debated with innovation and project literature. Some researchers believe that PBO's are formed around projects and constantly innovating processes for their clients, always creating something unique, which would indicate that they are structured to support innovation (Davenport, 2006). DeFillippi (2001) explain that the absence of hierarchy and diverse frameworks involved in the PBO structure should "provide fertile soil for creativity and innovation". PBO's also contain many characteristics such as decentralized decision making and a high degree of communication and professionalism which is considered to foster successful innovation (Blindenbach-Driessen and van Den Ende, 2010).

It is argued that when it comes to planning and control systems PBOs fail to provide a context supportive of innovation (Keegan & Turner, 2002). The organisational context of

PBOs is highlighted as a challenge for carrying out innovation. This is said to be caused by the infrequent occurrence of innovation within dedicated R&D efforts and the regular occurrence of innovation within the context of project execution causing innovation activities to be episodic and therefore more difficult to plan (Gann and Salter, 2000).

One study which was found to look into the topic of the supportive nature of PBOs in relation to innovation showed that some organic approaches to innovation management were being adopted by the firms, however overall they fell short in creating all the ideal conditions to foster innovation. This was due to the premature application of traditional evaluation techniques to innovation projects and a linear approach to management projects (Keegan and Turner, 2002).

Some key challenges that influence the innovation processes within PBOs have been discussed throughout the literature:

2.5.2 Time Constraints and Lack of Slack

A common theme in the literature is that time restraints and the lack of slack resources within PBO's has a negative effect on innovation. According to Perlow (1999) time pressures are intertwined with the culture of PBO's. Bayer and Gann (2007) explain that time-constraints and the lack of slack constrain innovation activities within PBO's. Gann & Salter (2000) state that time pressure is identified as the main cause in limiting innovative activities within PBO's. Advocates of slack resources argue that it facilitates innovation by permitting firms to experiment with innovative projects that might not attract sufficient support in a more resource-constrained environment (Cyert and March, 1963). It is also argued that slack can be costly and wasteful. Nohria and Gulati (1996) discuss that too much slack can result in unfocused and undisciplined experimentation. Keegan and Turner (2002) explain that innovation can take up a large amount of resources and therefore need to be handled carefully in order to prevent wastage of valuable resources.

On the other hand Gann & Salter (2000) believe that the risks associated with excess time are not as relevant in PBOs as in other types of organisations. This is due to the fact that there is a focus on projects and close client relations which ensure that innovative activities are targeted and focused. Bayer and Gann (2007) highlight that time constraints within project based firms are linked to the difficulty in standardising projects which causes many projects to fall behind schedule. A frequent theme within the culture of PBO's is a sense of "fire-fighting". Perlow (1999) highlights that a vicious work time cycle occurs due to the constant

crises and interruptions which is combined with the lack of use of beneficial project management and process innovations due to work schedules and time pressures. A link can therefore be identified between time pressures and productivity within these organisations which reduces innovation processes. Problem solving within PBOs normally takes place within client projects and rarely within development projects. This is due to the time shortage issue within projects which inhibits the development of solutions (Bayer and Gann, 2007). In a study investigating how PBOs view slack resources, Keegan and Turner (2002), state that the firms in their research believed that proper project management required control of time, cost and quality. They argue that this is in contradiction to the widespread evidence that redundancy facilitates innovation while time constraints will restrict innovation. Bayer and Gann (2007) highlight the difficulties PBO in managing innovation and identify time pressures as a main contributing factor. They propose that a feedback loop exists between time pressure and innovative problem solving and organisational capabilities. These feedback loops are illustrated in **Figure 2.0**. The authors argue that time pressure reduces quality in project execution which can cause rework and increase workload. This continued time pressure can then prevent innovative problem solving and therefore slows the acquisition of advanced capabilities.

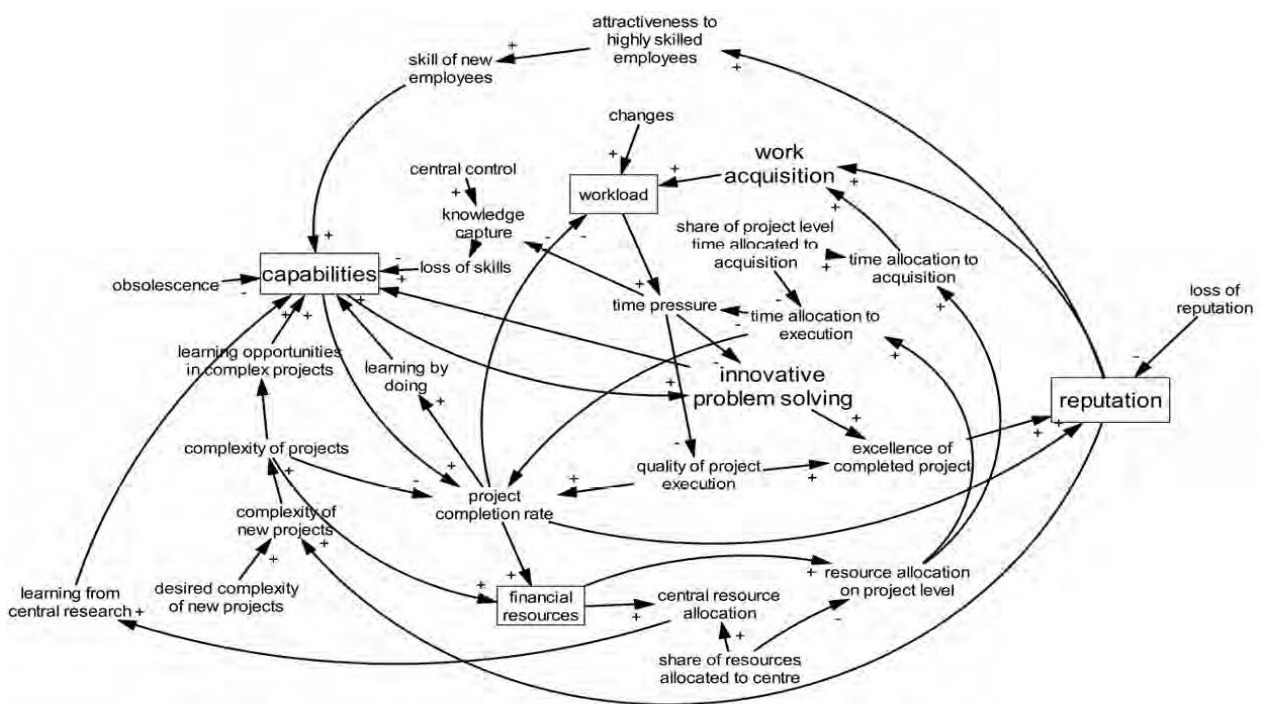


Figure 2.0: Casual Loops in Project Based Firms

Source: Bayer and Gann, 2007

They refer to this as the organisation being ‘too busy to think’. This feedback loop is displayed in **Figure 3.0**. They also highlight that time pressure also has a knock on effect to knowledge transfer as they propose that organisations neglect to capture knowledge from projects which results in loss of capabilities.

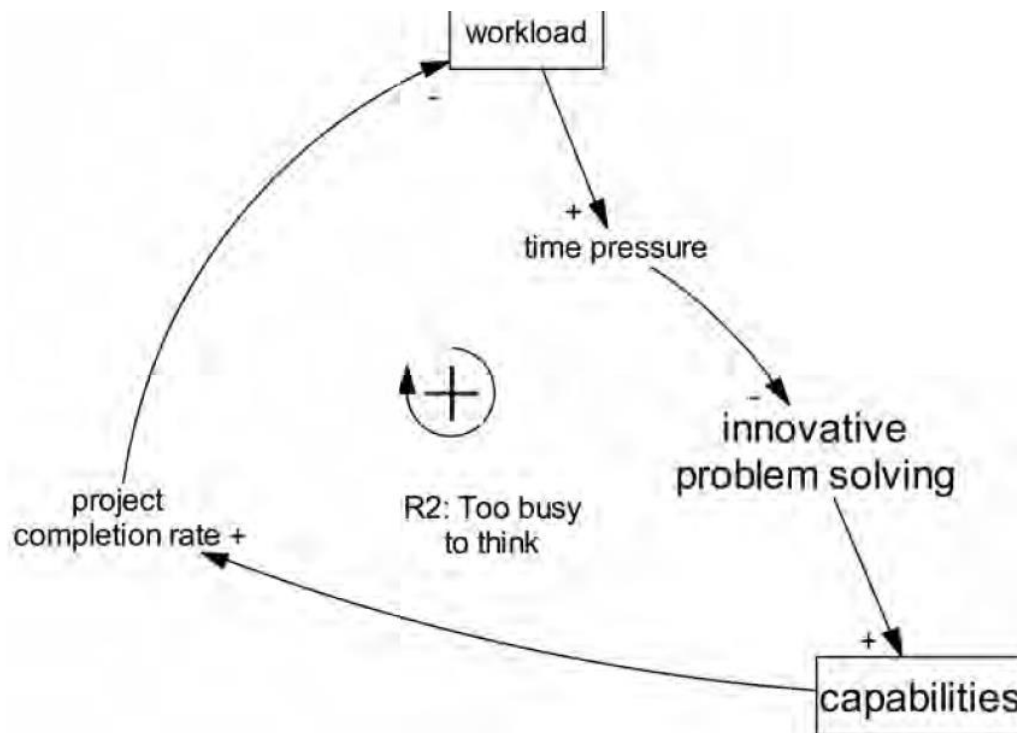


Figure 3.0: ‘Too busy to think’ – feedback loop

Source: Bayer and Gann, 2007

Bayer and Gann (2007) call for further focus within the project management literature on the effect of time pressures and project performance on innovation within PBOs.

2.5.3 Knowledge Management

According to Alavi and Leidner (1999) Knowledge Management is a systemic, organisationally specified process for organising, acquiring and communicating knowledge of employees that can be used by others to become more productive and effective. Ajmal (2009) explains that Knowledge Management can aid capturing, sharing and leveraging knowledge prior to it exiting the organisation. The effective management of knowledge can lead to decreased project time, improve quality and customer satisfaction. According to Love et al (2005) Knowledge Management is necessary for project success in today's turbulent global market. It is now accepted throughout the literature that components of organisational knowledge play an important role in innovation (Hall and Andriani, 2003).

The knowledge-based view (KBV) has also gained importance throughout the literature as one approach proposed as a driver of innovation (Zhou and Li, 2012). The main assumption behind the KBV is that innovation is an outcome of the firm's ability to manage, maintain and create knowledge (Leal-Rodríguez et al, 2013). Zhou and Wu (2010) have argued that a firm's existing knowledge is representative of its main resource for innovation development. Knowledge management has been discussed within the literature in relation to PBOs. Bresnen et al (2003) state that project organisations are very adaptive and can develop and adopt new way of working and embed them into the routines and practices of the organisation. However on the other hand Grabher (2002) argues that project tasks have short-term objectives which do not equate to the long term developmental nature of organisational learning processes including innovation.

Ajmal (2009) notes that Knowledge Management is increasingly being seen as an effective means to establishing and sustaining competitive advantage and more and more PBOs are committing to effective knowledge management in context of business strategy. Many authors however highlight the difficulty of managing knowledge within project based environments.

Chua and Lam (2005) propose that most knowledge-management initiatives in PBOs fail due to technological, project management and knowledge content reasons.

Bosch-Sijtsema and Postma (2004) highlight the complexity of knowledge transfer in PBO. As PBO rely upon the combination of expertise from cross functional internal and external parties to deliver capabilities in a one-off process the knowledge gained can be difficult to transfer due to the unique nature of projects. This issue is also discussed by Brady and Davies

(2004) who note that a key challenge for PBO is to overcome the limitation of the discontinuous learning process. They state that as capabilities are accumulated on the project level specific efforts are required to ensure the transfer of knowledge to other projects and to the organisations. Sackmann and Friesl (2007) propose that organisational culture differences may obstruct the knowledge transfer in PBOs due to growing levels of globalisation, strategic alliances and mergers causing project teams to consist of members from different national and organisational culture backgrounds.

Time pressure has been highlighted by as a main factor in limiting innovative activities within PBOs (Gann and Salter, 2000). One explanation for this according to Bayer and Gann (2007) is that time is linked to effective knowledge management since time is required to transform experience into knowledge. A feedback loop displayed in **Figure 4.0** is identified which highlights the idea that PBOs are 'too busy to capture knowledge'. They explain that project-level knowledge needs to be made accessible throughout the organisation so not to threaten the knowledge base of the organisation. There have been several strategies and techniques recommended throughout the knowledge management literature to tackle this issue – However, Bayer and Gann (2007) highlight that time pressures and the autonomy of decision making at the project level in many organisation act as a disincentive. They propose that incentives should be put in place for knowledge sharing from individual projects so that the organisation as a whole can benefit from capabilities acquired in individual projects.

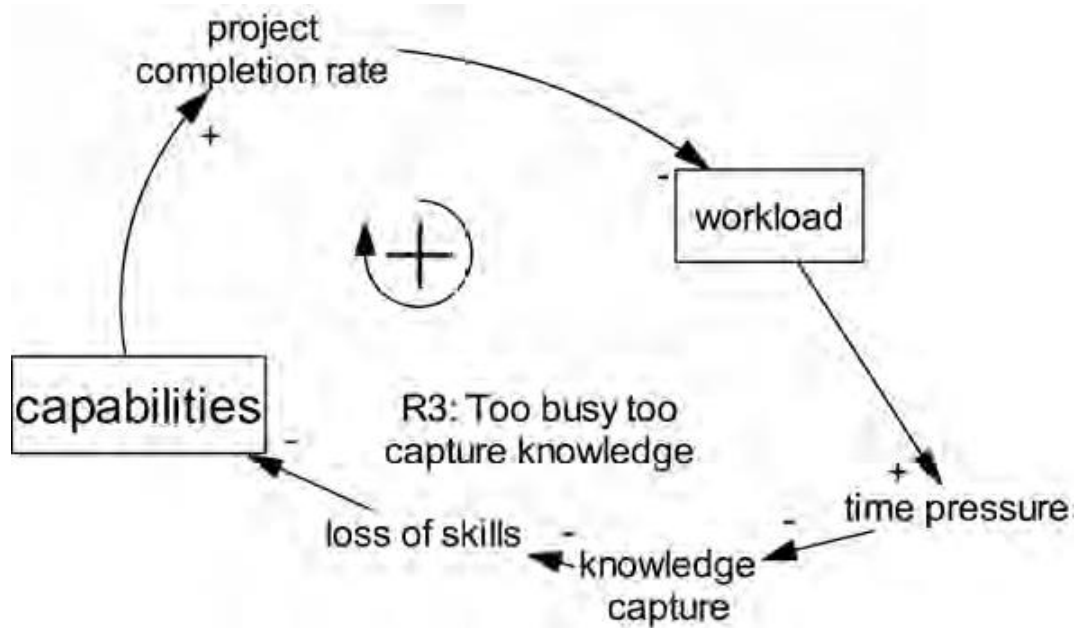


Figure 4.0: ‘Too busy to Capture Knowledge’ – Feedback loop

Source: Bayer and Gann, 2007

Love et al (2005) noted that Knowledge Management is seen as a below standard task within PBOs due to the misplacement of knowledge. This is because many project based companies lack organisational mechanisms for the knowledge to be acquired and transferred between projects and the organisation.

In a study of the project-based division of a pan-European company, Davies and Hobday (2005) found that the high pressurised work environment caused the organisation to slack on formal training or staff development although individual project performance was good. They noted that lessons learned from projects were not shared formally because there were no structures or incentives for cross-project learning or communications.

According to Bosch-Sijtsema and Potsma (2004) in order to improve knowledge transfer within the network of the PBO firms should focus on obtaining new skills to create new knowledge rather than solely on efficiency and costs. They propose that the better developed the absorptive capacity of the PBO, the higher the innovation performance.

Gann and Salter (2000) state that innovation can be disrupted by limited technical knowledge. Therefore Bayer and Gann (2007) highlight the importance of organisational learning towards innovations. They argue that more complex projects present learning opportunities and therefore these types of projects are important in order to build capabilities for more

complex problem solving. They believe that a balance between routine work and more challenging innovative work needs to be found in order to improve innovation and build capabilities within the organisation.

2.6 CRO Industry Overview

CROs provides support to pharmaceutical, medical device and biotechnology industries on a contract basis (ACRO, 2010). According to the Code of Federal Regulations, the U.S. FDA regulations state that a CRO is "a person that assumes, as an independent contractor with the sponsor, one or more of the obligations of a sponsor, e.g., design of a protocol, selection or monitoring of investigations, evaluation of reports, and preparation of materials to be submitted to the Food and Drug Administration" (US Food and Drug Administration, 2011). Pharmaceutical companies outsource their research activities to CROs in order to increase their profit margins and better position themselves in the rapidly-changing healthcare environment (Masri et al, 2013).

According to Frost & Sullivan (2013) the CRO market in Europe earned revenues of approximately \$6.07 billion in 2011 and this is estimated to reach \$11.54 billion by 2018. In the U.S the number of Contract Research providers increased four-fold over the last decade growing from an estimated 800 in 2000 to more than 3,100 by end of 2011. The estimated U.S CRO market is worth between \$32.5 and \$39.5 billion (Duncan, 2013). There are several types of CROs that are present in the market which include niche-orientated, middle level players and full-service CROs. Full-service CROs offer a broader range of services which include the selection of investigators and investigational sites, assistance with patient recruitment, safety surveillance and reporting, site audits, and clinical trials data management and biostatistics (Getz and Vogel, 2009). The rapid revenue growth is a driver for new CROs to enter the market. However, the market is highly fragmented due to hundreds of CROs competing for market share. Building a fully functional CRO can take years- Growth of the customer's base mediates CRO capacity therefore incumbents have no difficulty finding new customers (Cipher, 2008).

Several challenges face the drug industry such as competition, downsizing, and increased regulation, pricing pressures from healthcare organisations (Gad and Spainhour, 2011). It is these pressures over the last number of years which have seen pharmaceutical companies

reducing their business structure and outsourcing aspects of their drug development, manufacturing, and marketing processes to CROs in order to expedite the drug development process and reduce costs (Remierez et al, 2013). The safety of drug development has also been called into question and public trust in the industry has declined. Therefore the drug industry has had to change the way drugs are developed in order to improve and ensure better patient safety. The quest for reliable endpoints in research has therefore led to an increased number of trials (Masri et al, 2013). CROs therefore offer the promise of novel therapeutic options which enhance efficacy and safety which is an additional appeal for the Pharmaceutical industry.

CROs however also assume the regulatory, ethical risk and responsibilities in order to conduct clinical trials. CROs pursue different strategies to overcome industry pressures. The full-service CROs overcome competition from niche and midsize players by operating like the niche-orientated clinical service competitors. The mid-sized, small and niche CROs on the other hand aim to maintain growth and focus on the services that secured relationships with sponsors (Masri et al, 2013).

2.6.1 Business Model Innovation

As reported by CISCRP (2012) spending measured from 1997 to 2011 by major pharmaceutical companies showed that bringing a new drug to the market costs on average \$4 billion and can be up to \$11 billion. The average time to market is between 13 to 16 years with the clinical trial phase taking 6 to 8 years for some chronic indications (Riboud, 2011). According to Masri et al (2013) the pressure on the Pharmaceutical Industry has caused a move for disruption innovation. Business model innovation is seen by pharmaceutical companies outsourcing their most profitable value chains, removing fixed assets from their balance sheets allowing them to remain profitable and focus on sales force and branding. The CROs work for different clients of the same section adopting a horizontal business model. They are able to leverage the knowledge gained and synergies between projects. CROs focus on innovating the clinical trial service, resulting in faster clinical trial completion times. It is reported that CROs complete clinical trials on average 30 percent more quickly than those conducted in house by pharmaceutical companies. This translates to \$120 million to \$150 million in increased revenue for customers (ACROHealth, 2013).

2.6.2 Technical Innovation

Innovation in diagnostics due to discoveries in genomics and biomarkers has supported the emergence of more precise genetic tests and molecular diagnostics for targeted treatments. This development allows for exact population of patients affected by the disease to be diagnosed and selected for the clinical trial. These patients will generally respond better to the drug. The population more likely to experience adverse events can also be determined using these diagnostic tests and therefore these patients would not be enrolled. This allows for clinical trials to be performed on a smaller targeted population with increased efficacy (Riboud, 2014). According to Riboud (2014) therapeutic efficacy is a huge focus area for pharmaceutical companies. New IT tools such as electronic forms, cloud computing, dedicated information services, smart phones, social networking, and huge data-warehouse systems increase the efficiency of processing clinical trial data and in turn decrease the overall clinical trial duration and supporting the demonstration of therapeutic efficacy. The collaboration of Pharmaceutical companies and CROs with competences in technical innovation can therefore benefit product development. CROs are becoming more of an important strategic partner for pharmaceutical companies. Innovation can therefore be considered as vital for survival within this niche-orientated, ever evolving industry. The need for CROs to create more value for their strategic customers, respond to industry challenges and to perform clinical trials in smarter ways is a necessity (Grom, 2013).

2.6.3 ICON Clinical Research Company Review

ICON plc is a global CRO that offers outsourced development services to the pharmaceutical, biotechnology and medical device industries. There are two segments within this business which include Clinical Research and Central Laboratory. The company offers a full service in clinical research services. By December 31, 2013 ICON employed approximately 10,300 employees in 38 countries worldwide (ICON, 2013).

The company recorded revenues of \$1.1 billion in the fiscal year ended December 2012, an increase of 17.9% over 2011. The company's operating profit was \$68 million in fiscal 2012, as compared to an operating profit of \$29.4 million in 2011. Its net profit was \$55.4 million in fiscal 2012, as compared to the net profit of \$22.9 million in 2011 (Marketline, 2013). The top competitors of this company include Quintiles Transnational Corp, Parexel International Corporation, Covance Inc., Pharmaceutical Product Development, Inc. and inVentiv Health

Inc (Marketline, 2013). They are included in the top 7 CROs in the world (Vinluan, 2012). ICON Clinical Research is the focus of this study and specialises in the planning management, execution and analysis Phase IIb–IV clinical trials, ranging from small studies to complex, multinational projects (ICON, 2013). The company is structured as a project based matrix organisation which includes both functional and project structure.

2.7 Conclusion

The literature review has displayed a clear debate within the literature surrounding how supportive PBO structures are at supporting innovation. Areas such as organisational context, knowledge management and resourcing and time constraints have been highlighted as the major talking points for researchers. However, overall there is little research in this area providing conclusive results. Many commentators call for innovation management and project management to consider modern organisational structures within the context of innovation research. An overview of the contract research industry was displayed highlighting the criticality of innovation for organisations within this industry due to external pressures. The relevance of investigating this topic in the case of ICON Clinical Research is provided by highlighting the overall success of this organisation in the global market and therefore a need for this organisation to continue its success and to gain a competitive advantage against its international counterparts. The research will investigate this topic further through an exploratory approach by interviewing personnel within key positions within the CRO. These interviews are carried out in order to gain insight and build on theory in this area, with the hope to make recommendations for future research.

Chapter 3: Research Methodology

3.1 Introduction

Ponterotto (2005) defines methodology as the process and procedures of the research. It assists the researcher in answering research questions by collecting both primary and secondary data surrounding the research topic. There are many ways in which this information can be collected and analysed. Choosing an appropriate method that is fitting to the research topic is most important to ensure the quality of the research. Saunders et al (2011) therefore highlight the importance of a clear methodological framework to assist the research process.

The main purpose of this research is to investigate how effective the PBO structure is at supporting innovation within the researched CRO, ICON Clinical Research. It is hoped that an in-depth insight will be gained into innovation within this organisational structure within the CRO industry. Innovation is increasingly becoming a strategic focus for many organisations trying to differentiate themselves within the market and survive against future threats. At the same time the popularity of the project approach is causing many organisations to adapt their organisational structure to fully Project Based.

It is hoped that the findings from this research will highlight other research possibilities that may have been overlooked within the current limited research available and build theory to support and nurture innovation within this organisational context providing recommendations for further research.

In this section the proposed research design, analysis and ethical considerations will be discussed which are deemed most appropriate in order to research this topic.

3.2 Research problem

A research problem is described as the focus for engaging in research. It is a topic that is to be investigated by the researcher (McMillan, 2004).

Investigating Innovation within PBO is an important area of research due to the increased number of Organisations forming themselves as Project Based. Innovation is an important strategic focus for many organisations and with little research in the area of Innovation within complex organisational structures such as PBOs this is a deserving area of research focus.

The research aims to gather in-depth information regarding innovation within a Project Based CRO by investigating the answers to the central research questions.

3.3 Research Question

“How effective are PBOs in the Contract Research Industry at providing a supportive context for innovation”

3.4 Research Objectives

- (4) To investigate whether the PBO provides an organisational context that is supportive of innovation.
- (5) To investigate how PBOs in the Contract Research Industry address the question of slack resources in the context of innovation.
- (6) To investigate the effectiveness of Knowledge Management in the context of innovation within PBOs in the Contract Research Industry.

3.5 Proposed Methodology

The goal of this research is to improve the facilitation and effectiveness of innovation within ICON Clinical Research by building on theory of innovation within PBOs and providing recommendations.

In order to achieve this goal the researcher predominantly applied Interpretivism with an inductive approach using qualitative data captured through semi-structured interviews. In order to explain the choice of research design the metaphor of the ‘Research Onion’ (**Figure 5.0**) will be used.

The research onion approach to research methodology depicts the various layers of research; the research philosophies, the research approaches, the research strategies, the research choices, the time horizons and the data collection process. The essence is to peel away the various layers of the onion to arrive at the core. Therefore according to this model each layer is important.

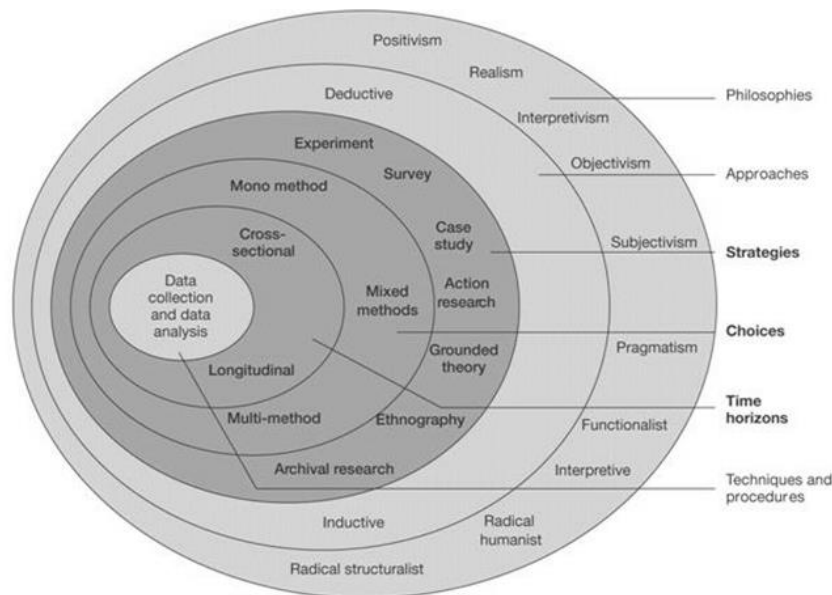


Figure 5.0: The research ‘onion’

Source: © Mark Saunders, Philip Lewis and Adrian Thornhill (2009 p.108)

3.6 Research philosophy

Saunders and Tosey (2013) state that “it is the researcher’s understandings and associated decisions that provides the context and boundaries within which data collection techniques and analysis procedures will be selected.”

There are three approaches to the way researchers think about research philosophy. These include epistemology, ontology and axiology. Epistemology is concerned with what constitutes as acceptable knowledge within research. Ontology on the other hand looks at what we can know within context of the nature of reality. Axiology is a branch of philosophy that focuses on judgments and values. Each approach influences the way in which the researcher thinks about the research process. (Saunders et al, 2009).

The outer layer of the research onion represents philosophy. According to Saunders et al (2009) there are four main research philosophies which apply to business management research, which include Positivism, Interpretivism, Realism and Pragmatism.

3.6.1 Positivism

Positivism is related to the philosophical mind set of scientist. The research adopted is approached with a scientific method to test a hypothesis based on theories involving a structured approach in collecting data that is usually measurable. The approach is therefore deductive in nature. The data is not influenced by the researchers own values and usually involves a large sample population. This approach is usually associated with quantitative data collection and statistical analysis (Saunders and Tosey, 2013).

3.6.2 Realism

Realism like Positivism also takes a scientific like approach to enquiry. In this perspective it is deemed that reality exists independent of our knowledge of its existence. There are two distinguished types of realism; direct realism and critical realism. Direct realism is the belief that what is seen is fact. Critical realism on the other hand believes that what is initially experienced must then be processed by the mind. This takes into considerations the structures and complexities that are beneath the initial experience. The realist approach to research can therefore involve qualitative or quantitative data (Saunders and Tosey, 2013).

3.6.3 Interpretivism

This epistemological position incites the importance to understand the difference between humans in their role as social actors. This philosophy is focused on conducting research within the environment of people rather than upon objects. It is because of this that the researcher must keep an empathetic view to understand the social world. This type of philosophy is associated with qualitative data collection and analysis (Saunders et al, 2009).

3.6.4 Pragmatism

The philosophy of pragmatism believes that there are multiple realities. Therefore researchers who adopt a pragmatist approach use multiple data collection techniques (Saunders and Tosey, 2013).

In this research the Interpretivism approach was adopted by the researcher. This philosophy is suitable to this research as business situations are complex and unique and function as a particular set of circumstances and individuals, therefore human behaviour should be understood in this case instead of explained (Saunders et al, 2009). The aim of this research is to gather in-depth information on the effectiveness of the researched PBO at providing a context supportive of innovation. In order to achieve this aim gathering rich insight into the human behaviour and the environment of the individuals within the organisation is required rather than providing generalisations. According to Schwandt (1994) an interpretive approach provides a deep insight into “the complex world of lived experience from the point of view of those who live it”. Therefore the Interpretivism philosophy is aligned with this research. Garcia & Quek (1997) explain that the researcher’s interpretations play a key role in this kind of research, “such subjectivity to the fore, backed with quality arguments rather than statistical exactness”.

3.7 Research approach

The research approach is the next layer of the research onion. This involves the researcher identifying the design of the research which is best suited investigate and answer the research question. In research the two broad methods of reasoning include inductive and deductive approaches (Saunders et al, 2009).

3.7.1 Inductive

The inductive approach involves the researcher developing theory based on the observations through analysing the data by forming patterns. It is often referred to as a bottom up approach that can involve a degree of uncertainty (Saunders et al, 2009).

3.7.2 Deductive

The deductive approach on the other hand is a more top-down approach which is based on a research hypothesis. The research strategy is to therefore test the hypothesis and examine the outcomes of the testing. Theory is then modified or confirmed based on the findings from the research (Saunders et al, 2009).

In this research the researcher applied an inductive approach which was believed to be suited to this research as this approach is more flexible in nature. There is also little existing

literature in regards to the topic of innovation within PBOs and especially within the CRO Industry therefore it is deemed more appropriate to work with an inductive approach in order to generate data and analyse this data by reflecting on the themes that emerge. It is also appropriate as the aim of this research is to investigate the social reality of the research participants and build theory based on this reality. It is the purpose of this research to make recommendations to improve the facilitation of innovation within the CRO researched. Therefore the inductive approach which involves building on theory derived from the events and circumstances within an organisations setting is appropriate (Saunders et al, 2009).

According to Saunders et al (2009) the inductive approach is performed within the context the events are occurring. They propose that studying a small sample of subjects is more appropriate using this approach than the deductive approach which studies a larger sample.

3.8 Research Strategy

The third layer of the research onion is the research strategy. This is the strategy that the researcher will follow in order to answer the research questions. There are numerous strategies available which include experiment, action research, grounded theory, archival research, case study and survey's to name a few. There are many factors that affect the choice of research strategy which include the research question being asked, the objectives of the research, existing literature in the field of the research topic, the time available to perform the research and the researchers philosophical belief (Saunders et al, 2009).

Strategy	Form of Research Question	Requires control of Behavioural Events	Focuses on Contemporary Events
Experiment	How, Why?	Yes	Yes
Survey	Who, What, When, Where, How Much, How Many?	No	Yes
Archival Analysis	Who, What, When, Where, How Much, How Many?	No	Yes/No
History	How, Why?	No	No
Case Study	How, Why?	No	Yes

Table 1.0: Relevant Situations for Different Research Strategies

Source: COSMOS Corporation.

According to Yin (2003) three overall conditions determine the research strategy which include (i) the type of research question posed, (ii) the extend of control an investigator has over actual behavioural events, and (iii) the degree of focus on contemporary as opposed to historical events. These conditions are listed in **Table 1.0** and shows how each is related to the major research strategies.

The experiment approach was not deemed appropriate for this research as it requires control of behavioural events which is not possible in this line of research since innovation is dynamic and complex within a complicated organisational structure. Also the experiment approach is generally performed in a laboratory setting which would not allow the investigation of this research topic to be performed in the real world context of the organisation which is deemed important by the researcher.

The survey approach is not appropriate for this research as the questions Who, What, When, Where, How Much, How Many are not being asked. Also the data collected from a survey approach was not deemed to be sufficiently wide ranging for this type of research. Archival analysis and the History approach were also not deemed appropriate as they did not focus on current and future position of innovation within the organisation which is an important focus for the researcher.

The most appropriate research strategy chosen for this research was the Case Study approach as this approach allows a deeper insight into the topic being investigated (Saunders et al, 2009)

3.8.1 Case Studies

A case study is a form of empirical inquiry that according to Yin (1994) allows the researcher to investigate contemporary phenomena within its real life context. Therefore case studies are a valuable way of looking at the world around us. Case study design allows the researcher to answer questions such as “how” and “why” rather than “how much” or “how many” (Benbasat et al., 1987; Yin, 2003). According to Helmstadter (1970) case study design can be used to remedy or improve practice, results are hypotheses, design is flexible, and can be applied to troubled situations. Guba and Lincoln (1981) describe case study design as a “thick” description, which is grounded, holistic and lifelike with a conversation-style format that illuminates meaning and builds on tacit knowledge.

3.8.1.1 Advantages of Case Study Design

Eisenhardt (1989) argues that case studies are well suited to new areas of research or where there is little existing theory, stating that “this type of work is highly complementary to incremental theory building from normal science research”. Benbasat et al (1987) explain that case studies are conducted within the natural setting of the research area which allows the researcher to gain a holistic understanding of the phenomenon being researched. Siggelkow (2007) also notes that any criticism regarding the lack of representativeness and bias in choosing the sample should be rejected simply because of the value of such a rare incident to researchers. That missing the opportunity to observe and explain this kind of phenomena might restrict our knowledge prospects.

3.8.1.2 Disadvantages of Case Study Design

Andrade (2009) explains that despite the applicability of the case study approach in studying many relevant real-world situations and addressing important research questions, case study research has not achieved widespread recognition as a method of choice. Yin (1989) states that researchers who perform case studies are regarded as having deviated from their

academic disciplines and their research is regarded as having “insufficient precision, objectivity and rigor”. Other ethical considerations such as personal integrity, sensitivity and possible prejudices have also been highlighted as possibilities within this research design. Another common complaint regarding Case Study Design is that investigators often change the direction during the course of the research (Merriam, 1988).

The researcher considers both sides of the arguments regarding the reliability of the cases study strategy. However the researcher feels that the case study strategy once well-constructed is a useful strategy for investigating new areas of research and developing new research questions within the real life context of the phenomena, therefore believes that this strategy is most suitable for answering the research questions.

3.8.1.3 Case Study Strategy

There are multiple case study strategies that can be used. Yin (2003) distinguishes between these strategies based upon two differing dimension; single case v. multiple cases and holistic case v. embedded case as depicted in **Figure 6.0**.

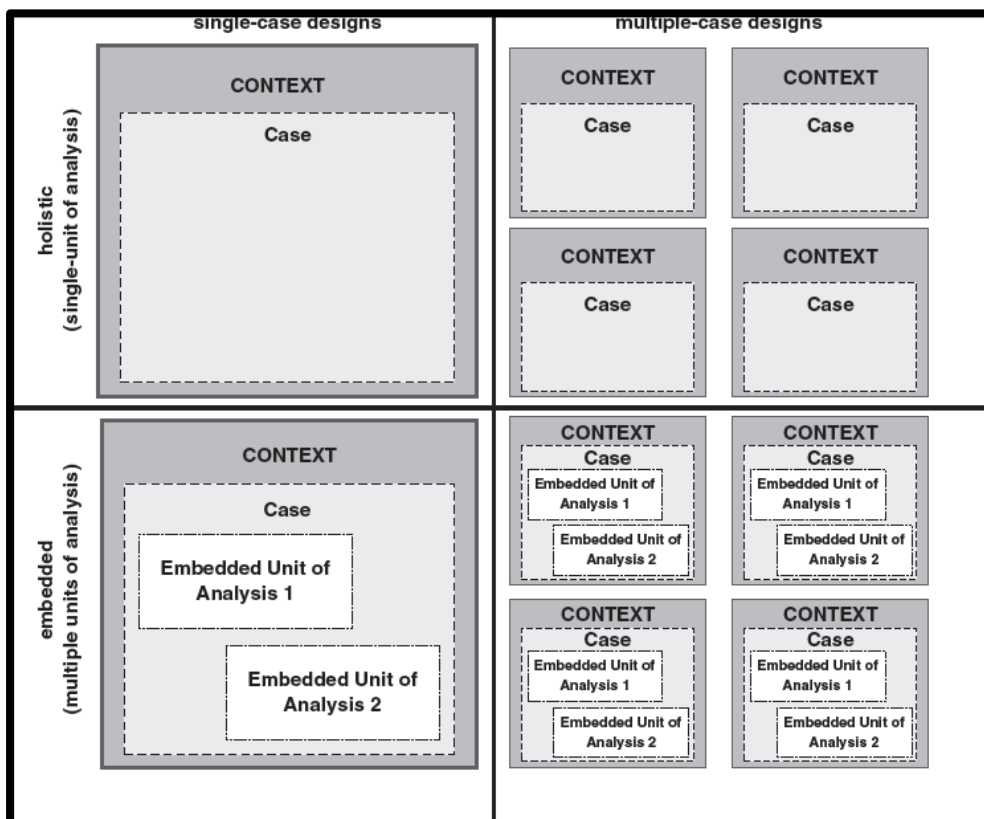


Figure 6.0: Basic Types of Designs for Case Studies

Source: COSMOS Corporation.

Single case study design is normally used when representing a critical case or a unique case. It is selected because it is typical or because it allows the research to observe and analyse a phenomena that has little previous research. Multiple case study design on the other hand is used to compare findings between multiple cases to determine the need to generalise from the findings (Saunders et al, 2009).

The second dimension discussed by Yin (2003) is holistic versus embedded which refers to the unit of analysis. Holistic case study design looks at one unit of analysis where as embedded looks at multiple units or sub-units of analysis.

In this research a single case embedded design approach has been utilised. The single case study investigates innovation within ICON Clinical Research. However sub units of this organisation have also been observed and analysed by interviewing members of staff within this organisation from different departments and different hierarchical positions. The researcher felt that this design was appropriate in order to answer the research questions in order to give a perspective on innovation within the organisation through a number different lens from the experiences and knowledge of members of the organisation. This will allow a full picture of innovation within the organisation.

3.9 Research Choice

The research choice layer is the fourth layer of the research onion model. According to Creswell (2003) different types of research problems call for different types of research approaches. The Research studies methodology can be characterized as qualitative, quantitative or a combination of both methods (Creswell, 1998). Hiatt (1986) explains that qualitative research methods focus on discovering and understanding the experiences, thoughts and perspectives of participants. Its purpose is to explore reality, purpose and meaning. Quantitative research on the other hand attempts to maximise objectivity, replicability and generalisibility of findings. Integral to this approach is the expectation that the research will remain objective in the conduct of the study and the conclusions that are drawn (Lincoln & Guba, 1985).

The choice of research can involve methods such as mono-method, mix-methods and multi-methods.

3.9.1 Mono-method

The mono method involves collecting a single data technique with the same analysis technique for example in a quantitative study; questionnaires may be used to collect data followed by a quantitative analysis technique. However in a qualitative study, in-depth interviews may be used to collect data with a qualitative technique data analysis procedure.

3.9.2 Multi-methods

The multi-method approach involves more than one data collection technique with the associated analysis technique. For example qualitative data collection techniques such as in-depth interviews and structured observations can be used with a qualitative data analysis technique. In this method quantitative and qualitative approaches are not mixed (Tashakkori and Teddlie 2003).

3.9.3 Mixed Methods

The mixed method approach however mixes both quantitative and qualitative data collection and analysis techniques within the research design either at the same time or in sequential order but does not combine them. The mixed-model research in contrast both qualitative and quantitative data collection and analysis is combined (Saunders et al, 2009).

A mono-method qualitative approach was used in this research by collecting data through semi-structured in-depth interviews and analysing the outcome of these interviews qualitatively.

3.10 Time Horizons

The time horizon is the second last layer of the research onion which concerns the different approaches of investigation in relation to time. There are two types of time horizons in research studies which include cross sectional studies and longitudinal studies. Cross Sectional studies describe an incidence of a phenomenon at a particular time however longitudinal studies describe an incidence over a long period of time (Saunders et al, 2009).

In this research a cross sectional time horizon was applied due the time restriction to finish the dissertation. The interviews were performed over a period of one month therefore the research will be a snapshot taken at a particular time (Saunders et al, 2009).

3.11 Data Collection

Research design can be classified into three types Exploratory, Descriptive and Casual (Saunders et al, 2009). According to Burns and Bush (2003) the choice of the most appropriate design is dependent on the objectives of the research. The types of research design and related factors for choosing this design are detailed in **Table 2.0**.

	Exploratory	Descriptive	Casual
Data Type	Qualitative	Qualitative and Descriptive	Quantitative
Aims	To explore, to chart and to identify	To describe, to quantify	The establishment of cause and effect
Nature of Variables	Unknown, Uncharted	Known associations and Documented	Known exactly and clearly supported
Degree of Formality	Little	Some of Extensive	High Mathematical Content, highly formal
Data Collection	Literature Review, Expert Survey, Focus Groups, Projective Techniques and In depth Interviews	Literature Review, Expert Survey, Focus Groups and Observation	Literature Review, Expert Survey, Survey, Experiment and Observation
Sample Size	Small	Small to Large	Large
Question Types	Probing and response driven	Some probing and Interview driven	No probing
Hypothesis	Generates, develops	Tests, develops and/or generates	Tests

Table 2.0: Types of Research

Source: Domegan and Fleming, 1999

The Exploratory research design was chosen for this research as the aim of this research is to build theory surrounding innovation within PBOs and provide an insight into the area of

innovation within a Project Based CRO. According to Robson (2002) exploratory studies are a valuable means of providing new insights and find out what is happening, to ask questions and assess phenomena in a new light.

According to Saunders et al (2009) there are three ways of conducting exploratory research which include searching existing literature, interviewing ‘experts’ in the subject, and conducting focus group interviews. The data collection techniques used in this research include semi-structured interviews with personnel in key positions within ICON Clinical Research and also an in-depth literature review.

3.11.1 Secondary Research

Saunders et al (2009) explain that secondary data include both quantitative and qualitative data and used mainly in descriptive and explanatory research. According to Kerwin (1999) the data can be raw data or compiled data. Saunders et al (2011) explain that secondary data is useful for enabling the researcher to place the primary findings within a more general context by comparing against the secondary data. Three main sub-groups of secondary data include documentary data, survey-based data and data compiled from multiple sources as shown in **Figure 7.0** (Saunders et al 2009).

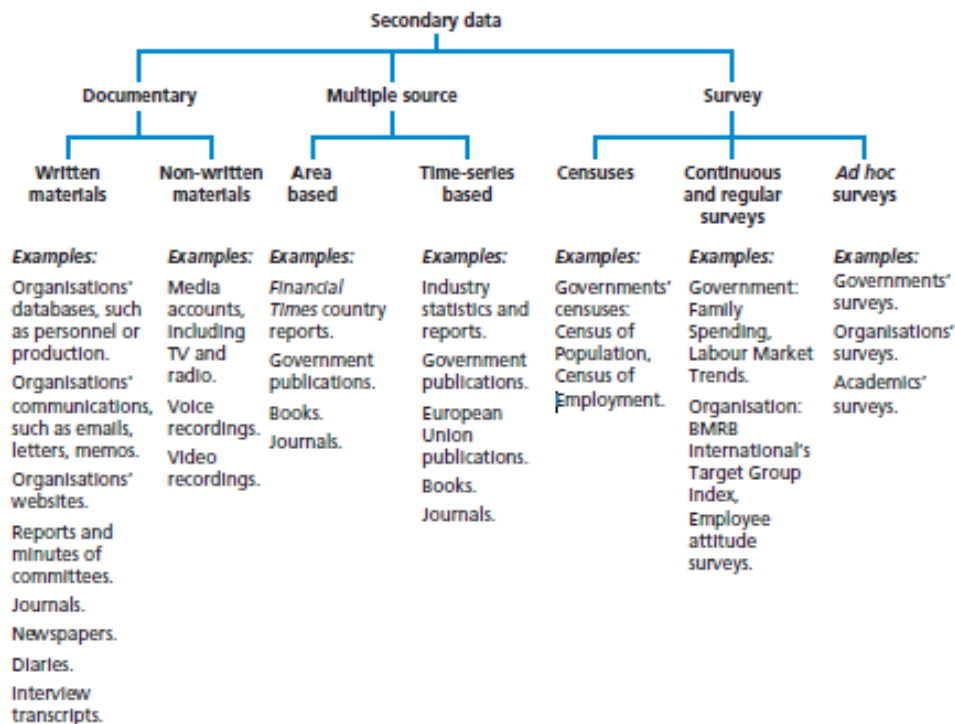


Figure 7.0: Types of Secondary Data

Source: © Mark Saunders, Philip Lewis and Adrian Thornhill, 2006.

The researcher made use of numerous secondary data as part of this investigation which included academic journals, publications, newspaper articles, organisations websites, and also made correspondence with numerous experts in the field of innovation in PBOs.

3.11.2 Qualitative Approach

A qualitative research approach was used in this research in order to achieve the results this investigation is pursuing. According to Mintzberg and Waters (1979) qualitative research design allows the research to get close to the data and to know the individuals involved and observe and record what they do and say.

The three most common qualitative methods are participant observation, in-depth interviews, and focus groups.

According to Mack et al (2005) the key differences in the qualitative approach include it's flexibility and less formal interaction with the participant. The advantage of inflexibility is that it allows for meaningful comparison of responses across participants. Open ended questions are usually characteristic of qualitative research and allows for a complex response from respondents which allows the researcher to explore the research in greater detail. **Table 3.0** provides a list of other comparisons between qualitative and quantitative research.

	Quantitative	Qualitative
General framework	Seek to confirm hypotheses about phenomena Instruments use more rigid style of eliciting and categorizing responses to questions Use highly structured methods such as questionnaires, surveys, and structured observation	Seek to explore phenomena Instruments use more flexible, iterative style of eliciting and categorizing responses to questions Use semi-structured methods such as in-depth interviews, focus groups, and participant observation
Analytical objectives	To quantify variation To predict causal relationships To describe characteristics of a population	To describe variation To describe and explain relationships To describe individual experiences To describe group norms
Question format	Closed-ended	Open-ended
Data format	Numerical (obtained by assigning numerical values to responses)	Textual (obtained from audiotapes, videotapes, and field notes)
Flexibility in study design	Study design is stable from beginning to end Participant responses do not influence or determine how and which questions researchers ask next Study design is subject to statistical assumptions and conditions	Some aspects of the study are flexible (for example, the addition, exclusion, or wording of particular interview questions) Participant responses affect how and which questions researchers ask next Study design is iterative, that is, data collection and research questions are adjusted according to what is learned

Table 3.0: Comparison of Quantitative and Qualitative Research Approaches

Source: Mack et al, 2005

According to Anderson (2010) there are many strengths and limitations to Qualitative Research. Strengths of qualitative research are discussed as follows:

- Allows issues to be examined in detail and in depth.
- The data based on human experience can sometimes be more compelling than quantitative data
- Findings although cannot be generalised to a larger population as they are based on few cases or individuals they can be transferred to another setting.

- Complexities about the research topic can be discovered which is often missed by positivistic enquires.

However the limitations of qualitative research are also important to note and are mentioned as follows:

- Qualitative Research is heavily dependent on the researcher's skills and easily influenced by researchers bias and idiosyncrasies.
- There can be issues surrounding confidentiality and anonymity when presenting findings.
- Findings can be more difficult and time consuming to analyse and present.
- Qualitative Research is sometimes not as well accepted as quantitative research within the scientific community.

Taking the limitations of type of research into account the researcher believes that qualitative research approach is most suitable to investigate the innovation within the CRO. The flexibility and in-depth nature of this approach allows the researcher to explore the topic in great detail and accentuates the complexity of this topic.

3.11.3 Primary Data Collection

In-depth semi-structured interviews were performed during this research to collect primary data. According to Gill et al (2008) interviewing is the most commonly used method of data collection in qualitative research. Interviews allow the researcher to explore the views and experiences of the participants on the researched topic. According to Saunders et al (2009) interviews are appropriate where detailed insight is needed.

There are three fundamental types which include structured, semi-structured and unstructured. Structured interviews are verbally administered questionnaires. The interviewer does not deviate from the pre-prepared questions. Unstructured interviews on the other hand do not reflect any preconceived theories or ideas and provide no organisation. These interviews are time consuming and difficult to manage. Semi-structured interviews consist of several pre-prepared key questions. This helps define the areas to be explored but also allows

the interviewer and interview to deviate from the questions in order to pursue an idea or response in more detail. Therefore this method involves flexibility which allows for discovery or elaboration.

In this research semi-structured interviews were chosen as the exploratory nature of the research topic requires the investigation to be flexible. Also the semi-structured interview allowed the research to gain insight into the organisation specific practices surrounding innovation which was not available through secondary research. Due to the embedded case study approach of this research, members of staff in key positions throughout the organisation were interviewed in order to provide a full picture of innovation in the context of each sub-unit of the organisation. One senior manager and three executive managers were interviewed within different functional areas of the organisation. The interviews were face to face in three cases and performed over the phone in one case. The face to face interviews were recorded. According to Saunders et al (2009), recording interviews allows a permanent record of the interview. It also allows the researcher to re-listen to the interview and transcribe the results. Another added benefit is that it allows the researcher to concentrate on questioning and listening to the interviewee. The researcher also took notes during the interviews in order to mitigate any risk of losing the data through technical fault. Transcribing the interview from the tape recording can be time consuming however the researcher felt that this was worthwhile in order to achieve a pure and complete caption of the interview.

3.11.3.1 Techniques for Data Analysis

Qualitative data analysis techniques were used by the researcher in this investigation. Bazeley (2013) explains that qualitative data analysis tends to be inductive with the researcher identifying important categories in the data as well as patterns and relationships through a process of discovery.

Miles and Huberman (1994) suggest that qualitative data analysis consists of three procedures which include data reduction, data display and conclusion drawing and verification.

This approach was followed by the researcher to analyse the data in this investigation. The large amount of data transcribed from the interviews was reduced by summarising the relevant data and discarding any irrelevant output.

As suggested by Miles and Huberman (1994) the next process was to display the data in a clear way in order to draw conclusions from the data. In this investigation the data was categorised in logical order so that the researcher could further compress the data.

The final process in the data analysis was conclusion drawing/verification. The researcher combined patterns from the data and cross referenced related peer reviewed articles in order to compare results and draw conclusions.

3.11.3.2 Sample

As it is generally impractical to collect data from an entire population during research sampling is often required. There are two types of sampling techniques in research; Probability and non-probability samples (Saunders et al, 2009).

Probability sampling ensures that each subject in the research has a known chance of being included in the research. However non-probability sampling there is no way of knowing that the probability of each subject being included. It is therefore often thought of as being less reliable and generalizable. On the other hand there are advantages to this approach which include low cost and convenience (Bryman and Bell, 2011)

In order to answer the research questions and meet the objectives of this study a non-probability sample was used. This provides an information-rich case study in the aim to gain theoretical insights (Saunders et al, 2009). Due to time limitations a non-probability sample is relevant as it is not possible to collect from a total population.

The sampling method considered most suitable for this research is stratified purposeful sampling. Patton (2002) describes these as samples within samples. It is suggested that purposeful samples can be stratified by selecting particular units that can vary according to key dimensions.

In the case of this research it is deemed appropriate to sample from different subunits of the organisation by collecting data from members of staff in key positions within the organisation. This includes the Chief Information Officer, a Director of a fully operational department, a Product Manager for the Innovation Group and the Head of Clinical Operations Development. This will allow a broad spectrum of experience and knowledge to be collected regarding innovation within the organisation and will allow the researcher to view the

organisation through different lens through these interviews giving a broad picture of innovation within the organisation.

3.12 Ethics

According to Best and Kahn (2006) ethics has become the foundation for conducting effective and meaningful research with the ethical behaviour of researchers under constant scrutiny.

It is important in research that the way it is designed is both methodologically and morally sound in order to protect all participants involved (Saunders et al, 2009). Therefore it is important to highlight all ethical considerations surrounding this research.

The purpose of the research was explained in detailed to each participant in advance and informed consent forms distributed.

Participants of this research were respected at all times. They were told that they had the right to decline to answer any question they do not feel comfortable with. Copies of results of the research will be given to participants on request. The anonymity of the participants will also be respected.

The questions in the interviews were assessed for any potential risks of issues for participants in answering for personal or professional reasons.

The researcher remained objective during the data collection stage by collecting the data accurately and fully which was aided by recording and transcribing the interview text. This ensures the reliability and validity of the outcome of this research.

The results of the research will be used for dissertation purposes only. Confidential details regarding the researched organisation will not be discussed.

Chapter 4 Research Findings

4.1 Introduction

The purpose of this chapter is to present the findings of the primary qualitative research. The data was collected, summarised, displayed and then processed in response to the key areas identified through the secondary research discussed in Chapter 2.

The primary research was performed at ICON Clinical Research by collecting data through semi-structured interviews with personnel in key positions within the company.

The manner in which this analysis was performed was by transcribing and coding the interview transcripts. The data was summarised and simplified with common patterns identified. The data was then cross compared with the literature.

Each respondent interviewed is employed in a key position within ICON Clinical Research and is involved in innovation in some form within the organisation. As this research is taking an exploratory approach the questions were tailored for each respondent so to achieve an insight into innovation within the organisation from the perspective of these individuals.

The data that has been gathered from the semi-structured interviews will be used to investigate the effectiveness of PBOs in the Contract Research Industry at providing a supportive context for innovation. This study has also focused on key areas identified within the literature that affect innovation within PBOs to explore the relevance of these areas such as knowledge management and resourcing in relation to innovation within the researched organisation.

4.1.1 Background on Participants:

In the following analysis, the research references to the response of participant's as Respondent 1, Respondent 2, Respondent 3 and Respondent 4. The first respondent is the Chief Information Officer (CIO) at ICON Clinical Research. The CIO is the key contributor in formulating strategic goals for the organisation. He also manages the implementation of technology and development of new technology.

The second respondent is a Product Manager within the organisation and a member of the innovation group. The product manager is responsible for investigating, selecting and driving the development of products for the organization.

The third respondent is the Director of Data Management department within the organization. The Data Management department is a fully billable operational department. It is the Directors responsibility to lead the department.

The fourth respondent is the Head of Clinical Development and one of ICONs main innovators. This respondent is responsible for coming up with new clinical developments within the organisation and selling the developments to the clients.

4.2 Objective 1 Research Findings

‘To investigate whether PBO provides an organisational context that is supportive of innovation.’

A major focus in innovation literature is the types of organisational context that supports or work against innovation. It is well established that certain organisational contexts provide support for innovation (Keegan and Turner, 2002). There has been little research investigating how supportive PBOs are of innovation. A gap in the literature is also identified investigating whether the organisational context of PBO within the Contract Research Industry is supportive of innovation. In order to investigate this issue the respondents were asked a series of questions based on themes identified in the innovation literature which included the following areas:

- Overall importance of innovation to the organisation
- Selection of innovation projects
- Management of innovation projects
- Evaluation of outcomes

4.2.1 The importance of innovation to the organisation

According to Drazin and Schoonhoven (1996) innovation is important to organisations and is seen as a means of making companies more competitive and better able to survive international competition and the global market place. The researcher felt it was important to

investigate how relevant innovation is to the researched organisation and therefore put into context their commitment and dedication to innovation practises.

The respondents highlight that innovation is seen as a means of achieving their strategic goals, with the organisation constantly looking to the future to see what new development is going to generate revenue in the next three years. This is important in order to stay competitive in the market. Respondent 1 explains:

“If we didn’t have an eye on that we are going to be extinct in terms of our ability to service our sponsor’s needs”.

4.2.2 Types of Innovation Strategy

The organisation is concentrating on both incremental and innovation activities as confirmed by all Respondents. The organisation is performing explorative innovation strategies with an aim to introduce new technologies that will speed up the clinical trial process and improve the outcome. Respondent 1 states:

“We are looking at wearable technologies as a mechanism of data capture as opposed to traditional methods. For example a wearable technology in CNS [Central Nervous System] studies can provide significant opportunity as very often movement can be an indicator of efficacy based drugs.” Respondent 1 states that for this type of innovation they are looking beyond the organisation and not only using internal resources but progressing to partnerships with academia in order to enhance the algorithms and analytical technology that the organisation already has. It is explained that they are also looking to partner with sponsors to develop new capabilities.

“All of those break the mould of where we’ve been in the past where we felt we had to do it all internally and that we couldn’t really use disruptive technologies the way we do today”.

Incremental innovation is also said to be important to the organisation. Respondent 2 explains that the internal innovation group is currently concentrating on developing the organisations current technologies for different applications within the industry so that they can offer a wider range of services with their in house technologies.

This shows that the organisation is using an ambidextrous strategy in terms of innovation. O’Reilly and Tushman (2004) highlight that for organisations to remain relevant and

successful within the markets they must simultaneously exploit existing competencies and explore new opportunities.

4.2.3 Innovation initiatives

In order to foster innovation within the organisation a number of initiatives have been implemented. Respondent 1 explains that the organisation held an innovation week during the previous year. The aim of this was to communicate the organisations strategy towards innovation. It included a series of presentations and experiential learning activities. Guest presenters along with the organisations leaders gave examples, insights and suggestions about innovation and its pivotal role to the future success of the organisation.

This strategy of fostering innovation through empowerment is discussed by Poskiene (2006) who highlights the importance of the values organisations bring to their employees in relation to innovation as opposed to the values the individuals bring to the organisation.

The organisation is currently working on implementing innovation technology that will connect the organisation and allow free flowing communication of ideas. Respondent 1 also explained that an electronic innovation platform is currently being put in place that is going to be opened up to the wider organisation. This crowd surfing platform gives staff the opportunity to take part in overcoming challenges and to propose ideas out to the wider business. Respondent 1 explains

“We are looking to draw the minds of everyone in the organisation as opposed to centralising a very limited or small number of people involved”.

The crowd surfing platform is used as a socialisation tool. Martins and Terblanche (2003) propose that one way successful organisations intertwine innovation into their management process and overall culture is through socialisation processes.

Respondent 2 also describes this platform as a tool to foster innovation within the organisation. Respondent 2 explains,

“Innovation is an organisation wide initiative at the moment however the challenge is how to get people to connect their ideas”.

The participation of innovation amongst a wide variety of employees throughout the organisation and stimulating creativity is described as one attitude which is needed to create a successfully innovation culture according to March-Chordea and Moser (2010).

The organisation is said to be working with a vendor to develop the platform to allow staff at all levels of the organisation to connect ideas. Personnel from different departments and expertise within the organisation can link with each other and discuss topics. The technology allows oversight on who is talking to each other. Strategic issues for sponsors can be put forward on this technology and the goal is that employees will discuss the problem on this platform and raise ideas. The ideas can then be evaluated and cross compared for the best solutions. Respondent 4 explains that it's not the ideas that are put forward that is the important aspect of this platform - it's the problem behind the idea being highlighted to the organisation.

The idea of empowering employees at all levels of the organisation is discussed within the literature in relation to innovation. Kenny and Reedy (2007) state that in a successful organisation the philosophy of innovation is embedded throughout the organisation as innovation is not derived from a small number of employees but is present amongst all employees.

4.2.4 Innovation Project Selection

Ideas are brought forward in multiple ways as explained by the interviewees. Respondent 2 explains that the organisation has set up a dedicated innovation group which consists of three product managers that sits within the IT department. It is explained that business partners connect other areas of the business to IT. These employees are known as boundary spanners within the literature. They provide the product managers with ideas or problem areas from the internal or external business environment.

Respondent 3 states that that although there is an open door policy within the Data Management department when it comes to innovative ideas, innovation is generally driven from upper management.

A Steering Committee is the first stage of the proposal review. Respondent 2 explains that the steering committee, who chairs a number of senior executives, evaluates the project proposal.

It is explained that the Steering Committee are looking to ensure that the proposal is in accordance with the business, which is running and delivering clinical trials. The proposal must improve quality, reduce time of clinical trials or provide a cost benefit for the organisation. Other criteria the Steering Committee evaluate include if the project is ground-breaking which will give the company competitive advantage within the market place. Respondent 2 explains that once accepted and if the project is over a set value then the proposal is then put forward to the investor's board for their review. The investment approval board review the overall spend, the overall investment and cost benefit when making a decision regarding the proposals.

A theme raised within the interviews is the level of support some projects receive over others. The project must be attractive to clients and have a real cost benefit overall otherwise these projects will not be supported. Respondent 3 explains:

“There is a real support for projects that create business however some of the more internal developmental projects that don't create value do not get focus”.

4.2.5 Management of Innovation Projects

It is explained that the development of innovation projects are overseen by the product managers. The project managers manage the time and cost aspects of the project. The project manager implements a plan at the start of the development process however this is loosely followed from a time perspective. Respondent 2 and 4 agree that project teams are not tightly controlled by project managers in regards to developmental projects, giving team members freedom when it comes to decision making. Communication patterns within developmental projects are informal.

The level of autonomy within developmental projects within the organisation contradicts Gann and Salter (2000) who state that project-based firms keep a tight control over their internal processes. Planning practices of the developmental projects corresponds to the literature. MacCormack et al (2001) highlight the need for flexibility in relation to planning activities for innovation projects. According to Keegan and Turner (2002) informal communication also encourages innovation.

4.2.6 Evaluation of Innovation Projects

Keegan and Turner (2002) highlight that a pre-condition of an innovation inducing context is the assessment and evaluation of projects in a way that does not prematurely stifle new ideas.

The Stage-Gate model is used within the organisation as an evaluation method. Respondent 1 explains that once the investment board accept a proposal and the project goes ahead interim reviews are then put in place. The Stage-Gate model is used to ensure that projects are tracking to plan. Respondent 2 states that there are a number of stages included in this process and that the projects must meet certain criteria in order to pass each stage and further develop.

Respondent 2 expresses concern for the appropriateness of the Stage-Gate model for innovation project evaluation. It is felt that the process is not effective in relation to nurturing developments and that the governance structure will need to be transformed as the innovation processes within the organisations mature.

4.3 Objective 2 Research Findings

“To investigate how PBOs in the Contract Research Industry address the question of slack resources in the context of innovation.”

The topic of slack resourcing has been discussed at length within innovation literature. Debates are common place regarding whether slack resources help or hinder the management of innovation. Within the literature surrounding PBOs time constraints and lack of slack resources are argued as having a negative effect on innovation (Bayer and Gann, 2007). The researcher felt it was important to investigate this topic in relation to PBO in the Contract Research Industry. In order investigate this topic the researcher discussed a number of key areas with the interviewees which included:

- The way in which innovation projects are resourced
- The balance between client and developmental projects
- The effect of time pressure on innovation

4.3.1 Resourcing of Innovation Projects

Respondent 1 states that using internal resources that have time outside of billable work is always a temptation:

“They are not always the best people to use and I don’t think we have figured that one out just yet”.

It is explained that they are looking outside the organisation for expertise. They are hoping to put an innovation centre in place and work with the authorities in Ireland to see how this could be funded, favouring the use of R&D tax credits and hiring grants. Respondent 1 explains:

“That would afford us the opportunity to get us the best resources available to progress innovative capabilities here in the organisation”.

The team structure of developmental projects is different within departments. Respondent 2 states that within the innovation group within IT the product managers generally solely develop and tests the projects. The respondent explains that when extra staff are needed to work on these developmental projects they are taken from client projects.

However, within the Clinical Development department there are a number of teams set up to work on developing innovations as explained by Respondent 4.

The importance of expertise and experiences is highlighted throughout the interviews by the respondents. According to Respondent 3:

“We want the experts in the field to test these projects.”

Respondent 1 states that when internal resources are required for developmental projects they ensure to choose the right resources. They assess what the staff members are currently working on and evaluate how they can freed up from their day-to-day tasks either on a part-time or full time basis for the period of time necessary for the development. It is explained that they try to include the people who are most interested in building the capabilities. If there are resource gaps, they look to fill them with contractors who are accustomed to the routine work and keep their own resources to do the more challenging high end activities especially around developing new capabilities.

According to Respondent 3, time constraints can be an issue when it comes to resourcing. The way the organisation is structured, the majority of the staff are billable and this can be an issue for innovation projects within the Data Management department. It is explained:

“That is the industry we are in, certainly for operational staff”.

This is especially the case as employees are assigned 100% of their time to client projects. If employees are required for developmental projects it can take longer as client projects are priority. Respondent 3 states:

“These types of developmental tasks are always going to be a low priority for operational staff. However, management do look at innovation”.

Generally, the non-billable employees which include management personnel within the department usually perform the testing and development of innovation projects.

The issue of resourcing these projects is further highlighted by Respondent 3, who explains that last year was the first time approval for some employees within the department to be fully non-billable to work on developmental projects was granted. It is explained:

“We were making real progress and the project had real value”.

However once client projects became busy these staff members were assigned more and more onto client projects and away from the developmental projects until the developmental projects was completely halted.

Gann and Salter (2000) express concern regarding the issue of time pressure in PBOs stating that it is identified throughout the literature as the main factor in limiting innovative activities.

4.3.2 Slack Resources

Respondent 1 explains that getting the best people for the particular project is most important. “[Slack resources]...are not always the best people to use and I don’t think we have figured that out yet”.

Factors such as expertise and interest are considered. If internal employees are to be used for developmental projects then they evaluate how they can pull these employees away from client projects and work on the project on a part time basis. If employees are needed to work

on these projects on a full-time basis, they try to outsource the routine work and keep their own resources on the more challenging projects. Respondent 2 proposes that:

“At the moment it is my opinion that we are understaffed”.

Developmental projects are developed and tested by the individual members of the innovation group. When employees are required for developmental projects, they are taken from client projects. According to Sundbo and Gallouj (2000) execution of development projects with the same resources as used for business activities is typical for PBOs.

If an initiative is put in place where a large amount of IT resource is needed then innovative activities would be low priority. Respondent 1 further explains that the organisation always needs to concentrate on what generates revenue and margin for the company while keeping an eye out for future capabilities, explaining:

“That’s a battle we continually have going on in the organisation”.

Respondent 2 proposes that this is something that needs to be improved as the innovation function matures in order to secure the innovation team away from the operational tasks.

Respondent 3 explains that within Data Management the department is efficiently running from a project perspective however possibly not from an innovation perspective. It is stated that:

“People will identify issues all of the time but they may not necessarily have time to develop these ideas”.

Respondent 3 proposes that in the future they would like to see slack resources and states:

“We now have some long term contracts that provide us with some security. Single projects from clients in the past meant that we couldn’t resources effectively. Now we can predict what resources we need”.

4.4 Objective 3 Research Findings

“To investigate the effectiveness of Knowledge Management in the context of innovation within PBOs in the Contract Research Industry.”

Knowledge Management is discussed in depth throughout innovation literature. According to (Hall and Andriani, 2003) it is widely accepted that organisational knowledge plays an important role in innovation. However many authors highlight the difficulty of managing knowledge within PBOs due the organisational structure and nature of project work. However according to Ajmal (2009) this is an area gaining increasing attention from PBOs as it is seen as an effective means to establishing and sustaining competitive advantage. In order to investigate the effectiveness of knowledge management within the organisation the researcher discussed the following topics with interviewees:

- The process of knowledge transfer within innovation projects
- The effect of time on knowledge management

4.4.1 Knowledge transfer within innovation projects

According to Respondent 1 there are a lot of documentation involved in developmental projects such as project definition, project scope and testing documents which capture knowledge between projects. However, according to Respondent 2 and Respondent 4 there is no knowledge transferred between developmental projects in relation to lessons learned or problem solving. Respondent 2 highlights time as one issue causing the lack of knowledge transfer.

Knowledge Management was highlighted by both Respondent 1 and 2 as a key area for improvement within the organisation. It is highlighted that the organisation are aware that there is a lot of external knowledge and knowledge from employees within the organisation that they don't ordinarily ask for information from. Therefore they are developing an innovation platform which will help the organisation capture that knowledge. This platform will be a self-service tool that will allow knowledge to be shared throughout the organisation. It is highlighted that it is important that this tool is self-service and user friendly so that the maintenance of this tool can be kept up to date by the users themselves.

According to Respondent 3 lessons learned meetings take place within the Data Management department which are mandatory as per their SOPs. However as explained these lessons aren't spread across the organisation and stay very much on a client level stating "there's a lack in terms of sharing things at the global level". Respondent 3 explains that knowledge transfer is something that is always discussed as a point for improvements stating:

"It should be a high priority but it's hard to do in practise. We should set up databases to track knowledge".

Chapter 5 Discussion

The researcher's interpretation of the results will be discussed in this chapter reflecting the results in context with the literature.

5.1 Organisational Context Supportive of Innovation

The literature presents a debate surrounding the supportive nature of PBO's for innovation. According to Keegan and Turner (2002) the organisational context can either support or work against innovation. This topic was therefore investigated within the researched firm by asking the respondents to discuss a number of themes derived from the literature which included the selection process of innovation projects, the management of these projects and the process of evaluation. Many of the findings are found to support innovation theory.

Boundary spanners, which are individuals within an innovation system who link the internal networks with external sources of information, are used in the form of business partners which bridge the gap between projects and the functional areas of the technical experts (Keegan and Turner, 2002). Informal communication patterns are also prevalent amongst the developmental project teams. According to Keegan and Turner (2002) this encourages innovation by creating random encounters and chance meetings. One challenge highlighted within the literature by Gann and Salter (2000) surrounding PBOs carrying out innovation was identified as the infrequent occurrence of developments within dedicated R&D efforts. However this is something that the researched organisation is approaching proactively. They are shown to be committed to innovation activities, which is exemplified by the fact that specific innovation groups have been formed that work on developments on a full-time basis. Several authors throughout the literature propose that when it comes to planning systems PBOs fail to provide a context supportive of innovation (Keegan and Turner, 2002; Nambisan, 2001). However the respondents who worked directly on innovation projects state that this is not the case within the researched organisation. Flexible project plans are put in place and these plans are loosely followed. Lewis et al (2002) emphasise the requirement of flexibility in developmental projects. Keegan and Turner (2002) also highlight the need for informal, organic management of innovation projects that emphasise effectiveness over efficiency, stating that "traditional project management needs to evolve in order to embrace [innovation]".

The degree of autonomy was considered as high amongst the respondents who worked directly on developmental projects. This is especially the case when the development was seen as significant value to the organisation. This is in contrast to the point raised within the literature by Gann and Salter (2000) that PBOs keep a tight control over innovation processes.

When it comes to the evaluation of development projects however a gap emerges between the innovation theory and practise. The organisation uses the stage gate model for project evaluation. This process was described by one respondent as relatively ineffective within the context of innovation and that the governance structure should adapt as the innovation processes mature within the organisation.

Stage-Gate evaluation process is a conceptual and operational map for the developing new products from the idea to launch. The idea is that the process improves effectiveness and efficiency. The Stage-Gate consists of a series of set phases where the project team undertakes the work and compiles the information and analysis. This is then followed by a gate where decisions are made by either the project manager or a steering committee, as is the case within the researched organisation, which determines if the continued investment of the project will proceed or if the project will be terminated (Cooper, 2008).

This model has been widely criticised throughout the innovation literature due to its linear approach to innovation project management (Keegan and Turner, 2002; Mills et al, 2000; Nonaka and Takeuchi, 1995). It is believed that this evaluation tool stifles innovation (Lindkvist et al, 1998). Mills et al (2000) highlight several features of innovation projects which make the stage gate model ineffective for fostering innovation. These include the high levels of freedom and self-direction that is needed, the evolving nature of the process and also of relationships between different organisational stakeholders as the process unfolds in an uncertain way. According to Christensen et al (2008):

“Stage-gate system is not suited to the task of assessing innovation whose purpose is to build new growth businesses, but most companies continue to follow it simply because they see no alternative”.

Keegan and Turner (2002) call for an evaluation of potential business benefits over predetermined criteria in order to develop a context of supporting innovation as developmental efforts are uncertain and prone to change. Some researchers however believe

that the stage gate models of evaluation could work when the project has clear goals and methods (Turner and Cochrane, 1993).

The results indicate that for the most part the organisational context supports innovation as many of the results correspond to the innovation literature. However, the evaluation technique for developmental projects follows a linear traditional method which has been widely disputed throughout the innovation literature for providing a context supportive of innovation. Further comparison research comparing traditional linear evaluation techniques against organic evaluation techniques may be useful for providing more insight into this area.

5.2 Slack resourcing

One characteristic discussed by many researchers is the negative effect lack of slack and time constraints have on developmental activities the within PBOs. It is accepted within the literature that slack promotes experimentation which essential in the development of innovative projects, by allowing uncertainty to be absorbed (Keegan and Turner, 2002). Slack resources also ease time constraints, which are believed to have a negative effect on innovation activities (Bayer and Gann, 2007). This topic was explored within this research in order to investigate how the PBO in the CRO industry address the question of slack resources in relation to developmental projects. The result was not consistent between respondents within the organisation.

On a senior executive level slack resources was not considered as useful and the organisation appears to be running on an efficient level of resourcing rather based on response from some interviewees. Other respondents believed that slack resources would be beneficial for innovation, with one respondent stating that in their opinion they were understaffed in relation to developmental projects. This response is in agreement with Cyert and March (1963) who state that slack resources facilitate innovation by allowing firms to experiment with projects which might not attract support in an environment that is resources-constrained. Another respondent stated that resources for innovation are limited for process innovations within the department due to the priority of client projects which are fully billable. Perlow (1999) discusses this issue stating that time pressures are intertwined with the culture of PBO's. Bayer and Gann (2007) claim that this is a common issue within PBO's which can reduce innovation and affect productivity overall. This is due to the fact that problem solving within PBOs normally takes place within the context of client projects. The time shortage

issue therefore inhibits the development of solutions. This was found to be the case in one department within the researched organisation with the respondent explaining that issues within projects are identified all the time but there is no time to develop them.

Based on the interview responses Senior Management support is focused on innovation that will gain new business and there seems to be little support for process innovation developments within operational departments which may not provide immediate visible value. The respondents explain that is the nature of the business, to create revenue developmental projects must be prioritised based on value. Bayer and Gann (2007) identify a feedback loop between time pressure, innovative problem solving and organisational capabilities. They argue that time pressure is the main contributing factor. They refer to this feedback loop as the organisation being “too busy to think” which they propose has the eventual effect of slowing down acquisition of advanced capabilities. Therefore there is a case that not focussing on process innovation could be dangerous as it could affect the acquisition of business in the future.

Although this research topic focused on internal development capabilities and the organisations supportive nature of these develops, an emphasis was found during the interviews on the importance of seeking expertise outside the organisation for developments. The organisation was said to be currently exploring the possibility of setting up an innovation centre and partnering with academia. Therefore it seems that the organisation is looking outwards with regards to their explorative innovation strategy rather than at their internal capabilities.

5.3 Knowledge Management

Knowledge Management has gained importance throughout the literature and is proposed as a driver of innovation (Zhou and Li, 2012). The effectiveness of knowledge management within PBO's has been debated within the research. Therefore this research aimed to investigate the effectiveness of knowledge management within the context of innovation within the researched organisation. The results show that conclusively knowledge transfer within the context of problem solving, lessons learned and capabilities is minimal within the organisation currently. Processes within the organisation are highly documented however, which to some extent is a method of transferring knowledge. Bosch-Sijtsema and Postma (2004) highlight the complexity of knowledge transfer in PBO stating that the cross

functional teams made up of internal and external parties caused difficulties for this process. Brady and Davies (2004) propose that the key challenge for PBO to overcome is discontinuous learning. One respondent highlights the awareness of the organisation of the need to capture both internal and external knowledge.

Knowledge Management is described as a key focus currently for the organisation by the respondents and a number of developments are being implemented in order to overcome the challenge of knowledge transfer throughout the organisation. Lovel et al (2005) highlight that many PBO lack organisational mechanisms to capture knowledge. The researched organisation plans to overcome this by implementing a self-service knowledge transfer database as well as a crowd sourcing tool. These databases will allow project-level knowledge to be made accessible throughout the organisation through these socialisation tools, connect ideas and allow problem solving discussions. It is an important factor for PBOs to consider according to Bayer and Gann (2007) so as not to threaten the knowledge base of the organisation. The developments also give senior management visibility into the issues affecting the business throughout the organisation in a clear and centralised manner.

Bayer and Gann (2007) highlight the link between time and effective knowledge management due to the time required to transform experience into knowledge. Time was noted by one respondent as one factor inhibiting knowledge transfer within the organisation currently. Without addressing the issue of time constraints within the organisation implementing tools such as knowledge transfer databases and crowd sourcing tools may not benefit the knowledge management of the organisation.

Chapter 6 Conclusions and Recommendations

This chapter will draw conclusions from the data analysis and the implications of this research are summarised and presented. The limitations of this research will be discussed as well as recommendations for future study areas.

6.1 Conclusions

In order to answer the research question “How effective are PBOs in the CRO industry at providing a supportive context for innovation?” a series of objectives were investigated.

6.1.1 To investigate whether the PBO provides an organisational context that is supportive of innovation.

It can be concluded that overall the PBO does provide an organisational context that is supportive of innovation. Key topics which were discussed at length within the innovation literature were investigated. It was found that many of these themes investigated within the context of the organisation supported innovation theory and contradicted the literature surrounding the unsupportive nature of PBOs in relation to innovation. However one exception is the use of traditional evaluation techniques on developmental projects. The Stage-Gate model has been widely criticised within the innovation literature as unsuitable for explorative innovation and only suited when the outcome is clear. Therefore a more organic evaluation method may be better suited within the organisation to foster and develop innovations. Further research in the area of evaluation techniques has been suggested within the context of the PBO.

6.1.2 To investigate how PBOs in the CRO industry address the question of slack resources in the context of innovation.

The result of this objective was overall inconclusive as the opinion on slack resources for developments was different amongst the respondents in the organisation. It was found that overall the organisation does not use internal slack resources although some respondents called for resourcing to be improved to foster developments.

Time constraints was also found to be an issue within the organisation in terms of innovation and knowledge transfer which would indicate that slack resourcing could improve this situation. However, in terms of technology development the organisation seems to be looking

outside of the organisation for expertise partnering with academia and experts in the field rather than increasing resource internally.

6.1.3 To investigate the effectiveness of Knowledge Management in the context of innovation within PBOs in the CRO industry.

Currently Knowledge Management is not effective within the organisation based on the responses from some of the respondents. However the Knowledge Management is at the forefront of the organisations improvement plan and technological developments are underway in order to connect this global organisation and aid knowledge transfer in the form of a self-service knowledge database and a crowd surfing platform. These platforms interestingly will also allow senior management oversight onto the big issues of the business allowing them to rectify or improve issues which could give them competitive advantage.

This research has provided an in-depth insight into innovation with the PBO in the CRO industry. It can be concluded that overall the PBO in the CRO industry provides an organisational structure that is supportive in innovation in some respects. Project planning, project structures, communication patterns and level of autonomy in relation to innovation projects are all in agreement with the innovation management literature for fostering innovation. However areas such as governance structure of development projects, resourcing were all found to be issues within the organisation and could potentially work against innovation. Knowledge management was also found to be an issue however the organisation is proactively resolving this issue with technological developments. It is therefore necessary to complete further research within each of these areas individually in order to answer the research question more certainly.

6.2 Limitations and Recommendations for Future Study

This research was carried out in a CRO from the point of view of key personnel that have some involvement with innovation within the organisation. This study was based on a small non-probability sample. Although a rich insight into the research topic was provided through this research assumptions cannot be made from this research for all PBOs within the CRO industry. However the results of this investigate could provide a case for generalisation within similar organisation within the industry.

A broad subject matter was investigated within this research however in order to provide more depth of information into the topics of knowledge transfer, resourcing and management of innovation projects it is felt that individual research into these topics comparing either one or more organisations would be beneficial to the research topic.

One result of this study was that the organisation is using a linear approach to project evaluation which has been disputed greatly within innovation management literature. One recommendation for future study would be to compare linear traditional evaluation techniques of innovation projects with organic evaluation techniques within the PBO setting to compare outcomes of these projects. This would allow a better insight into the benefits or implications of using either evaluation technique.

The question of slack resourcing was inconclusive in this research as respondents had differing opinions on this topic dependent on their role within the organisation. It would be therefore beneficial to look into this topic further. A comparison study of innovation projects using slack resourcing and innovation projects using efficient resource levels within the PBO industry and comparing results would give good insight into this issue.

The researched organisation was found to be developing exciting knowledge management and innovation technologies in order to better foster innovation and improve knowledge transfer and capture. The crowd surfing technology is relatively new within this context therefore it would be interesting to research the benefits or issues of this technology once it is put into practise for improving knowledge management within PBOs.

There was an emphasis from the respondents that the organisation is looking externally for expertise in relation to their innovation exploration strategies. This concept was outside of the boundaries of this research topic as the research topic was looking at the internal structure and capabilities of the organisation. Further research into the development of innovation through partnerships with academia and contracted staff within PBOs in the CRO industry would be beneficial to the literature as this seems to be a developing trend.

The industry in which the CRO operates is a turbulent one with external pressures such as regulation and cost effectiveness seen as both an inhibitor and excellerant for innovation within the industry. It would therefore be an interesting research topic to investigate the effect these external pressures have on the industry in the context of innovation.

Chapter 7 Self-Reflection on Own Learning and Performance

7.1 Introduction

The self-reflection chapter describes my reflections of my own personal learning experience and development as a result of conducting this research topic and marking the completion of the MBA programme. According to Wilkinson (1996) reflection is an active process which allows the individual to gain an understanding into all the factors that have contributed to the knowledge and practice which include historical, social, cultural and personal experiences. Duffy (2007) explains that reflection challenges the individual and enables them to undertake the process of self-enquiry which has the benefit of empowerment and personal transformation. Therefore this self-reflection piece will allow me to recognise my achievements and identify key challenges faced during the research process. Each aspect of this dissertation process was challenging in different ways however it has provided me with a practical and progressive learning experience which allowed me to develop new skills and capabilities.

7.2 Reflection on Process

The research topic surrounding innovation interested me and I felt it was strategically important to my profession. Innovation is currently an important topic for the CRO Industry and the organisation in which I work have recently implemented a number of initiatives and programmes in order to improve and foster innovation amongst its employees. I decided to see if there was a connection between innovation and project management. When I began researching the topic one article stood out and planted the seed for the rest of the dissertation. The research article looked at project management and innovation. According to Naughton and Kavanagh (2009) the data from their study comparing project management accreditation against an innovation scorecard rating for different countries showed that there is a relationship between project management and innovation represented by an inverted U-Shape. The aspect of this study however that really grabbed my attention was that in countries where there were very high levels of project management a decrease in innovation was witnessed. This finding suggested that too much project management could negatively

affect innovation. Investigating this notion brought me to the topic of innovation in PBOs where there are very high levels of project management. I wanted to see if there was any literature in relation to this theory in the context of PBOs. At the start I needed to trust my own intuition regarding the research process as a lot of time was spent researching this topic. There was times where I doubted if this topic would have any substance.

I began to see a pattern amongst the literature highlighting two issues. Firstly the gap in research in the both project management and innovation literature on the subject of innovation in PBOs and secondly how little information was present in the literature surrounding PBOs in general. I was interested to see if PBOs within CRO Industry provided a context supportive of innovation and to investigate if improvements could be made in the way these organisations are managed with regards to innovation. My research became focussed on PBOs and how they managed and fostered innovation and the results of this practise. I found that there was very little research in this topic specifically and the literature was building on theory with no existing models or theories. Many authors called for further research in this area. I began to explore other avenues within the literature which had been highlighted as problem areas for PBOs and were directly connected to innovation. These included knowledge management, organisational management and resourcing in the context of project based organisations. This allowed me to piece together important research to provide a full review of the literature surrounding the topic. Due to time limitations I decided to further focus my research to a case study approach. I felt this method would allow me to research this topic in-depth with the time that I had for completion. Once my research topic was properly defined the research could be appropriately planned. In relation to Honey and Mumford's learning cycle the thesis began with the planning phase (see Figure 5.0). A plan was developed for each step of the dissertation so that time could be managed appropriately giving sufficient time to complete the dissertation on time (see Appendix 3). Literature was sourced and reviewed mainly from literature search engines such as EBSCO Host and the PMI organisation. Many other literature search engines were used but these were the most appropriate to this topic. The articles online which were selected for the research were up to date and included recent research into the research area. A number of experts in the field were also contacted by e-mail with some in the process of writing publications surrounding innovation and project management. One researcher provided me with a lot of helpful information regarding the topic.

Overall this stage of the research process allowed me to trust my own intuitions when he came to the topic. I had to overcome a lot of my own doubt as there was times when I thought I was on the wrong path with the topic selection. I also had to ‘think outside the box’ when it came to research strategy and finding sources as there was little research previously in this topic. I think that these personal developments have really benefited me and I will go on to use these in my work life.

7.3 Reflection on Sources

While developing my literature review I found it challenging to locate appropriate articles. I also noticed a lot of authors throughout the literature called for further research in the area and several authors were currently publishing books on the very subject. I decided to e-mail these authors and their publishers explaining my research to see if they could provide me with some information. One author responded and was very helpful in giving me some direction on the subject. The idea of contacting researchers out of the blue was a little daunting at first and I spent a long time constructing the e-mails so they were clear and concise. However I feel I have improved my communication skills and also I have seen first-hand the benefits of networking which I will be conscious of in the future. At the start of the literature review process I spent a lot of time reading articles that were not very relevant to the topic. However I began to develop a good critical eye for appropriate articles that provided good insight. Once I could develop a pattern of topical areas within the research topic I was able to shape my research objectives accordingly. This meant that the research area was more defined which made it easier to find and review articles.

One of the most challenging aspects of the dissertation formulation was the primary data collection. Within this research I had to source suitable candidates for the interview, persuade them to take part in the interview and then actually interview these people. All of which I found challenging for different reasons and I was quite nervous about at the start. The organisation is quite complex, made up of many divisions and functions within hundreds of job titles. This made it difficult to locate suitable candidates. However I found word of mouth was the best tool. I began discussing my research topic with colleagues at lunch and at meetings. This would lead to suggestions being made for appropriate people to interview. This I found had a ripple effect and led me to suitable candidates for this research. Persuading the respondents was another challenge and required me to use my communication and persuasion skills. It was important to get the candidates interested in the research I found. The final challenge was the actual interview process. Dealing with the different personalities and interviewing members of senior management was a daunting task. Also controlling the interview

and ensuring the respondents answered the questions as they were asked was important. I felt that from this process I really developed my communication and networking skills. These skills are crucial to my future career and I found this extremely beneficial for my own development.

7.4 Reflection on Dissertation Formulation

The sources I used I found to appropriately support my dissertation. The literature provided me with a full picture of the topic. The primary data collection then allowed me to investigate this topic further in the real world context. I cross compared the literature with the results from the interviews which allowed me to identify gaps within the research and to investigate whether the real life case was consistent or contradicted the literature. Through this research I have identified some interesting modern solutions that the organisation is implementing to solve issues that have been discussed throughout the literature for many years. The crowd surfing tool is one example, where the organisation is using technology to overcome issues of knowledge management and to enhance innovation activities between internal and external personnel. This could be a key area for further research within both project management and innovation management literature. I found the literature overall on this subject displayed a lot of issues with innovation and characteristics of PBOs that cause the issues but very little solutions overall. I think this research has added something in the terms of providing ideas and solutions to resolve the issues.

7.5 Reflection on Own Learning

According to Kolb (1984) “learning is the process whereby knowledge is created through the transformation of experience”. Kolb built upon earlier work by John Dewey and Kurt Levin in order to develop the Experimental Learning Theory. It presents a cyclic model of learning which consists of four stages which is illustrated in **Figure 8.0**.

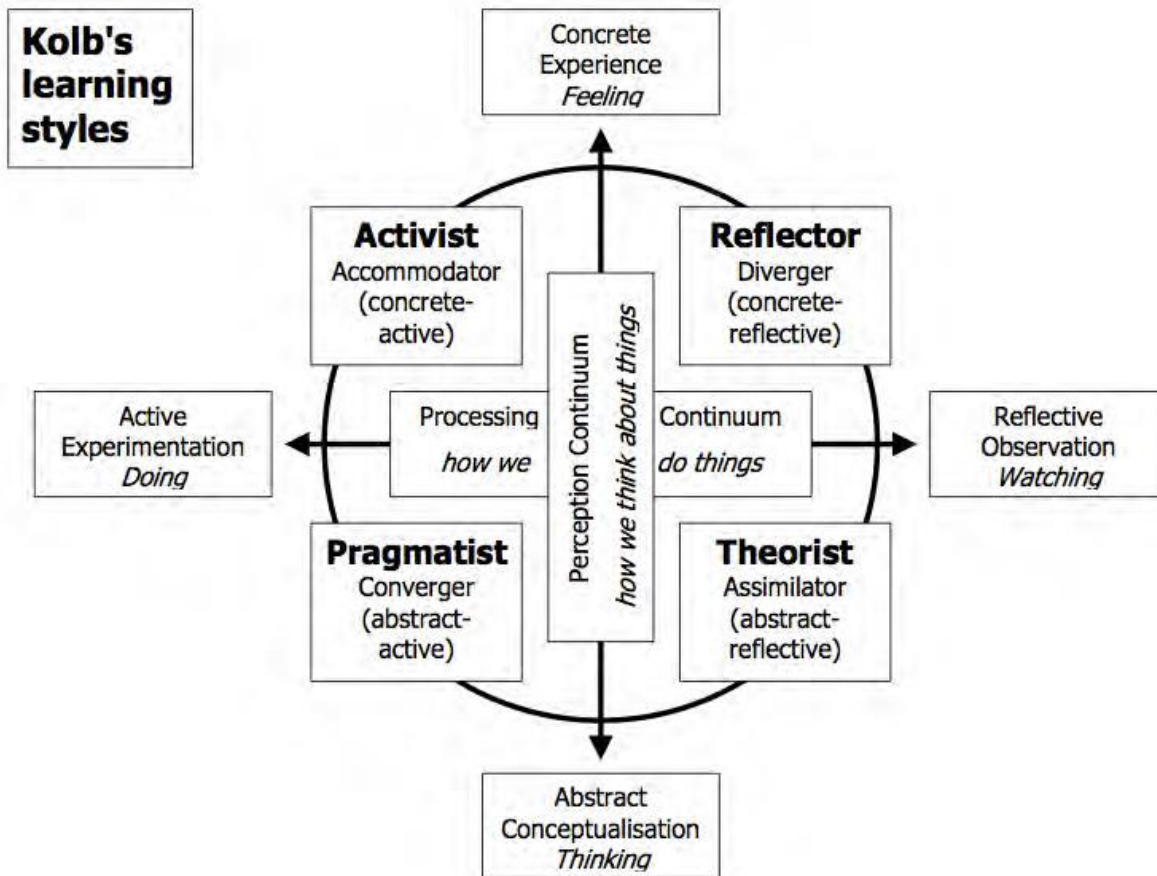


Figure 8.0: Kolb's Learning Styles

Source: The Banff Centre (1993) "The Kolb Learning-Style Inventory©" Available at: http://www.banffcentre.ca/leadership/assessment_tools/kolb/ [Accessed: 20 August 2014]

The four learning styles include Activist, Reflector, Theorist and Pragmatist. The learning cycle focuses on learning from activity or experience.

I believe the learning style that most suits me is that of the Reflector. Within this research especially I spent a lot of time collecting and analysing data. I always ensured to maintain a big picture perspective and therefore found it important to gather information from all angles of the topic. I spent some time sourcing personnel in positions which dealt with innovation within the researched organisation from different perspectives. I also used literature from varying time frames in order to gain a good insight into the development of the research area.

7.6 Conclusion

I have learned more than I expected I ever would from both this dissertation and MBA programme. I believe that through every stage of the last two years I have been thrown out of my comfort zone and challenged over and over again. The benefits are just expeditious for my own development and my career.

I think one major skill that has been enhanced and that I have seen the most improvement in is my communication skills. The many assignments, research topics and presentations have enabled me to develop these skills. However also in regards to the interviews I've performed and the sources I've had to contact over the course of the research assignment. This is one skill that is really important for my current career but also one that is a necessity to perfect in order to be a successful Project Manager.

I have also developed my problem solving skills. There has been many times through the MBA process where I have been faced with an issue or an obstacle that was stopping me from proceeding with my studies or an assignment. One example would be the limited information available surrounding my research topic. I found myself very frustrated coming so far into the process and finding that there was not a sufficient amount of resources specifically in the topic. However instead of giving up I began to think of different ways of researching the subject, by contacting experts in the field and research areas around the topic. I have now learned that it is important to think about possible solution before giving up or panicking about a problem. I believe that this is a crucial skill for a Project Manager and one that will help me develop my own career.

The idea of networking always seemed unnecessary to me before I entered the MBA programme. However especially through the research process I found that networking with colleagues within my organisation has benefited me greatly. It is something that I am now conscious of and hope to improve on in the future. Although the MBA programme is now finished my learning will not stop there. In order to develop myself and progress my career I will need to constantly work and develop on the skills which I have identified through the MBA programme as vital.

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Appendix

Appendix 1: Interview Invitation

Dear _____

I am currently conducting a short research project as part of my MBA. The research project deals with Innovation in Project Based Organisations such as ICON. Some key areas of this research include:

- Management of Innovation Projects
- Evaluation of outcomes from Innovation Projects
- Slack resources
- Knowledge Management

The research will be achieved by holding a series of interviews with personnel in key positions within the organization. I would therefore be very grateful if you would be available over the next couple of weeks for a short (approx. 30 min) interview to discuss these key areas in relation to your experience in innovation activities and projects within ICON.

Kind regards,

Jo Jennings

Appendix 2: Interview Guide

1. How important is innovation to the organisation?
2. How is innovation fostered within the organisation?
3. What type of innovation activities is the organisation focussing on
4. How is innovation projects managed?
5. Do project teams have a high level of autonomy or are these projects tightly controlled?
6. How is innovation projects evaluated within the organisation?
7. How is innovation projects resourced?
8. How does the organisation address the question of slack resourcing?
9. How is knowledge transferred between innovation projects?
10. How effective is knowledge management within the organisation?

Appendix 3: Time allocation research plan

Time Management was an important aspect of this dissertation due to the short timeframe of the dissertation process. Therefore the time allocation research plan was a great tool to ensure time was mapped out and allocated accordingly. Below the time allocation research is illustrated for this study.

Activity	Start Date	Finish Date
Searching for secondary data	June 2014	June 2014
Reading secondary data and compiling literature review	June 2014	July 2014
Creating interview guide and arranging interview dates	1 st July 2014	10 th July 2014
Performing interviews and transcribing results	21 st July 2014	31 st July 2014
Analysing primary data	1 st August 2014	3 rd August 2014
Writing results, findings and conclusions	4 th August 2014	9 th August 2014
Writing introduction, adding to methods	10 th August	13 th August 2014
Proof reading, adding title pages, table of contents, acknowledgements, completing bibliography	13 th August 2014	16 th August 2014
Self-reflection on learning	17 th August 2014	18 th August 2014
Printing and Binding	19 th August 2014	19 th August 2014
Dissertation submission	22 nd August 2014	22 nd August 2014