Exploring the Impact of External Investors on Resource Availability in High Potential Start-up Businesses in Ireland

By

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DECLARATION

The author hereby declares that, except where duly acknowledged, this thesis is entirely his own work.

This thesis is not one for which a degree has been, or will be, conferred by this, or any other university or institution.

Signed: Eugene Crehan

Mr. Eugene Crehan

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My heartfelt thanks to my family, the brilliant Maria and my wonderful sons Marc, Luke and Eric for their never-failing support and encouragement throughout this enlightening and rewarding journey.

DEDICATION

This thesis is dedicated to the memory of my loving parents

Owen and Gertie Crehan.

ABSTRACT

This research explores the impact of external investment on resource availability in high potential start-up (HPSU) businesses in Ireland, in the context of developing internal sources of competitive advantage. Only a minority of early stage businesses exploiting some form of innovation or engaging in research and development (R&D) require external equity-based investment. This study explores how HPSUs engage with external investors to increase resource availability in their firms, thus allowing them to develop resources in pursuit of competitive advantage. A conceptual framework is developed depicting resource availability in HPSUs in the context of developing resources in pursuit of competitive advantage. The framework is underpinned by resource-based view (RBV) theory with the intent of extending RBV theory to smaller, high potential early stage businesses. The research adopts a qualitative interpretivist multiple case study method, utilising in-depth interviews with the HPSU CEOs, followed by group interviews with employees and co-founders in tandem with analysis of firm documentation. Seven HPSUs participated in this study between June and December 2017. A novel approach in this research is the focus on the perspectives of the recipients of the investments, that is the early stage businesses. The capture of these perspectives enables this study to construct a comprehensive description of HPSU activities prior to and after securing external investment. The research describes how goal setting at firm-level leads to resource needs identification and consequently to interactions with external investors to acquire resources for the HPSUs. It then discusses how HPSUs configure financial and non-financial resources in pursuit of competitive advantage for the firms.

The research findings conclude that HPSUs acquire investment from a variety of sources and configure those financial and non-financial resources in a manner that affords them competitive advantage in the market. The overarching conclusion is that HPSUs are not typical early stage firms, as they are not resource poor in all categories. They can be regarded as rich in non-financial resources such as founders' experience, technical skills, IP rights and valuable connections via founders' networks. Limited financial resources curtail their potential. That potential is augmented through the receipt of external investment. Several practical recommendations are made for HPSUs and prospective HPSUs, for Government funded bodies supporting early stage businesses, and for investors and debt providers. This research extends the application of RBV to the entrepreneurial environment of small firms by describing the contextual environment of HPSUs and how they organise their firm resources to develop resources in pursuit of competitive advantage. A contribution to theory is achieved by extending the application of RBV to resource-rich, cash-poor, high potential, early stage businesses.

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Conceptual Paper

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LIST OF ABBREVIATIONS

CA	Competitive Advantage
CF	Conceptual Framework
CSF	Competitive Start Fund
EI	Enterprise Ireland
ESOP	Employee Share Option Programme
HPSU	High Potential Start-up
IP	Intellectual Property
LEO	Local Enterprise Office
MRR	Monthly Recurring Revenue
R&D	Research and Development
RBV	Resource Based View
SBCI	Strategic Banking Corporation of Ireland
UOA	Unit of Analysis
VC	Venture Capital
WIT	Waterford Institute of Technology

SECTION ONE:
INTRODUCTION AND DBA RESEARCH OVERVIEW

1.0 Overview

This research study explores the impact of external investment on resource availability in high potential start-up (HPSU) businesses in Ireland, in the context of developing internal sources of competitive advantage. It describes how high potential early stage businesses engage with external investors to increase resource availability at firm level. Only a minority of early stage businesses require external equity-based investment. Characteristically, these are high potential businesses exploiting some form of innovation or engaging in research and development (R&D). In the Irish context, these HPSUs are defined by Enterprise Ireland[1] (2016) as "start-up businesses with the potential to develop an innovative product or service for sale on international markets and the potential to create at least 10 jobs and achieve over €1m in sales within 3 to 4 years of starting up". This study explores how HPSUs engage with external investors in order to increase resource availability in their firms, thus allowing them to develop resources in pursuit of competitive advantage. The researcher acts as an advisor to start-up and early stage business founders. Each year a cohort of these founders is successful in securing external investment and in becoming clients of Enterprise Ireland (EI). The researcher's ambition in undertaking this doctoral research is to gain deep insights into what happens in HPSUs both prior to and following the receipt of external investment, and to generate findings that will provide valuable insights and benefits for future prospective HPSUs. This study

[1] Enterprise Ireland (EI) is the Irish Government agency responsible for supporting Irish businesses in the manufacturing and internationally traded service sectors.

was undertaken in pursuit of a professional Doctorate in Business Administration (DBA), at Waterford Institute of Technology, Ireland.

Following an extensive literature review, a conceptual framework was developed depicting resource availability in HPSUs in the context of developing resources in pursuit of competitive advantage. The framework is underpinned by resource-based view (RBV) theory with the intent of extending RBV theory to smaller, high potential early stage businesses. The research adopts a qualitative interpretivist multiple case study method, utilising in-depth interviews with the HPSU CEOs, followed by group interviews with employees and co-founders in tandem with analysis of firm documentation. In order to manage ethical issues, the researcher developed several protocols for the semi-structured interviews and the group interviews and received ethical approval from the host institute in June 2017. The qualitative interpretivist case methodology was successfully tested in a pilot case study in June 2017. Case candidates in this study were identified from publicly available lists of 308 HPSU businesses which have been supported by EI for the years 2014, 2015 and 2016. A quasi-random sampling method was used to select 18 HPSUs who were then invited to participate in the study. Seven HPSUs participated in this study between June and December 2017. Data were collected through semi-structured in-depth interviews with CEOs in their offices, followed some weeks later by group interviews with the HPSUs' co-founders and employees. A novel approach in this research, is the focus on the perspectives of the recipients of the investments, that is the early stage businesses. As a result, in capturing perspectives of the HPSUs, this study constructs a comprehensive description of HPSU activities prior to and after securing external investment. The research describes how goal setting at firm-level led to resource needs identification and consequently led to interactions with external investors to acquire resources for the HPSUs. It then discusses how HPSUs configure financial and non-financial resources in pursuit of competitive advantage for the firms.

The research findings conclude that HPSUs acquired investment from a variety of sources and configured those financial and non-financial resources in a manner that afforded them competitive advantage in the market. The overarching conclusion is that HPSUs are not typical early stage firms, as they are not resource poor in all categories. They can be regarded as rich in non-financial resources such as founders' experience, technical skills, IP rights and valuable connections via founders' networks. Therefore, they have potential that is curtailed by limited financial resources and that potential is augmented through the receipt of external investment. The discussion of the research conclusions led to the development of areas of contribution for both practice and theory. Several practical recommendations are made for HPSUs and prospective HPSUs, for Government funded bodies supporting early stage businesses, and for investors and debt providers. This research extends the application of RBV to the entrepreneurial environment of small firms by describing the contextual environment of HPSUs and how they organise their firm resources to develop resources in pursuit of competitive advantage. A contribution to theory is achieved by extending the application of RBV to resource-rich, cash-poor, high potential, early stage businesses and by the identification of opportunities for further research.

This chapter is intended to provide the reader with insights into the evolution of the thesis. It commences by providing a description of the firms participating in this study. This is followed by an overview of the literature on resource availability and external investment in early stage businesses, noting that prior works have not explored the relationship between firm engagement with external investors and resource acquisition. Next, the researcher's motivations for undertaking the study are discussed and the research gap is articulated. The research aims, and objectives are then presented followed by an overview of the research process and key contributions to theory and practice. The chapter concludes with an outline of the thesis structure.

1.1 Description of Research Participant Organisations

High potential start-up (HPSU) is a term used by Enterprise Ireland, the state body with responsibility for assisting fledgling businesses to start and scale in Ireland. Enterprise Ireland (EI) defines a HPSU as "a start-up venture that is introducing a new or innovative product or service to international markets" (Enterprise Ireland, 2016). The CEOs of seven HPSUs agreed to be interviewed as part of this research and facilitated the researcher's access to group interviews with co-founders and employees in the business. Five of the HPSUs were based in Leinster, while one was based in Connacht and one in Munster. Three of the participating HPSUs were established less than two years, one was established for three years and three were established for four years. All the CEOs interviewed were male. Two of the HPSUs with female CEOs that were contacted expressed interest in this research but were unavailable to participate within the required timeframe. A third female CEO was in the middle of a funding round and she was simply too busy to participate (see Discussion Chapter, Section 2.4: Challenges Facing Female Entrepreneurs). Five of the HPSUs were involved in Software and Services sectors while two were involved in the MedTech and Pharmaceutical sectors. Three of the HPSU CEOs had participated in a start-up programme or accelerator. Over half the HPSUs employed more than ten people, a key Enterprise Ireland metric for HPSU companies it supports. Twenty-nine people from seven HPSUs participated in this research and contributed to 885 minutes of interviewing. Seven were CEOs, while the other twenty-two included co-founders and employees who participated in the group interviews. Each of the CEOs had been involved in their respective company since it was founded; an average of three years across the seven HPSUs. Co-founders and employees had been with their respective companies 22 months, on average. Job roles for the group interview participants within the HPSUs were clustered into commercial (eight people) or technical (fourteen people). The gender split was six females and sixteen males. A brief overview of the HPSUs which participated in the study follows:

<u>HPSU 1</u> is a software and services business. I interviewed the CEO and later conducted a group interview with a co-founder and an employee. While none of the co-founders had start-up experience, they had extensive relevant industry experience. The company employed two software development contractors at the time, who were located off-shore.

<u>HPSU 2</u> is a software and services company. I interviewed the CEO who had prior start-up experience and participated in a structured start-up programme. While he had prior start-up experience, he did not have deep sectoral knowledge and therefore hired people

who had relevant industry experience. Five people in this company who held a mixture of commercial and technical roles took part in the group interview.

HPSU 3 is a software and services company. The CEO did not have prior start-up experience or (target) sectoral experience but had significant international business experience. I interviewed four people in the company during the group interview who held technical and commercial roles. Two of the technical people had deep industry experience in the target sector for the HPSU.

HPSU 4 is a MedTech and Pharmaceutical company. The CEO had prior start-up experience and a reputation in the industry as an innovator. Two employees who possessed specialised technical skills took part in the group interview. While they held technical roles in the business, they were well informed on potential market applications for the firm's technology.

HPSU 5 is a software and services company. The CEO and co-founder had several years' experience in the target industry sector. The CEO participated in a structured start-up programme as the co-founders lacked any prior commercial experience. Five people, including one co-founder, participated in the group interview. While their roles were mostly technical, they were very knowledgeable about how customers used their technology and services, and regularly spoke with customers to resolve technical issues.

HPSU 6 is a software and services company. The two co-founders had deep technical knowledge in their domain area. The CEO had relevant industry experience but did not have any start-up experience. Two employees with commercial roles participated in the group interview.

HPSU 7 is a MedTech and Pharmaceutical company. One of the co-founders had significant commercial experience while the other possessed deep technical knowledge. Two commercial employees participated in the group interviews.

1.2 Background to the Research Study

This section discusses resource constraints and the role of external investors in early stage businesses.

1.2.1 Resource Constraints in Early Stage Businesses

During the start-up phase, businesses regularly experience monetary constraints, because they are financed by limited bank debt or informal sources of finance (Barry *et al*., 2012; Kelly, 2007; Mason and Harrison, 2004). These constraints are contributory factors in the high failure rates of early stage businesses (Aldrich and Auster, 1986; Brüderl and Preisendörfer, 1998; Bruderl and Schussler, 1990; Freeman *et al*., 1983). Steve Blank writing in the *Harvard Business Review*, noted that three out of four start-ups fail, and claims that starting a new business "has always been a hit-or-miss proposition" (Blank, 2013b, p. 66). Studies by Perren (1999), O'Regan and Ghobadian (2004), and Simpson *et al.* (2012) claim that resource constraints have an influence on business planning in new businesses. Business planning in early stage businesses sees CEOs leading their teams through processes of opportunity recognition, goal-setting and actions to leverage maximum benefits from the limited resources available to the business in an iterative process of "strategic experimentation" (Nicholls-Nixon *et al.*, 2000, p. 494). High potential start-up businesses try to develop competitive advantage within the firm in order to reduce risks of failure and establish a foundation for business growth (Nicholls-Nixon *et al*., 2000; O'Regan and Ghobadian, 2004). Business plans and goals established through these processes increase resource demands within the firm, especially if aiming to develop competitive advantage relative to market competitors (Perren, 1999; Simpson *et al*., 2012). Through the optimal alignment of financial and non-financial resources with firm capabilities, early stage businesses create sources of competitive advantage. Grant (1991) describes these capabilities as internal systems of organising activities through the effective utilisation of firm resources. Time is an important non-financial resource in new businesses. Time constraints limit the development of expertise amongst business founders and employees, and this in turn, hampers business planning required to develop sources of competitive advantage (Barry *et al*., 2012). Firm actions desirable for building competitive advantage in the business are often delayed due to resource availability and limited cash reserves in early stage businesses (Phillipson *et al.*, 2004). The need to develop competitiveness, within the firm, while experiencing resource constraints is often the catalyst for early stage businesses to engage with external investors as a means of acquiring critical financial and non-financial resources. However, many early stage businesses experience difficulties in attracting new investment or resources, because the business is not regarded as being investment-ready by potential investors (Kelly, 2007; Mason and Harrison, 2004; Mason and Kwok, 2010).

1.2.2 The Role of External Investors in Early Stage Businesses

External investment in early stage businesses bolsters firm-based reserves providing protection from environmental shocks during the start-up phase (Rosenbusch *et al.*, 2013). Some researchers claim that the performance of early stage businesses is enhanced by securing external investment for the enterprise. Sapienza (1992) claims that the added-value services provided by venture capital firms, have a strongly positive impact on the performance of their investee businesses. In contrast, research on high-tech businesses based in California, Massachusetts and Texas found no performance advantage for businesses who received venture capital funding compared to those that did not, unless the investor belonged to a "Top-20 VC firm" (Rosenstein *et al.*, 1993, p. 99). The findings of the Sapienza (1992) and Rosenstein *et al.* (1993) studies suggest that investee firms benefited from non-financial resources such as leadership via board membership and also innovation development, in addition to the financial resources acquired by the firms.

A study of businesses listed on European Stock Exchanges by Bottazzi and Da Rin (2002) did not find a positive impact on businesses that received venture capital funding. Similarly, studies of German and British high-tech start-ups by Burgel *et al.* (2000) did not record significant growth in sales in venture capital investee businesses, when compared to similar businesses in their industry. In parallel with these German and British studies, venture capital supported businesses in Belgium, researched by Manigart and Van Hyfte (1999), did not achieve notably higher rates of employment growth than their non-funded peers. Interestingly, these Belgian firms witnessed augmented levels of total resource availability and cash flow; an observation also noted in the Jain and Kini (1995) US study. The lack of evidence that cohesively links external investment in early stage businesses to enhanced performance is highlighted by Rosenbusch *et al.*'s (2013) synthesis of 76 prior studies involving 36,567 firms. Rosenbusch *et al.* (2013) found only a minimal positive effect of VC funding on firm performance and noted that evidence of positive effects is non-existent in both early stage businesses and very mature firms. The role of external investment in the survival of young firms seems to be less contested, as other studies highlight the positive impact that resources such as human influence (Wiklund and Shepherd (2005) and the availability of internal finance, have on early stage business survival (Carpenter and Petersen, 2002). These studies have focused on the impact of external investment on firm (sales and employment growth) performance and survival rates retrospectively.

While these works have given valuable insights into the impacts that different resources have on early stage business, they have not explored the impact of external investors on the availability of resources that may contribute to the development of sources of competitive advantage in the early stage business. High potential early stage businesses look to external sources for equity-based finance to fund firm activities including the purchase of resources for the business (Kelly, 2007; Mason and Harrison, 2004; Revest and Sapio, 2012). Typically, the profile of these businesses is that of early stage businesses in need of investment to acquire critical resources, to invest in R&D, or to exploit some form of technological innovation (Mason and Harrison, 2004; Maxwell *et al.*, 2011). This profile mirrors Enterprise Ireland's description of HPSUs that need to secure finance to fund growth through the development of sources of competitive advantage.

The two main sources of equity-based finance supporting the development of new and existing entrepreneurial businesses are venture capital firms and private investors including business angels (Ehrlich *et al.*, 1994; Mason and Kwok, 2010; Maxwell *et al.*, 2011; Wong *et al.*, 2009). Business angels typically are high net-worth individuals, and many are successful entrepreneurs or private sector senior managers. While they invest relatively modest amounts they often provide non-financial supports to investee firms (Mason and Harrison, 2004). In addition to the equity-based financial resources provided to early stage business, investors also provide a range of additional non-financial resources such as providing strategic advice and assistance in attracting additional finance (Mason and Harrison, 2004). Astute business owners compare these types of non-financial, value-added benefits, offered by VCs and private investors, during the process of selecting external investors, to maximise potential benefits secured for the firm (Ehrlich *et al.*, 1994; Maxwell *et al.*, 2011). The early stage businesses also possess non-financial resources that may flow to the external investors in the form of innovation, the entrepreneurs' skills and market knowledge (Arthurs and Busenitz, 2003; Franke *et al.*, 2008; Revest and Sapio, 2012). The potential investors will evaluate the value of the HPSU's expertise and the track-record of the business owner, his or her commitment to the business, and their ability to manage resources being transferred to the business (Franke *et al.*, 2008; Mason and Harrison, 2008).

1.3 Motivation for Undertaking the Study

This section provides a description of the origins of this research and its relevance to the researcher's professional practice. It then outlines the relevance of RBV theory to early stage businesses before establishing the research purpose and contributions to theory and practice.

1.3.1 Study Relevance to Researcher's Professional Practice

In my professional practice, I manage an entrepreneur development programme, funded by Enterprise Ireland, acting as an advisor to start-up and early stage business founders in the southeast region of Ireland. Typically, these businesses are 'pre-revenue' as they engage in R&D or try to exploit innovative products or services and require investment from external sources including state bodies and private investors. The entrepreneur development programme participants' engagement with external investors normally happens after completing their participation on the programme. Each year a cohort of these founders is successful in securing external investment and becoming clients of the Enterprise Ireland HPSU Division. However, success rates vary from year to year. Recognising this variance, I sought to better understand how prospective HPSUs engage with external investors and with EI and contemplated undertaking a research study in this area. Being aware of the DBA programme at Waterford Institute of Technology (WIT), I anticipated that this topic might be suitable as a practitioner-focused theme for a doctoral research study. The attraction of the WIT DBA was that it is a structured four-year, part-time doctoral programme that allowed me to work full-time while undertaking the research project. I had undertaken a part-time Executive MBA degree while working a six-day-a-week job in Dubai UAE twenty years earlier. I thought that if I survived that process and earned an MBA that I could apply myself to the significant workload of undertaking doctoral research. I applied for a place on the WIT DBA programme in April 2014 and commenced the programme in October 2014.

On commencement of the DBA programme I continued to reflect on the potential research topic. I posited that the introduction of external finance into an early stage business may have a strong influence on the strategic direction of the business rooted in the investors' expectations of growth and potential return on their investment. I subsequently engaged with the business literature to explore how start-ups and small firms approach business planning and strategy formation, the growth rates in new businesses, and how start-ups engage with investors, amongst other themes. The literature revealed that several variables impact early stage business success, as measured by annual growth rates. These include start-up human and financial capital (Cooper *et al.*, 1994), promoter and partners' influence via entrepreneurial orientation (Wiklund and Shepherd, 2005), the availability of internal and external finance (Carpenter and Petersen, 2002), and the impact of venture capital funds (Engel, 2002) on early stage businesses. I discovered that prior studies focused on the investment impact on firm sales and employment performance retrospectively and realised that measuring success by annual sales was not feasible for pre-revenue, early stage businesses (Aldrich and Auster, 1986; Bottazzi and Da Rin, 2002; Burgel *et al.*, 2000; Jain and Kini, 1995; Manigart and Van Hyfte, 1999; Rosenstein *et al.*, 1993; Rosenbusch *et al.*, 2013; Sapienza, 1992). I concluded that a longitudinal study of early stage business performance, based on sales growth over time, was not achievable within the timeframe of a structured DBA programme. Through further engagement with the literature, I identified the positive impact of external investment on firm survival and contemplated if investment helped firms to become more competitive, thereby contributing to their survival (Aldrich and Auster, 1986; Barney *et al.*, 2001; Bruderl and Schussler, 1990; Brüderl *et al.*, 1992; Foss and Knudsen, 2003; Freeman *et al.*, 1983; Priem and Butler, 2001). Delving deeper into the literature revealed that prior research has not explored the relationship between early stage firm engagement with external investors and resource acquisition, at firm level, which may assist firms in developing competitive advantage. This gap in the literature influenced the focus of the current research in exploring the impact of external investment on resource acquisition in early stage businesses, such as HPSUs, in pursuit of developing sources of competitive advantage.

1.3.2 Resource Based Theory and Early Stage Businesses

Resource based-view (RBV) theory of the firm is concerned with how strategically valuable internal resources are managed within an organisation to develop key capabilities that evolve into competitive advantages for the enterprise (Barney, 1991; Day, 1994; Foss, 2011; Lippman and Rumelt, 1982; Penrose, 1959; Peteraf, 1993; Priem and Butler, 2001; Rumelt, 1997; Wernerfelt, 1984). The theory stems from works by Selznick (1957) linking leadership and distinctive competence to firm success and Penrose (1959) who identified organisational resources as important to firm growth. Building on these intellectual foundations, authors expanded resource-based view theory by adding concepts such as organisational culture (Barney, 1986), causal ambiguity (Lippman and Rumelt, 1982), and non-financial resources such as knowledge (Wernerfelt, 1984) as contributory factors in developing and sustaining competitive advantage. Two key streams of RBV emerged in the literature, the first espoused by Wernerfelt (1984) as a strategic management tool used by firms to analyse strategic options and the second, and of relevance to this study, as an entrepreneurial framework used to analyse sources of competitive advantages of an enterprise (Barney, 1991; Barney *et al.*, 2001).

According to Day (1994, p. 38), capabilities are “complex bundles of skills and collective learning, exercised through organisational processes that ensure superior coordination of functional activities”. In order to develop effective capabilities in the enterprise, these capabilities must be continuously adjusted and refined (Brown and Eisenhardt, 1995). Resource-based view (RBV) is concerned with sustainable competitive advantage, not only with the acquisition of valuable internal resources within an organisation, but how they are coordinated to develop key capabilities that evolve into competitive advantages for the enterprise and can be sustained over time (Alvarez and Busenitz, 2001). While there is no single unambiguous definition of competitive advantage or how it may be measured, several authors describe firm activities to achieve competitive advantage. In his seminal work on RBV, Barney (1991) established criteria concerning the integration of internal resources that contribute to the potential of achieving sustainable competitive advantage:

> "A firm is said to have a sustained competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy" (Barney, 1991, p. 102).

He claimed that in order for the enterprise to develop resources that are sources of competitive advantage they must be viewed as valuable, rare, inimitable and also non-substitutable (VRIN). An understanding of the strength of the competitive advantage derived from specific resources gives us insights into the potential capabilities of early stage businesses compared to market rivals. Nicholls-Nixon *et al.* (2000) assert that owners attempt to configure resources available to them within their business in order to differentiate the enterprise within a market in what Van de Ven and Polley (1992) describe as trying to create a competitive advantage. RBV does not restrict the meaning of resources to finance alone, therefore firm access to valuable non-financial resources can be regarded as contributing to the development of competitive advantage. Wernerfelt (1984), claimed that access to non-financial resources such as technical skills, human and social capital, business and technical knowledge are beneficial to the business.

This configuration of resources to develop sources of competitive advantage described above is also relevant to early stage high potential businesses. Early stage businesses are often under pressure to develop competitive advantage in order to avoid failure and to grow the business. Although RBV is typically applied to larger organisations, smaller firms also need to acquire critical resources to create a sustainable competitive advantage (Foss, 2011; Rangone, 1999). Research by Foss (2011) looked at entrepreneurship in the context of RBV and observed that entrepreneurial firms seize identified market opportunities by leveraging firm resources in pursuit of firm growth goals. In earlier work, Barney (1991, p. 634) acknowledges that the focus of RBV research has mainly been on larger firms, "yet smaller firms also face the need to acquire critical resources to create a sustainable competitive advantage". The interactions that occur between entrepreneurial HPSU owners and external investors can be explained in terms of RBV, where the HPSU owners strive to acquire specific resources that will enable their businesses to develop certain resources and strategic capabilities in pursuit of competitive advantage. This research focuses on how interactions with external investors impact resource acquisition at HPSU level and explores how the firm deploys its resources to develop sources of competitive advantage. A unique aspect of this research is that it views investor-investee engagement from the perspective of the HPSU, in receipt of the funds. Consequently, the inferential definition of competitive advantage is as it is perceived by the HPSU; is the HPSU better off, did the firm acquire resources, did the HPSU configure these resources in a manner to afford the firm competitive advantage in the market?

1.3.3 Research Purpose and Contributions

A number of gaps in the literature have been identified. Prior studies sought to retrospectively explain the impact of external investment on enterprise performance. These studies have not explored the impact of external investors on resource availability in early stage businesses that may contribute to the development of resources in pursuit of competitive advantage in those businesses. Prior works have not captured the perspectives of the firms in receipt of the investment. Earlier studies have not applied the RBV framework to early stage high potential early stage businesses. This research addresses the lacuna in the literature by providing a description of the interactions between HPSU businesses and external investors, and the impact that such interactions have on resource availability and resource development in pursuit of competitive advantage, in HPSU businesses in Ireland. The study gives an account of what happens in HPSU businesses prior to, and following, the injection of external investment, from the perspective of the recipient of the finance, the HPSU. This research provides a rationale to extend the application of RBV to the entrepreneurial environment of high potential early stage businesses by describing the contextual environment of HPSUs and how they organise their firm resources to develop sources of competitive advantage. The extension of RBV to HPSUs is a niche theory and cannot be generic to all start-up or small businesses. HPSUs are not normal small businesses; they are rich in non-financial resources such as founders' experience, IP, and access to valuable networks. Benefits of this research to early stage and prospective HPSU businesses include, providing an understanding of engaging with external investors, tailoring investment proposals to specific investor types, and understanding how resources such as technology, skills, social capital and finance can be aligned to develop competitive advantage within the HPSU.

1.4 Research Aims and Research Questions

Touliatos and Compton (1988, p. 7) define research as a systematic inquiry "to discover new information or relationships". The focus of this research is how engagement with external investors contributes to resource acquisition and the development of resources in pursuit of competitive advantage within HPSUs in Ireland. The research objective is to:

"explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage".

The resultant research questions are:

RQ1: Why do HPSUs engage with external investors to increase resource availability in the business?

RQ2: What impact do external investors have on resource availability within HPSUs?

RQ3: How does increased resource availability within HPSUs contribute to the development of internal sources of competitive advantage?

This study explores *why* HPSU entrepreneurs engage with investors, the *impact* that investors have on resource availability, and *how* such resources contribute to the development of resources in pursuit of competitive advantage. The research explores whether financial and non-financial resources flowed to the HPSU and how, if at all, they were utilised at firm level to develop competitiveness.

1.5 Overview of the Research Process

This section provides an outline of the steps taken in the research process and the choices made by the researcher in executing the research plan. The process commenced with a review of extant literature and progressed through multiple milestones through to the research findings and contributions to theory and practice. At the commencement of the research study, the researcher conducted an extensive review of pertinent literature on business theories, resource constraints, and investment in early stage businesses, amongst other themes. Summaries of the themes are provided in Sections 1.2 and 1.3, of this chapter. This led to the development of a literature informed conceptual framework, underpinned by resource-based view theory as depicted in Figure 1. The conceptual framework supports the pursuit of the research objective and research questions. It is a diagrammatic summary of exchanges between the key actors: the high potential start-up business and potential external investors. The framework attempts to align resource-based view theory (RBV) at the early stage firm level, to explain the actions of the HPSU owner/founder.

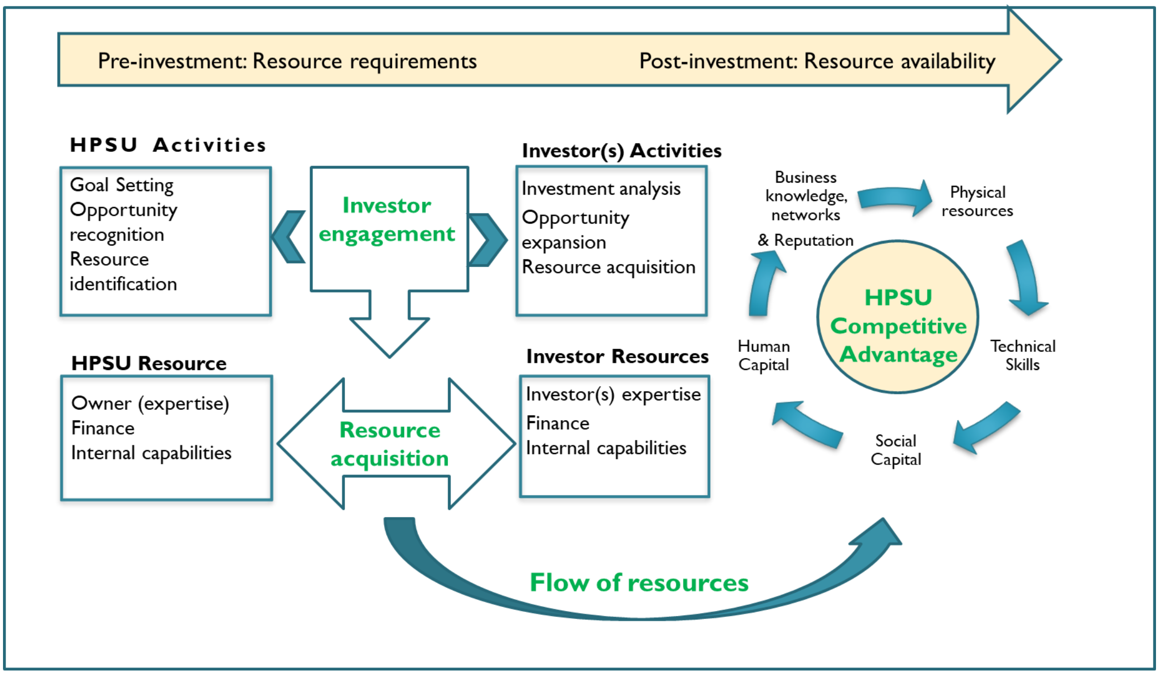

Figure 1: Conceptual Framework - Resource Impact of External Investors on HPSUs

Following the literature review, theory selection and development of the conceptual framework, the researcher had to make choices regarding the philosophical perspective of the study. In pursuit of the research objective, the philosophical determination selected for the study is interpretivist in approach. The knowledge created in this study will equip the researcher with a wealth of knowledge in his professional practice to augment the value of advice offered to early stage business promoters before and after securing external investment. This is aligned to the researcher's philosophical position as an interpretivist researcher. In practice, the researcher is an advisor to early stage businesses, interpreting evolving business environments, and imparting advice to business founders, thereby contributing to the development of their world.

The researcher was granted ethical approval for this study by the Research Ethics Committee at WIT in June 2017 (see Appendix K, Paper 3). Ethical considerations were managed by using guiding principles to inform appropriate conduct for researchers (Robson, 2002). The researcher developed protocols for the semi-structured interviews and the group interviews and developed respondent aliases to ensure the anonymity of all participants in this study (see Appendices A to H, Paper 3, for protocols).

The researcher adopted an interpretive multiple case study approach to collect data from seven HPSUs that had successfully secured external investment. In-depth interviews with HPSU owners and group interviews with employees and co-founders took place between June and December 2017 in order to construct a comprehensive description from the HPSUs' perspectives. The rationale of deploying group interviews was to increase legitimacy through a triangulation of perspectives captured within the HPSU (Saunders *et al.*, 2012). Research legitimacy was also bolstered by analysing additional data sources such as investor pitch decks and LinkedIn profiles.

A pilot study was conducted in June 2017 to test the research methods chosen by the researcher for the main study. The initial findings indicated that the research methods used were appropriate to achieve the research objectives. The guidelines and protocols for the CEO interviews and the group interviews were tested and only required minor amendments for the main study. During the pilot case the researcher realised that group interviews were more appropriate than focus groups to increase legitimacy through a triangulation of perspectives within the HPSUs during the main study.

Case candidates in this study were identified from publicly available lists of HPSU businesses that have been supported by Enterprise Ireland in the years 2014, 2015 and 2016. A quasi-random sampling method was used where the researcher reviewed these directories multiple times and highlighted 61 of the 308 HPSUs listed. To minimise unconscious bias, the researcher requested assistance from another person who randomly selected 18 HPSU names from the 61 firms highlighted. Each CEO of the short-listed companies was sent a letter of invitation (see Appendix A, Paper 3), to participate in the research, specifying the objectives of the research and the research methods being used.

Data were collected through semi-structured in-depth interviews with CEOs in their offices, followed some weeks later by group interviews with the HPSUs co-founders and employees. This helped to establish a chain of evidence from different perspectives. The researcher made personal notes after each interview to capture thoughts and reflections. Data were collected from additional sources such as investor pitch decks and LinkedIn profiles to improve trustworthiness of the data. Given the multiple sources of data and the capacity of interview participants to express informed opinions, the researcher was satisfied that adequate data saturation was achieved. The Nvivo software application was used for the storage and analysis of the large volume of data captured in this study. A thematic analysis approach was followed where the researcher systematically reviewed all transcripts and other available data in an iterative process; discovering, interpreting and then coding themes and patterns of meaning within the data. The data reduction process resulted in the initial 45 codes being compressed into eight higher-order themes broadly aligned to the conceptual framework, research questions, and entrepreneurship themes identified from the literature.

Following the data extraction process (see Section 2.4, Paper 4), the key research findings were clustered under three headings broadly aligned to the RQs: 1) Goal Setting and Investor Engagement, 2) Resource Exchange and 3) Sources of Competitive Advantage. While the findings broadly support the theoretical assumptions considered in the original conceptual framework, several emergent findings were revealed (see Discussion Chapter, Table 1 for summary). The resultant discussion of the research findings, with regard to prevailing literature, was framed by the three research questions and the preliminary conceptual framework. This guided the researcher in developing a refined conceptual framework: *the HPSU Investment and Resource Development Framework* (Figure 2, Discussion Chapter). The emergent findings and research conclusions informed contributions to practice and to theory as presented in the next section.

1.6 Contribution

In keeping with the principles of a professional doctorate, this research makes valuable contributions to both practice and theory.

This research makes a number of specific contributions to theory:

- This study extends the application of resource-based view theory of the firm to resource-rich but cash- poor high-tech / high potential small businesses such as HPSUs. RBV has served as a framework to explain the development of competitive advantage in large enterprises (Barney, 1991; Foss, 2011; Peteraf, 1993; Priem and Butler, 2001; Wernerfelt, 1984). To date, it has not been applied to HPSUs to explain how they acquire and organise financial and non-financial resources to develop sources of competitive advantage. The research findings extend evidence from prior studies that small firms strive to maximise benefits derived from their firm resources to develop key organisational capabilities by describing how HPSUs leverage internal and external resources to gain competitive advantage (Barney, 1991; Foss, 2011; Perren, 2000; Peteraf, 1993; Priem and Butler, 2001; Wernerfelt, 1984). The extension of RBV to HPSUs is a niche theory and cannot be generic to all start-up or small businesses. HPSUs are not normal small businesses; they are rich in non-financial resources such as founders' experience, IP, and access to valuable networks.
- A unique aspect of this research is that it views investor-investee engagement from the perspective of the entity receiving the investment; the HPSU. Prior studies have not explored the relationship between firm engagement with external investors and resource acquisition.
- This research enhances understanding of business planning in HPSUs, providing descriptions of how HPSUs approach opportunity identification and goal setting,

leading to resource needs analysis. This study illustrates the impact of founder experience on planning and use of HPSU-based resources.

- This study has collated a single body of literature on investing in early stage business and how high potential early stage businesses develop resources in pursuit of competitive advantage. This is of value to future researchers, as is the refined conceptual framework in mapping the interactions between HPSUs and investors.
- The focus of this research has significance, as little has been written about the application of RBV to small firms making this study one of a small number of studies in the area.

The findings also contribute to professional practice in a number of ways as listed below:

- By providing detailed descriptions of how HPSUs approach goal setting and subsequently how they engage with external investors to acquire funding and additional non-financial resources in pursuit of these goals.
- This study provides insights into how the HPSUs deploy internal firm resources to develop sources of competitive advantage for the business, allowing it to compete effectively in the market.
- Several recommendations for practitioners are drawn from these insights and are summarised by intended beneficiary and presented in tables 14 to 17 in the Discussion Chapter. These recommendations have relevance for people planning to launch high potential new businesses and their advisors.
- Recommendations are also offered to state bodies charged with supporting start-ups and early stage businesses, investors and providers of debt.
- For high potential or high-tech early stage businesses, recommendations are made regarding planning for growth, preparing to engage with prospective investors, including state bodies that provide start-up funding, and participation on start-up programmes.

- For investors, recommendations are made regarding simplifying their investment documentation, the benefits of providing additional non-financial resources to investees and encouraging female founders to seek investment.
- Recommendations are offered to state funding bodies regarding their start-up programmes, investment documentation, assisting high potential firms to develop growth strategies and supporting female founders of technology companies.
- Debt providers are encouraged to promote their products to nascent businesses.

To facilitate practitioners to operationalise the refined Conceptual Framework (Figure 2, Discussion Chapter) in the context of HPSUs, the researcher developed a workflow model. The *Operationalising the HPSU Investment and Resource Development Framework* (Figure 3, Discussion Chapter) is a practical model to guide practitioners through the stages of firm level planning, engagement with external investors and resources exchanged in pursuit of developing sources of competitive advantage.

1.7 Thesis Structure

This thesis consists of four sections, structured as follows:

Section One: Research Overview and Study Context

Section One provides an introduction to the aims and objectives of the research study. It provides a description of firms participating in the research and an overview of the literature on resource constraints in early stage businesses and the role of external investors. Resource-based view theory is then presented as the theoretical basis for the study and an explanation of the research context in relation to the researcher's professional practice is provided. The research gaps are articulated, and research aims are presented along with salient contributions to theory and practice.

Section Two: The Cumulative Paper Series

A fundamental aspect of this doctoral programme is the development of a series of four cumulative research papers presented in Section 2 of the thesis. The prefaces preceding each paper, document the evolution of the research, during the development of the four papers. An outline of each paper is provided below:

Paper One is a conceptual paper; it provides a review of the literature on opportunity recognition and goal setting in early stage businesses, and also explores resource constraints and failure rates in young firms. The paper discusses the role of external investors in early stage businesses and summarises the sources of external investment and also the non-financial resources that are exchanged between investors and the firm. Five relevant business theories are critiqued and the rationale in selecting resource-based view as the theoretical basis for the study is presented. The research objective and resultant research questions are articulated, and a literature-informed conceptual framework is presented and discussed. The framework depicts resource exchanges between the key actors, the high potential start-up business and potential external investors, and proposes the application of RBV to explain the motivations of the HPSU owner/founder to engage with external investors.

Paper Two is a methodology paper. An interpretivist multiple case study approach is proposed as a suitable method to investigate resource availability in its natural context, and the unit of analysis is at HPSU level. Research methodology options are reviewed, and the selection of the multiple case study approach is justified, based on in-depth interviewing of CEOs and HPSU employees, amongst other methods. Research strategies to operationalise the research are presented to guide the process of data collection, management and analysis. Ethical considerations for this study are managed by using guiding principles to inform and guide the researcher (Robson, 2002). As all participants in this study are adults who are participating of their own free will, the main ethical considerations include; prevention of harm, data protection, assurances of anonymity, confidentiality, and preservation of privacy (Diener and Crandall, 1978).

Paper Three presents the research design, research project plan, and protocols for data collection, management and analysis. The paper describes the implementation of the pilot study to test the research methods chosen by the researcher for the main study. The pilot case recruitment process and data analysis strategies for the study are discussed. The initial findings are discussed in relation to the research questions and entrepreneurial themes highlighted in the literature and indicate that the research methods used are appropriate to achieve the research objectives. Specifically, the three RQs were addressed. The initial findings describe perspectives on 1) Why the HPSU engaged with external investors, 2) What impact did external investors have on resource availability within this HPSU, and, 3) How resources within the HPSU are contributing to the development of competitive advantage.

Paper Four chronicles the implementation of the research plan and presents an analysis and review of emergent research findings. The findings are presented and discussed under three headings broadly aligned to the RQs: 1) Goal Setting and Investor Engagement, 2) Resource Exchange and 3) Sources of Competitive Advantage. The findings illustrate that, following a period of engagement with prospective investors, the HPSUs acquired resources directly and indirectly from a variety of sources including venture capital firms (VCs), Enterprise Ireland, angel investors and other private investors. In support of the conceptual framework, the findings show that HPSUs configured these resources in a manner that afforded them competitive advantage in the market. The researcher argues that this extends the application of RBV theory to early stage business such as HPSUs.

The four cumulative research papers were submitted for assessment by external examiners at agreed intervals over a two-year period in accordance with the DBA timelines. Each paper was recommended by the examination panel, based on achieving the doctoral standard stipulated by Waterford Institute of Technology.

Section Three: Discussion, Conclusion and Recommendations

Section Three consists of detailed discussions of the emergent research findings in relation to prevailing literature. The findings are presented in a structure that is based on the research questions and emergent research themes. They illustrate that HPSUs acquired investment from a variety of sources and configured those financial and non-financial resources in a manner that afforded them competitive advantage in the market. The impact of the findings in relation to the initial conceptual framework are discussed necessitating the refinement of the conceptual framework. The chapter also discusses the evolution of RBV theory, challenges faced by female founders in securing investment, and reflections on HPSU CEOs. Research conclusions are presented leading to the development of practical recommendations for HPSUs and prospective HPSUs, for Government funding bodies, investors and debt providers. A contribution to theory is achieved by extending the application of RBV to resource-rich, cash-poor, high potential, early stage businesses. Opportunities for further research are outlined and the section concludes with a review of research limitations, dissemination, and suggestions for further studies.

Section Four: Reflective Log extracts

In acknowledgment that personal reflection is core to how we learn and develop as individuals (Hilden and Tikkamäki, 2013), the researcher maintained and regularly updated a reflective log. The researcher used the Evernote software application to record thoughts about research challenges, to capture valuable information relevant to the research study and to present rationale supporting decisions taken by the researcher during the study. Section Four, exhibits several extracts from the researcher’s reflective log to illustrate changes in the researcher’s thinking as it evolved during the research process.

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SECTION TWO:
CUMULATIVE RESEARCH PAPER SERIES

PAPER 1: CONCEPTUAL PAPER

PREFACE

The conceptual paper is the first of the cumulative research papers and was developed between January and March 2016. It was presented for examination at the DBA Doctoral Colloquium in April 2016. The External Examiners were Prof. Jean-Anne Stewart (Henley Business School) and Prof. Joseph Coughlan (National University of Ireland, Maynooth). The conceptual paper was approved and only required minor edits. Based on the examiners' comments the paper was refined during May and June 2016 and this version is enclosed. The conceptual paper establishes the context of the study by describing the importance of early stage businesses to the Irish economy, discussing resource constraints experienced by these firms and introducing the role of external investors to increase resource availability. In preparation for developing the conceptual paper, I had to make several choices to narrow my focus on specific aspects of investing in small firms and the selection of a relevant and robust theory to underpin the research study. However, my thought processes on these options had been evolving since I participated in DBA Workshop 2, Advanced Business Theory, facilitated by Prof. Gary Davies of Manchester Business School during April 2015.

During that workshop, I presented the status of my research study. At that time, I was interested in understanding if the introduction of external investment to an early stage business impacted the strategic direction of the business as a result of the investors' influence and expectations of potential return on their investment. I wondered whether the inputs of the external investor contributed to value creation and the success of the business through the co-development of strategy. Simultaneously, I focused my attention on selecting an appropriate theory that explained investor engagement in early stage businesses and the potential non-financial benefits that may be derived by the firm. I reviewed fourteen business theories to ascertain their relevance to my research focus and short-listed four that merited further consideration. In order to identify a theoretical lens for my research, I reflected on how the four theories related to my research area and how they have been applied in strategic management and entrepreneurial literature. While each theory had advantages based on core themes such as power and relationships between various actors such as investors, entrepreneurs or stakeholders, they also had limitations. On the suggestion of Prof. Davies, I conducted an experiment involving the Dragons' Den TV programme to observe if/when my short-listed theories were evident in a practical real-life situation. For the experiment, I watched twelve random episodes of UK Dragons' Den TV programme and tried to identify when certain theories were evident. Table 1 presents a summary.

Theory	**Key points**	**Key authors**	**Observed in Dragons' Den**
Agency	Contract between principal and agent. Conflict occurs.	Mitnick (1973), Jensen & Meckling (1976), Eisenhardt (1989).	Yes. Up to point when only 1 Dragon was interested in investing
Stewardship	Goals of the principal and steward are aligned as agent is incentivised.	McGregor (1960), Maslow (1970), Donaldson & Davis (1991), Arthurs and Busenitz (2003).	Yes. When Dragon experienced in target market.
Stakeholder	Enterprise at centre of a network of diverse stakeholders.	Barringer and Harrison (2000), Jarratt and Fayed (2001).	Not observed
RBV	Certain resources are the basis to developing competitive advantage.	Wernerfelt (1984), Barney (1991), Priem and Butler (2001), Arthurs and Businetz, (2003).	Yes. When several Dragons were interested and had to sell their benefits to investee.

Table 1: Theories identified on Dragons' Den TV Programme

While no single theory was dominant, it was interesting to observe how the Dragons moved from displaying characteristics of the agency theory's principal, to that of strategic partner offering business knowledge in addition to the investment in a manner aligned to RBV. I found this exercise very beneficial in attempting to apply business theories to real life business scenarios such as investor-investee interactions. This experience helped me to evaluate business theories in a practical way, as I continued to engage with the literature. Preparing for DBA Workshop 3, in October 2015, I further narrowed the research focus to: *How does external investment affect planning-operations in early stage businesses in Ireland?* I proposed RBV theory to explain why the entrepreneur seeks external capital and how securing investment can affect planning-operational processes of the enterprise to grow the business.

Following the *Research Design* workshop, my research project transitioned from being tutor-led to being research-led, as I began to develop the conceptual paper for presentation at the DBA Doctoral Colloquium in April 2016. I knew that I would be required to present and defend my thinking in front of the external examiners on the review panel. Through more purposeful engagement with the business literature, I discovered that prior studies focused on the impact of external investment on firm sales and employment performance retrospectively (Aldrich and Auster, 1986; Bottazzi and Da Rin, 2002; Burgel *et al.*, 2000; Jain and Kini, 1995; Manigart and Van Hyfte, 1999; Rosenstein *et al.*, 1993; Rosenbusch *et al.*, 2013; Sapienza, 1992). However, I realised that conducting research that measured sales performance of early stage high potential businesses was not feasible on the basis that these firms are pre-revenue during the early life of the business. Reflecting on this limitation, I accepted that I would have to explore other variables in early stage firm development to understand the impact of external investment on the firm in receipt of investment. My examination of the literature revealed that prior research had not explored the relationship between early stage firm engagement with external investors and resource acquisition by these firms. I contemplated if resource acquisition assisted early stage businesses in developing competitive advantage, at firm level. This gap in the literature influenced the change of focus of the research, to that of exploring the impact of external investment on resource acquisition in early stage businesses, such as HPSUs, in developing firm resources in pursuit of competitive advantage.

Being aware that the conceptual paper marked the commencement of Phase 2 of the DBA programme, I was intent on developing a paper that would become a solid foundation for the subsequent stages of this research study. As a first step in setting the foundation, I presented a review of the pertinent literature on resource constraints and survival in early stage businesses, sources of funding for start-ups and the impact of investment on firms and leading business theories with relevance to the environment of small and early stage businesses. In discussing the relevant literature, I highlight the lack of evidence that cohesively links external investment to higher levels of performance in early stage businesses. I cited Rosenbusch *et al*.'s (2013) synthesis of 76 prior studies which discovered that there was only a minor positive effect of VC investment on firm performance. Through a distillation of prominent perspectives in the literature, I established the research aims and identified the three key research questions (RQs).

Having established the research aims and RQs, I discussed definitions of micro and early stage businesses before adopting the Enterprise Ireland (EI) definition of high potential start-ups (HPSUs). A literature-informed discussion of resources exchanged between investors and early stage businesses is provided within this paper and summarised in Table 4. I then evaluated the relevance of five potential theories to underpin this research and to propose the selection of resource-based view theory (RBV) in explaining why early stage businesses engage with external investors to increase resource availability at firm level to develop sources of competitive advantage. From this proposal, I developed a conceptual framework of the *Resource Impact of External Investors on HPSUs* and offer a narrative to describe how the framework depicts firm level goal setting, investor engagement and the development of sources of competitive advantage. I rationalise my philosophical perspective and how it is aligned to the current research and the world of HPSUs. An interpretivist approach is proposed utilising a case study methodology while I acknowledge the risk of researcher bias due to my status as an insider based on my professional practice as an advisor to early stage businesses.

I articulate my objective to contribute to theory by extending the application of RBV into the small firm arena of HPSUs in order to explain the motivations of the business founder in seeking external investment for the purposes of resource acquisition and developing competitive advantage. I propose a contribution to practice by sharing knowledge on interactions between HPSUs and investors and claim that this knowledge will augment the value of support services provided by state and private business advisors to early stage enterprises.

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Doctorate in Business Administration (DBA)

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Paper 1: **CONCEPTUAL PAPER**

ABSTRACT

There is much still to understand about the impact of resource availability on high potential start-up (HPSU) businesses. This paper aims to explore how limited resource availability restricts the development of competitive advantage in HPSUs, and whether engagement of external investors impacts resource availability within the HPSU. This aspect of investment in HPSU businesses has received little attention in the literature. Following a review of the pertinent literature, the author develops the conceptual framework. The conceptual framework draws upon the resource-based view theory of the firm in order to explain the motivations of the business founder in seeking external investment and to explore the impact this investment has on resource availability in the HPSU. An interpretivist approach is advanced as a suitable epistemology to investigate resource availability in its natural context, and the unit of analysis is at company level. The researcher will adopt an interpretive multiple case study approach and will utilise in-depth interviews with key personnel at company level, amongst other techniques, in order to construct a description of the phenomena under study. The theoretical contribution of this research will provide greater understanding of the application of resourced based view theory of the firm in early stage businesses. From a practitioner perspective, it will provide valuable insights into the interactions between HPSU businesses and external investors and their impact on resource availability in HPSU businesses. This research would be of benefit to HPSUs and to other early stage businesses aspiring to become HPSUs. It should also benefit state, semi-state and private advisers to early stage businesses who may be contemplating external investment.

Keywords: Early Stage Business, Resources, Investment, Resource-Based View (RBV), Entrepreneurial Finance, High Potential Start-ups.

1.0 Introduction

The importance of the start-up/early stage business sector to the Irish economy is highlighted in the 2016 *Action Plan for Jobs* (APJ), where the Irish Government states its objective of creating 50,000 new jobs in 2016. Importantly, eight percent of new jobs created are expected to emanate from start-up and early stage businesses (Action Plan for Jobs, 2016, p. 11). The importance of small businesses is not unique to the Irish economy as Storey (1994) noted that small businesses account for the majority of enterprises in all world economies. Wiklund and Shepherd (2005, p. 88) state that "small businesses are important to most economies; therefore, investigation of their performance is a worthwhile scholarly endeavour". This study is focused on a particular type of small business: the high potential start-up (HPSU) and specifically, the impact of external investment on the availability of resources that contribute to the development of competitive advantage for the early stage business. For the purposes of this study, high potential start-ups (HPSUs) are "start-up businesses with the potential to develop an innovative product or service for sale on international markets and the potential to create at least 10 jobs and achieve over €1m in sales within 3 to 4 years of starting up" (Enterprise Ireland, 2016).

During the start-up phase, businesses typically experience constant financial constraints, as they are financed by limited, informal sources of finance or bank debt (Barry *et al.*, 2012; Kelly, 2007; Mason and Harrison, 2004). Only a minority of firms require equity-based finance. Typically, they are high potential businesses exploiting some form of innovation or engaging in research and development (R&D) who require external investment in order to pursue their business goals (Barry *et al.*, 2012; Mason and Harrison, 2004; Revest and Sapio, 2012). While there is disagreement amongst researchers, evidenced later in this paper, that external investment leads to superior performance in early stage businesses Rosenbusch *et al.* (2013), the role of external investment in the survival of young firm seems to be less contested.

Brüderl *et al*.'s (1992) research of survival chances of newly founded businesses noted prior empirical findings by Freeman *et al*. (1983); Aldrich and Auster (1986) and Bruderl and Schussler (1990) of high failure rates in new ventures. However, their research emphasises that reserves of financial resources protect early stage business from environmental shocks during the start-up phase. Cooper *et al.*'s (1994) study explored the impact of initial human and financial capital on 1) failure of the business, 2) marginal survival, or 3) high growth, as three potential performance outcomes for the new business and found financial capital as being the most tangible resource. They claim financial capital "is one of the most visible resources; it can create a buffer against random shocks and allow the pursuit of more capital-intensive strategies, which are better protected from imitation" (Cooper *et al.*, 1994, p. 371). Other studies highlight the impact that certain resources have on early stage business survival for example, human influence via entrepreneurial orientation (Wiklund and Shepherd, 2005) and the availability of internal finance (Carpenter and Petersen, 2002).

However, these studies have mostly looked at firm resources as either a predictor of future growth, or they have analysed enterprise performance and survival retrospectively. While these works have given valuable insights into the impacts that different resources have on early stage business, to date, they have not explored the impact of external investors on the availability of resources that may contribute to competitive advantage for the early stage business such as HPSUs.

Resource based view (RBV) theory of the firm is concerned with how strategically valuable internal resources within an organisation are coordinated to develop key capabilities that evolve into competitive advantages for the enterprise (Barney, 1991; Wernerfelt, 1984). Although, resource-based view is typically applied to large organisations, there is an opportunity to extend the theory to apply to HPSUs, where the high potential start-up owner strives to acquire specific resources that, once embedded in the firm, may enable the business to develop certain capabilities in order to build competitive advantage. This paper explores a resource-based view framework, from the perspective of the HPSU. In doing so, it extends the application of RBV to explain the motivation of the HPSU owner to engage with external investors and how securing investment might impact the availability of firm resources, including non-financial resources such as technical skills, human and social capital and technical knowledge, that ultimately contribute to the development of internal sources of competitive advantage.

External investment in early stage businesses can come from many sources including venture capital firms (VCs), trade investors, angel investors and other private investors.

While VCs have received more attention in the literature, as evidenced below, other investors also play a significant role in the supply of capital and resources. Under this umbrella, some researchers claim that the performance of early stage businesses is enhanced as a result of seeking and securing external investment into the enterprise. Sapienza (1992) claims that the added-value services provided by venture capital firms have a strongly positive impact on the performance of their investee businesses. While Rosenstein *et al.'s* (1993, p. 99) research on high-tech businesses based in California, Massachusetts and Texas found that there was no difference in performance between businesses who received venture capital funding and those that did not, unless the investor belonged to a "top-20 VC firm". The findings of these two studies suggest that not only were financial resources acquired by the investee firms, but firms also benefited from non-financial resources such as leadership via board membership and also innovation development.

Certain studies of publicly funded businesses in the United States (US) and in Europe have mapped the relationship between venture capital secured by enterprises and the performance of the enterprise. Looking at publicly quoted businesses in the US, Jain and Kini (1995) found that sales performance and growth in available working capital was higher in businesses in receipt of venture capital funding when compared to other public companies, who did not receive venture funds. However, a similar study of businesses listed on European Stock Exchanges by Bottazzi and Da Rin (2002) did not find the same positive impact in their research of 270 businesses that received venture capital funding. Studies of German and British high-tech start-ups by Burgel *et al.* (2000) did not record significant growth in sales in venture capital funded businesses when compared to similar businesses in their industry. In parallel to these German and British studies, venture capital supported businesses in Belgium, analysed by Manigart and Van Hyfte (1999), were not found to have achieved notably higher rates of employment growth than their non-funded peers. Interestingly, they did witness augmented levels of total resources and cash flow; an observation also noted in the Jain and Kini (1995) US study.

The research examples discussed above illustrate the diverse findings on the performance of early stage businesses in receipt of external investment. The lack of evidence that cohesively links external investment to enhanced performance in early stage businesses is in line with Rosenbusch *et al*.'s (2013) synthesis of 76 studies involving 36,567 firms. Rosenbusch *et al.* (2013) found only a minor positive effect of VC funding on firm performance and noted that evidence of positive effects is non-existent in both very young and very mature firms.

The focus of this research is not on the impact of external investment on firm performance but, on how interactions with external investors enhance resource based competitive advantage. Therefore, the research objective is to: *explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage.*

In order to address this research objective, the following three research questions have been identified:

> ***RQ1:*** *Why do HPSUs engage external investors to increase resource availability in the business?*
>
> ***RQ2:*** *What impact do external investors have on resource availability within HPSUs?*
>
> ***RQ3:*** *How does increased resource availability within HPSUs contribute to the development of internal sources of competitive advantage?*

Insights gained from this research objective and supporting research questions have the potential to contribute to greater understanding of the interactions between HPSU businesses and external investors, and the impact that such interactions have on resource availability and the development of competitive advantage in HPSU businesses, in Ireland. This is an area of interest to the author from both a research perspective and a professional practice perspective in the author's role as a business advisor to early stage businesses including potential HPSUs. The researcher's philosophical position as an interpretivist practitioner and researcher. This is manifested by the researcher imparting advice to early stage business promoters and thereby contributing to the development of the world of HPSUs and their network of stakeholders.

It is proposed that an interpretive case-based research method be adopted for this study. This approach to researching early stage businesses is highly suited to investigating a phenomenon in its natural context (Kelliher and Henderson, 2006). The use of in-depth interviews with key personnel at company level within the HPSU is aligned to achieving the research objectives. The knowledge gained in this study will be of benefit to HPSUs and also to professional advisers to early stage businesses, who may be contemplating external investment to fund resource acquisition. It will contribute towards addressing gaps in our understanding by applying the resourced based view theory of the firm in early stage businesses, and also by proposing a framework to map HPSU-investor interactions.

The remainder of the paper is structured as follows; the author discusses high potential start-up businesses in Ireland, and issues regarding resource availability, before introducing the role of external investors in HPSUs. The relevance of resource-based view theory to early stage high potential start-ups is then discussed before a conceptual framework and research outline is presented. The next steps in the research study are also outlined as are the key reflections relating to this phase of the research study.

2.0 Resource Constraints and Investment in Start-ups

This section discussed resource restrictions in early stage businesses and the role of external investors.

2.1 High Potential Start-ups

As stated in the introduction, eight percent of new jobs created in Ireland in 2016 are expected to emanate from start-up and early stage high potential businesses (Action Plan for Jobs, 2016, p. 11). Just over 20,000 individuals started a new business in Ireland in 2014. The rate of early stage entrepreneurs in Ireland at 2.5% is below the European average of 3.2% ranking Ireland in 15th place of 25 countries. (GEM, 2015, p. 21). New business start-ups play a critical role in the economic development of a nation (Hodgetts and Kuratko, 1998; Thurik and Wennekers, 2004). The Government of Ireland is aware of these economic benefits and also of the challenges of increasing the rate of entrepreneurship. The Action Plan for Jobs, outlines numerous initiatives to assist start-up and early stage businesses in support of the Government's aspiration to have 2.18 million people, in Ireland, at work by 2020, (Action Plan for Jobs, 2016, p. 7).

A *high potential start-up* is a particular type of early stage business. While it has many of the characteristics of a small or micro business it has the potential for high growth in sales and for increasing employment to ten people or more (Enterprise Ireland, 2016). A review of extant literature does not reveal a widely accepted definition of a micro-firm, despite similar criteria including sales turnover, number of employees, rate of growth per annum, being proffered (Greenbank, 2000; Matlay *et al.*, 2005). However, the European Commission defines a micro-enterprise as a business with less than ten employees (Sheikh *et al.*, 2002).

High potential start-up (HPSU) is a term used by Enterprise Ireland, the state body with responsibility for assisting fledgling business to start and to scale businesses in Ireland. Enterprise Ireland (EI) defines a HPSU as "a start-up venture that is introducing a new or innovative product or service to international markets" (Enterprise Ireland, 2016). The remit of Enterprise Ireland is to assist Irish registered businesses, head-quartered in Ireland, with export potential and those already exporting. To be eligible for gaining EI HPSU status, a micro-enterprise must be capable of creating at least ten jobs and achieving one million euro in sales within the first four years of its existence. It must be headquartered in Ireland and have been registered less than five years to fit this categorisation (Enterprise Ireland, 2016). A very small percentage of early stage businesses become HPSUs. During the years 1989 to 2006 only 637 early stage businesses gained HPSU approval from Enterprise Ireland (Barry *et al.*, 2012) while just 105 early stage businesses secured HPSU status in 2015, up from 93 in 2011 (Action Plan for Jobs, 2016, p. 111).

A business only becomes a client company of the EI's High Potential Start-up Unit when it meets EI's formal selection criteria, in addition to securing external funding from investors such as venture capitalists, angel investors or private investors. The EI HPSU selection criteria includes: innovativeness, experience of the management team, market potential and "other factors that are difficult to quantify" (Barry *et al.*, 2012, p. 22). When a business becomes a client of the EI HPSU Unit it receives equity funding from the state and is eligible for a wide range of further financial and non-financial supports from EI (Barry *et al.*, 2012).

HPSUs fall under the European Commission definition of a micro-enterprise as they normally have less than 10 employees. In line with Enterprise Ireland's expectations of HPSU clients and indeed their own goals, HPSUs are growth focused. However, as a typical micro-enterprise the potential for growth is often constrained by resource availability manifested by a lack of time, financial reserves and expertise. These resource constraints expose firms to vulnerabilities while limiting their potential to pursue business opportunities (Phillipson *et al.*, 2004; Raley and Moxey, 2000). The next section discusses resource constraints in high potential early stage businesses.

2.2 Resource Constraints in Early Stage HPSUs

New businesses are vulnerable by fact of their newness (Stinchcombe and March, 1965) and several studies found high failure rates amongst new businesses (Aldrich and Auster, 1986; Bruderl and Schussler, 1990; Freeman *et al.*, 1983). More recently, Steve Blank writing in the Harvard Business Review, noted that 3 out of 4 start-ups fail and claims that starting a new business "has always been a hit-or-miss proposition" (Blank, 2013b, p. 66). Blank quotes alarming start-up failure rates as observed by Shikhar Ghosh of Harvard Business School in his study of over 2,000 VC funded from 2004 to 2010. Ghosh claims if failure is measured by investors losing their investment, then 40 to 50 percent of start-ups fail however, this rises to 70 to 80 percent if failure is characterised by a firm not achieving the projected return on investment. He argues that failure rates amongst VC backed businesses are higher than VCs acknowledge because VCs tend to "bury their dead very quietly" (Gage, 2012).

Early stage businesses are often under pressure to develop competitive advantage in order to avoid failure and to grow the business. The business owners are continuously trying to maximise benefits derived from scarce internal resources in their organisation to develop key capabilities (Perren, 1999; Simpson *et al.*, 2012). Such resources can be financial and non-financial assets owned by, or available to the HPSU. The capabilities of a firm are systems of organising activities through the effective utilisation of its resources (Grant, 1991). The optimal alignment of resources and capabilities are a source of competitive advantage to early stage businesses such as HPSUs.

The owner of a HPSU leads his or her team through a process of opportunity recognition, planning, actions and reviews, in order to leverage maximum benefits from the limited resources available to the business. Nicholls-Nixon *et al.* (2000, p. 494) describe this as an iterative process of trial and error and suggest that this type of "strategic experimentation" is normal for early stage businesses. For many start-up businesses, planning, strategy and operational considerations are synonymous, where strategy is the thinking part and operational is the process of doing. Opportunities identified through these practices result in changes to resource demands within the business, especially if aiming to develop competitive advantage relative to competitors in the market place. Due to limited cash reserves in early stage businesses, some actions desirable for building competitive advantage in the business are delayed due to resource availability (Phillipson *et al.*, 2004). Such scenarios are often the catalyst to the HPSU seeking external investment as a means of acquiring critical resources from which competitive advantage can be derived for the business.

Prior studies by Perren (1999), O'Regan and Ghobadian (2004) and (Simpson *et al.*, 2012) claim that resource limitations often result in the business adopting a short-term focus on operational issues rather than a more strategic perspective. A greater understanding of the process of resource acquisition that takes place in HPSUs in Ireland, following the injection of external investment, warrant investigation, as these resources may be critical to the high growth potential of these businesses. Time is a major non-financial resource constraint for HPSUs. This limits the development of expertise within the business and handicaps the development of sources of competitive advantage (Barry *et al.*, 2012). It is also a key factor in the HPSU sometimes adopting a shorter-term focus as described above.

Interestingly, during the early stages of the businesses, a time when some businesses typically experience an acute need for external investment, the business may experience difficulties in attracting new investment or resources, because it is not regarded as investment-ready by potential investors (Mason and Harrison, 2004; Mason and Kwok, 2010). Ironically, their proposition to investors is weakened due to the lack of resources such as expertise, team skills, market knowledge and an efficient route to market (Douglas and Shepherd, 2002). The role of external investors in early stage businesses is explored in the next section.

2.3 The Role of External Investors in HPSUs

Early stage businesses are financed by personal funds, informal sources of finance or bank debt, while only a minority of firms need to look to external sources for equity-based finance (Kelly, 2007; Mason and Harrison, 2004; Revest and Sapio, 2012). Typically, these are high potential early stage businesses exploiting some form of technological innovation or those needing to invest in R&D or the acquisition of critical resources (Mason and Harrison, 2004; Maxwell *et al.*, 2011). This is in line with Enterprise Ireland's description of HPSUs. They may lack either personal or firm-based assets as collateral to secure bank debt and therefore seek funding from external investors who "understand the risks involved in funding such companies" (Mason and Harrison, 2004, p. 2).

Securing finance to fund growth through the development of sources of competitive advantage remains a challenge for small businesses in Ireland. In an effort to support such businesses the Irish Government operate several initiatives to assist companies in accessing credit and equity finance (Action Plan for Jobs, 2016, p. 64). Some of these initiatives are listed in Table 1. These range from providing intermediaries with funds to channel to fledgling businesses, to providing finance directly to growing business by way of equity investment. According to Barry *et al.* (2012) this direct state provision of equity finance to businesses is practiced by governments across the globe to ensure the availability of venture capital to local businesses, while noting Ireland's prominence in this practice compared to European peers. Ehrlich *et al.* (1994) state that the two main sources of equity-based finance supporting the development of new and existing entrepreneurial businesses are venture capital firms and private (business angel) investors. Table 1 identifies the main suppliers of equity funding in Ireland as business angel investors, VCs and direct state investments channelled through Enterprise Ireland. Such is the extent of Enterprise Ireland's direct and indirect (via seed capital funds) investment in growing businesses the agency is ranked among the top-3 VCs in the world (Action Plan for Jobs, 2016).

Irish government initiative	Government intent or activity
Strategic Banking Corporation of Ireland (SBCI)	Provide wholesale lending to institutions to lend to businesses.
Enterprise Ireland	Direct equity investments in early stage Irish companies.
Local Enterprise Offices	Inform on access to finance and provide relatively small grants and loans.
Seed and Venture Capital Scheme	Leverage private capital. Catalyst to create seed and venture capital funds.
HALO Business Angels Network	Support network of individual and syndicated angel investors who invest in early stage Irish companies.
Microfinance Ireland	Support early stage lending (up to €25,000).

Table 1: Irish Government Initiatives to Support Access to Finance (APJ, 2016)

Business angels are typically high net-worth individuals who are often successful entrepreneurs or senior managers in the private sector. They invest relatively modest amounts in early stage businesses, either on their own or as part of a structured angel syndicate (Mason and Harrison, 2004). The average amount invested in Irish-based start-ups by informal private investors in the past 3 years is relatively high, at €40,500, when compared to the European average of €30,900 and a US average of €37,200 (GEM, 2015, p. 44). Venture capital firms develop fixed term venture capital investment funds (normally 10 years) utilising finance raised from pension funds, banks and other financial institutions, plus private investors. These funds, managed by the venture capital firm are invested in early stage and growing businesses that have the potential for greatest return on investment (Franke *et al.*, 2008; Kelly, 2007; Mason and Harrison, 2004). The typical staging of investments sees angel investors active at an earlier stage than venture capital firms (Freear and Wetzel, 1990; Kelly, 2007; Mason and Harrison, 2004; Mason and Kwok, 2010). The *Action Plan for Jobs* noted emerging alternative sources of finance such as crowdfunding, peer-to-peer business lending and invoice finance as potentially valuable sources of funding for businesses (Action Plan for Jobs, 2016).

Apart from the crucial financial resources provided to the early stage business, investors also provide a range of additional non-financial resources such as "coaching and strategic advice to the management team, help in attracting additional finance, managers and non-executive directors and providing contacts with suppliers, customers and advisers" (Mason and Harrison, 2004, p. 2). Another resource gain for the HPSU is the availability of time; the key benefit of the finance received is the easing of time constraints especially that of the business owner (Barry *et al.*, 2012). Advice offered by Ehrlich *et al.* (1994) suggests that business owners should compare these types of non-financial, value-added benefits provided by (VCs) and private investors during the process of selecting an external investor.

From Investor to HPSU	**From HPSU to Investor (VC /Angel)**
Capital to acquire physical and human resources Access to investors' resource network Coaching and strategic advice Help in attracting additional finance Refer key management staff and non-executive directors Contacts with suppliers, customers and advisors Socialisation in business norms Endorsement of enterprise business model Reputation of securing investment Technical knowledge	Equity in the enterprise, potential ROI Entrepreneurial resources; skills, agility Firm specific skills of HPSU owner and team Non-financial investments of HPSU owner: time, energy, commitment and sweat equity Network of start-ups and new ideas

Table 2: Resources Exchanged between Investor and HPSU

Table 2 outlines some of the interactions between investors and HPSUs and notes some resources that may be exchanged. These interactions include firm-based benefits such as "leveraging the entrepreneur's unique inputs to the venture" and other non-financial investments of the owner "as they are still likely to feel that the venture is their venture" (Arthurs and Busenitz (2003, p. 158). The potential investors will evaluate the value of the HPSU's expertise and the track-record of the business owner, his or her commitment to the business, and their ability to manage resources being transferred to the business (Mason and Rogers, 1997).

3.0 Theory Selection

3.1 Review of Available Business Theories

From the fourteen business theories reviewed in order to ascertain their relevance to the research proposal, the five that merit further consideration have been short-listed in order to identify a theoretical lens that will provide the foundation that underpins the research objectives. While each theory has advantages and can individually contribute to core themes such as power and relationships between various actors, each one also has limitations. These are discussed below, and a summary is presented in Table 3. A review of extant literature articulates how agency, stewardship and stakeholder theories have been used to describe scenarios where the manager, including the entrepreneurial owner-manager, is engaged in serving the interests of actors external to his or her business enterprise. From the agency and stewardship theories perspective, the owner-manager is tasked with satisfying the needs of the principal. Such needs are primarily financial. Jensen and Meckling (1976, p. 308) define agency theory relationship as "a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent".

Theory	Key Points	Main Author(s)	Limitations concerning Research Objectives
Agency	Contract between principal and agent.	Mitnick (1973), Jensen and Meckling (1976), K. M. Eisenhardt (1989).	Undervalues entrepreneur's commitment. More relevant to shareholders and public companies.
Stewardship	Goals of the principal and steward are aligned.	McGregor (1960), Maslow *et al.* (1970), Donaldson and Davis (1991).	Assumes subordination of the steward's (HPSU) goals below those of principle.
Stakeholder	Enterprise and network of stakeholders.	Barringer and Harrison (2000) Jarratt and Fayed (2001).	Stakeholder concerns relegated below business related issues.
Alignment	Align strategy and culture to organisational goals. Creating strategic fit.	Semler (1997), Garavan *et al.* (2014), Chorn (1991).	Little evidence of alignment theory applied to investor / investee scenario.
Resource based view	Certain resources are basis to competitive advantage.	Wernerfelt (1984), Barney (1991), Priem and Butler (2001), Arthurs and Busenitz (2003).	Challenges to RBV include absence of an unambiguous definition of a resource within the HPSU, (Srivastava *et al.*, 2001).

Table 3: Summary of relevant Theories Reviewed

Agency theory addresses two problems: first, the problems that can occur when objectives of the principal and those of the agent are deemed to be in conflict and the principal must bear the costs of gaining greater transparency of the agent's engagement, and secondly, the problems that can occur, when both sides have different levels of tolerance towards risk (K. M. Eisenhardt, 1989, p. 59). Agency theory is deemed unsuitable to this study due to its limitations in explaining the interplay between the investor and the entrepreneur as co-owner of the early stage enterprise.

As an alternative to the rigidity of agency theory, stewardship theory is considered. Stewardship theory offers mechanisms that help to reduce the potential for agency loss through incentivising the agent-manager by rewarding him or her in line with the performance of the business. Arthurs and Busenitz (2003, p. 146) suggest that "stewardship theory assumes that the goals of the principal and steward are aligned", it has the potential to increase our understanding of the relationship dynamic between the investor and the entrepreneurial owner-manager. Unlike agency theory, stewardship theory credits the agent with acting in the best interests of the business and not subordinating the business' interests below his or her own.

However, despite its appeal, stewardship theory has a number of short-comings concerning the investor owner-manager relationship "because it implicitly assumes the subordination of the steward's goals" (Arthurs and Busenitz, 2003, p. 146). It is reasonable to propose that the motivation of the HPSU's owner manager is a key critical success factor in an early stage business enterprise. Stewardship theory is also deemed unsuitable to this study as it does not adequately explain the central role of the entrepreneurial owner-manager in growing the HPSU business. This perspective is echoed by Arthurs and Busenitz (2003, p. 146) who argue that "in essence, researchers have tended to ignore the individual entrepreneur and his or her goals and vision for the venture and have instead placed overemphasis on the principal"

Stakeholder theory seeks to explain the dynamics between a network of stakeholders and the enterprise (Barringer and Harrison, 2000, p. 367). Under stakeholder theory the owner-manager interacts with individuals and groups who may be affected by the actions of the enterprise. The constituency of stakeholders includes; employees, customers, suppliers, the local community and media, shareholders and often government. Stakeholder theory has helped to explain the complexity of communications and interactions with a diverse constituency of stakeholders. However, while the theory suggests the alignment of the objectives of all stakeholders, in reality this is rarely accomplished (Donaldson and Preston, 1995) since the growth and survival of the fledgling enterprise are the salient priorities of the entity, stakeholders' concerns will inevitably be relegated below business related issues.

A review of the literature for alignment theory revealed that there is little attention given to the application of alignment theory to the investor / investee scenario, rendering it irrelevant to the current study. Alignment theory has been employed to explain phenomena ranging from human resource development, where attempts were made to align strategy, culture and structure to the goals of the organisation (Semler, 1997; Garavan *et al.*, 2014), to business strategy where Chorn (1991, p. 20) discussed "alignment" theory in the context of "creating strategic fit".

Having considered the advantages and limitations of the above theories, resource-based theory is proposed for this research as it has the potential to explain the processes underpinning the dynamic interactions between the HPSU owner and external investors.

3.2 Resource Based View Theory and the HPSU

The resource-based view theory of the firm is concerned with how strategically valuable internal resources within an organisation are coordinated to develop key capabilities that evolve into competitive advantages for the enterprise (Barney, 1991; Wernerfelt, 1984). This is not to be confused with resource dependency theory that is externally focused and is concerned with conditions where businesses must engage with other businesses in order to access critical resources. According to Day (1994, p. 38) capabilities are "complex bundles of skills and collective learning, exercised through organisational processes that ensure superior coordination of functional activities". In order to develop efficient and effective capabilities in the enterprise these must be continuously adjusted and refined (Brown and Eisenhardt, 1995).

Resource based view (RBV) is about sustainable competitive advantage. It is not only concerned with the acquisition of valuable internal resources within an organisation but how they are coordinated to develop key capabilities that evolve into competitive advantages for the enterprise. Alvarez and Busenitz (2001, p. 756) regard the "process of combining and organizing resources as a resource" in itself, as it has the potential to create greater relative value than market rivals. Barney (1991) established criteria concerning the integration of internal resources that contribute to the potential of achieving sustainable competitive advantage. In his seminal work "Firm resources and sustained competitive advantage", (Barney, 1991, p. 102) describes competitive advantage:

A firm is said to have a sustained competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy.

Barney (1991) claimed that in order for the enterprise to develop resources that are the source of competitive advantage they must be viewed as valuable, rare, inimitable and also non-substitutable (VRIN). An understanding of the strength of the competitive advantage derived from specific resources gives us insights into the potential capabilities of a HPSU compared to its market rivals. Nicholls-Nixon *et al.* (2000) asserts that the owner attempts to configure the resources available to him or her within their early stage business in order to differentiate the enterprise within a market in what Van de Ven and Polley (1992) describe as trying to create a competitive advantage.

This configuration of resources to develop sources of competitive advantage described above is also relevant to the HPSUs. While resource-based view theory has been used as a framework to explain sustained competitive advantages of large enterprise (Barney, 1991), it can be adopted for the purpose of this study to explain the HPSU's motivation in deciding to seek external investment in the first instance. Foss (2011, p. 2) looked at entrepreneurship in the context of RBV and observed that entrepreneurial firms seize identified market opportunities by implementing "decisions over the use of resources" in pursuit of firm growth goals. He suggests a closer relationship between RBV and entrepreneurship research, not currently evidenced in extant literature. The dynamic interactions that occur between the entrepreneurial HPSU owner and external investors can be explained in terms of RBV, where the HPSU owner strives to acquire specific resources that will enable her or his business to develop certain strategic capabilities to build competitive advantage and grow the business, profitably. This approach is supported by Barney's (1991, p. 634) acknowledgement that the focus of RBV research has mainly been on larger firms, "yet smaller firms also face the need to acquire critical resources to create a sustainable competitive advantage".

RBV does not restrict the meaning of resources to finance alone, therefore the process under which the HPSU gains access to technical skills, human and social capital, business and technical knowledge and reputation are all beneficial to an early stage business. It is worth noting that certain investor types including venture capitalists and angel investors, can either provide or facilitate access to these resources in addition to the financial capital provided to the enterprise (Mason and Harrison, 2004).

The HPSU owner typically displays astuteness in opportunity recognition and selection within a market (Davidsson, 1991; Cunneen and Meredith, 2007). In line with the principles of the resource-based view the HPSU owner considers what resources will be required to exploit the opportunity. This is an iterative process of experimentation, trial and error, to develop internal sources of competitive advantage that will help a business gain traction in a market (Nicholls-Nixon *et al.*, 2000). During the embryonic stage of the enterprise development an owner who possesses strong problem-solving skills coupled with other traits, such as decisiveness can help the business to *"*navigate through a wide array of problems and irregularities inherent in the development of new firms*"* (Alvarez and Busenitz, 2001, p. 759). This can be evidenced in approaches taken in planning resource requirements and the process of acquiring them. Accepting that the HPSU owner can be a critical resource to this early stage of business development, it is appropriate to discuss the characteristics and traits of a HPSU (small) business owner and how they relate to RBV theory.

3.3 HPSU Owner Traits and Resource Based View Theory of the Firm

The HPSU owner initiates the search for investment into his or her business by engaging with external investors. Their motivation in doing so is to gain access to key resources that will allow them to grow the business. By acquiring specific resources, the owner hopes to create sources of competitive advantage within the business in order to propel its development. HPSU owners, as leaders of fledgling businesses seeking external capital, will need to attract the attention of investors in the marketplace by developing an investment proposition for the business. The owner's mind-set influences the culture of the HPSU and significantly impacts the potential for business growth and the range of strategies selected in pursuing that growth (Greenbank, 2000).

Prominent traits of HPSU owners reflected in the literature include; independence, the wish to be their own boss and to make their own decisions (Birley and Westhead, 1994), astuteness in the identification and selection of opportunities for their business (Cunneen and Meredith, 2007; Davidsson, 1991), risk taking in pursuit of business growth (McClelland, 1965; Palmer, 1971), a high need for achievement, (McClelland, 1961; Rhee and White, 2007); and an internal locus of control, (Brockhaus, 1980; Timmons, 1978). External investors in early stage businesses are adept at quickly gaining an understanding of the traits of the business owner and subsequently forming an opinion of their ability and willingness to work with the owner. Additionally, the owner's attitude concerning external actors having influence over her or his business will influence how business growth is financed. If the owner and his or her founding team are unwilling to release equity in the enterprise, or to allow external stakeholders have inputs into the creation of a vision and strategy for the business this will limit their access to capital and restrict the growth potential of the business (de Vries, 2002).

A strong internal locus of control is regarded as a desirable characteristic in the owner of a start-up business (Brockhaus, 1980; Timmons, 1978); however, this may contribute to a reluctance of some entrepreneurs in relinquishing control of some key business functions as the business grows. Unfortunately, the desire of some entrepreneurs to maintain control over all aspects of the enterprise is a considerable factor in failure rates in early stage businesses (de Vries, 2002).

By viewing the investment in the early stage business from the perspective of the HPSU founder and by understanding the mind-set of the founder, the resource-based theory emerges as the most appropriate theory to explain how external investment can affect planning-operations of an early stage enterprise.

3.4 Cataloguing the HPSU Resource Impetus to seek External Investment

Resource based theory provides a framework for understanding the motivation of the business owner when contemplating potential investment from external sources.

Although RBV is typically applied to large organisations, there is an opportunity, in this research study, to extend the theory to apply to HPSUs, where the high potential start-up owner strives to acquire specific resources that will enable his or her business to develop certain capabilities in order to build competitive advantage. This paper explores a resource-based view investment framework, which can be used for strategic analysis in small firms (Rangone, 1999), and thus has potential to explain why the HPSU owner seeks external capital and how securing investment might impact the availability of resources that ultimately contribute to competitive advantage.

Bacharach (1989) claimed that a primary goal of theory is to be capable of providing answers to the questions of *when, how, and why*. The RBV approach can explain the process where business owners seek external investment in pursuit of resource acquisition for the business and therefore may be more appropriate for high potential early stage businesses than traditional approaches to resource planning. When the "entrepreneur realizes that more resources are needed to fully develop the venture" (Arthurs and Busenitz, 2003, p. 157) the dialogue with potential providers of capital and other resources commences.

Notwithstanding the potential of resource-based view theory to support the research objective, there are limitations to be considered. Challenges to RBV include the absence of an unambiguous definition of what might be regarded as a resource within the enterprise (Srivastava *et al.*, 2001) and the difficulty in ascertaining that key resources regarded as sources of competitive advantage are in fact valuable, rare, and inimitable and non-substitutable (VRIN) in the marketplace (Priem and Butler, 2001). The limitations in applying RBV in larger organisations should also be considered when researching the application of RBV in HPSUs. An additional challenge in researching the competitive advantage of HPSUs is the lack of public information available on individual firms and attitudes to secrecy inherent in small firms.

Nonetheless, the suitability of applying RBV to resource planning in early stage enterprises such as HPSUs is reflected in the belief of Conner (1991, p. 133) who states that "in a resource-based view, discerning appropriate inputs is ultimately a matter of entrepreneurial vision and intuition: the creative act underlying such vision is a subject that so far has not been a central focus of resource-based theory development". Conner's perspective heralds an opportunity to refine RBV to describe a process that captures early stage HPSU owner's interactions with potential investors in order to secure resources critical to achievement of business goals. The above insights from extant literature are therefore summarised in a catalogue of relevant 'valuable, rare, and inimitable and non-substitutable' (Priem and Butler, 2001) resources that rest within the HPSU and with the external investors. This catalogue offers a view of the impetus of the HPSU owner to pursue external investment in light of these resource criteria (Table 4).

Criteria	HPSU	External Investor(s)	Literature
Expertise	Owner-based expertise. Limited time to develop new expertise.	Offers sectoral level experience. Business knowledge and expertise.	Barry *et al.* (2012), Mason and Harrison (2004), Revest and Sapio (2012).
Access to Finance	Limited to owner funds, bank debt and informal sources initially.	Wider access to finance plus value-added services.	Barry *et al.*, (2012), Mason and Harrison (2004), Mason and Kwok (2010), Sapienza (1992).
Internal Capabilities	HPSU owner skills & domain knowledge. Innovation focus.	Physical, Human, Social capital; technical skills, various experts. Networks. Entrepreneurial orientation.	Cooper *et al.* (1994), Kerr et al. (2011), Simpson *et al.* (2012); Kerr *et al.* (2011) Wiklund & Shepherd (2005).
Opportunity	Constrained by resource availability. Opportunity recognition. Proximity to market.	Expanded opportunities via physical, human, social assets and technical skills provided to HPSU.	Nicholls-Nixons (2000), Phillipson *et al.* (2004) Raley & Moxey (2000), Timmons and Spinelli (2004).
Goal Setting	Focused, niche based. Primarily dependent on organic growth.	Enhanced, sectoral view; investment analysis. Growth potential expanded.	Brockhaus (1980), Foss 2011 Kelliher and Reinl (2009).
Resource Access	Limited resource availability. Constraints restrict development of competitive advantage.	Supply finance for resource acquisition. Access to non-financial resource enhances potential advantage.	Ehrlich *et al.* (1994), Kerr *et al.* (2011) Jain & Kini (1995), Lerner (2000), Raley and Moxey (2000).

Table 4: Resource Availability at HPSU and External Investor level

4.0 Proposed Conceptual Framework

Resource-based view theory describes how strategically relevant internal organisational resources, coordinated in a certain manner, may yield competitive advantages for the enterprise (Wernerfelt, 1984; Barney, 1991). The key assumptions of RBV germane to this study are that HPSU businesses in Ireland may develop sources of competitive advantage as a result of financial and non-financial resource acquisition. Therefore, the research objective of this study is to *explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage*.

This paper proposes a conceptual framework of HPSU-investor interactions utilising the resource-based view theory of the firm. In alignment to the research questions, the proposed framework attempts to extend the application of RBV to explain the motivation of the HPSU owner to engage with external investors in order to increase resource availability at firm level. RBV theory requires that resources acquired should ultimately contribute to the development of internal sources of competitive advantage for the (HPSU) firm. Barney (1991) states that in order for competitive advantage to be achieved, the resources present in the firm must be viewed as valuable, rare, inimitable and also non-substitutable. From the HPSU perspective these resources are not only financial but also non-financial resources such as technical and business knowledge, physical resources, human and social capital, access to investors' networks plus CEO time released as a result of the investment that allows the CEO and the HPSU to develop additional expertise. Foss (2011) claims that entrepreneurial firms leverage their resources in pursuit of market opportunities aligned to firm goals.

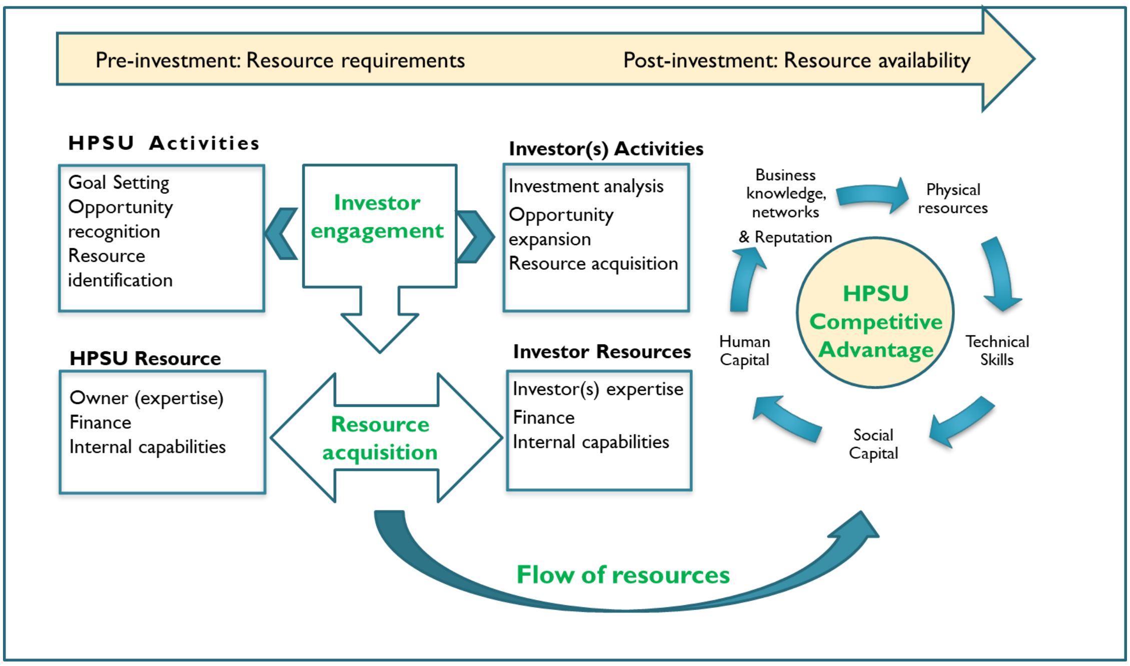

Figure 1: Conceptual Framework - Resource Impact of External Investors on HPSUs

The conceptual framework presented in Figure 1, is a diagrammatic summary of exchanges between the key actors: the high potential start-up business and potential external investors. The framework attempts to align resource-based view (RBV) at the company level as the owner of the HPSU engages in a process of resource need identification, analysis, specification and acquisition.

To understand the flow of the conceptual framework, the reader is directed to start at the left-hand side of the illustration in Figure 1. At the pre-investment stage, the business engages in a cycle of goals setting, opportunity recognition and resource identification. The motivations and actions of the HPSU owner in planning the acquisition of resources for the business are governed by the resource-based view. The next stage of the process involves a study of the interactions between the HPSU and potential external investors where both sides seek to develop an understanding of each other's needs and potential benefits that may be exchanged, (see Table 4 for insight into resource criteria as informed by literature reviewed).

The investment allows for the acquisition of resources including technical skills, social and human capital, technical and business knowledge, and reputation as a result of being recognised as being worthy of investment. Finally, the impact of external investors on resource availability will be evaluated at a period in time post-investment as depicted on the right side of the framework. The process outlined in the proposed framework may be repeated for subsequent investment rounds.

5.0 Philosophy and Research Methods

Touliatos and Compton (1988, p. 7) define research as a systematic inquiry “to discover new information or relationships”. The purpose of this research is to gain a deep understanding of the impact external investors have on resource availability in high potential start-ups companies, in Ireland. This understanding will equip the researcher with a wealth of knowledge to augment the value of advice offered to early stage business promoters before and after securing external investment. This is aligned to the researcher’s philosophical position as an interpretivist practitioner manifested by interpreting evolving business environments and imparting business advice to early stage business founders, thereby contributing to world of early stage businesses and their network of stakeholders. The type of research enquiry, described above, lends itself to an interpretative research approach.

From a philosophical perspective, the proposed interpretivist approach is a suitable epistemology to investigate resource availability in HPSUs. The interactions between external investors and the HPSU in the natural context and socially constructed environment of the company, is part of their everyday life, (Holden and Lynch, 2004; Prasad and Prasad, 2002) The rationale of using an interpretivist approach for this type of enquiry is also informed by Burrell and Morgan (1979, p. 22) who maintain that “interpretive sociology is concerned with understanding the essence of the everyday world”. This approach is useful to describe phenomena concerned with interactions and exchanges such as those between HPSUs and external investors. The interpretivist approach to inquiry utilises methodologies like in-depth interviews and case studies (Prasad and Prasad, 2002). Another feature of the interpretivist approach is that it is not unusual for the researcher to be involved with the subject (Evered and Louis, 1981). This has relevance to the proposed research, as the author is a business advisor to early stage businesses including those aspiring to become HPSUs.

The inductive methodology proposed here, is deployed in order to develop new theory or add to existing theory. This methodology is suited to situations where the researcher is trying to explain social phenomena, such as interactions between HPSUs and external investors in this research (Saunders *et al.*, 2009). Using the inductive approach to research provides an understanding of the significance of specific observations and the impact that this meaning has on a particular occurrence from an individual's perspective. Saunders *et al.* (2009) noted that this investigation involves the researcher becoming actively involved in the research procedure and cautions on the likelihood of objectivity being compromised.

A brief outline of the strategy for data collection and how it links the methodology to the research philosophy and the conceptual framework is presented here. The researcher will adopt an interpretive multiple case study approach of HPSUs that successfully secured external investment. In-depth interviews with HPSU owners and other key staff, for example co-founder or first employee will be utilised as part of a case study methodology, in order to construct a comprehensive description of the phenomena under study. Yin (2013) states that case studies are suitable to study a social phenomenon especially where questions of *how* or *why* are posed as they allow the researcher to explore, complex issues in their real-life context, in detail. The use of interviews for data collection is the most popular of all qualitative methods (Merriam and Tisdell, 2015). Curran and Blackburn (2001) advocate the use of semi-structured interviews as being particularly effective in the collection of data from owners of small enterprises. Due to the face-to-face nature of this method, the researcher can observe non-verbal communications and can extract more complex information through careful questioning and clarifying misunderstandings.

The interpretive case study approach described above will capture rich data to provide an in-depth description of the interactions between HPSUs and external investors and the impact of such interactions on resource availability leading to the development of sources of competitive advantage.

6.0 Conclusion

This paper has presented an outline of a proposed research study to address gaps in our understanding of the potential impact of external investors on resource-based sources of competitive advantage in early stage high potential businesses, in Ireland.

An attempt to extend RBV into the small firm arena in order to explain the motivations of the business promoter in seeking external investment for the purposes of resource acquisition and developing competitive advantage was presented. A resource-based catalogue (Table 4) and conceptual framework (Figure 1) drawing upon RBV outlined the potential interactions between the key actors, mainly HPSU owners and external investors, and indicated how the impact of external investors on resource availability will be explored in this study.

A greater understanding of the interactions between HPSU businesses and external investors and their impact on resource availability in early stage high potential businesses, in Ireland can be gained from the proposed study. The knowledge contribution of this research will be of benefit to high potential start-up businesses and also to other early stage businesses aspiring to become HPSUs. Insights gained will augment the value of support services provided by state and private business advisors to early stage enterprises, especially those who are seeking external investment for the purposes of resource acquisition.

7.0 Next Steps

The author will seek to design an appropriate research instrument under the interpretive mantle in the forthcoming stage of the research. The data collection methodologies used in prior research studies of small firms will be reviewed to inform optional methodological approaches relevant to this research.

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PAPER 2: RESEARCH METHODOLOGY

PREFACE

The Methodology Paper, the second in the cumulative paper series, was developed between November 2016 and March 2017. It was presented to External Examiners Prof. Alan Wilson (University of Strathclyde) and Dr. Malcolm Brady (Dublin City University), in April 2017. The methodology paper was approved, and the examiners confirmed that resource-based view was an appropriate theoretical lens for the study and only minor edits were required. Based on the External Examiners' comments the enclosed paper was finalised during May 2017.

As I approached the methodology paper, I realised that it was critical to have carefully worded research questions (RQs) in order to achieve the research objective to: *"explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage".* Based on feedback received from the External Examiners on my conceptual paper, I changed the research questions. Consequently, I eliminated RQ1: *How do resource constraints restrict the development of competitive advantage in HPSUs, in Irelan*d? RQ2 was revised to '*Why'* [instead of how] *do HPSUs interact with external investors to increase resource availability in the business?* and became my RQ1. RQ3 became RQ2 and a new RQ3 was introduced: *How does increased resource availability within HPSUs contribute to the development of internal sources of competitive advantage?* While developing the conceptual paper, I decided that the focus of my research should be on the perspective of the entity in receipt of the investment, the HPSU. Prior studies focused on investee performance retrospectively, or the return on investment for the investor, as I have articulated in Paper 1.

DBA Workshop 3: *Research Design*, in October 2015, was a valuable introduction to the multitude of choices facing a researcher in developing an effective research project plan. I realised the challenges and the importance of aligning the researcher's philosophical position, the research aims, positivist-interpretivist paradigms and quantitative / qualitative methodological options. Having decided that I wanted to capture HPSU perspectives, I engaged with the literature to identify research methods best suited to the environment of early stage businesses. Simultaneously, I explored the literature on research philosophies. By applying the cascading relationships of ontology, epistemology, human nature on methodology, I selected an interpretative research approach. This study is concerned with knowing how resource availability within HPSUs is affected by the introduction of external investment into the firm, viewed from the perspective of the entrepreneur. The rationale of using an interpretive approach for this type of enquiry is supported by Burrell and Morgan (2000) who maintain that "interpretive sociology is concerned with understanding the essence of the everyday world" (p.22). This is aligned to my philosophical position as an interpretivist practitioner in my role as a business advisor by interpreting evolving business environments and imparting advice to early stage business founders, thereby contributing to the development of their world. Having evaluated the characteristics of quantitative and qualitative research methods, I decided that a qualitative interpretivist multiple case study approach was the most appropriate research instrument under the interpretivist mantle to explore changes in the world of HPSUs in their natural settings, at firm level. I proposed undertaking in-depth interviews with the HPSU CEOs, followed by focus groups with employees and co-founders in tandem with, unobtrusive observations in the HPSU, reviewing online and offline firm documentation, such the founders' LinkedIn profile, the company website and investor pitch-decks and other HPSU documentation. This crystallisation of the data through multiple collection techniques increased the dependability and reliability of the research.

While there are advantages of having personal contextual knowledge of early stage businesses, there are also disadvantages from a researcher perspective. Being cognisant of the fact that I am an insider in this space and the risk of bringing my bias to the study, I decided to employ several strategies to mitigate such risks. These included multiple data collection techniques and the use of several protocols for the semi-structured interviews and the focus group interviews. These strategies for managing bias and ethical issues were incorporated into an application for ethical approval for my research to my host institution. Ethical approval for this research was granted by Waterford Institute of Technology in June 2017 as outlined in Appendix K, Paper 3.

I planned to identify case candidates for the study from Enterprise Ireland’s publicly available lists of high potential (HPSU) businesses that they have supported in the years 2014, 2015 and 2016. I decided to use a quasi-random sampling method to select HPSUs from these lists. I hoped that the interpretivist research methods that I had chosen underpinned by RBV theory and numerous protocols would successfully capture perspectives of CEOs and employees in the selected HPSUs. Having consulted literature on research techniques and analysis, I decided to opt for the Miles and Huberman (1984) four stage data analysis flow model of data collection, data reduction, data display and conclusions. I believed that the research methodologies I had chosen would allow me to construct a comprehensive description of HPSU activities prior to and after securing external investment. I planned a pilot case study to test all of the research instruments and protocols and this took place in June 2017. I had designed a research methodology that I believed would address the deficit of knowledge in the area of investing in early stage high potential businesses and how those firms develop resources in pursuit of competitive advantage at firm level. A systematic approach to evaluating and selecting an appropriate research methodology using specific data collection instruments is articulated in the forthcoming paper.

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Doctorate in Business Administration (DBA)

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Date: **15 / 05 / 2017**

Paper 2: **METHODOLOGY PAPER**

ABSTRACT

There is still much to understand about the impact of resource availability on high potential start-up (HPSU) businesses. The research objective of this study is to "explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage" from the perspective of the recipient of the funds; the HPSU. This aspect of investment in HPSU businesses has received little attention in the literature previously. An interpretivist multiple case study approach is proposed as a suitable method to investigate resource availability in its natural context, and the unit of analysis (UOA) is at HPSU level. The study will use in-depth interviewing and focus groups to construct a detailed description of the phenomena under study. This research will provide greater understanding of the interactions between HPSU businesses and external investors and their impact on resource availability in businesses. This research will be of benefit to start-up promoters and their advisers by providing an understanding of processes of engagement with external investors such as identification of investor types most suited to the HPSU's industry sector and stage of firm development. It will guide HPSUs in tailoring their investment proposals to specific investor types. It will also add to knowledge on how resources such as technology, skills, social capital and professional selling can be aligned to develop competitive advantage at firm level. Theoretically, it can contribute to the body of literature on financing and resource acquisition in early stage businesses by extending the application of RBV theory to early stage businesses, such as HPSUs.

Keywords: High Potential Start-Ups, Resources, External Investment, Resource-Based View, Finance.

1.0 Introduction

This study explores the impact of resource availability in high potential start-up (HPSU) businesses in Ireland in the context of developing internal sources of competitive advantage. This paper is the second in a series of four papers being developed as partial fulfilment of the Doctor of Business Administration (DBA) Programme at Waterford Institute of Technology, Ireland. The objective of the research is to "*explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage"* from the perspective of the business in receipt of the funds. This research will explore *why* entrepreneurs engage with investors, the *impact* that investors have on resource availability and *how* such resources contribute to the development of competitive advantage. The research will explore if financial and non-financial resources flowed to the HPSU.

An interpretivist approach is proposed as a suitable method to investigate a phenomenon such as resource availability, in its natural context, at HPSU level. This research adopts a multiple case study method underpinned by in-depth semi-structured interviews with entrepreneurs and focus groups with key personnel at the entrepreneur's business, as the central data collection techniques. This study extends earlier research on investment in early stage businesses which generally focused on firm performance and survival by exploring what happened from the investee HPSU perspective. Through the in-depth interviews with entrepreneurs and focus group meetings, this research will discover motivations of the HPSU, in seeking external investment, if engagement with investors resulted in a flow of resources into the HPSU and if increased resources contributed to the development of competitive advantage at the HPSU level. Aside from the purposes of research, this is an area of interest to the author from a professional practice perspective, in his role as a business advisor to early stage businesses including HPSUs.

The next section introduces the research objectives and research questions. The remainder of the paper is structured as follows; the next section establishes the philosophical assumptions of the study before selecting an interpretivist qualitative approach, by case study, as the most suitable strategy for this study. Section 3 provides details of how the case study strategy will be operationalised utilising multiple data collection methods.

Data management and analysis for the study is then discussed along with ethical considerations.

2.0 The Research Framework

High potential start-up businesses (HPSUs), as defined by Enterprise Ireland (2016), are amongst a minority of start-ups, in Ireland, that require equity-based finance.[2] As HPSUs, they are typically engaged in research and development or in exploiting some form of innovation to enable them to compete effectively in pursuit of growth. Such activities consume resources and often necessitate the introduction of external investment into the enterprise (Barry *et al.*, 2012; Mason and Harrison, 2004). Without access to formal external funding during the start-up phase, Mason and Harrison (2004) claim that fledgling businesses, such as HPSUs, experience resource constraints, as they are restricted by only having access to informal sources of finance or limited bank debt. Entrepreneurial business owners habitually try to maximise benefits derived from their scarce firm resources to develop key organisational capabilities (Audretsch and Keilbach, 2004; Kanniainen and Keuschnigg, 2004; Perren, 1999; Weinrauch *et al.*, 1991; O'Regan and Ghobadian, 2004).

This study is focused on the impact of resource availability in Irish-based HPSU businesses in the context of their impact on sources of competitive advantage from the perspective of the recipient of the funds, the HPSU. This is an aspect of investment in HPSU businesses that has received little attention previously in the literature. A review of extant literature reveals that prior studies (Bottazzi and Da Rin, 2002; Jain and Kini, 1995; Manigart and Van Hyfte, 1999; Rosenstein *et al.*, 1993), sought to retrospectively explain the impact of external investment on enterprise performance. Earlier work by Freeman *et al*. (1983) and Brüderl *et al.* (1992) focused on the impact of external investment on survival retrospectively, or as a predictor of future growth.

Prior research has not explored the relationship between firm engagement with external investors and how resource availability may contribute to the development of competitive

[2] Enterprise Ireland supported 105 HPSUs in Ireland in 2016 (Enterprise Ireland, 2017). There were 20,997 new businesses registered in Ireland in 2016 (Vision-net, 2017)

advantage for the early stage businesses such as HPSUs. These relationships are depicted in Figure 1.

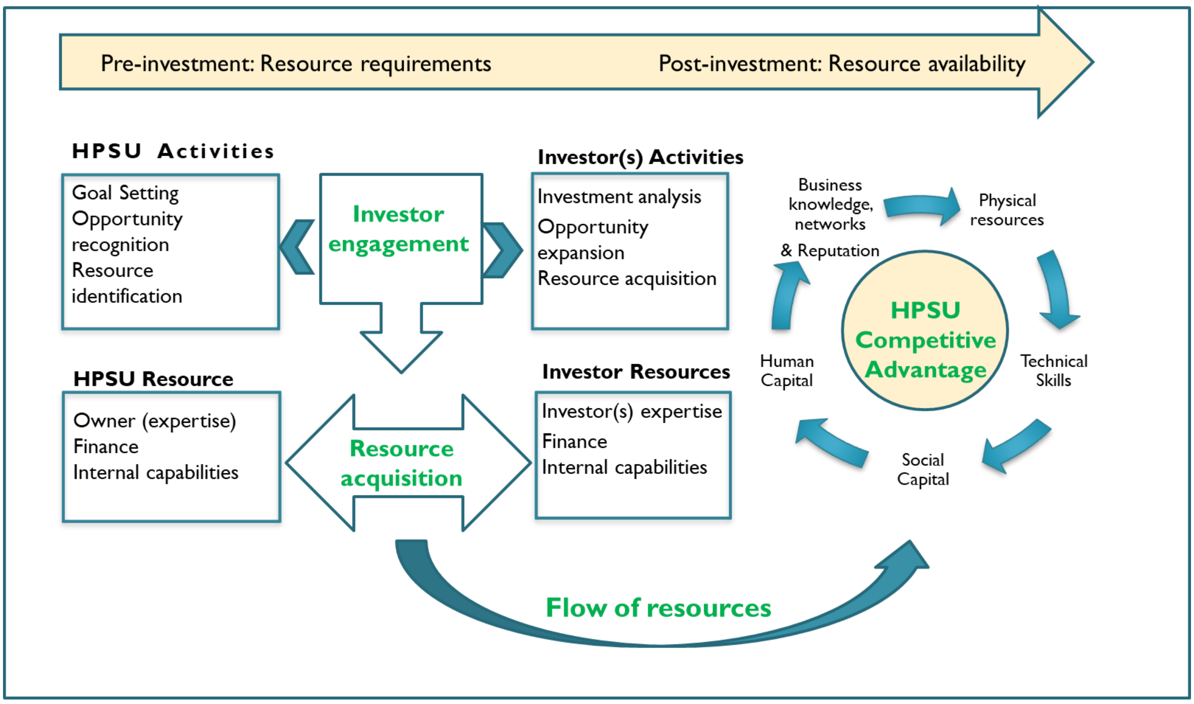

Figure 1: Conceptual Framework: Resource Impact of External Investors on HPSUs

The conceptual framework presented in Figure 1, is a diagrammatic representation of exchanges between key actors: the HPSU and potential external investors. The framework attempts to apply resource-based view (RBV) theory at the HPSU level. At pre-investment stage, the HPSU engages in goal setting, opportunity recognition and resource identification. The next stage of the framework depicts the HPSU interactions with external investors and explores if resources flowed from investors to the firm. Finally, the study will explore the post-investment impact of resources such as technology, skills, social capital and business knowledge on competitive advantage within the HPSU.

This study will make an important contribution to both practice and theory as, unlike prior studies of investments in early stage businesses, it captures the perspectives of investment recipients. It will be of benefit to start-up promoters and their advisers by providing an understanding of why entrepreneurs engage with external investors and what type of investors are most suited to the HPSU's industry sector and stage of firm development. This knowledge will guide HPSUs in tailoring their investment proposals to specific investor types. It will also add to knowledge on how the deployment of resources such as technology, skills, social capital and professional sales management may contribute to the development of competitive advantage at firm level.

The motivations and actions of the HPSU owner in planning the acquisition of resources to develop competitive advantage at firm level are aligned to resource-based view theory. By extending the application of RBV theory to early stage businesses such as HPSUs, this study can contribute to theory and the body of literature on financing and resource acquisition in early stage businesses.

2.1 Research Objective

Establishing clear objectives for undertaking research in a specific area is a critical initial step of any research project. Worthwhile research must add value to accumulated extant knowledge (Remenyi *et al.*, 1998). The articulation of research objectives typically describes a problem or knowledge gap, highlights the impact of the issue on certain variables and justifies the research project on the basis of expected benefits to selective audiences (Creswell, 2013a). The focus of this research is how engagement with external investors contributes to resource acquisition and the development of competitive advantage within HPSUs in Ireland. Therefore, the research objective is to: *"explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage".*

2.2 Research Questions

Following clear articulation of the research objective, the researcher must specify the core questions to be posed to address the phenomenon under investigation (Merriam and Tisdell, 2015). To address the research objective stated in the previous paragraph, this research seeks to answer the following three research questions (RQ):

> *RQ1: Why do HPSUs engage with external investors to increase resource availability in the business?*

This research question will explore the rationale behind entrepreneurs' engagement with external investors from the HPSU's perspective. The intent of posing this research question is to explore the entrepreneurial HPSU owner's motivations, for example, opportunity recognition, goal setting and resource identification as potential rationale for engaging with external investors. There is also an opportunity to retrospectively map the process of these interactions to guide HPSUs in better preparing for engagements with the investment community.

> *RQ2: What impact do external investors have on resource availability within HPSUs?*

Foss (2011) claims that entrepreneurial firms leverage their resources in pursuit of market opportunities aligned to firm goals. The available resources within a business may include financial assets (Carpenter and Petersen, 2002) and non-financial assets such as human and social capital (Cooper *et al.*, 1994), plus reputation in the market and technical knowledge (Mason and Harrison, 2004). Only certain investor types can either provide or facilitate access to non-financial resources in addition to the financial capital provided to the enterprise (Mason and Harrison, 2004). The purpose of RQ2 is to explore if interactions with external investors resulted in financial and non-financial resources flowing to the HPSU. In-depth, semi-structured interviews with the entrepreneurs, coupled with focus-group meetings with HPSU staff will explore perspectives on the impact of external investment on resource availability. Data collected can contribute to the existing taxonomy of firm-based resources such as physical resources, technical skills, human and social capital and business knowledge, by identifying additional novel resources at firm level.

> *RQ3: How does increased resource availability within HPSUs contribute to the development of internal sources of competitive advantage?*

Nicholls-Nixon *et al.* (2000) assert that business owners or CEOs attempt to configure resources available to them within their business in order to differentiate the enterprise within a market in what Van de Ven and Polley (1992) describe as trying to create competitive advantage. Barney (1991) acknowledges that resource-based view (RBV) research has mainly been concerned with larger firms, while recognising that "smaller firms also face the need to acquire critical resources to create a sustainable competitive advantage" (p. 634). While RBV has been deployed as a framework to explain the development of competitive advantages of large enterprises, (Barney, 1991; Wernerfelt, 1984), this study will add to existing theory to explain the entrepreneur's motivation in pro-actively seeking external investment to acquire specific resources that will enable the HPSU business to develop certain strategic capabilities. The purpose of the final research question is congruent with the overall research aim to discover the impact, if any, of increased availability of resources such as technology and technical skills, human and social capital, access to business networks, professional sales management and business reputation on the HPSU's internal sources of competitive advantage, as perceived by the entrepreneur and HPSU employees. By extending the application of RBV theory to early stage businesses such as HPSUs, this study contributes to theory and literature on financing and resource acquisition in early stage businesses.

3.0 Philosophical Perspectives

A researcher must possess a deep understanding of the philosophical objectivist-subjectivist continuum in order to describe the sociological and philosophical positions relevant to the research project. Their position on the continuum can be determined by their assumptions about ontology, epistemology and human nature and have a cascade-like relationship with other philosophical assumptions and consequently on the choice of research methods available to the researcher. According to Holden and Lynch (2004, p. 399), the opposing positions of objectivist-subjectivist have been given different titles in the literature quoting, Easterby-Smith *et al.* (2012) who named them positivism and phenomenology and Hughes and Sharrock (1997) who entitled them positivism and interpretive alternatives. This section argues the philosophical perspectives for the proposed study, as summarised in Table 1.

Subjective Approach		Objective Approach
Nominalism The social world is created by the individual concerned	Ontology What can and does exist	Realism A single reality exists independent of the individual's view
Interpretivism Knowledge must be personally experienced	Epistemology The nature of knowledge	Positivism Knowledge can be acquired
Voluntarism Free will plays a role in the relationship	Human Nature Relationships between human beings and their environment	Determinism Relationships are determined by external environmental forces
Ideographic Emphasises the analysis of subjective accounts revealed through qualitative explanation gleaned inside a given situation	Methodology How research is/will be constructed	Nomothetic A deductive approach that seeks explanation through the analysis of casual relationships to allow the testing of hypotheses and the construction of generalised laws

Table 1: The Subjective/Objective Dimension Adapted from (Burrell and Morgan, 1979)

Burrell and Morgan's (1979) polarised scheme of four assumptions, ranging from subjective to objective, helps researchers to identify their philosophical stance which, the authors suggest, is most likely to exist along the continuum rather than at either end.

3.1 Ontology

Blaikie (2007) claims ontology includes "claims about what exists, what it looks like, what units make it up and how these units interact with each other" (p. 6). Ontological assumptions are concerned with the nature of reality i.e., the processes of society or "the product of one's mind" as described by Burrell and Morgan (1979, p. 1). Ontological perspectives comprise of two polar positions nominalism and realism (See Table 1). Nominalists believe the social world is created by individuals, whereas, realists believe a single reality exists and are concerned with a tangible knowable reality that exists independently of an individual's perspective of it (Burrell and Morgan, 1979). At one end of the continuum, objectivists believe that the world is out there and that "social entities exist in reality external to social actors concerned with their existence" (Saunders *et al.*, 2012, p. 110). Therefore, a researcher remains external to the issue under investigation, employs standardised measures and does not impact on the findings of the study. At the fopposite end of the continuum, interpretivists consider social reality to be subjective to the individual and their interpretation of reality leading to “multiple realities” (Collis and Hussey, 2013, p. 47). The core focus of this research is ‘*how’* investment is perceived to affect resources from the perspectives of HPSU entrepreneurs and employees and is therefore reflective of a nominalist ontological philosophy.

This researcher’s background is in international business development with publicly quoted companies and more recently as an advisor to early stage businesses such as the HPSUs under study here. Consequently, there are latent knowledge and beliefs about business issues accumulated from lived experiences over many years. These experiences are significant from a philosophical perspective and locate the researcher on the subjective side of the objectivist-subjectivist continuum. The HPSU entrepreneur is a social actor who develops a vision and implements the vision in the creation of a new business. The new business provides service to customers and creates employment for people. The ontological position of the proposed research is subjective as it reflects the role of entrepreneurs and external investors in creating and developing new businesses. This ontological position influences the epistemological assumptions about the nature of knowledge, discussed in the next section.

3.2 Epistemology

Epistemology is concerned with how a person gets to know something in order to justify true belief. In order to answer the question posed by Hughes and Sharrock (1997, p. 5) "how is it possible for us to gain knowledge of the world?" the epistemology relating to interpretivism posits that reality can be explained in our collective minds by the concepts that we experience (see Table 1) and then becomes established to have meaning in our lives. Epistemology is concerned with how a person gets to know something in order to justify true belief. This study will explore changes to resource availability within HPSUs who receive investment from external investors. The philosophical perspective underpinning assumptions about human nature is that man, as a controller, is pro-active in contributing to his environment. This perspective sees man having free will to act with intention in constructing the world "within the realm of their own immediate experience" (Morgan and Smircich, 1980, p. 494). This study explores *the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to* *the development of internal sources of competitive advantage.* As such, it contemplates the business environment as seen through the eyes of the entrepreneur, to gain knowledge of their world (Hughes and Sharrock, 1997). This researcher adopts an interpretivist approach to acquiring knowledge about the HPSU's experience through observation, reflection and synthesising concepts into new meaning.

There is a cascading relationship of ontology, epistemology and methodology on research methods that leads the researcher through a trajectory of interpretivist epistemology, which is aligned with an ideographic methodology using qualitative methods as depicted in Table 1.

3.2.1 Positivist Paradigm

There are two alternative approaches to research methodology, depending on one's philosophical stance: deductive and inductive (Saunders *et al.*, 2012). Deductive research starts with a hypothesis based on existing theory or knowledge and then performs tests in an effort to explain the causal relationships between two variables. Deductive research falls under the positivist paradigm also known as the scientific approach. As Gummesson (1991) stated, the researcher is not involved with the subjects under study and remains independent and at a distance. Burrell and Morgan (1979, p. 21) define the positivist paradigm in social science as "an epistemology, which seeks to explain and predict what, happens in the social world by searching for regularities and causal relationships between its constituent elements". Ayer (1946) cautioned that positivist methods should only be considered as appropriate to a study if it is considered that they are likely to successful and claims "we trust the methods of contemporary science because they have been successful in practice" (p. 101). Much of the research on small firms has its roots in the positive paradigm. A criticism of the positivist approach is that it may not be successful in extracting the "thick description" (Goulding, 2002, p. 29) sought by researchers searching for a deep understanding of key factors and perspectives in small firms (Hill and Wright, 2000). Inductive methodology is deployed to develop new theory or add to existing theory. The approach is appropriate when a researcher is highly involved in the process to explain social phenomena, (Saunders *et al*., 2012) and therefore is effective when observing concepts such as investment in small firms including HPSUs. The inductive approach falls under the interpretivist paradigm discussed in the next section.

3.2.2 Interpretivist Paradigm

The interpretivist approach assumes that reality is invented and that all actors share this perspective. This approach is useful to describe phenomena around over-arching questions and to interpret specific meanings rather than generalise about findings. The interpretivist approach to inquiry utilises multiple research methods. It is usually in the form of qualitative research utilising interviews (semi-structured and structured), case study or action research as an overarching method (Prasad and Prasad, 2002). Another feature of the interpretivist approach is, that it is not unusual for the researcher to be involved with the subject (Evered and Louis, 1981). However, Saunders *et al.* (2012) caution on the potential of objectivity being compromised when researchers become actively involved in the research procedure. The approach of inductive research is concerned with the specific rather than the general and therefore has the ability to add knowledge to particular occurrences. Using the inductive approach to research provides an understanding of the significance of specific observations and the impact that this meaning has on a particular occurrence from an individual's perspective. The qualitative data extracted from an interpretivist approach can be used to generate theory in a specific context, as data validity is typically regarded to be at a high level (Blackburn and Kovalainen, 2009). Notwithstanding such benefits, the research literature cautions that validity might be at a low level in some circumstances.

This study is concerned with knowing how resource availability is affected following the introduction of external investment into the HPSU, from the perspective of the entrepreneur. This type of research enquiry lends itself to an interpretative approach. The rationale of using an interpretative approach for this type of enquiry is supported by Burrell and Morgan (1979) who maintain that "interpretive sociology is concerned with understanding the essence of the everyday world" (p.22). The interpretivist approach is appropriate to achieve the research objective outlined in section 2.1. Adopting an interpretivist approach, designed to uncover salient themes, patterns and meaning from the entrepreneur's perspective, this study will provide an account of the lived experience of HPSU entrepreneurs. This approach will provide rich data and deep insights into the effect of resource availability on the development of sources of competitive advantage following the investment, from the HPSU's perspective.

3.3 Methodological Options: Quantitative vs. Qualitative Research

This study will explore the lived experience of entrepreneurs in HPSUs through empirical data collection methods. The phenomenology in this study seeks to understand what changes in resource availability occurred in the HPSU as a result of external investment from the HPSU perspective: their lived experiences. As described above, research philosophy is polarised into two schools of thought: positivism and phenomenology. From a simplistic perspective, quantitative methods are generally aligned to the positivist approach while, qualitative research is aligned with phenomenology. However, in practice, research techniques are neither exclusively quantitative or qualitative (Patton, 1990; Jankowicz, 1991) and therefore warrant further discussion.

Quantitative research techniques use a deductive approach which commences with theories or hypotheses that are then tested through empirical methods (Gill and Johnson, 2010). The hypotheses, concepts and variables are set at the commencement of the study and do not change during the study. Quantitative methods aim to achieve objective clarification through numerical quantification and statistical analysis of data collected. In contrast, anchored in the phenomenologists' school of thought, the qualitative research methodology is recommended to gain meaning of the lived experience of participants. This meaning is collected through non-standardised methods involving intensive, in-depth contact between the researcher and the participants (Saunders *et al.*, 2012), as exhibited in Table 2.

Qualitative Data	Characteristics	Quantitative Data
Expressed through words	Meaning	Derived from numbers
Non-standardised	Collection	Numerical / Standardised data
Conceptualisation	Method of analysis	Diagrams / statistics

Table 2: Qualitative / Quantitative Dimension Adopted from Saunders *et al.* (2012)

The quantitative research approach is suited for short-term research projects (Creswell, 1998) as this approach is considered a low-risk method free from ambiguities. A criticism of quantitative research methodology is its inability to provide significant insights into small firms (Burrows and Curran, 1989). Quantitative approaches to conducting research on small firms are also inappropriate considering the unique characteristics of small firms (Churchill and Lewis, 1986; Chell and Haworth, 1992). The philosophical perspective of this study is phenomenological in exploring a distinctive social phenomenon that exists in a landscape of socially constructed entities i.e., engagements between HPSUs and external investors and the entrepreneur's perception on how resource availability contributed to the development of competitive advantage. Given the aim of this research a positivist approach, using quantitative methods, is not considered an appropriate research philosophy to capture the in-depth data required for this study.

Qualitative methods will be deployed for this study to facilitate close access to entrepreneurs to address the research objectives (Walsham, 2006). Silverman (2006) claims that the key benefit of this method is that it allows the researcher to study what is happening in its contextual setting. The world of entrepreneurs who engage in starting and growing high potential businesses is characterised by uncertainty, diverse challenges and often unstructured business practices (Alvarez, 2005). The research approach must recognise such diversity and the absence of structure when selecting appropriate data collection methods to achieve the objectives of the study. There has been a growing appreciation of the application of qualitative methods in researching small businesses (such as HPSUs) during the 1990s (Curran and Blackburn, 2001). This area of study is practice-led, as what is discovered through research helps to inform theory. Blackburn and Kovalainen (2009) endorse an interpretivist research approach to build theory in such situations. Consequently, it is appropriate to utilise qualitative interpretivist research methodologies to understand how everyday life in the HPSU changed following an investment event from the HPSU's perspective. The next section will seek to justify the research methods proposed under the interpretivist mantel.

3.4 Justifying the Research Approach

The purpose of this section is to validate the appropriateness of utilising qualitative interpretivist research methodologies to explore a contemporary phenomenon within HPSUs in Ireland. In order to investigate the identified phenomenon in the real-life contextual setting a case study approach utilising multiple data collecting sources is proposed. This approach is endorsed by Yin (2003, p. 13) who defines the scope of a case study as;

> "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, when the boundaries between the phenomenon and context are not clearly evident, and in which multiple sources of evidence are used."

Robson (2002, p. 178) recommends a case study as a strategy for undertaking qualitative research involving "an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence". Consequently, it is appropriate to utilise case studies, to investigate the influence of external investment on developing sources of competitive advantage in HPSUs and building on the application of RBV theory. This approach will provide a rich description of what happened from the HPSU's perspective and will extend the application of RBV theory to early stage businesses. Quinn-Patton (2002) recommends matching the methods to the research questions (RQs) because it locates the RQs at the heart of the study and enhances the methodological rigour. Decisions made regarding research design should be influenced by their ability to answer the stated research question in a manner that is valid, reliable but also generalisable (Quinn-Patton, 2002). Specifically, a case study approach captures deeper, richer insights rather than wide-ranging knowledge; however, this can be at the cost of generalisability (Yin, 2003).

This study is unique in that it will explore what happened in the business, from the perspective of the HPSU, following the receipt of external investment. This is important research as it will provide distinctive insights from the owner / CEO and HPSU employees on their beliefs regarding the benefits, if any, of the external investment on the business. While research design is paramount to the overall achievement of the research purpose, Franz and Robey (1987) argue that the time frame of the research must also be considered and propose a typology shown in Table 3, that maps the time-frame options available to the researcher in relation to the research purposes of *discovery* or *testing*.

		Single Time Frame	Multiple Period Time Frame
Purpose	Discovery	Observe current state (generate ideas for factor theories)	Observe on-going processes (generate ideas for process theories)
	Testing	Test static associations (correlation analyses)	Test dynamic changes (cause and effect)

Table 3: A Typology of Research Strategies (Franz and Robey, 1987)

The Franz and Robey (1987) typology advocates a single time-frame method as most suited to discovery-based research objectives such as the current study. The purpose of this study is to explore retrospectively, from a single point in time, the process of engagement with the investment community and what happened in the HPSU following the receipt of external investment. In an effort to guide researchers, Galliers and Sutherland (1991) developed a framework of common research objectives and state of knowledge modes for data collection practiced under both the more traditional empirical approach of observations and alternative approaches based on interpretations. The modes summarised in Appendix A identify the most appropriate modes of data collection to achieve various research objectives and, of relevance to this study, they confirm the suitability of the case study method in building theory while interacting with individuals or groups during the data collection phase.

Exploratory research is one of four research purposes documented by Marshall and Rossman (1989) in their state of existing research framework (see Table 4) identifying research methodologies available in pursuit of achieving specific research purposes.

Purpose of the Research	Research Question	Research Strategy	Examples of Data Collection Techniques	Adopted Features for this Research
Exploratory To investigate little understood phenomena. To identify/discover important variables to generate hypotheses for further research.	What is happening in this social program? What are the themes and patterns? How are these patterns linked?	Case Study Field Study	Participant-observation In-depth interviewing Elite interviewing	In-depth interviews with HPSU CEO Focus groups with HPSU employees / co-founders
Explanatory To explain the forces causing the phenomenon in question. To identify plausible causal networks shaping the phenomenon.	What events, beliefs, attitudes, and policies are shaping this phenomenon? How do these forces interact?	Field Study Case Study Ethnography	Participant-observation In-depth interviewing Document analysis Unobtrusive measures Survey questionnaire	
Descriptive To document the phenomenon of interest	What are salient behaviours, events, beliefs, attitudes & processes occurring in the phenomenon?	Field Study Case Study Ethnography	Participant-observation In-depth interviews Document analysis Survey questionnaire	
Predictive/ Predict the outcomes of phenomenon. To forecast the events and behaviours resulting from the phenomenon.	What will occur as a result of this phenomenon? Who will be affected and how?	Experiment Quasi-Experiment	Survey Questionnaire (Large Sample) Kinetics/Proxemics Content Analysis	

Table 4: Matching Research Purpose with Research Approach (adopted from Marshall and Rossman, 1989)

The other purposes included in their framework are explanatory, descriptive and predictive research. Their framework supports the selection of case study methods utilising in-depth interview techniques in conducting exploratory research addressing 'what' (RQ1, RQ2) and 'how' (RQ3) type research questions. The case study methods being employed in this exploratory research are displayed in Table 4, adopted from Marshall and Rossman (1989). A research strategy based on interpretive case study methods is ideal in achieving the over-arching research purposes of this study: exploration and explanation. This belief is in line with Yin's (2003) claim that case studies:

> "are the preferred strategy when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context".

The research philosophy and strategy for this study is informed by analysis of the state of research knowledge on methodological theory, by prior research and to lesser extent by the researcher's professional experience.

4.0 Research Strategy – Operationalising the Case Study Approach

Walsham (2006) claims that all fieldwork is "context-dependent" and that the researcher must decide on methods in accordance with "their own context, preferences, opportunities and constraints" (p. 321). The case study approach provides context within which exploratory research can be conducted, it is an appropriate strategy where a contemporary phenomenon is to be studied in its natural context where the focus is on understanding the dynamics present (Benbasat *et al.*, 1987; Myers, 1995). Cognisant of this advice, this section describes and justifies the application of various data collection techniques under an interpretative case study research methodology.

The major strength of the interpretive case study approach is the ability to capture a significant amount of detail about the subject matter, in real-time (Galliers and Sutherland, 1991) incorporating perspectives which are not discoverable by alternative methods (Pettigrew, 1990). This approach is concerned with what is to be studied (using whatever chosen data collection techniques) and therefore needs the researcher to "place [their] best intellect in the thick of what is going on" (Stake, 2005, p. 449). This approach enables the researcher to explore an area in depth (Benbasat *et al.* (1987) and is appropriate in a small firm environments such as HPSUs because of its ability to generate deep insights into social dynamics within the business (Coviello and Munro, 1995; Ennis, 1999). The multi-case method is also suitable to small-scale researchers who may have limited resources as it facilitates an in-depth study of a small number of cases (Creswell, 2013b), as is the approach adopted in this study.

The first requirement of this study is to gain close access to participants in HPSUs to capture a significant level of detail about their experience of securing investment from external providers. The objective is to understand their motivations for engaging with these investors and to understand processes underpinning the interactions. The second requirement of this study is to explore the impact external investors have on resources availability within the HPSU. As highlighted in section 2.6, prior research has not explored how firm engagement with external investors impacts on resource availability in the HPSU. A summary of the requirements of this research is presented in Table 5 below, aligned to characteristics of the interpretive case study approach which are discussed in the previous paragraph. The third requirement of this study is to understand and explain the HPSU's perspective of how increased resource availability within the HPSU impacted the development of sources of competitive advantage. The case approach enables the researcher to interact with the HPSU owner / CEO and other staff in a contextual setting while observing behaviours and collecting rich data. This approach will offer insights from the perspective of the HPSU owner / CEO and the employees, helping to identify imperative themes and paradigms within the HPSU (K. M. Eisenhardt, 1989).

Requirements of the Study as Articulated in RQs	**Interpretive Case Study Characteristics**
This study seeks to discover the HPSU owner's motivations for engaging with the external investment community and to understand the process of such interactions.	The strength of the case study is that it enables the capture of reality in significant detail and permits the analysis of a greater number of variables than is possible with any other research method. (Galliers and Sutherland, 1991).
The study aims to explore the impact external investors have on resources availability within the HPSU.	The case study approach is appropriate because it enables the researcher to explore an area in depth (Benbasat *et al.*, 1987).
The study aims to understand the HPSU's perspective of how increased resource availability within the HPSU impacted the development of sources of competitive advantage.	The case study approach provides context within which exploratory research can be conducted, and it is an appropriate strategy where a contemporary phenomenon is to be studied in its natural context and the focus is on understanding the dynamics present (Benbasat *et al.*, 1987; Myers, 1995).

Table 5: Suitability of a Case Study for Requirements of Study as Articulated in the Research Questions

4.1. Case Study Design

A researcher utilising the case study approach must consider the number of cases to be included in the research project. Yin (2003) states that single and multiple case study designs can be used in exploratory research and advises that multiple case designs are often viewed as more persuasive than single case designs. The in-depth exploration of a phenomenon in one organisation is single case design whereas the exploration of a phenomenon evident in several organisations is known as multiple case design. While a single case study design can be representative of similar cases and insightful in its ability to enlighten on specific topics, multiple case designs have the potential to inform theory building (Yin, 2003), a key aspect of this study.

Case study analysis can take a holistic approach where the unit of analysis is the organisation as a whole. Alternatively, multiple levels of analysis can be performed in what is referred to as embedded case design (Yin, 1994). The unit of analysis for this study is at firm level and will capture perspectives from a number of people within the HPSU.

It is therefore categorised as a 'holistic case design', placing this research in the upper right quadrant of Yin's (1989) framework (Table 6).

	Single Case Designs	**Multiple Case Designs**
Holistic (Single unit of analysis)	TYPE 1	TYPE 3
Embedded (Multiple units of analysis)	TYPE 2	TYPE 4

Table 6: Basic Types of Case Study Design (Yin, 1989)

Saunders *et al.* (2012, p. 283) recommend a minimum of five cases and Creswell (2013b) suggests up to 10 cases for semi-structured, in-depth interviews. Approximately 100 companies are approved for Enterprise Ireland HPSU funding each year (Enterprise Ireland, 2016). In recognition of extant research in this area and the relatively low number of HPSU approved by Enterprise Ireland annually, 5 to 8 HPSU cases is considered a representative sample and is in line with Eisenhardt (1989) who stated:

> "A number of 4 to 10 [cases] usually works well. With fewer than 4 cases, it is often difficult to generate theory with much complexity, and its empirical grounding is likely to be unconvincing." (Kathleen M Eisenhardt, 1989, p. 545).

Walsham (2006) argues that access to a limited set of organisations does not reduce generalisability as it can be derived from "concepts, theories, specific implications or insights" (p. 322). Case candidates will be identified through Enterprise Ireland's published lists of HPSU businesses that they have supported in recent years. The researcher will email the CEO of prospective companies. He will provide objectives of the research, its methods (in-depth interview with CEO and focus group meeting with employees) and will invite the CEOs to volunteer the HPSU's participation in the study. It is anticipated that follow-up telephone calls will be required to secure volunteers. These calls will be made directly to the owners / CEOs of prospective HPSUs and to persons in the researcher's network or the prospective participant's network. Saunders *et al.* (2012) describes this technique as "snowball volunteer sampling" (p. 289). Volunteers will be selected against the criteria presented in Table 7.

No.	Criteria for Selection of HPSU Cases for this Study	Yes/No
1	The business must be an Enterprise Ireland approved HPSU, listed in EI HPSU directory	
2	The HPSU must agree to participate fully in this study (interview with CEO and access to employees for focus group with employees)	
3	The HPSU must support publication of the findings from the study, contingent on their acceptance of the interview transcripts	
4	The HPSU must be located in Ireland	
5	The HPSU must have qualified for EI/HPSU funding within the past 6 to 36 months	
6	The HPSU must belong to one of the following sectors: Information Technology and Communications (ITC), Medical Devices, Software as a Service (SaaS), Financial Technology (FinTech)	
7	The person interviewed must be the Founder, Owner or CEO of the HPSU and must have been in the role before and after the investment	
8	The HPSU must have received funding from an external investor (receiving more than 1 round of funding does not make a HPSU ineligible)	
9	At least one participating HPSU must have received investment from a non-Irish Venture capital company or angel investor(s)	

Table 7: Criteria for Participation in the Study

The data collection techniques of in-depth interviewing and focus groups on-site at the HPSU will be used to collect evidence of the phenomenon. These techniques will be discussed in the next section to highlight their ability to capture rich contextualised data from the perspective of the HPSU in receipt of external investment.

4.2 Semi-Structured In-depth Interviews

The use of interviews for data collection is the most popular of all qualitative methods (Merriam and Tisdell, 2015). Within the case study approach, open-ended interviews are the most common type of interview used where not only facts are collected but also the opinions of the interviewee about issues under investigation (Yin, 1994). Curran and Blackburn (2001) claim that the use of semi-structured interviews has been particularly effective in the collection of data from owners of small enterprises. Their use is appropriate where the researcher's aim is to develop an understanding of the respondent's world (Easterby-Smith *et al.*, 2012), as is the case in the current study. Key advantages of the interview process of data collection are the high response rates and the quality of the data captured. The use of semi-structured in-depth interviews allows the researcher to add additional questions to probe deeply, especially when unexpected insights are shared by the interview participant. Due to the face-to-face nature of this method, the researcher can observe non-verbal communications and can extract more complex information through careful questioning and clarifying misunderstandings. The benefits of these in-depth interviews are emphasised by Burgess (2003, p. 165) who states, “the opportunity for the researcher to probe deeply to uncover new clues, open up new dimensions of a problem and to secure vivid, accurate inclusive accounts that are based on personal experience”. However, there are a number of drawbacks in the use of interviews in addition to the recall issue mentioned in the previous section. According to Opdenakker (2006) the in-depth interview method is time-consuming, expensive and inconvenient to the researcher and due to the researcher’s close involvement with data collection, this method is exposed to potential bias of the researcher.

The purpose of this study is to explore what happened in the HPSU following the receipt of external investment. The applied approach will be semi-structured interviews to allow a flow of information from the entrepreneur to uncover salient themes and patterns. The use of semi-structured interviews will provide this researcher an opportunity to pose open-ended questions to HPSU owners / CEOs to scope their perspectives on seeking and securing external investment and the impact that investment has had on the business. Saunders *et al.* (2012) recommend semi-structured interviewing when the researcher is using open-ended questions seeking to understand the rationale for attitudes and decisions taken.

4.2.1 Guiding the Semi-Structured Interviews

This researcher will adopt an interpretivist approach to acquiring knowledge from the participants about their experiences. The in-depth interviews must allow the participants to express perspectives of the business environment as seen through their eyes, to gain knowledge of their world (Hughes and Sharrock, 1997). A loosely structured interview guide allows the researcher to identify key themes during the interview and to probe issue arising (Sekaran and Bougie, 2016). The semi-structured interviews with the HPSU CEO / owner will be based on the RQs and relevant themes that have emerged from the review of extant literature. These themes are summarised in Table 8 and will inform the development of an interview guide (Saunders *et al.*, 2012).

Interviews with the HPSUs will be arranged in advance with the owner / CEO and will take place on-site at the HPSU premises. Each interview, expected to last 60-90 minutes, will be recorded with the participant's permission to accurately capture the entrepreneur's perspectives and to facilitate transcription later. Being on-site at the participant's premises allows the researcher to make ad-hoc non-obstructive observations about the location, office environment, HPSU team, etc. Guided by the themes referenced in Table 8, this researcher will explore the entrepreneur / HPSU owner's aspirations for growing the business, their attitudes towards risk and beliefs on relinquishing partial control of the business.

No.	Theme in HPSU	Theme in Literature	Authors
1	HPSU owner's mind-set.	Goal setting. Aspiration for business growth.	(Greenbank, 2001)
2	Opportunity recognition.	Opportunity recognition.	(Cunneen and Meredith, 2007), (Davidsson, 1991) (Nicholls-Nixon *et al.*, 2000)
3	Resource access.	Resource constraints. Resource identification.	(Grant, 1991) (Jain and Kini, 1995)
4	HPSU owner's desire for control.	Internal locus of control. Relinquishing control.	(Timmons, 1978) (de Vries, 2002)
5	Access to finance.	Engagement with external investors and VCs.	(Sapienza, 1992) (Barry *et al.*, 2012)
6	Risk taking.	HPSU owner's attitudes to risk taking.	(McClelland, 1965) (Palmer, 1971),,(Brockhaus, 1980)
7	Sources of competitive advantage.	HPSU owner skills. Physical, Human, Social Technical.	(Nicholls-Nixon *et al.*, 2000)

Table 8: Themes to be Explored through Semi-Structured Interviews

The interview guide will prompt the researcher to enquire how business opportunities are identified and evaluated by the HPSU and how resource requirements in pursuit of these goals are specified. The semi-structured interviews provide an opportunity to retrospectively discover the HPSU owner / CEO's strategy for engaging with and gaining the attention of external investors. An understanding of the strategy will not only explore the reasons that external investment was sought but will seek to understand what expectations the owner / CEO had of the investor prior to the securing investment. The semi-structured interviews will explore the owner / CEO's perspectives on pre-investment expectations versus the reality of the outcomes of securing the investment in terms of tangible and intangible resources and potential loss of control.

Finally, the interviews will aim to understand if the investment resulted in the firm acquiring valuable resources that contributed to the development of competitive advantage from the viewpoint of the owner / CEO. The themes presented in Table 8, will be tested during the pilot study to determine their ability to comprehensively answer the research questions. The themes have informed the development of the semi-structured interviews protocol, see Appendix B.

4.3 Focus Group Interviews

Market researchers have used focus groups to understand customer preferences since the 1950's with the methodology being more widely adopted by governments and academics since the 1980's (Krueger and Casey, 2002). Focus groups are recommended for their ability to facilitate the generation of diverse perspectives as the group interaction encourages views that might not be captured using other methods (O'Dwyer and Ryan, 2000; Newby *et al.*, 2003). A focus group is described as a group of people who discuss a specific topic prompted by a moderator who also manages the focus group meeting of four to twelve people (Hakim, 2000). The key benefit of a focus group interview is that it allows the expression of multiple perspectives that can be explored and developed within the group (Newby *et al.*, 2003; Saunders *et al.*, 2012).

A focus group is a suitable method to encourage participants to discuss their issues about the topic under study (Newby *et al.*, 2003) and often allows such issues to be articulated and even resolved in the group. Focus groups are particularly efficient at extracting a point of view from each participant and while the individual contribution may not be significant it can generate discussion that produces valuable perspectives on the topic under discussion (Hakim, 2000).

A potential weakness in this methodology can be the skill of the moderator (Saunders *et al.*, 2012) in managing all the voices in the group to ensure that certain participants do not dominate the discussion and that all participants are encouraged to express their opinions.

In accordance with interpretivist approach, the researcher will interact with other personnel in the HPSU to develop a more holistic perspective of what happened in the business following the receipt of investment. Krueger and Casey (2002) recommend that a researcher arrange three or four separate focus groups for each type of participant whose views the researcher wishes to capture. The opportunity to gather data from multiple sources within the HPSU offers the potential to uncover alternative perspectives to those of the HPSU owner / CEO (Newby *et al.*, 2003). Focus group meetings will be conducted on-site in each of the participating HPSUs and are expected to last 60 to 90 minutes. During the in-depth interview with the owner / CEO the researcher will explain the purpose of the focus group meeting and will request permission for a focus group meeting with employees and co-founders at a date within one month of the interview. The CEO will be asked to nominate participants for the focus group and to allow company documents such as the investor proposal and pitch-deck to be used in the focus groups to stimulate discussion.

Each focus group meeting will be recorded, with the consent of all participants to accurately capture their perspectives and to facilitate transcription afterwards. The researcher aims to extract a deep understanding of staff perspectives of the impact of investment on resource availability and the development of sources of competitive advantage. Early stage businesses have limited resources and typically accommodate their few staff in open-plan offices. Open-plan offices foster open communications and it is not unreasonable to expect that co-founders and employees would be involved in aspects of an investment proposal and resource acquisition. Therefore, it is justifiable to expect employees and co-founders, participating in focus group, to be knowledgeable about resource identification, the need for external funding, examples of resources acquired as a result of investment and how resources were used to get things done more efficiently or contribute to the development of new capabilities. The depth of knowledge of focus group participants of the research themes will be recorded in Table 9.

FG No.	Job Function	Years in Firm	Gender	Age Bracket	Familiarity with Focus Group Topics
FG1	Function A				
FG1	Function B				
FG1	Function C				
FG1	Function D				

Table 9: Depth of Focus Group Participants' Knowledge of the Research Themes

While recognising Curran and Blackburn (2001) recommendation that focus group participants are not known to each other prior to the group meeting in order to avoid consensus thinking, this will be unrealistic in the case of HPSUs who employ relatively low number of people. The focus groups will capture perspectives from four to eight participants in the HPSU dependent on the number of employees within each case organisation. It will provide a broad range of perspectives and will increase the crystallisation of the data by telling 'the same tale from different points of view' (Denzin and Lincoln, 2008, p. 7) in pursuit of increased data reliability and validity. The themes to be explored in the focus groups are discussed in the next paragraph.

4.3.1 Guiding the Focus Group Interviews

Krueger and Casey (2002) describe a good focus group as having the following characteristics: 1) carefully recruited participants, 2) interacting in a comfortable environment, 3) led by a skilful moderator and 4) followed by systematic analysis and reporting (p.4). They advise that there are several challenges in developing questions for a focus group reminding the researcher that the primary objective is to ask appropriate questions to address the research objectives and advocate the use of a loosely structured guide to assist the moderator. Saunders *et al.* (2012) state the moderator's dual role of; 1) keeping the group within the boundaries of the discussion topic and 2) generating interest in the topic and encouraging discussion while not leading or influencing the group (p. 403).

As might be expected, the themes to be explored in the focus groups for this study significantly overlap with the themes that will be explored using the semi-structured interviews data collection method. These themes are derived from the RQs and are informed by emergent literature. The draft themes to be explored through the focus groups are presented in Table 10, with the caveat that these could change dependent on topics emerging during the semi-structured interviews. This researcher has been trained in group facilitation techniques and has facilitated more than 100 meetings with start-ups and micro-enterprises, including HPSUs. While this experience is beneficial given the similar principals of moderating a focus group and facilitating a group meeting, the researcher is informed by the literature in designing a guide for the operation of the focus groups. Documents such as the HPSU's investor proposal sent to prospective investors and the pitch-deck used in presentations to investors will be used in the focus groups to stimulate discussion.

The focus group discussions will explore how the groups perceives business opportunities are identified and evaluated in the business and how required resources are then specified. Discussions on employees' perspectives on pre-investment expectations and post-investment reality will be facilitated. Importantly, the focus groups will attempt to gain deep understanding if the investment resulted in the firm acquiring valuable resources that contributed to the development of competitive advantage as perceived through the eyes of the employees. The themes explored in the focus group will be tested in a pilot focus group. The test will provide an opportunity for the researcher to practice focus group moderation skills and to adjust behaviours as desired. A protocol for conducting the focus group meetings is displayed in Appendix D.

No.	Theme within HPSU	Theme in Literature / Rationale for inclusion	Authors
1	Opportunity recognition.	Opportunity recognition.	Cunneen and Meredith, (2007), Davidsson, (1991) and Nicholls-Nixon *et al*., (2000)
2	Resource access.	Resource constraints. Resource needs identification.	Grant, (1991) and Jain and Kini, (1995)
3	HPSU owner's desire for control.	Internal locus of control. Willingness to relinquish partial control.	Timmons, (1978) and de Vries, (2002)
4	Access to finance.	Engagement with External Investors and Venture Capital Firms.	Sapienza, (1992) Barry *et al*., (2012)
5	Sources of competitive advantage.	HPSU owner skills. Physical, Human, Social Capital. Technical.	Nicholls-Nixon *et al*., (2000)

Table 10: Themes to be Explored through Focus Groups

4.4 Supporting Data Collection Techniques

Researcher reflective logs do not pre-specify activities, events, attitudes or feelings, but allow the writer to record subjective perceptions of the incident observed (Chell and Haworth, 1992; Symon, 1998). The log amounts to a personal journal of the research process, wherein the researcher records emergent ideas and results. The researcher will maintain a reflective log for the duration of the study to include reflections on interactions with the HPSU owner or employee actions, and also an on-going examination of the researcher's personal attitude. This narrative should ideally be completed shortly after each site visit and supplemented with interim thoughts relating to the project.

4.5 Pilot Study

The interview and focus group guides will be piloted to trial the interview and focus group procedures and to further refine and develop the questions to be used with participants in each environment (Yin, 2014). The benefit of pilot studies is that they provide an opportunity to see them in practice and to judge how suitable they are, whether any of the questions or prompts create confusion or ambiguity and also to get feedback from the interviewee / participant (Teijlingen and Hundley, 2001). The pilot study will precede the main data collection stage of the research in order to scope out the major themes related to seeking and securing external investment and identify any issues with the selected research methods. The single case pilot study will include the data collection approaches planned for the full study including semi-structured interviews with entrepreneurs and focus group meetings with key personnel within the HPSU. The HPSU case that will be studied during the pilot phase will not be included in the main data collection phase of the study. The prominent themes discovered at the pilot stage can be analysed with regard to their ability to address the key objectives of the research and will guide the refinement of the semi-structured in-depth interviews and focus groups. In addition, the pilot interviews will provide this researcher with opportunities to practice interview skills which may mitigate against some of the interviewing challenges experienced by novice researchers, described by Curran and Blackburn (2001, p. 79) as being “hard work and often stressful”. Other considerations requiring planning include the logistics of meeting participants across Ireland, managing the interview time efficiently without limiting the flow of data, logistics, and other practicalities.

5.0 Data Management and Analysis

Data management in qualitative studies incorporates data collection, storage and retrieval (Miles and Huberman, 1984). The researcher will transcribe the interviews and focus group evidence (Walsham, 2006) and maintain these files in a secure environment (e.g. encrypted electronic files and a locked cabinet for any documents or printer materials collected).

5.1 Data Analysis

The data analysis strategy will be based on the four stages of data collection, data reduction, data display and conclusions depicted in the flow model proffered by Miles and Huberman (1984). As the researcher is broadly familiar with the area of study he must be cognisant of the researcher effect as described by Patton (1999). While this may provide an opportunity to crystallise the data, there is a risk that the researcher might unwittingly bring bias to the analysis (Roulston, 2014). The researcher has significant experience as an advisor to start-up business promoters, in Ireland. There are advantages and disadvantages of a researcher having this familiarity with the research subject matter. This researcher’s experience may be considered an important source of evidence, along with documentation, interviews, focus groups, in developing an in-depth case study. While having contextual knowledge of the subject area is beneficial, a researcher must to be cognisant of the fact that they may bring certain bias to the study. Such bias must be a factor of consideration when devising research methodologies. Kincheloe and McLaren (2002) noted this, by asserting that a researcher attempts to use his or her work as a form of criticism whilst accepting certain basic assumptions and bias.

The data analysis process will be executed using the NVivo software programme which is suited to interpreting large volumes of data efficiently (Tesch, 1990). Transparency and rigour are critical components of the qualitative data analysis process (Tesch, 1990). The data analysis strategies summarised in Table 11, below will be employed to adhere to a process that can withstand tests of validity, reliability and generalisability.

No.	Data Analysis Strategy	Informed by
1	Run / Save / Print Node Summary reports regularly (NVivo) to track changes to nodes and themes	(Ryan, 2009)
2	Data reduction to interpret meaning of the data	(Miles and Huberman,
3	Overlap constant comparative analysis and analytic induction to categorise codes and note relationships reliability and validity)	(Glaser, 1967)
4	3-stage coding: Open, Axial and Selective	(Strauss and Corbin, 1990)
5	Utilise charts, graphs and matrices	(Miles and Huberman, 1984)

Table 11: Strategies Underpinning the Data Analysis Process in NVivo.

A researcher’s personal perceptions and preconceptions are always present in qualitative research (Yin, 1994). Interpretive research findings are regularly criticised regarding the strength of their research legitimisation; validity, reliability and generalisability (Kelliher, 2011). Such concerns over data legitimacy must be addressed when justifying as research contribution (Walsham, 2006). The data analysis phase of this study will apply the principles of Yin’s (1998) theoretical construct tool addressing validity, reliability and generalisability to increase the research legitimacy of this research. These are summarised in Table 12.

Tests	Case Design	Application to this Study
Construct Validity	Use multiple sources of evidence	This study uses a combination of in-depth semi-structured interviews with HPSU founder/CEO plus focus group meetings with co-founders/employees.
	Establish a chain of evidence	Data from each of the in-depth semi-structured interviews will be introduced for discussion in the focus groups at a later date to establish consistency of data.
	Have key informants review draft case study report	Following each in-depth interview, the researcher will transcribe the discussion and presented a written copy to the interviewee for approval. Focus group participants will be provided with a transcript of the focus group meeting.
Internal Validity	Do pattern matching	A pattern of data analysis will be established to ensure that data collection and data analysis will be consistent across all cases.
	Do explanation building	Multiple sources of data will be accessed in order to build description of the phenomenon being studied within HPSUs. These multiple sources of data enable cross-referencing of participants' descriptions of events and actions in order to build a more complete and accurate description.
External Validity	Use replication logic in multiple case studies	The researcher will engage in replication logic through a multiple case design based on a tight-linkage inductive approach to engage in theory building. Prior theory will be used as a template with which to compare the empirical results of the case study.
Reliability	Use case study protocol	The researcher will develop a case study protocol, which will be tested during a pilot case study.
	Develop case database	The researcher developed a case study database using MS Excel

Table 12: Case Study Design and Tests of Validity and Reliability (Yin, 1994)

5.2 Ethical Considerations

Researchers must address several ethical issues prior to the commencement of the research process. These ethical considerations are managed by using guiding principles to inform appropriate conduct for researchers (Robson, 2002). Developing a positive respectful relationship between the researcher and case participants requires time, clear communications and confidentiality regarding data captured (Cagney, 2015). The success of this research study is dependent on the researcher gaining close access to a broad selection of HPSU business across Ireland. As indicated earlier, the researcher acts as an advisor to early stage business promoters and therefore has access to a network of HPSU businesses. Additionally, the researcher acts as chairperson of a national forum of early stage business advisors and will seek access to HPSUs who are clients of other members of the forum. It is the intention of the researcher to enlist the support of these professional contacts in inviting HPSUs to participate in this study. Ethical issues to be considered with respect to participant HPSUs includes; prevention of harm, assurances of anonymity or confidentiality and preservation of privacy (Diener and Crandall, 1978). These issues can be managed through careful data management, the use of respondent and HPSU alias and confidentiality agreements if required. This researcher has applied to the Research Ethics Committee at Waterford Institute of Technology to obtain ethical clearance for this study

6.0 Conclusion

This paper describes the methodological approach for a study that addresses aspects of investment in early stage businesses from the investee perspective that have received little attention in the literature previously. The study aims to "*explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage*" from the perspective of the recipient of the funds, the HPSU. A conceptual framework underpinned by resource-based view theory was presented depicting the exchanges between HPSUs and potential external investors to explore if resources flowed from investors to the firm and if such resources contributed to the development of competitive advantage within the HPSU. An interpretivist multiple case study approach detailed employing semi-structured in-depth interviewing and focus groups to explore the phenomenon within HPSU businesses, in Ireland. The interpretive case study approach is suitable in order to capture perspectives of the HPSU owner / CEO and employees to construct a detailed description of exchanges with external investors, the flow of resources to the HPSU and the benefits, if any, of these resources on the development of sources of competitive advantage. The paper addressed limitations of the proposed methodology and outlined measures to counter potential researcher bias. Ethical considerations pertinent to this study were outlined and the legitimacy of the data were considered against reliability, validity and generalisability criteria.

This research will contribute to professional practice by providing early stage businesses and their advisers with deep understanding of processes of engagement with external investors. It can guide HPSUs in tailoring their investment proposals to prospective investors. The study can contribute to theory by extending the application of RBV theory to early stage businesses such as HPSUs. The next steps in this study are presented below:

This researcher has applied to the Research Ethics Committee at Waterford Institute of Technology (WIT) to obtain ethical clearance prior to interactions with potential case participants in the pilot study and the main study.

A pilot study will be conducted to validate the data collection methods and to trial the semi-structured interviews and focus group interview protocols.

Protocols for the semi-structured interviews and focus group interviews will be refined following the pilot study, for use in the field.

Appendix A: Research approaches (Galliers and Sutherland, 1991)

Modes for Newer Approaches (Interpretations)						**Modes for Traditional Empirical Approaches (Observations)**				
Object	Theorem Proof	Laboratory Experiment	Field Exp.	Case Study	Survey	Forecasting and Futures Research	Simulation & Game/Role Playing	Subjective/ Argumentative	Descriptive/ Interpretive (incl. reviews)	Action Research
Society	No	No	Possibly	Possibly	Yes	Yes	Possibly	Yes	Yes	Possibly
Organisation / Group	No	Possibly (Small groups)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual	No	Yes	Yes	Possibly	Possibly	Possibly	Yes	Yes	Yes	Possibly
Technology/	Yes	Yes	Yes	No	Possibly	Yes	Yes	Possibly	Possibly	No
Methodology	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Theory Building	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Theory Testing	Yes	Yes	Yes	Yes	Possibly	No	Possibly	No	Possibly	Yes
Theory Extension	Possibly	Possibly	Possibly	Possibly	Possibly	No	No	No	Possibly	Possibly

Appendix B: Protocol for In-Depth Semi-Structured Interviews

Give the interviewee the Research Information and Consent Form and ask them to read it. Briefly discuss the purpose of the research, stress that respondents' perceptions are being sought and that their contribution highly valued by the researcher. Check if they have any questions.

Explain the ethical principles listed below and assure them of confidentiality/anonymity. Allow time to discuss these with the interviewee to ensure their full understanding and consent.

The purpose of the interview and its relevance to the overall research project.

Acknowledge that participation in the interview is voluntary

The interviewee's consent to voluntarily participate in the interview is sought as is their permission to record the interview.

The confidentiality of what is shared by the interviewee is assured by the interviewer.

The interviewee is invited to ask any question to clarify their understanding of the purpose of the interview and their role therein.

Collect the following descriptive data before proceeding to the interview.

Interview no.	_____________	Interview date:	___________
Interviewee Name:	______________	Gender:	___________
Company name:	______________	Business sector:	___________
Role in company:	______________	Age of business:	____________

Advise that you will start recording the interview from now and check if they have any questions.

Request approval to conduct a focus group with co-founders / employees and ask the samples of the investment proposal documentation be taken into the focus group meetings.

Appendix C: Linking Themes within HPSU to Interview Prompt Questions

RQ	Themes	Q.	Interview Prompt Question
1	Owner mind set. Resource access	1	When you started the business, what were your aspirations / goals?
1	Resource access	2	When did you begin to engage with external investors?
1	Opportunity recognition. Risk taking	3	What prompted you to start this process?
1	Resource access	4	Did you have a system for identifying and contacting investors?
1	Resource access	5	How did you make contact with potential investors?
1	Resource access	6	How many potential investors did you contact and how many physical pitches did you do?
1	Owner mind set. Resource access	7	If you were back at the start of the process of engaging with investors what would you do differently now?
1	Access to finance	8	How many investments did you take in?
2	Resource access	9	What resources were acquired as a result of these investments?
2	Resource access	10	What else (resources) did you get from investors?
2	Owner mind set Resource access	11	Was there anything that you expected to get from them but didn't?
2	Owner control	12	Did you feel that you had more or less control of the business?
2	Owner control	13	If you were back in time negotiating the terms of your first investment, what would you do differently?
2	Resource access	14	What non-financial resources did the business gain from investors?
3	Opportunity recognition Risk taking	15	How were business opportunities identified?
3	Competitive Adv.	16	Do you feel that the business was better off because of the investment(s)?
3	Competitive Adv.	17	Do you feel that the business was able to compete better? [How?]
3	Resource access Competitive Adv.	18	What specific resources helped you to compete better?
3	Resource access Competitive Adv.	19	Did these resources help you to compete more effectively? [How?]
3	Access to finance Competitive Adv.	20	Overall, do you feel that the business is more competitive as result of investments?

Appendix D: Protocol for Facilitating Focus Groups

1. Give the Focus group participants the Research Information and Consent Form and ask them to read it. Briefly discuss the purpose of the research, stress that respondents' perceptions are being sought and that their contribution highly valued by the researcher. Check if they have any questions.

2. Explain the ethical principles listed below and assure them of confidentiality/anonymity. Allow time to discuss these with the interviewee to ensure their full understanding and consent.

    a. The purpose of the Focus group and its relevance to the overall research project.

    b. Acknowledge that participation in the Focus group is voluntary

    c. The participants' consent to voluntarily take part in the Focus group is sought as is their permission to record the interview.

    d. The confidentiality of what is shared by the Focus group members is assured by the moderator / researcher.

    e. The participants are invited to ask any question to clarify their understanding of the purpose of the Focus group and their role therein.

3. Collect the following descriptive data before the interview.

FG No.	**Date and duration of focus group meeting:**	**HPSU name:**			**Focus group venue:**
A	Job Function	Years in firm	Gender	Age	Familiarity with focus group topics
1					
2					

Advise that you will start recording the interview from now and check if they have any questions

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PAPER 3: RESEARCH DESIGN AND INITIAL FINDINGS

PREFACE

Paper 3: Design, Implementation and Initial Findings, was developed between June and October 2017. It was presented to the External Examiners in October 2017. The External Examiners were Prof. Jean-Anne Stewart (Henley Business School) and Prof. Joseph Coughlan (National University of Ireland, Maynooth). The design, implementation and initial findings paper was approved requiring only minor edits, as reflected in the enclosed version finalised during November 2017.

Having decided to pursue an interpretivist multiple case study approach underpinned by RBV theory for my research, I was aware of the importance of designing research instruments that would capture relevant data to achieve my research objectives. I reflected on the content of DBA Workshop 3: *Research Design*, in October 2015, in tandem with the literature on research planning (Burrows and Curran, 1989; Curran and Blackburn, 2001; Saunders *et al.*, 2012), to develop data collection tools to operationalise my research. Being conscious of the significant amount of work involved in designing, testing and implementing a research study, I developed a *Research Project Plan* (Table 1 in the forthcoming paper) to manage the stages of data collection, management and analysis and established a comprehensive database to collate research collateral materials for the case study (Table 8).

I was aware of being an insider in the area of early stage business development and that I may risk bringing my bias to the study. Whilst I developed several strategies to mitigate personal bias, I realised that gaining ethical approval for my research from WIT was important. I applied for ethical approval to the WIT School of Business Ethics

Committee in May 2017 and received approval in June 2017, subject to addressing issues concerning the selection of CEOs and focus group participants, as indicated in the Approval letter enclosed in Appendix K. I appreciated the independent perspectives offered by the Ethics Committee to improve the integrity of my research, therefore I developed supplementary information addressing their ethical concerns. I clarified that I would invite focus group participants directly (using email address provided by CEOs), that they had free-will in participating in the study, that interviews would be recorded, and transcripts would be provided to participants for approval. I assured focus group participants that transcripts would not be shared with their respective CEOs to ensure open and frank discussions in interviews. I also clarified to the Ethics Committee that case candidates would be identified from Enterprise Ireland's publicly available lists of HPSUs and that these lists provide company name, contact name, email address and phone number to facilitate me contacting the randomly selected firms.

Based on feedback on my Methodology Paper received from External Examiners Prof. Alan Wilson and Dr. Malcolm Brady, I eliminated one of my planned data collection methods. The examiners believed that 'observation of HPSU activities' was unlikely to benefit my research. They also cautioned on potential challenges in organising focus groups. Their concerns were whether employees would be knowledgeable enough for valuable participation in group discussions and also how I would recruit participants. I subsequently eliminated the observation technique. I believed that co-founders and employees, as participants of the focus groups, would be aware of issues arising in an early stage business as typically start-up teams are accommodated in open-plan offices and many start-ups CEOs promote a culture of open communications with their staff. I developed protocols for recruiting participants to the focus groups and for documenting their consent to participate (Appendices E, F and G, of forthcoming paper).

On the recommendations of my joint supervisors, this paper is written in the present tense as it describes the operationalisation of the pilot case study and then discusses the key initial findings, as part of the on-going research project. I found it difficult to write in the present tense as I considered this approach to be somewhat informal for an academic document. Nonetheless, I became accustomed to that style of writing for this paper.

I recruited the pilot case HPSU from three firms short-listed from Enterprise Ireland's lists of recent HPSUs against case selection criteria (see Table 11 of forthcoming paper). Being cognisant of the importance of conducting a pilot study in order to test all of the intended data collection techniques and associated protocols, I followed the steps of the research project plan to mirror the proposed main study. The pilot study was carried out in June 2017 in compliance with the ethical guidelines established for the full research study. Perspectives were captured from the company CEO and from co-founders of what happened in the HPSU before and after securing external investment. Initial findings are discussed in this paper under three themes directly related to the research questions and seven literature-informed, entrepreneurial sub-themes. The pilot case achieved its key purpose by confirming the appropriateness of the research methods I have chosen for the main study. Guidelines and protocols were tested and only required minor amendments for the main study. There were no ethical concerns emerging during the pilot case study. The initial findings (notwithstanding the acknowledged lack of data saturation) describe perspectives on 1) *Why* the HPSU engaged with external investors, 2) *What* impact did external investors have on resource availability within this HPSU, and, 3) *How* resources within the HPSU are contributing to the development of competitive advantage.

A learning insight for me was the fact that a business could be designated a HPSU company by Enterprise Ireland and appear in the EI HPSU directory whilst not actually being in receipt of private investment. This meant that they did not meet the criteria as outlined in Table 11, for this study. I also realised that focus groups were unsuitable for this study as just two participants turned up for the focus group interview. The literature recommends a minimum of four participants for a focus group (Hakim, 2000; Saunders *et al.*, 2012). I reflected on my rationale of deploying focus groups in the current study; to increase legitimacy through a triangulation of perspectives within the

HPSU. In reviewing the literature, I noted Saunders *et al.* (2012, p. 375), stated that there may be situations where a researcher conducts "interviews on a group basis where you meet a small number of participants". I decided that I would use group interviews during the main study to support research legitimacy. According to Frey and Fontana (1991, p. 178), a group interview compliments other research method and "lends methodological rigour to the one-to-one interviews".

In the course of developing papers two and three, I had a number of opportunities to share aspects of my research with fellow researchers at the scheduled DBA examination presentations and other fora. I exhibited a summary of the research objectives and conceptualisation, in poster format, at the WIT Research Day 2017 (Crehan *et al*., 2017a); see Paper 3, Appendix B. I also presented a conference paper, based on my Conceptual Paper at the Institute of Small Business and Entrepreneurship 2017 Conference (Crehan *et al*., 2017b). This dissemination of my research resulted in gaining valuable feedback from fellow researchers and academic who offered their perspectives on my research focus.

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Doctorate in Business Administration (DBA)

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Date: **04/09/2017**

Paper 3: **RESEARCH DESIGN AND INITIAL FINDINGS**

ABSTRACT

External investment in high potential start-up businesses can come from many sources, including venture capital firms (VCs), government funds, angel investors and other private investors. This study extends earlier research on investment in early stage businesses which generally focused on firm performance and survival, by exploring what happened, following receipt of investment, from the investee High Potential Start-Up (HPSU) perspective. The research objective of this study is to "*explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage.*" An interpretivist multiple case study approach is adopted as a suitable method to investigate resource availability in its natural context at HPSU level. This paper documents the operationalisation of the research including protocols for data collection at the HPSU level. The conceptual framework presented in Paper 1 demonstrates the appropriateness of resource-based view theory in researching the motivations of the HPSUs in seeking external investment. This paper describes the implementation of a pilot study conducted to test the suitability of the chosen data collection methods in pursuit of the research objectives. The evaluation of the pilot study identifies a number of amendments to the next stage of implementation of the research design to increase its potential to extract deep insights of the phenomenon under study within HPSUs. Analysis of initial findings identifies three core emergent themes that address the research objectives and demonstrate how RBV theory can be applied to HPSUs.

Keywords: High Potential Start-Up, Resources, External Investment, Competitive Advantage, Case Study.

1.0 Introduction

This study explores the impact of resource availability in high potential start-up (HPSU) businesses in Ireland, in the context of developing internal sources of competitive advantage. This paper is the third in a series of four papers developed as partial fulfilment of the Doctor of Business Administration (DBA) Programme at Waterford Institute of Technology, Ireland. The first paper in the series presents a conceptual framework drawing upon resource-based view theory in order to explain the motivations of business promoters in seeking external investment and to explore the impact of this investment on resource availability in the HPSU. Furthermore, it conceptualises the impact of resource availability in HPSUs in the context of developing internal sources of competitive advantage with the intent of extending the application of RBV theory from early stage businesses, such as HPSUs. The conceptual framework presented in Paper 1 demonstrates the appropriateness of resource-based view theory in researching the motivations of the HPSUs in seeking external investment. From a theoretical standpoint, this research extends the application of RBV theory to early stage businesses, such as HPSUs, who need "to acquire critical resources to create a sustainable competitive advantage" (Barney, 1991, p. 634).

The second paper in this series, a methodology paper, articulates the research objective to "explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage". In particular, this study focuses on the perspective of the HPSU in receipt of the investment. The resultant research questions are as follows:

RQ1: Why do HPSUs engage with external investors to increase resource availability in the business?

RQ2: What impact do external investors have on resource availability within HPSUs?

RQ3: How does increased resource availability within HPSUs contribute to the development of internal sources of competitive advantage?

Paper 2 describes how an interpretivist philosophical perspective is sympathetic to the perspectives of the population of interest; HPSU promoters and is aligned to the achievement of the research objectives. A multiple case study approach utilising in-depth interviewing and group interviews with personnel in six to eight HPSUs is proposed as a suitable methodology, to investigate the phenomenon in its natural context at the HPSU level.

This paper focuses on the implementation of the case study research design presented in the methodology paper. It documents the operationalisation of the research including protocols for data collection at the HPSU unit of analysis. Data collection guidelines are presented for semi-structured interviews with the HPSU CEO/owner and for the subsequent group interviews with co-founders and employees within the HPSU in order to address each of the research questions. The next section includes an overview of the case study project and a research activity plan. The researcher then describes the planning and implementation of a pilot study conducted to test the suitability of the chosen data collection methods to comprehensively achieve the research objectives to *"explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage".* Operationalisation issues such as ethical considerations, research protocols, case selection and data management are then discussed. Next, the initial case findings are presented and discussed under a framework of entrepreneurial themes evidenced in the literature. Finally, the implications of the case study and next steps for the research project are discussed.

2.0 Case Study Purpose and Implementation Plan

This section discusses the research purpose and the population of interest: high potential start-ups.

2.1 Purpose

The researcher currently works as an adviser to start-up and early stage businesses. Many of these businesses aspire to becoming a HPSU company. The researcher's ambition in undertaking this doctoral research is to gain deep insights into what happens in HPSUs following the receipt of external investment, and to generate findings that will provide valuable insights and benefits for future HPSUs. This study explores *why* HPSU entrepreneurs engage with investors, the *impact* that investors have on resource availability, and *how* such resources contribute to the development of competitive advantage. The data collection phase explores whether financial and non-financial resources flowed to the HPSU and how, if at all, they were utilised at firm level to make the firm more competitive. Benefits of this research to early stage and prospective HPSU businesses might include: providing an understanding of engaging with external investors, tailoring investment proposals to specific investor types and understanding how resources such as technology, skills, social capital and finance can be aligned to develop competitive advantage within the HPSU.

2.2 Population of Interest

A unique aspect of the proposed study is the focus on the perspective of the recipient of external investment; the CEO and employees within the high potential start-up business. This is an aspect of investment in HPSU businesses that has received little attention previously in the literature. A review of extant literature reveals that prior studies (Bottazzi and Da Rin, 2002; Jain and Kini, 1995; Manigart and Van Hyfte, 1999; Rosenstein *et al.*, 1993), sought to retrospectively explain the impact of external investment on enterprise performance. Earlier work by Freeman *et al*. (1983) and Brüderl *et al.* (1992) focused on the impact of external investment on survival retrospectively, or as a predictor of future growth. Prior research has not explored the relationship between firm engagement with external investors and how resource availability may contribute to the development of competitive advantage for early stage businesses such as HPSUs.

2.3 Researcher's Relationship with CEOs of Early Stage Businesses

A feature of interpretivist research is that it is not unusual for the researcher to be involved with the subject (Evered and Louis, 1981). It is possible that the researcher may know a CEO of a participating HPSU, for example, the researcher may have met the CEO at an Enterprise Ireland networking event or conference. It is possible that one of the participating HPSUs may be known to the researcher through the CEO's past participation in an entrepreneur development programme. In such case, the researcher's prior engagement with the CEO would be in the role of a mentor or advisor. This engagement is historical and non-commercial. These prior engagements do not detract from the potential insights to be gained from the current research, as HPSU businesses are constantly developing and these developments are relevant to the current research. Saunders *et al.* (2009) caution that this type of research involves the researcher becoming actively involved in the research procedure and cautions on the likelihood of objectivity being compromised. To mitigate against such risks, the researcher captures perspectives from CEOs and other employees in the firm, using interview and group interview guides to capture diverse perspectives. The knowledge being extracted through these techniques addresses the core research objective to understand *the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage*. During the analysis phase, the researcher will apply the principles of Yin's (1998) theoretical construct tool addressing validity, reliability and generalisability to increase the legitimacy of the research findings and contributions.

2.4 Research Project Plan

This research involves the collection of data from multiple secondary sources, in addition to the primary data collection methods of interviews, group interviews and the researcher's notes. In order to manage the complexity of preparing for and interacting with case participants, the collection and analysis of multiple data sources, I am using a research project plan (Table 1) and a database of case collateral materials (Table 8). The project plan outlines the timeframe for each stage in the research project including the implementation of a pilot case study. New tasks are added to the project plan as they arise and progress against each task is recorded in the project plan weekly. The database of case collateral is a record of all documents and materials used for the study. In addition, I am capturing my thoughts about aspects of the research in a reflective log (Kvale and Brinkmann, 2009). These documents increase the transparency of how this research project is conducted and augment the reliability of the research (Yin, 2014).

Select a period to highlight at right.

Period Highlight: 1

Plan Duration | Actual Start | Actual (beyond plan)

ACTIVITY	PLAN START Week No.	PLAN DURATION Weeks	ACTUAL START Week No.	ACTUAL DURATION Weeks
WIT Ethical approval	19	3	19	6
Develop research protocols	21	1	21	1
Update reflective log	20	30	20	26
Pilot case selection	22	4	23	4
Pilot interview	24	1	26	1
Transcribe interview recording	25	1	27	1
Send transcript to interviewee	25	1	27	1
Analyse interviews to identify themes to	25	1	27	1
Pilot group interview	27	1	29	1
Transcribe group interview recording	28	1	30	1
Send transcript to grp interview partcipants	28	1	30	1
Detailed analysis of interviews	31	4	31	4
Detailed analysis of group interview	33	4	33	1
Write up initial findings	34	3	34	4
Analysis of reflective log	38	3	42	6
Refine protocols for main study	34	3	38	3
Recruit HPSUs for main study	42	3	42	4
Main study interviewing	43	5	43	6
Upload data to Nvivo	46	3	46	4
Data analysis	46	5	46	6
Write up findings	47	5	47	5

Week	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Date	1.5.17	8.5.17	15.5.17	22.5.17	29.5.17	5.6.17	12.6.17	19.6.17	26.6.17	3.7.17	10.7.17	17.7.17	24.7.17	31.7.17	7.8.17	14.8.17	21.8.17	28.8.17	4.9.17	11.9.17	18.9.17	25.9.17	2.10.17	9.10.17	16.10.17	23.10.17	30.10.17	6.11.17	13.11.17	20.11.17	27.11.17	4.12.17	11.12.17	18.12.17

Table 1: Research Project Plan

2.5 Ethical Considerations.

There are several ethical issues that researchers must address prior to the commencement of the research process. The researcher submitted a detailed application to the Research Ethics Committee at Waterford Institute of Technology and was granted ethical approval in June 2017 for the current research, based on protocols outlined in this section and included in the Appendices. Ethical considerations for this study are managed by using guiding principles to inform appropriate conduct for researchers (Robson, 2002). As all participants in this study are adults who are participating of their own free will, the main ethical considerations with respect to participant HPSUs include; prevention of harm, data protection, assurances of anonymity, confidentiality, and preservation of privacy (Diener and Crandall, 1978). These issues are managed through, adherence to data collection protocols for the semi-structured interviews and the group interviews developed by the researcher and described later in this paper. Additionally, careful data management, the use of respondent and HPSU aliases are utilised to protect all participants in this study. The CEOs, in the interviews and employees/co-founders, in the group interviews, are assured that all conversations and data collected are being treated with the strictest confidence. They are advised that they will be sent a transcript of the interview/group interview for their review. All participants are informed that each interview and group interview is assigned a numerical code to ensure that personal identifiers such as people's names, company name or company location, remain confidential at all times.

2.6 Case Identification and Participant Recruitment

Enterprise Ireland (EI) is the state body charged with supporting fledgling businesses to start and to scale their businesses in Ireland. Enterprise Ireland defines a high potential start-up (HPSU) as "a start-up venture that is introducing a new or innovative product or service to international markets" (Enterprise Ireland, 2016). Case candidates in this study are identified from publicly available lists of HPSU businesses that EI have supported in recent years. These lists provide company name, contact name, their email address and phone number plus the company website address. To select prospective participants, I examine the HPSU directories for the years 2014, 2015 and 2016 randomly reading the HPSU descriptions. I randomly select 18 HPSUs and input their names in a preliminary list in a spreadsheet. I then search online for the HPSU by name. If a HPSUs does not have a web presence or a current blog, I assume that the business is closed and remove it from the list. I organise the remaining HPSUs by region, industry (Information Technology and Communications, Medical Devices, Software as a Service, and Financial Technology) and CEO gender and make a short-list of HPSUs to achieve a geographic, industry and gender spread. I email the CEO in each short-listed company, specifying the objectives of the research (Appendix A), the research methods being used (in-depth interview with CEO and group interview with employees and co-founders), and invited the CEOs to volunteer their company's participation in the study. It is anticipated that follow-up telephone calls will be required to secure volunteers. These calls are made directly to the HPSU main telephone number listed in the Enterprise Ireland directory. If the researcher experiences difficulties in reaching CEOs, then people in the researcher's network may be requested to make introductions to CEOs via email or LinkedIn. Saunders *et al.* (2012, p. 289) describes this technique as "snowball volunteer sampling". Volunteers are selected against the criteria presented in Table 2.

No.	Criteria for Selection of HPSU Cases for this Study	Yes / No
1	The business must be an Enterprise Ireland approved HPSU, listed in EI HPSU directory	
2	The HPSU must agree to participate fully in this study (interview with CEO and access to employees for a group interview with employees)	
3	The HPSU must support publication of the findings from the study, contingent on their acceptance of the interview transcripts	
4	The HPSU must be located in Ireland	
5	The HPSU must have qualified for EI/HPSU funding within the past 6 to 36 months	
6	The HPSU must belong to one of the following sectors: Information Technology and Communications (ITC), Medical Devices, Software as a Service (SaaS), Financial Technology (FinTech)	
7	The person interviewed must be the Founder, Owner or CEO of the HPSU and must have been in the role before and after the investment	
8	The HPSU must have received funding from an external investor (receiving more than 1 round of funding does not make a HPSU ineligible)	
9	At least one participating HPSU must have received investment from a non-Irish Venture capital company or angel investor(s)	

Table 2: Criteria for Selection of Cases for Inclusion in the Study

The current research includes eight HPSUs who have agreed to participate in the study. The number of cases included falls within the range of five cases minimum recommended by Saunders *et al.* (2012) and the ten-case upper requirement suggested by Creswell (2013b) for semi-structured, in-depth interviews. Approximately 100 early-stage companies are approved by EI for HPSU funding each year (Enterprise Ireland, 2016). In recognition of extant research in this area and the relatively low number of HPSU approved by Enterprise Ireland annually, a study of eight HPSU cases is considered a representative sample, and is in line with Eisenhardt (1989, p. 545) who stated, “a number of 4 to 10 [cases] usually works well”.

2.7 Prominent Themes within HPSUs

Several entrepreneurial themes present within early stage businesses, such as HPSUs, are identified in the literature. These include goal setting and opportunity recognition, resource constraints and identification, the business owner’s desire for control, access to external finance, risk taking and competitive advantage. The three core research questions for this study, outlined in Section 1, are aligned to these themes (see Table 3).

No.	HPSU Themes	RQ	Theme in Literature	Authors
1	HPSU owner's mind-set.	1	Goal setting. Aspiration for business growth.	Alvarez (2005), Greenbank (2001)
2	Opportunity recognition.	1	Opportunity recognition.	Cunneen and Meredith (2007), Phillipson *et al*. (2004), Nicholls-Nixon *et al*. (2000).
3	Resource access.	2	Resource constraints. Specify resource needs	Jain and Kini (1995), Mason and Kwok (2010), Phillipson *et al*. (2004).
4	HPSU owner's desire for control.	1	Internal locus of control. Willingness to relinquish partial control.	Timmons and Spinelli (2004), de Vries (2002).
5	Access to finance.	2	Engagement with External Investors and Venture Capital Firms.	Barry *et al*. (2012); Sapienza (1992), Revest and Sapio (2012)
6	Risk taking.	1	HPSU owner's attitudes to risk taking.	Brockhaus (1980), McClelland (1965), Palmer (1971).
7	Sources of competitive advantage.	3	HPSU owner skills. Physical, Human, Social Capital, Technical	Barney *et al*. (2001); Foss (2011); Nicholls-Nixon *et al*. (2000); Wernerfelt (1995).

Table 3: Prominent Entrepreneurial Themes in HPSUs

These themes and the core research questions are reflected in the prompt questions listed in Table 4, being used by the researcher in the semi-structured interviews with the HSPU CEOs and with the group interview participants, as discussed in the next section.

2.8 Semi-structured Interviews

Semi-structured interviews with the HPSUs are arranged in advance with the owner/CEO of the business and take place on-site at the HPSU's premises. Each interview, lasting approximately 60-90 minutes, is recorded with the participant's permission (Patton, 2015) to accurately capture the entrepreneur's perspectives and to facilitate transcription later. Being on-site at the participant's premises, allows the researcher to make ad-hoc non-obstructive observations. These observations are likely to relate to location, size and lay-out of office space as this may indicate if offices are open-plan or segregated, and to see how freely information may be shared in the office, and if (investor) money has been spent to create an attractive working environment. Such resources may not be mentioned by the CEO during the in-depth interview. The participants will not be overtly aware that the researcher is observing the above. However, no negative impact is envisaged. Guided by the themes referenced in Table 3, this researcher explores the entrepreneur/HPSU owner's aspirations for growing the business, the need for investment, their attitudes towards risk and beliefs on relinquishing partial control of the business, resource acquisition and competitive advantage. Prompt questions aligned them to the research questions (RQs) and entrepreneurial themes are developed for use in the semi-structured interviews (Table 4)

RQ	Themes	Q.	Interview Prompt Question
1	Owner mind-set. Resource access	1	When you started the business, what were your aspirations / goals?
1	Risk taking	2	Had you any concerns / worries when you decided to start up?
2	Resource access	3	When did you begin to engage with external investors?
1	Opportunity recognition	4	What prompted you to start this process?
2	Resource access	5	Did you have a system for identifying and contacting investors?
2	Resource access	6	How did you make contact with potential investors?
2	Resource access	7	How many potential investors did you contact and how many physical pitches did you do?
1	Owner mind-set	8	If you were back at the start of the process of engaging with investors what would you do differently now?
2	Access to finance	9	How many investments did you take in?
2	Resource access	10	What resources were acquired as a result of these investments?
2	Resource access	11	What else (resources) did you get from investors?
2	Resource access	12	Was there anything that you expected to get from them but didn’t?
1	Owner control	13	Did you feel that you had more or less control of the business?
1	Owner control	14	If you were back in time negotiating the terms of your first investment, what would you do differently?
2	Resource access	15	What non-financial resources did the business gain from investors?
1	Opportunity recognition	16	Did securing investment allow you to pursue new business opportunities?
1	Risk taking	17	Did securing investment change your attitudes to risk
3	Competitive Adv.	18	Do you feel that the business was better off because of the investment(s)?
3	Competitive Adv.	19	Do you feel that the business was able to compete better? [How?]
2	Resource access	20	What specific resources helped you to compete better?
3	Competitive Adv.	21	Did these resources help you to compete more effectively? [How?]
2	Resource access	22	Do you regard firm size as a competitive advantage?
3	Competitive Adv.	23	What is the businesses' Customer Value Proposition?
2	Access to finance	24	How has investment helped the business achieve the CVP?
3	Competitive Adv.	25	How does the business generate revenue / What's the business model?
3	Competitive Adv.	26	Has the business model changed as result of investment?
3	Competitive Adv.	27	Overall, do you feel that the business is more competitive as result of investments?
3	Competitive Adv.	28	Is there anything else that you would like to add?

Table 4: Semi-structured Interview Prompt Questions guided by Themes Identified in Literature

These questions are being tested during the pilot study to determine their ability to comprehensively answer the research questions. In addition to the interview prompt questions, the researcher is guided by a protocol for conducting the semi-structured interviews (see Appendix C). Each CEO/owner of the HPSU is sent an information document in advance of the in-depth interview outlining the research purpose (Appendices A and B) and is also sent a consent form (Appendix D) in advance. Prior to commencing each interview, the researcher asks the CEO to review the research information sheet and consent form sent to them in advance of the interview. The researcher invites the CEO to ask questions for clarity prior to signing the consent form (Kvale and Brinkmann, 2009; Patton, 2015).

A record of CEOs or owners and founders who participate in the semi-structured interview is maintained by the researcher (see Table 5).

HPSU No.	Company	Function	Years in Firm	Duration of Interview
1	Co1	CEO/owner/founder	TBC	TBC
2	Co2	CEO/owner/founder	TBC	TBC
3	Co3	CEO/owner/founder	TBC	TBC
4	Co4	CEO/owner/founder	TBC	TBC
5	Co5	CEO/owner/founder	TBC	TBC
6	Co6	CEO/owner/founder	TBC	TBC
7	Co7	CEO/owner/founder	TBC	TBC
8	Co8	CEO/owner/founder	TBC	TBC

Table 5: Record of In-depth Interviews (sample)

2.9 Group Interviews

In order to capture more holistic perspectives of what happened in the business following the receipt of investment, group interviews, in addition to the semi-structured interviews are conducted on-site in each of the participating HPSUs lasting approximately 60 to 90 minutes. During the in-depth interview with the owner/CEO, the researcher explains the purpose of the group interviews and requests permission to hold group meetings with employees including co-founders at a date within one month of the CEO interview. Each CEO is asked to allow the researcher to directly recruit participants for the group interview and to make arrangements to provide the researcher with email addresses of employees. The rationale of deploying group interviews is to increase legitimacy through a triangulation of perspectives captured within the HPSU. Saunders *et al.* (2012, p. 375), states that there may be situations where a researcher conducts "semi-structured interviews on a group basis where you meet a small number of participants to explore aspects of your research" and classifies focus groups and group interviews as non-standardised interviews "from one to many".

In recruiting group interview participants, the researcher emails employees and co-founders directly inviting them to participate in the group interview. The researcher believes that it is preferable to directly invite employees and co-founders rather than have the CEO nominate them to ensure that their participation is indeed voluntary. He explains the objectives of the research, how the group interview works, that participation in the group interview is completely voluntary and that participants can leave the group discussion at any time. The researcher advises that the group interview is being recorded with the consent of all participants to accurately capture their perspectives and to facilitate transcription afterwards. The researcher aims to extract a deep understanding of staff perspectives of the impact of investment on resource availability and the development of sources of competitive advantage.

Early stage businesses have limited resources and typically accommodate their few staff in open-plan offices. Open-plan offices foster open communications and it is not unreasonable to expect that co-founders and employees would be involved in or at least aware of aspects of an investment proposal or the specification of resource requirements. Therefore, it is justifiable to expect employees and co-founders, participating in a group interview to be knowledgeable about resource identification, the need for external funding, examples of resources acquired as a result of investment, and how resources were used to get things done more efficiently or to contribute to the development of new capabilities.

The researcher uses a protocol that he developed for moderating the group interviews (Appendix F). Group interview participants are sent the research information sheet and consent form in advance of the group interview. At the commencement of the group interview the researcher explains the research purpose to participants and enquires if any participant has any questions. Once questions are answered, the researcher requests that each of the group interview participants sign the consent form (Appendix G).

In order to extract as much relevant information as possible from the group interviews, the researcher uses prompt questions based on entrepreneurial themes referenced in Table 3. These prompt questions presented in Table 6 are aligned to the research questions (RQs) and the entrepreneurial themes. In addition to these prompted questions the researcher will explore topics emerging during the semi-structured interviews with the CEO to capture additional perspectives of what happened within the HPSU from the perspective of the group interview participants. These questions are being tested during the pilot study to determine their ability to comprehensively answer the research questions.

RQ	Themes	Q.	Group Interview Prompt Question
1	Owner mind-set. Resource access	1	When the business started, what were its goals?
1	Risk taking	2	Had you any concerns / worries for the business at that time?
2	Resource access	3	When did the business begin to engage with external investors?
1	Opportunity recognition	4	What prompted the business to start this process?
2	Resource access	5	Wat there a system for identifying / contacting investors?
2	Resource access	6	Were you in contact with potential investors?
2	Resource access	7	How many potential investors were contacted and how many physical pitches?
1	Owner mind-set	8	If you were back at the start of the process of engaging with investors what would the business, do differently now?
2	Access to finance	9	How many investments were taken in?
2	Resource access	10	What resources were acquired as a result of these investments?
2	Resource access	11	What else (resources) did the business get from investors?
2	Resource access	12	Was there anything that you expected to get from them but didn’t?
1	Owner control	13	Did you feel that any control of the business was given to investors?
2	Resource access	14	What non-financial resources did the business gain from investors?
1	Opportunity recognition	15	Did securing investment allow the business to pursue new opportunities?
1	Risk taking	16	Did securing investment change attitudes towards risk
3	Competitive Adv.	17	Do you feel that the business was better off because of the investment(s)?
3	Competitive Adv.	18	Do you feel that the business was able to compete better? [How?]
2	Resource access	19	What specific resources helped business to compete better?
3	Competitive Adv.	20	How did these resources help business to compete more effectively?
3	Resource access	21	Do you regard the firm size as a competitive advantage?
3	Competitive Adv.	22	What is the businesses' Customer Value Proposition (CVP)?
3	Access to finance	23	How has investment helped the business achieve the CVP?
3	Competitive Adv.	24	How does the business generate revenue / What's the business model?
3	Competitive Adv.	25	Has the business model changed as result of investment?
3	Competitive Adv.	26	Overall, do you feel that the business is more competitive as result of investments?
3	Competitive Adv.	27	Is there anything else that you would like to add?

Table 6: Group Interview Prompt Questions guided by Themes Identified in Literature

After the group interview concludes the researcher makes notes on the nature of interactions occurring within the group (Saunders *et al.*, 2012) in addition to non-obstructive observations made that may relate to the business location, size and lay-out of office space. A summary profile of each of the group interview participants is collected during the interviews for the researcher's records. The information collected is noted in Table 7.

Grp No.	Job Function	Employee or Co-founder	Years in Firm	Duration of Interview
Grp1	Function A	TBC	TBC	TBC
Grp1	Function B	TBC	TBC	TBC
Grp1	Function C	TBC	TBC	TBC
Grp1	Function D	TBC	TBC	TBC

Table 7: Summary Profile of the Group Interview Participants

2.10 Database of Case Study Collateral

The researcher collates numerous research collateral materials as data sources for the current case study as indicated in Table 8. Adopting a protocol of clearly documenting the data sources being analysed by the researcher, for this case study, augments the reliability of the research (Yin, 2014)

The documentation of data sources lends transparency to the approach and methods being used by the researcher providing other researchers with the potential to replicate the study at a later date (Shenton, 2004). The validity, reliability and generalisability if this study is further enhanced by data analysis strategies discussed in the next section and summarised in Table 9.

No.	Document	Document	Storage	Appendix
1	DBA Paper 2: Methodology	Electronic	USB drive and secure cloud storage	
2	Examiners' comments on Paper 2	Electronic	USB drive and secure cloud storage	
3	Researcher's response to examiners	Electronic	USB drive and secure cloud storage	
4	Application to WIT Ethics Committee	Electronic	USB drive and secure cloud storage	J
5	Research project plan	Electronic /	Researcher's office and cloud storage	
6	Approval of Ethics Committee	Electronic	Researcher's office and cloud storage	K
7	Enterprise Ireland HPSU 2014 directory	Published	Researcher's office	
8	Enterprise Ireland HPSU 2015 directory	Published	Researcher's office	
9	Enterprise Ireland HPSU 2016 directory	Published	Researcher's office	
10	Introductory letter/invitation to HPSU	Electronic	USB drive and secure cloud storage	A
11	Research project information summary	Electronic	USB drive and secure cloud storage	B
12	Protocol for semi-structured interview	Electronic	USB drive and secure cloud storage	C
13	CEO interview consent form	Electronic /	USB drive and secure cloud storage	D
14	Signed consent forms CEO interviews	Printed	Researcher's office (locked cabinet)	
15	Contact list for all case participants	Electronic	USB drive and secure cloud storage	I
16	Recording of CEO interviews	Electronic	Researcher's office and cloud storage	
17	Transcript of CEO interviews	Electronic	USB drive and secure cloud storage	
18	Thank you email to CEOs with transcript	Electronic	USB drive and secure cloud storage	
19	CEO approval of interview transcript	Electronic	USB drive and secure cloud storage	
20	Invitation to group interview participants	Electronic	USB drive and secure cloud storage	E
21	Protocol for moderating group interviews	Electronic	USB drive and secure cloud storage	F
22	Group interview consent form	Electronic /	USB drive and secure cloud storage	G
23	Contact list for group interview participants	Electronic	USB drive and secure cloud storage	
24	Signed consent forms group interviews	Printed	Researcher's office (locked cabinet)	
25	Recording of group interview	Electronic	Researcher's office (locked cabinet) and	
26	Transcript of group interview	Electronic	USB drive and secure cloud storage	
27	Thank you email; group interview	Electronic	USB drive and secure cloud storage	
28	Participant approval group interview	Electronic	USB drive and secure cloud storage	
29	Codes to anonymise participants	Electronic	USB drive and secure cloud storage	H
30	Researchers reflective log	Electronic/	Evernote secure cloud storage	
31	List of research documents	Printed	USB drive and secure cloud storage	

Table 8: Database of Case Collateral Materials

2.11 Data Management and Analysis

Data management in a qualitative case study incorporates data collection, storage, retrieval and analysis (Miles and Huberman, 1984). In this case study, the researcher transcribes the interviews and group interviews and sends transcripts to participants for their review. The researcher takes great care to store all research documents and electronic files in a secure environment. Specifically, electronic files are password protected and stored in two locations; a USB storage drive and secure cloud-based storage. All documents containing information about participants or printed materials collected about participating HPSUs, plus the USB storage drives are kept in a locked cabinet in the researcher's office.

The data analysis process is executed using the NVivo software programme which is suited to interpreting large volumes of data as envisaged for the current study (Tesch, 1990). Transparency and rigour are critical components of the qualitative data analysis process of this case study (Tesch, 1990). The data analysis strategies summarised in Table 8, are employed to adhere to a process that can withstand tests of validity, reliability and generalisability while also helping to reduce researcher bias.

Step	Data Analysis Strategy	References
1	Run / Save / Print Node Summary reports regularly (NVivo) to track changes to nodes and themes	(Ryan, 2009)
2	Data reduction to interpret meaning of the data	(Miles and Huberman, 1984)
3	Overlap constant comparative analysis and analytic induction to categorise codes and note relationships (reliability and validity)	(Glaser, 1967)
4	3-stage coding: Open, Axial and Selective	(Strauss and Corbin, 1990)
5	Utilise charts, graphs and matrices	(Miles and Huberman, 1984)

Table 9: Strategies Underpinning the Data Analysis Process in NVivo

The researcher has significant experience as an advisor to start-up business promoters in Ireland. There are advantages and disadvantages of a researcher having this familiarity with the research subject matter. While having contextual knowledge of the subject area is beneficial, a researcher must be cognisant of the fact that they may bring certain bias to the data analysis and interpretation. Such bias is taken into consideration in the current study. Yin (2014) cautions that a researcher's personal perceptions and preconceptions are always present in qualitative research. In order to minimise this researcher's bias, the data analysis phase of this study will apply the principles of Yin's (2014) theoretical construct tool addressing validity, reliability and generalisability to increase the research legitimacy of this research. These are summarised in Table 10.

Tests	Case Study Design	Relevance to Current Study
Construct Validity	Use multiple sources of evidence	This study uses a combination of in-depth semi-structured interviews with the HPSU founder/CEO plus group interviews with co-founders and employees.
	Establish a chain of evidence	Data from each of the in-depth semi-structured interviews is introduced for discussion in the group interviews taking place at a later date to establish consistency of data. Research database maintained to facilitate replication of study.
	Have key informants review draft case study report	Following each in-depth interview, the researcher transcribes the discussion and presents a written copy to the interviewee for approval. Group interview participants are provided with a transcript of the group interview discussion.
Internal Validity	Do pattern matching	A pattern of data analysis is established to ensure that data collection and data analysis will be consistent across all cases.
	Do explanation building	Multiple sources of data are accessed in order to build description of the phenomenon being studied within HPSUs. These multiple sources of data enable cross-referencing of participants' descriptions of events and actions in order to build a more complete and accurate description.
External Validity	Use replication logic in multiple case studies	The researcher engages in replication logic with multiple case design based on a tight-linkage inductive approach to engage in theory building. Prior theory is used as a template to analyse data and to compare the empirical results of the case study.
Reliability	Use case study protocol	The researcher developed a case study protocol, which is tested during a pilot case study.
	Develop case study database	The researcher uses a case study database that includes all research collateral.

Table 10: Case Study Design and Tests of Validity and Reliability (Yin, 2014)

3.0 Implementation of the Pilot Study

This section discusses the recruitment of the participant HPSU and provides a description to the firm.

3.1 Recruitment of a HPSU Pilot Case

Three potential pilot cases were short-listed from a review of the Enterprise Ireland directory of HPSU companies supported in the past three years. The pilot study adopts the exact same process as the primary case studies in recruiting a CEO for interview and in gaining permission to hold a group interview with co-founders and employees. For the pilot study, the researcher sent an introductory email (Appendix A) to the CEO of the first HPSU on the short-list, providing information (Appendix B) about the study and inviting the CEO to participate in the research. One week later the researcher telephoned the CEO to enquire if they had received the email, and to ask if they had any questions about the study and to request their participation. If the CEO of the HPSU was not available within the time-frame of the pilot study or did not match the case selection criteria specified in Table 2, the researcher contacted the next HPSU on the short-list.

During the semi-structured interview with the HPSU CEO, the researcher asks the CEO to provide email addresses of co-founders and employees to facilitate the researcher in recruiting group interview participants. The researcher emails these people to explain the purpose of the research and the group interviews and invites them to participate. He explains that participation in the pilot group interview is completely voluntary and that participants may leave the group interview at any time. Ethical procedures to address confidentiality and anonymity are identical for the pilot study as those planned for the main study by ensuring the prevention of harm, data protection processes, assurances of anonymity, confidentiality, and preservation of privacy. These concerns are managed through the use of data collection protocols for the semi-structured interviews and the group interviews, the use of respondent and HPSU aliases plus a number code anonymising all participants in order to protect their identities during the data analysis and interpretation.

3.2 Selection of the Pilot Case

Of the three HPSU companies short-listed from the Enterprise Ireland directories as potential pilot candidates, only two were contacted by the researcher. The first HPSU contacted indicated an interest in being involved in the research but was unavailable to meet within the time-frame set by the researcher for conducting the interview and the group interview due to business travel commitments. The CEO expressed a genuine interest in the research topic and offered to participate in the study at a later date. This HPSU will be included in the main study. The second HPSU contacted was interested in participation in the study and available within the desired time-frame. The suitability of this HPSU is evaluated against case selection criteria specified in Table 2. The characteristics of the pilot case HPSU as aligned to the selection criteria required for this study are presented in Table 11.

3.2 Profile of the Pilot Study HPSU

The HPSU that participated in the pilot case operates software as a service (SAAS) business and is based on the east coast of Ireland. The business was established in 2015 by the founder. In 2016, two co-founders joined the start-up and the business was approved by Enterprise Ireland to receive the EI high potential start-up funding. The pilot company has made remarkable progress in a short period of time. It is rare for a start-up company to achieve EI HPSU status within its first year in business. To qualify for Enterprise Ireland's high potential start-up funding a HPSU must also secure a similar (usually higher) amount of funding from private investors e.g. a venture capital company or private angel investor(s). The HPSU participating in the pilot study secured private investment from a syndicate of international investors (American and European) who are familiar with the sector within which the HPSU operates.

No.	Alignment of Pilot Case with Case Selection Criteria	Match to criteria	Selected Pilot Case
1	The business must be an Enterprise Ireland approved HPSU, listed in EI HPSU directory	Yes	Listed in EI HPSU directory.
2	The HPSU must agree to participate fully in study (interview with CEO and access to employees for group interview)	Yes	Full agreement. Signed consent form.
3	The HPSU must support publication of the findings from the study, contingent on their acceptance of the interview transcripts	Yes	Full agreement. Signed consent form. Approved interview transcript.
4	The HPSU must be located in Ireland	Yes	Located in Ireland.
5	The HPSU must have qualified for EI/HPSU funding within the past 6 to 36 months	Yes	HPSU qualified for EI HPSU support in 2016.
6	The HPSU must belong to one of the following sectors: Information Technology and Communications (ITC), Medical Devices, Software as a Service (SaaS), Financial Technology (FinTech)	Yes	Firm is in SaaS sector.
7	The person interviewed must be the Founder, Owner or CEO of the HPSU and must have been in the role before and after the investment	Yes	Person interviewed included CEO and Founder
8	The HPSU must have received funding from an external investor (receiving more than 1 round of funding does not make a HPSU ineligible)	Yes	Secured external funding from angel investors
9	At least one participating HPSU must have received investment from a non-Irish venture capital company or angel investor(s)	Yes	The angel investors were internationally based and acted as a syndicate

Table 11: Evaluation of Pilot Case versus Case Criteria

A summary of participants in the pilot study is presented in Table 12, below.

HPSU Ref.	Research Method	Duration	Status	Function	Years in HPSU
Software Co.1	Interview	90 minutes	Founder	CEO	2
Software Co.1	Group interview	100 minutes	Co-founder	Business Development	1.5
Software Co.1	Group interview	100 minutes	Co-founder	Technical Lead	1.5

Table 12: Summary of Pilot Study Participants

4.0 Initial Findings

The pilot semi-structured interview with CEO1 took place in June 2017 and the group interview with the two co-founders was held three weeks later. The pilot case HPSU has been established for only two years and due to its focus on managing cash and resources, has only hired one or two technical people as contractors to work on specific product development tasks, as needed. Unfortunately, these technical contractors were not available to join the group interview.

The researcher transcribed the interview and emailed it to the HPSU CEO1 for review and approval. In commencing the analysis phase, the researcher listened to the interview recording a number of times and read through the interview prompt questions and transcript several times to become familiar with the content and to identify salient themes (Braun and Clarke, 2006). This initial analysis was carried out in advance of the group interview with co-founders so that the researcher could probe the co-founder's perspectives on events relayed by CEO1 in the semi-structured interview. Even at this stage a number of themes were emerging. The recording of the group interview was transcribed and sent to the participants for their review and approval. At this stage, the researcher listened to the group interview recording a number of times and read through the transcript several times. The emergent themes from the group interview were closely aligned to those emerging from initial analysis of the semi-structured interview with CEO1. This is not surprising as the interview and group interview prompt questions are based on the research questions and entrepreneurial themes identified in HPSUs as referenced in the literature and presented in Table 3.

While it is unwise to rely heavily on interpretations of a single case due to the lack of data saturation, the pilot study has provided me with insights gained from a number of perspectives within the HPSU. In order to remain objective and to provide a structure for analysis, the findings of the pilot study are discussed under three themes directly related to the research questions (RQs) with the seven entrepreneurial themes referenced earlier in this section forming sub-themes. Table 13 summarises the themes emerging from the pilot study and relates them to the RQs and to themes presented earlier in Table 3.

RQ No.	Theme in Literature	Themes within HPSUs	Themes Emerging from Pilot
RQ1	Goal setting. Aspiration for business growth.	HPSU owner's mind-set.	Goal setting and opportunity recognition
RQ1	Opportunity recognition.	Opportunity recognition.	Goal setting and opportunity recognition
RQ1	Internal locus of control. Willingness to relinquish partial control	HPSU owner's desire for control.	Goal setting and opportunity recognition
RQ1	HPSU owner's attitudes to risk taking	Risk taking.	Goal setting and opportunity recognition
RQ2	Resource constraints. Resource needs identification.	Resource access.	Resource constraints and resource acquisition
RQ2	Engagement with External Investors and Venture Capital Firms.	Access to finance.	Resource constraints and resource acquisition
RQ3	HPSU owner skills. Physical, Human, Social Capital. Technical.	Sources of competitive advantage.	Developing sources of competitive advantage

Table 13: General Themes Emerging from Pilot Case Study

4.1 Goal Setting and Opportunity Recognition

The four sub-themes under goal setting and opportunity recognition are 1) the owner's mind-set and aspirations for the business, 2) opportunity recognition 3) desire for control and 4) attitudes to risk taking. There were examples of these themes overlapping in the responses given by CEO1 in the interview and the co-founders in the group interview. This supports the decision to group them under the theme of goal setting and opportunity recognition as presented in Table 13.

4.1.1 Owner's Mind-set and Aspirations for the Business

The company founder who is CEO1 seems to have strong self-belief right from the beginning of the start-up journey when he says, "so I left my prior business and I was okay going about a year without taking a salary as I always believed in the opportunity" (CEO1). This self-belief is also evident in the founder's attitude to risk. He turned down an investment offer of a significant amount of money early on in the life of the new business because he felt that it was not a good deal for the business. He believed that he could develop a product offering that addressed a significant market opportunity. It would appear that CEO1 had clear aspirations when starting the business, by developing a product offering that would target a specific segment of the target industry, where CEO1 and the co-founders had considerable experience.

> "Our core service changed, but the ultimate aim of the business did not. We are a B2B business selling [SaaS] solutions [type of service removed for purpose of anonymity] to [specific type of] customers and that was from the very beginning and it's still the same today" (CEO1).

Not only had CEO1 clear aspirations for the business, he also had big ambitions for the impact that it would have on the industry claiming, "we're disrupting a 70-year-old industry and we are going at the heart of the industry" (CEO1). The co-founders had high aspirations also saying "yeah, I would say, I mean we knew the market size was big……we knew there's a lot of [specific industry sector] customers out there, there's a lot of volume out there where the service is not being used" (Grp1).

While CEO1 and the co-founders were very ambitious about the potential for the business, they were acutely aware that there would be scepticism amongst the target consumers in the [specific] industry. Therefore, they needed to develop a product offering that worked successfully with early adaptors who would become reference customers for the HPSU.

> "So really the idea from the very beginning was – let's get one live. We're a small company. It's difficult for large [specific industry customers] to want to work with a small start-up. It makes it a lot easier if we're currently live processing for a [client] – even if it's a small

> [client]. So that has really been our focus from day one, is let's demonstrate 1), that our technology works, that our business model works, that this new kind of crazy idea, that everything works, and that the revenue model works, and it makes money" (Grp1).

4.1.2 Opportunity Recognition

Opportunities were recognised by taking some ideas gained from the founder's career experience working in the [specific] industry and then leveraging personal and professional networks to get close to target customers to understand their specific needs.

> "The early stage of the journey on my own, talking to a variety of B2B customers[3] in the [specified] industry about some ideas that I had, because I had been in the industry for a long time, we had some contacts and I had some ideas. I subsequently reached out to one of my former colleagues Cofounder1[name removed], who was still working at the prior company we were with and I said, I need some product help" (CEO1).

This approach to opportunity recognition was echoed in the group interview discussions with the co-founders when asked how opportunities were identified.

> "I guess really just kind of from our previous employer, we had recognised that there was… I guess that the [specific industry] landscape had changed recently as far as [a specific activity] were concerned, and really, we identified a gap where these changes really hadn't been applied to. And then from there we basically just set up meetings with some potential [industry] partners, proposed our ideas to them and got really good feedback" (Grp1).

It is interesting to note how risks in product development were managed by the HPSU through the implementation of a customer feedback loop right from the beginning to ensure that the product offering being developed was in fact what the market requires. CEO1 recalls, "we kept getting into, you know details of the product features, Cofounder1 would help me put the dots together, I'd go back to the [potential client] and you know, talk about some idea" (CEO1). Because the business was targeting an industry that is known for being conservative and risk adverse, it was important for the start-up that product development was validated by a high level of customer engagement.

[3] B2B is an acronym used for Business 2 Business where one business targets other business customers.

> "The feedback that we received from the [industry customer] actually allowed us to then go back and re-think about it and then come up with a new solution, which is the solution that we're working with today" (CEO1).

This process ensured that the customer got exactly what they wanted in the product offering being supplied by the HPSU. The philosophy of customer buy-in is in line with lean start-up principles developed by entrepreneur authors such as Eric Ries (2011) and Steve Blank (2013) and promoted heavily by business start-up programmes in Ireland and overseas.

4.1.3 Desire for Control

CEO1's desire was to retain control of the business in the early stages of the start-up so that he could formulate his strategy for his vision for the business. An early investment offer referred to in 4.1.1, was rejected for two reasons, 1) too much equity was being sought by the potential investor and 2) CEO1 feared he would lose too much control of the business. He claimed "I felt I would end up working for him. And we subsequently said no to that, obviously. But along that whole time, I had been contemplating where I could get money" (CEO1). The business secured a better investment deal some months later from a group of eight investors with relevant industry experience. While the experience of these investors has been valuable, the HPSU CEO1 acknowledges some loss of control of the business but believes that it was worth it.

> "To some degree yes, because I have to juggle the interests of a variety of parties, and I'm regularly selling them on our vision and the next steps we want to take in order to ensure that I get support at the time, …emm, so, yes you do lose control, there's no doubt about it. But I have to say that's okay" (CEO1).

To minimise the potential interference in the business by multiple investors CEO1 limited their control at board level stating, "I wasn't going to deal with eight people individually once the investment was done, so I only offered to give one board seat to them as a group. That was a requirement; that was not a negotiable" (CEO1).

4.1.4 Risk Taking

Each of the founders left well paid jobs to work in the start-up, however only CEO1 seemed to take a risk from a salary perspective. He left his job knowing that he would not have a salary for approximately a year. When the two co-founders joined the business their salaries in the new company were paid by CEO1 from personal funds at a time when CEO1 was not drawing a salary from the business himself. CEO1 also took a risk in rejecting an investment offer that was unfavourable to the business because he believed in the potential for the start-up. As company resources (founder's time and money) were very limited, risks relating to product development were minimalised by engaging with potential customers from the outset and putting a customer feedback mechanism in place.

4.2 Resource Constraints and Resource Acquisition

Opportunity recognition led to the realisation of resource constraints within the business and in turn to the identification of key resources that were required in order to pursue the opportunities. This prompted the commencement of engagement with external investors to secure finance to fund resource acquisition.

4.2.1 Resource Constraints and Identification

Prior to securing external investment the business was funded by CEO1's personal funds. He recognised that to develop the product offering he would need people and technology and that finance would be required to acquire these resources.

> "So, we always knew we were going to need capital because we had to build out a platform that was going to be relatively resource intensive from a capital perspective. So, in order to bring the whole team together, frankly I had to fund it myself or I had to bring in outside investors" (CEO1).

When CEO1 started to look for external investors he felt that he was hampered by the newness of the business, he claims, "you know, I would knock on the door of [investment network] and they would find out that I was still early stage and just not give any really serious consideration" (CEO1). The first critical resource identified by CEO1 was a product design / sales person who had the capability to identify the features that the market required and also a way to configure them in a product offering. CEO1 reached out to a former colleague to help with the product development. The colleague had deep industry experience relevant to the business and was persuaded by CEO1 to become a co-founder and to work part-time for the new business at first and later to quit his job to work full-time in the start-up. As product design progressed they identified the need for technical expertise and approached another former colleague to join them as a co-founder.

> "We kept getting deeper and deeper and deeper until we actually got into the heavy-duty technical details, and that's when we reached out to our other current co-founder and that became the three of us" (CEO1).

4.2.2 Resource Access and Acquisition

The process of resource identification was happening at the same time as CEO1's efforts to raise external funding, he recalls, "so, I knew in order to bring my team together, in order to build our resources and give us what I thought we would get for a 12-month runway, we set a goal of raising €000,000" (CEO1). The two co-founders were happy for CEO1 to take the lead on fund raising. They did not have any experience in engaging with investors and even had preconceptions about investors motivations. One of the co-founders argues, "we all know that Angel investors in reality are wolves in the sheep's skin" (Grp1). CEO1 did not have experience of raising funding or a specific system for investor engagement.

> "With all my experience in business, one of the areas that I had never dealt with was raising funds. So, very early on, in fact February/March, I started just trying to talk to people. I would tell people what I'm doing, and I'd tell them I'm interested in talking to Angel investors, and I got pointed in a few random directions" (CEO1).

It appears that the personal and professional networks of the founder were important non-financial resources present in the HPSU as were the talents and reputations of the three co-founders who were known for their work at their previous employer.

> "I ended up picking up the phone and calling a couple of business people that I had worked with 10 or 15 years earlier. These were very senior individuals who had made some money. They knew me from my prior work, and basically, I created my own Angel network. I was

> able to overcome the credibility gap because they already trusted me, now they just had to decide whether or not they bought into this crazy idea we've had" (CEO1).

CEO1 was very focused in who he was targeting to invest in the business and was hoping that in securing investment from senior people in the [specific] industry that the business would gain other benefits besides the money. The people he was approaching were very experienced. He admitted that he hated contacting them and asking them to invest in his risky business idea as these people were his mentors in his earlier career and he looked up to them.

> "I mean investors need to be more than money, right? They need to be, these guys who understand our industry, have a lot of contacts, can open up doors, accelerate our sales.… These were the guys that were all 10 or 15 years older than I was, these were my mentors" (CEO1).

The interviews and the group interview revealed that some of the expected benefits that the HPSU believed investors would bring did not materialise.

> "I think originally, I was very hopeful that they would have a lot of [specific industry] contacts to open up our sales. That's proven not to really be the case. They have tried to open up a few doors, but it really didn't result in anything, and so all of our true sales and prospecting has come from our own efforts. And while that sales function hasn't really happened yet, they are still wonderful supportive people" (CEO1).

4.3 Sources of Competitive Advantage

The business had a number of internal resources even prior to securing external investment that can be regarded as sources of competitive advantage. One critical resource was the reputation of CEO1 and the co-founders. While CEO1 had business experience the co-founders had product development and specialised technical expertise.

> "They knew me from my prior work, and basically these were people that I had worked with, and that meant that they understood the domain, they understood the challenges that I was trying to solve with our service, and again it ended to them having a much faster timeline to get to understand and trust what we're trying to do" (CEO1).

CEO1 believes that all the interactions with potential investors has educated him in the process and will be advantageous for future fund raising. There are indications from the pilot study that having strong international investors from the industry is a source of competitive advantage in a number of ways. First, the target customers would regard securing investment from this cohort of industry elites as an endorsement of the product/service being sold while secondly, future investors will recognise that the early investors understood the industry and the size of the potential opportunity. One of the co-founders said, "you think that those investors, having them on board, will make your journey a little bit easier" (Grp1).

To become an Enterprise Ireland HPSU the business must secure investment from private investors. EI also invests in the business but at a lower amount (approximately 80%) of that secured from private investors. However, in addition to their financial investment EI provides numerous other supports to the HPSU such as mentors, master classes, access to international markets experts and in-market supports overseas. In the pilot case, supports provided by EI have given the HPSU competitive advantage in terms of leveraging EI's international teams' local knowledge, introductions to customer groups, being present on EI's stands at international conferences and sales events. The HPSU regards EI as being more helpful in these areas than any of the private investors.

> "In fact, the Enterprise Ireland investment longer term is going to be much more about their network and their opportunity to support us as we export our services than the money that they invested. So, their investment in us has been useful, but their network impact changes everything for us. …… Whereas, the Angels, it's more about if they happen to have a contact at a [FinTech] they'll pick up the phone, but that's more random" (CEO1).

The money from external investors allowed the HPSU to start investing formally in the business to purchase assets, to pay for technical capability in the form of a Microsoft cloud processing platform, to build out the product, to pay salaries to the co-founders who joined the business and to hire part-time Java developers on contract.

> "The initial funding allowed [Cofounder1] and [Cofounder2] to be taking a salary from the business" (CEO1).
>
> "We were able to get that up and running and live so that when our first project was ready, all that infrastructure was already in place and live" (Grp1).

Securing external investment and developing the skills of professionally managing cash resources is regarded as a competitive advantage by the HPSU. The co-founders see it as being the reason for the business' survival for the first two years, stating "yes, 100%, the business would not be alive today if it wasn't for investment" (Grp1). When asked to name benefits derived from the external investment the following was mentioned: being better able to compete because the money had freed-up thinking time for CEO1, provided salaries for co-founders and contract developers, access to some valuable connections and networks.

> "So, again, we have been able to bring the team together, we've been able to hire resources to build our platform and we're alive. Our first customer went live June 1st of this year. We couldn't have done it without the team …. that (investment) brought us together" (Grp1).

> "Our Angel network actually have a tonne of international business experience, you know, from tax, you know, just commercialising our services internationally and getting good advice and support from them. So, from that perspective it's quite good" (CEO1).

> "I'm talking about the cloud infrastructure, virtual machines, we're paying for cloud traffic as we envisaged. But once we got more money we were able to hire additional resources in the form of like a new developer, a new contractor, to help us to administer the cloud. Of course, the financial resources helped us to expand on the people side" (Grp1).

Managing relationships with the investors has helped the HPSU to become more professional as a business. This gives the HPSU competitive advantage in attracting and managing more investors in the future. "For me, and I've got to be honest with you, we have big ambitions to make this company very successful and global. This is good practice for me" (CEO1). Overall, CEO1 and the co-founders believe that the investment and other resources gained from the investors have been beneficial for the business. They believe that the cash has helped them to survive. The typical sales cycle in the target industry that they compete in is 12 to 18 months but can be as much as 24 months. Without the investment, the business would not exist today and would not be able to take advantage of new opportunities currently available.

> "Oh, I think it allows us to move very quickly, to identify opportunities very quickly, to modify the path that we have initially set out. I mean we can tweak it, the path we run. The Angel investors were, I think, probably in the long-term better off for us because they are in the space, they do have the connections in the space. I think that they have been very helpful in kind of guiding us in the right direction" (Grp1).

5.0 Key Learnings and Implications for the Study

Even though the pilot case was limited to a single case HPSU, it has achieved its key purpose; to test the appropriateness of the research methods chosen by the researcher for the main study. Perspectives were captured from the company CEO via the in-depth, semi-structured interview and from co-founders in the group interview of what happened in the HPSU before and after securing external investment. These interactions amounted to over three hours of in-depth discussions and provided strong triangulation of perspectives of different people within the HPSU. The initial findings indicate that the research methods used are appropriate to achieve the research objectives. Specifically, the three RQs have been addressed, notwithstanding the acknowledged lack of data saturation possible in a single case. The initial findings describe perspectives on 1) *Why* the HPSU engaged with external investors, 2) *What* impact did external investors have on resource availability within this HPSU, and, 3) *How* resources within the HPSU are contributing to the development of competitive advantage. Prior studies, referenced in section 2.2, focused on the impact of external investment on business survival retrospectively, or as a predictor of growth potential. They did not explore the relationship between firm engagement with investors and how certain resources may contribute to the development of competitive advantage for early stage businesses. This study is novel and unique in that it will provide insights of what happened in the HPSU before and after the investment from the perspective of HPSU personnel. From a theoretical perspective, the initial findings indicate that firm resources are contributing to the development of sources of competitive advantage within the HPSU. This will be explored further in the main study.

The researcher’s system for recruiting case participants, while time-consuming, has worked successfully. A number of CEOs promptly responded to confirm their interest in participating in the research. I made follow-up phone-calls to CEO’s on the list who had not responded. During these calls I learned that some of the HPSUs had not actually received private investment and therefore were not eligible to participate in this research. While they had received HPSU designation from Enterprise Ireland (EI), they had not secured private investment and therefore had not qualified to ‘draw down’ funding from EI. A learning for me was the fact that a business could be designated a HPSU company by EI and appear in the EI HPSU directory whilst not actually being in receipt of private investment. If the HPSU had not received investment or acquired resources, they are not of interest to me for this study and are therefore in-eligible to participate. The non-eligibility of these HPSUs meant that I had to identify additional prospective participants in the EI directory and invite them to participate.

The guidelines and protocols for the semi-structured interviews and the group interviews were tested in the pilot study and only require minor amendments for the main study. As a novice researcher, the pilot case provided me with an opportunity to practice interviewing techniques and group interview facilitation skills. The use of lists of prompt questions worked very well for the semi-structured interviews. However, during the group interview meeting the participants were sometimes slow to respond and I found it necessary to re-phrase the questions and in some instances, to give broad examples. I have amended the prompt questions for group interviews in the main study to improve clarity. There were no ethical concerns emerging during the pilot case study.

As noted in Section 4.0 some contract staff were not available to join the group meeting resulting in just two participants in the focus group discussion. This concerned me as the literature recommends a minimum of four participants for a focus group (Hakim, 2000; Saunders *et al.*, 2012). I reflected on my rationale of deploying focus groups in the current study; to increase legitimacy through a triangulation of perspectives within the HPSU. In reviewing the literature, I noted Saunders *et al.* (2012, p. 375), state that there may be situations where a researcher conducts “semi-structured interviews on a group basis where you meet a small number of participants to explore aspects of your research” and classifies focus groups and group interviews as non-standardised interviews “from one to many”. I realised that group interviews were appropriate for the current research as Frey and Fontana (1991, p. 176) argue the benefits of group interviews in a variety of research situations including studies of “work environments, job satisfaction, morale or work behaviour” stating that a group can be just two people or a large assembly. Therefore, group interviews are more appropriate than focus groups for this exploratory research concerned with what happened in the HPSU before and after securing external investment. During the main study, the researcher will use group interviews to support research legitimacy. According to Frey and Fontana (1991, p. 178), group interviews compliment other research methods and "lends methodological rigour to the one-to-one interviews".

To reduce the risk of low attendance at the group interviews, I now ask the CEO, during the introduction phone conversation, to indicate how many employees are on-site and likely to be available to attend the group interview.

6.0 Conclusions and Next Steps

This paper provides details of how the research study design is being operationalised. It describes strategies for managing ethical issues, the recruitment of participants, how the data collection methodologies are operationalised and the process for data analysis. A detailed description of the pilot case study is presented. Initial findings of the pilot study are discussed under three themes emerging from the pilot study: 1) goal setting and opportunity recognition, 2) resource constraints and resource acquisition and 3) developing sources of competitive advantage. These initial findings endorse the appropriateness of the research methods chosen by the researcher for the main study to answer the three core RQs of the study.

In-depth interviews with CEOs of seven other HPSUs will take place during September and October while the group interviews with co-founders and employees will take place in October and November. Transcripts of the interviews and group interviews will be imported into NVivo in November. Coding and analysis will then commence in conjunction with the researcher's reflective log and research notes.

Appendix A: Invitation Letter to HPSU CEOs

Dear

My name is Eugene Crehan and I am undertaking doctoral research at Waterford Institute of Technology. I have been working with start-ups, as an advisor, for 14 years. I am currently undertaking research to explore the impact that external investors have on the availability of resources (financial and non-financial) in HPSUs such as yours. I'm curious to know if resources acquired as a result of investment may have contributed to the development of competitive advantage within the business. I would be very grateful if you were to get involved in this research as I feel that you could provide really valuable insights from the business promoter / owner / CEO perspective. I attach a summary of the research project for your information.

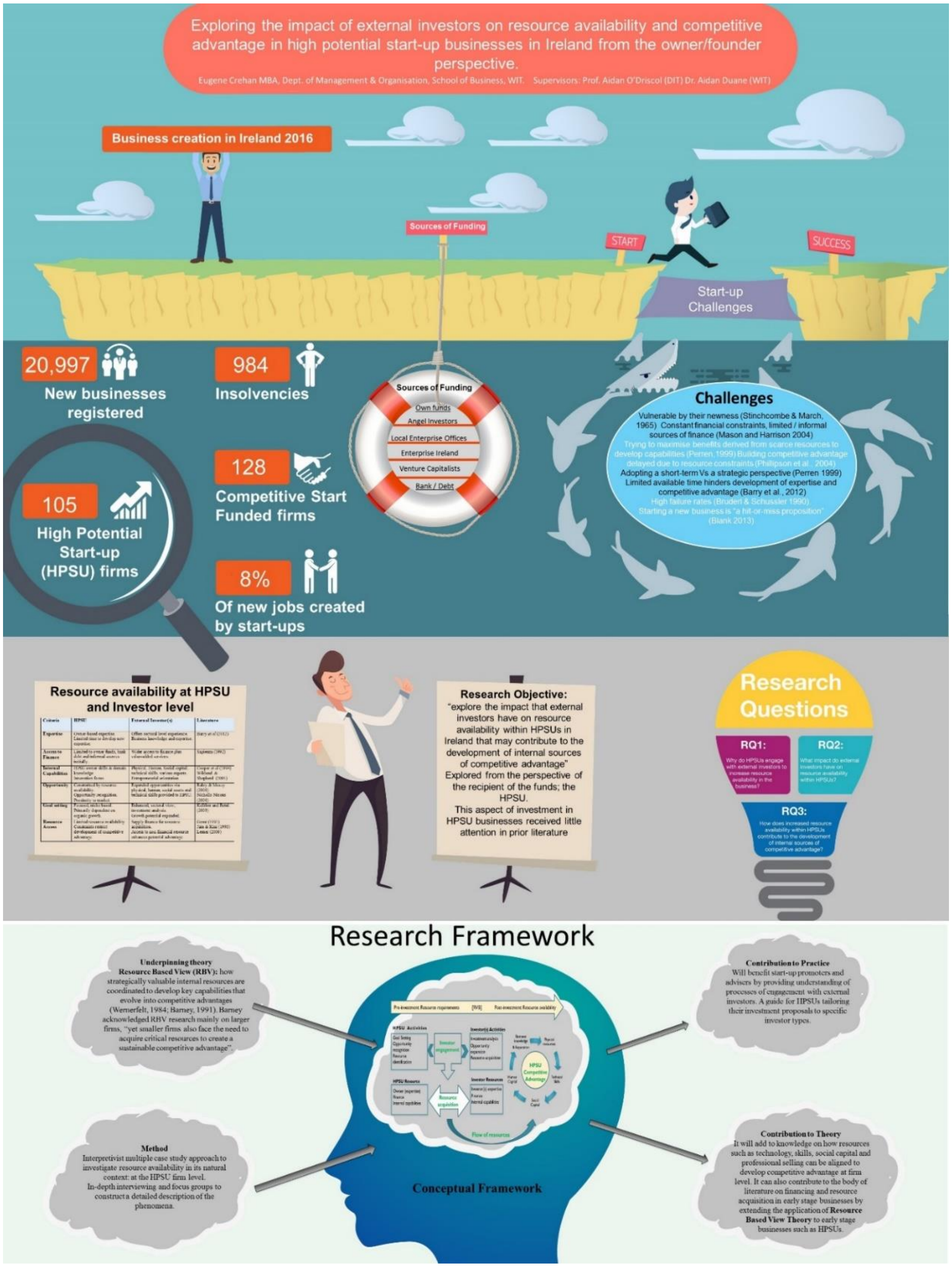
Of course, participation in this research is entirely voluntary and participants can withdraw at any time. If you were to agree to participate, I would be looking for your support with the following: 1) a face-to-face interview with you lasting between 60 to 90 minutes and 2) a group interview for approximately one hour with your team to explore their perspectives of what happened / changed as a result of the investment. Ideally, the group interview meeting will take place a few weeks after my interview with you and can be scheduled to minimise disruption to your business e.g., at break times. I propose to record the interview to facilitate transcription later. I will be happy to provide you with a copy of the transcription. All conversations and data collected by me will be treated with the strictest confidence. Each interview and group interview will be assigned a number code anonymising all participants to ensure that personal identifiers are not revealed during my analysis and write up of findings.

If you are willing to participate I would be pleased to call you to provide you with further information or to answer any questions that you may have.

Kind regards,

Eugene Crehan

Appendix B: Research project information summary sheet



Researcher: Eugene Crehan, Supervisors: Prof. Aidan O'Driscoll (DIT), Dr. Aidan Duane (WIT)

Appendix C: Protocol for in-depth semi-structured interviews

1. Give the interviewee the Research Information and Consent Form and ask them to read it. Briefly discuss the purpose of the research, stress that respondents' perceptions are being sought and that their contribution highly valued by the researcher. Check if they have any questions.

2. Explain the ethical principles listed below and assure them of confidentiality/anonymity. Allow time to discuss these with the interviewee to ensure their full understanding and consent.

    a. The purpose of the interview and its relevance to the overall research project.

    b. Acknowledge that participation in the interview is voluntary and that the participant / CEO can withdraw from the interview at any point in time.

    c. The interviewee's consent to voluntarily participate in the interview is sought as is their permission to record the interview.

    d. The confidentiality of what is shared by the interviewee is assured by the interviewer. Themes relevant to the research project discussed in this interview may be explored further in the group interview. However, sensitive financial or personal information will not be shared by the researcher.

3. The interviewee is invited to ask any question to clarify their understanding of the purpose of the interview and their role therein.

4. Collect the following descriptive data before proceeding to the interview.

Interview no.	______________	Interview date:	___________
Interviewee Name:	______________	Gender:	___________
Company name:	______________	Business sector:	___________
Role in company:	______________	Age of business:	___________

5. Advise that you will start recording the interview from now and check if they have any questions. Request approval to conduct a group interview with co-founders / employees and ask that samples of the investment proposal documentation be taken into the group interview.

Appendix D: CEO Participation Consent Form

I have read and understood the information sheet provided and by choosing to give consent: (please tick the box)

1) I am voluntarily participating in this study. ☐

2) I grant permission to record my interview ☐

3) I understand that I can withdraw from the study at any point. ☐

4) I understand that themes relevant to the research project discussed in this interview may be explored further in the group interview. ☐

I accept that sensitive financial or personal information will not be shared with group interview participants by the researcher.

I understand that my own and my organisation's details including people and business names, plus location will be anonymised ☐

I understand that the anonymised data will be cited in the project/thesis and other publications. ☐

Signature

Participant ___________________________ Date _________________________

Researcher ___________________________ Date _________________________

Appendix E: Invitation Letter to Group Interview Participants

Dear

My name is Eugene Crehan and I am undertaking doctoral research at Waterford Institute of Technology. I have been working with start-ups, as an advisor, for the past 14 years. I am currently undertaking research to explore the impact that external investors have on the availability of resources (financial and non-financial) in High Potential Start-ups (HPSUs), such as yours. I am curious to know if resources acquired as a result of external investment may have contributed to the development of competitive advantage within the business. I would be very grateful if you were to get involved in a group interview as part of this research as I would like to capture your thoughts and insights on what resources were acquired by your company and how (or even if) they contributed to the development of competitive advantage within the business. As you know I have met with your CEO a number of weeks ago, however by speaking with you within a group interview I feel that you could provide me with other perspectives on what happened in your company in recent years. Gaining different perspectives from different people improves the value of a research project such as this. The group interview would last between 60 to 90 minutes. To provide you with some background information, I attach a summary of the research project.

I am inviting you to participate in a group interview with your colleagues to take place in your company's offices. Of course, participation in this research is entirely voluntary and you can withdraw at any time. If you were to agree to participate, I would like to record the group interview discussion to facilitate transcription later. I will be happy to provide you with a copy of the transcription. All conversations and data collected by me will be treated with the strictest confidence. Each group interview will be assigned a number code anonymising all participants to ensure that personal identifiers are not revealed during my analysis and the write-up of my research findings.

If you are willing to participate I would be pleased to call you to provide you with further information or to answer any questions that you may have.

Kind regards,

Eugene Crehan

Appendix F: Protocol for the Group Interviews

1. Give the group interview participants the Research Information and Consent Form and ask them to read it. Briefly discuss the purpose of the research, stress that respondents' perceptions are being sought and that their contribution highly valued by the researcher. Check if they have any questions.

2. Explain the ethical principles listed below and assure them of confidentiality/anonymity. Allow time to discuss these with the interviewee to ensure their full understanding and consent.

    f. The purpose of the group interview and its relevance to the overall research project.

    g. Acknowledge that participation in the group interview is voluntary and that any member of the group interview can withdraw from the group interview at any point in time

    h. The participants' consent to voluntarily take part in the group interview is sought as is their permission to record the interview.

    i. The confidentiality of what is shared by the group interview members is assured by the moderator / researcher.

    j. The participants are invited to ask any question to clarify their understanding of the purpose of the group interview and their role therein.

3. Collect the following descriptive data before proceeding to the interview.

Grp No.	**Date and duration of group interview:** ___________________	**HPSU number:**	**Venue:** _______________
	Job Function	Years in firm	Familiarity with group interview topics
1			
2			
3			

Advise that you will start recording the interview from now and check if they have any questions

Appendix G: Group interview participant consent form

I have read and understood the information sheet provided and by choosing to give consent:

(please tick the box)

1) I am voluntarily participating in this group interview. ☐

2) I grant permission to record my participation in the group interview. ☐

3) I understand that I can withdraw from the study at any point. ☐

4) I understand that the group interview content or transcript of the Recording will not be shared with individuals outside the group interview. I accept that it will only be accessed by the researcher. ☐

5) I understand that my own and my organisation's details including people and business names, plus business location will be anonymised. ☐

6) I understand that the anonymised data will be cited in the project/thesis and other publications. ☐

Signature

Participant ___________________________ Date _________________________

Researcher ___________________________ Date _________________________

Appendix H: Codes to Anonymise Participants

Participant No.	Participant Code	Method	HPSU	Industry	Company name	Contact name
1	CEO1	Interview	HPSU1			
2	CFE1	Group interview	HPSU1			
3	CFE2	Group interview	HPSU1			
4	CEO2	Interview	HPSU2			
5	CFE3	Group interview	HPSU2			
6	CFE4	Group interview	HPSU2			
7	CFE5	Group interview	HPSU2			
8	CFE6	Group interview	HPSU2			
9	CEO3	Interview	HPSU3			
10	CFE7	Group interview	HPSU3			
11	CFE8	Group interview	HPSU3			
12	CFE9	Group interview	HPSU3			
13	CFE10	Group interview	HPSU3			
14	CEO4	Interview	HPSU4			
15	CFE11	Group interview	HPSU4			
16	CFE12	Group interview	HPSU4			
17	CFE13	Group interview	HPSU4			
18	CFE14	Group interview	HPSU4			
19	CEO5	Interview	HPSU5			
20	CFE15	Group interview	HPSU5			
21	CFE16	Group interview	HPSU5			
22	CFE17	Group interview	HPSU5			
23	CFE18	Group interview	HPSU5			
24	CEO6	Interview	HPSU6			
25	CFE19	Group interview	HPSU6			
26	CFE20	Group interview	HPSU6			
27	CFE21	Group interview	HPSU6			
28	CFE22	Group interview	HPSU6			
29	CEO7	Interview	HPSU7			
30	CFE23	Group interview	HPSU7			
31	CFE24	Group interview	HPSU7			
32	CFE25	Group interview	HPSU7			
33	CFE26	Group interview	HPSU7			
34	CEO8	Interview	HPSU8			
35	CFE27	Group interview	HPSU8			
36	CFE28	Group interview	HPSU8			

HPSU1: The 1st HPUS Participating in Study,

CEO1: CEO from 1st HPSU,

CFE1: Co-founder or employee from 1st HPSU

Appendix I: Case participant Contact Details

Participant	HPSU	Industry	Participant	Contact	Company	Locationn	Email	Phone
1	HPSU1		CEO1					
2	HPSU1		CFE1					
3	HPSU1		CFE2					
4	HPSU2		CEO2					
5	HPSU2		CFE3					
6	HPSU2		CFE4					
7	HPSU2		CFE5					
8	HPSU2		CFE6					
9	HPSU3		CEO3					
10	HPSU3		CFE7					
11	HPSU3		CFE8					
12	HPSU3		CFE9					
13	HPSU3		CFE10					
14	HPSU4		CEO4					
15	HPSU4		CFE11					
16	HPSU4		CFE12					
17	HPSU4		CFE13					
18	HPSU4		CFE14					
19	HPSU5		CEO5					
20	HPSU5		CFE15					
21	HPSU5		CFE16					
22	HPSU5		CFE17					
23	HPSU5		CFE18					
24	HPSU6		CEO6					
25	HPSU6		CFE19					
26	HPSU6		CFE20					
27	HPSU6		CFE21					
28	HPSU6		CFE22					
29	HPSU7		CEO7					
30	HPSU7		CFE23					
31	HPSU7		CFE24					
32	HPSU7		CFE25					
33	HPSU7		CFE26					
34	HPSU8		CEO8					
35	HPSU8		CFE27					
36	HPSU8		CFE28					

HPSU1: The 1st HPUS Participating in Study,

CEO1: CEO from 1st HPSU, CFE1: Co-founder or employee from 1st HPSU

Appendix J: Application to WIT School of Business Ethics Committee

Research Ethical Approval School of Business

Applicant: Eugene Crehan, Student No.: 20030595

Supervisors: Professor Aidan O'Driscoll (DIT) and Dr. Aidan Duane (WIT)

Exploring the impact of external investors on resource availability in high potential start-up businesses in Ireland.

ABSTRACT

There is still much to understand about the impact of resource availability on high potential start-up (HPSU) businesses. The research objective of this study is to "explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage" from the perspective of the recipient of the funds; the HPSU. This aspect of investment in HPSU businesses has received little attention in the literature previously. An interpretivist multiple case study approach is proposed as a suitable method to investigate resource availability in its natural context, and the unit of analysis is at HPSU level. The study will use in-depth interviews and group interviews to construct a detailed description of the phenomena under study. This research will provide greater understanding of the interactions between HPSU businesses and external investors and their impact on resource availability in businesses. This research will be of benefit to start-up promoters and their advisers by providing an understanding of processes of engagement with external investors such as identification of investor types most suited to the HPSU's industry sector and stage of firm development. It will guide HPSUs in tailoring their investment proposals to specific investor types. It will also add to knowledge on how resources such as technology, skills, social capital and professional selling can be aligned to develop competitive advantage at firm level. Theoretically, it can contribute to the body of literature on financing and resource acquisition in early stage businesses by extending the application of RBV theory to early stage businesses, such as HPSUs.

Keywords: High Potential Start-up, Resources, External Investment, Resource-Based View, Finance.

Rationale for this research

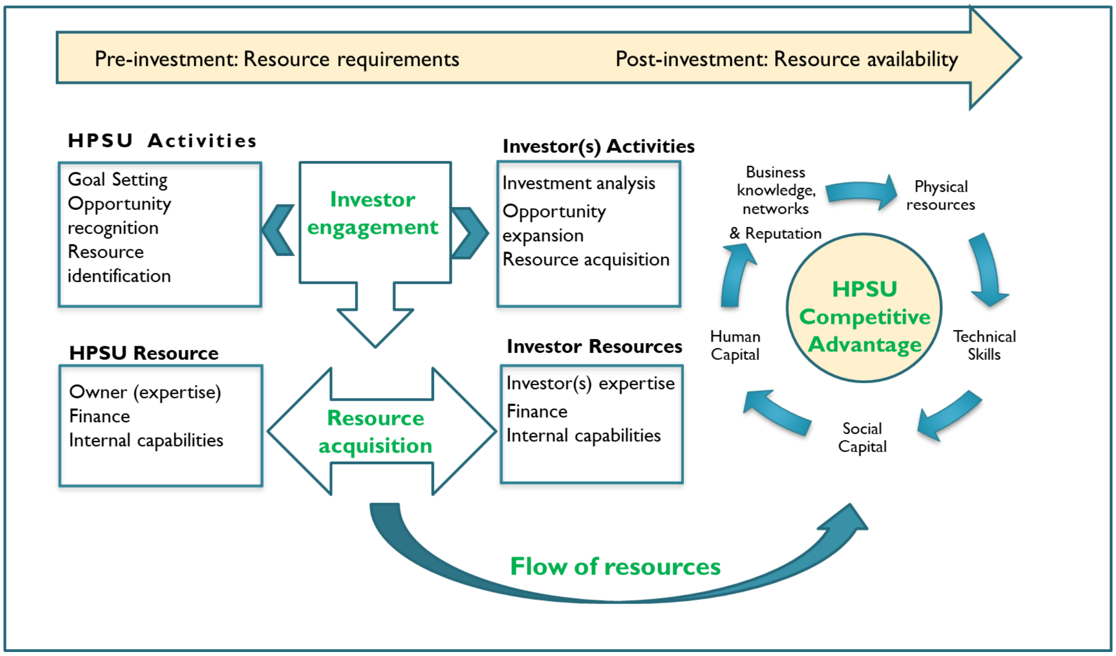
The importance of the start-up/early stage business sector to the Irish economy is highlighted in the 2016 Action Plan for Jobs (APJ), where the Irish Government states its objective of creating 50,000 new jobs annually from 2016 to 2018. Importantly, eight percent of new jobs created are expected to emanate from start-up and early stage businesses (Action Plan for Jobs, 2016). The importance of small businesses is not unique to the Irish economy as Storey (1994) noted that small businesses account for the majority of enterprises in all world economies. Wiklund and Shepherd (2005, p. 88) state that "small businesses are important to most economies; therefore, investigation of their performance is a worthwhile scholarly endeavour". This study is focused on a particular type of small business: the high potential start-up (HPSU) and specifically, the impact of external investment on the availability of resources that contribute to the development of competitive advantage for the early stage business.

There is much still to understand about the impact of resource availability on high potential start-up (HPSU) businesses. Mason and Harrison (2004) claim that during the start-up phase, most businesses experience persistent financial constraints, as they are funded by limited, informal sources of finance or bank debt. Yet, only a minority of firms require equity-based finance. Typically, they are high potential businesses exploiting some form of innovation or engaging in R&D who require external investment in order to pursue their business goals (Mason and Harrison, 2004; Barry *et al.*, 2012). While there is disagreement amongst researchers, evidenced in this paper, that external investment leads to superior performance in early stage businesses the role of external investment in the survival of young firm seems to be less contested.

Research Aim

The research objective of the proposed study is to "explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage". This research will explore why entrepreneurs engage with investors, the impact that investors have on resource availability and how such resources contribute to the development of competitive advantage. The research will explore if financial and non-financial resources flowed to the HPSU.

Following a review of the pertinent literature, a conceptual framework is developed (see Figure 1) that draws upon the resource-based view theory in order to explain the motivations of the business promoter in seeking external investment and to explore the impact this investment has on resource availability in the HPSU.



Population of interest

A unique aspect of the proposed study is the focus on the perspective of the recipient of the funds; the CEO and employees within the high potential start-up business. This is an aspect of investment in HPSU businesses that has received little attention previously in the literature. A review of extant literature reveals that prior studies (Rosenstein *et al*., 1993; Jain and Kini, 1995; Manigart and Van Hyfte, 1999; Bottazzi and Da Rin, 2002), sought to retrospectively explain the impact of external investment on enterprise performance. Earlier work by Freeman *et al.* (1983) and Brüderl *et al.* (1992) focused on the impact of external investment on survival retrospectively, or as a predictor of future growth. Prior research has not explored the relationship between firm engagement with external investors and how resource availability may contribute to the development of competitive advantage for the early stage businesses such as HPSUs. These relationships are depicted in Figure 1.

Methodology

An interpretivist approach is proposed as a suitable method to investigate a phenomenon such as resource availability, in its natural context, at HPSU level. This research adopts a multiple case study method underpinned by in-depth semi-structured interviews with entrepreneurs and group interviews with key personnel at the entrepreneur's business, as the central data collection techniques. This study extends earlier research on investment in early stage businesses which generally focused on firm performance and survival by exploring what happened from the investee HPSU perspective. Through the in-depth interviews with entrepreneurs and group interviews this research will discover motivations of the HPSU, in seeking external investment, if engagement with investors resulted in a flow of resources into the HPSU and if increased resources contributed to the development of competitive advantage at the HPSU level. Aside from the purposes of research, this is an area of interest to the author from a professional practice perspective, in his role as a business advisor to early stage businesses including HPSUs

Participant Selection

Case candidates will be identified through Enterprise Ireland's published lists of HPSU businesses that they have supported in recent years. The researcher will email the CEO of prospective companies. He will provide objectives of the research, its methods (in-depth interview with CEO and group interview with employees) and will invite the CEOs to volunteer the HPSU's participation in the study. It is anticipated that follow-up telephone calls will be required to secure volunteers. These calls will be made directly to the owners / CEOs of prospective HPSUs and to persons in the researcher's network or the prospective participant's network. Saunders *et al.* (2012) describes this technique as "snowball volunteer sampling" (p. 289). Volunteers will be selected against the criteria presented in Table 2.

No.	Criteria for Selection of HPSU Cases for this Study	Yes/No
1	The business must be Enterprise Ireland approved HPSU, listed in EI HPSU directory	
2	The HPSU must agree to participate fully in this study (interview with CEO and access to employees for group interview with employees)	
3	The HPSU must support publication of the findings from the study, contingent on their acceptance of the interview transcripts	
4	The HPSU must be located in Ireland	
5	The HPSU must have qualified for EI/HPSU funding within the past 6 to 36 months	
6	HPSU must belong to one of following sectors: Information Technology & Comms (ITC), Medical Devices, Software as a Service (SaaS), Financial Tech (FinTech)	
7	The person interviewed must be the Founder, Owner or CEO of the HPSU and must have been in the role before and after the investment	
8	The HPSU must have received funding from an external investor (receiving more than 1 round of funding does not make a HPSU ineligible)	
9	At least one participating HPSU must have received investment from a non-Irish Venture capital company	

Table 1: Criteria for Participation in the Study

Data Collection and Analysis

Semi-structured interviews

Semi-structured interviews with the HPSUs will be arranged in advance with the owner / CEO and will take place on-site at the HPSU premises. Each interview, expected to last 60-90 minutes, will be recorded with the participant's permission to accurately capture the entrepreneur's perspectives and to facilitate transcription later. Being on-site at the participant's premises allows the researcher to make ad-hoc non-obstructive observations about the location, office environment, HPSU team, etc. Guided by the themes referenced in Table 2, this researcher will explore the entrepreneur / HPSU owner's aspirations for growing the business, their attitudes towards risk and beliefs on relinquishing partial control of the business.

No.	Theme in	Theme in Literature	Authors
1	HPSU owner's mind-set.	Goal setting. Aspiration for business growth.	Greenbank, (2001)
2	Opportunity recognition.	Opportunity recognition.	Cunneen and Meredith, (2007) Davidsson, (1991) Nicholls-Nixon *et al.*, (2000)
3	Resource access.	Resource constraints. Resource needs identification.	Grant, (1991) Jain and Kini, (1995)
4	HPSU owner's desire for control.	Internal locus of control. Willingness to relinquish partial control.	Timmons, (1978) de Vries, (2002)
5	Access to finance.	Engagement with External Investors and Venture Capital Firms.	Sapienza, (1992) Barry *et al.*, (2012)
6	Risk taking.	HPSU owner's attitudes to risk taking.	McClelland, (1965), Palmer, (1971) and Brockhaus, (1980)
7	Sources of competitive Adv	HPSU owner skills. Physical, Human, Social Capital. Technical.	Nicholls-Nixon *et al.*, (2000)

Table 2: Themes to be explored through semi-structured interviews

The themes presented in Table 2, will be tested during the pilot study to determine their ability to comprehensively answer the research questions. The themes have informed the development of a semi-structured interviews protocol, see Appendix A.

Group interview

In accordance with interpretivist approach, the researcher will interact with other personnel in the HPSU to develop a more holistic perspective of what happened in the business following the receipt of investment. Group interviews will be conducted on-site in each of the participating HPSUs and are expected to last 60 to 90 minutes. During the in-depth interview with the owner / CEO the researcher will explain the purpose of the group interview and will request permission for a group interview with employees and co-founders at a date within one month of the interview. The CEO will be asked to nominate participants for the group interview and to allow company documents such as the investor proposal and pitch-deck to be used in the group interviews to stimulate discussion.

Each group interview will be recorded, with the consent of all participants to accurately capture their perspectives and to facilitate transcription afterwards. The researcher aims to extract a deep understanding of staff perspectives of the impact of investment on resource availability and the development of sources of competitive advantage.

Early stage businesses have limited resources and typically accommodate their few staff in open-plan offices. Open-plan offices foster open communications and it is not unreasonable to expect that co-founders and employees would be involved in aspects of an investment proposal and resource acquisition. Therefore, it is justifiable to expect employees and co-founders, participating in group interview, to be knowledgeable about resource identification, the need for external funding, examples of resources acquired as a result of investment and how resources were used to get things done more efficiently or contribute to the development of new capabilities. The depth of knowledge of group interview participants of the research themes will be recorded in Table 3.

FG No.	Job Function	Years in firm	Familiarity with phenomenon
1	Function A		
1	Function B		
1	Function C		
1	Function D		

Table 3: Depth of group interview participants' knowledge of the research

The group interviews will capture perspectives from four to eight participants in the HPSU dependent on the number of employees within each case organisation. It will provide a broad range of perspectives and will increase the crystallisation of the data by telling 'the same tale from different points of view' (Denzin and Lincoln, 2008, p. 7) in pursuit of increased data reliability and validity. The draft themes to be explored through the group interviews are presented in Table 4, with the caveat that these could change dependent on topics emerging during the semi-structured interviews. The themes explored in the group interview will be tested in a pilot group interview. The test will provide an opportunity for the researcher to practice group interview facilitation skills and to adjust behaviours as desired. A protocol for conducting the group interview meetings is displayed in Appendix B.

	Theme within HPSU	Theme in Literature / Rationale for inclusion	Authors
1	Opportunity recognition.	Opportunity recognition.	Cunneen and Meredith, (2007) and Nicholls-Nixon *et al.*, (2000)
2	Resource access.	Resource constraints. Resource needs identification.	Grant, (1991) Jain and Kini, (1995)
3	HPSU owner's desire for control.	Internal locus of control. Willingness to relinquish partial control.	Timmons, (1978) de Vries, (2002)
4	Access to finance.	Engagement with External Investors and Venture Capital Firms.	Sapienza, (1992) Barry *et al.*, (2012)
	Sources of competitive advantage.	HPSU owner skills. Physical, Human, Social Capital. Technical.	Nicholls-Nixon *et al.*, (2000)

Table 4: Themes to be Explored through Group Interviews

Data management and analysis

The researcher will transcribe the interviews and group interview evidence and maintain these files in a secure environment (e.g. encrypted electronic files and a locked cabinet for any documents or printer materials collected).

The researcher has significant experience as an advisor to start-up business promoters, in Ireland. There are advantages and disadvantages of a researcher having this familiarity with the research subject matter. This researcher's experience may be considered an important source of evidence, along with documentation, interviews, group interview, in developing an in-depth case study. While having contextual knowledge of the subject area is beneficial, a researcher must to be cognisant of the fact that they may bring certain bias to the study. Such bias must be a factor of consideration when devising research methodologies.

The data analysis process will be executed using the NVivo software programme which is suited to interpreting large volumes of data efficiently (Tesch, 1990). Transparency and rigour are critical components of the qualitative data analysis process (Tesch, 1990). The data analysis strategies summarised in Table 5, below will be employed to adhere to a process that can withstand tests of validity, reliability and generalisability.

Stage	Data Analysis Strategy	Informed by
1	Run / Save / Print Node Summary reports regularly (NVivo) to track changes to nodes and themes	Ryan, (2009)
2	Data reduction to interpret meaning of the data	Miles and Huberman, (1984)
3	Overlap constant comparative analysis and analytic induction to categorise codes and note relationships (reliability and validity)	Glaser, (1967)
4	3-stage coding: Open, Axial and Selective	Strauss and Corbin, (1990)
5	Utilise charts, graphs and matrices	Miles and Huberman, (1984)

Table 5: Strategies underpinning the data analysis process in NVivo.

All conversations and data collected will be treated with the strictest confidence. Each interview and group interview will be assigned a number code to help ensure that personal identifiers are not revealed during my analysis and write up of findings.

The researcher will present a paper on the research aims and preliminary findings at the Institute for Small Business and Entrepreneurship Conference 2017. The researcher and his joint supervisors: Professor Aidan O'Driscoll and Dr. Aidan Duane will be listed as co-authors.

Ethical Considerations.

There are several ethical issues that researchers must address prior to the commencement of the research process. These ethical considerations are managed by using guiding principles to inform appropriate conduct for researchers (Robson, 2002). As all participants in this study are adults who will be participating of their own free will, the main ethical considerations with respect to participant HPSUs includes; prevention of harm, assurances of anonymity or confidentiality and preservation of privacy (Diener and Crandall, 1978). These issues will be managed through careful data management, the use of respondent and HPSU alias and confidentiality agreements if required.

This researcher intends to develop a positive respectful relationship with the case participants: the CEO and employees at each of the HPSUs, all of whom are adults and will be invited to participate of their own free will. The CEO / owner of the HPSU will be sent an information document in advance of the in-depth interview, about the research purpose (Appendix C). The CEO / owner will be provided with a consent form (Appendix D) prior to commencing the interview and will be invited to sign it. The research purpose will be explained to all group interview participants who will also be invited to sign a consent form (Appendix D). The CEOs and employees will be assured that all conversations and data collected will be treated with the strictest confidence. They will be informed that each interview and group interview will be given a code to ensure anonymity during my data analysis and the write up of findings.

As indicated earlier, the researcher acts as an advisor to early stage business promoters and therefore has access to a network of HPSU businesses. Additionally, the researcher acts as chairman of a national forum of early stage business advisors and will seek access to HPSUs who are clients of other members of the forum.

Appendix K: Approval of Ethics Committee

Institiúid Teicneolaíochta Phort Láirge Waterford Institute *of* Technology

Port Láirge, Éire.
T: +353-51-302000
info@wit.ie

Waterford, Ireland.
T: +353-51-302000
www.wit.ie

June 15th, 2017

Dear Eugene,

Thank you for submitting your proposal to the School Ethics Committee. Your proposal is well considered with great care given to address any potential ethical implications associated with the proposed study.

The Committee is satisfied to approve your submission subject to you addressing the following points of feedback that were highlighted in discussions of your proposal:

1) Participant selection (CEO) - clarify the source of the contact telephone follow-up calls when contacting the CEOs and provide a bit more detail on the nature and procedure involved.

2) Non-obtrusive observations - clarify if participants will be aware that these are being made.

3) Recruitment of focus group participants. It is stated that the "CEO will be asked to nominate participants for the focus group". Could this process be clarified further e.g. the CEO is not directly involved in recruiting participants for the focus group but rather it is the researcher who approaches potential focus group participants having received permission to do so from the CEO. This clarification should indicate that any potential focus group participant will not be under any compulsion to participate from a mandate from the CEO.

4) In table 3 reference is made to gender and age. Please clarify that these are necessary questions for the study and if essential to consider their sensitivity (e.g. specific age) and implications for data protection.

5) Clarify how the pilot process will be operationalised - is it in the same way ethically as the main study?

6) Provide more detail how anonymising participants will be implemented e.g. sanitising of transcripts, use of pseudonyms etc.

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Foirfe chun fónaimh

7) How is the focus group to be recorded? E.g. audio, video? Will all the work required in the focus group be managed by the researcher e.g. managing recording as well as facilitation. For both the focus group and interview recordings, will participants be given the opportunity to make any clarifications?

8) There are interviews with CEOs and employees of the same organisation. Please clarify what access there is to comments made in the focus group to the CEO and vice versa. This point also relates to point 3) above on anonymity.

9) Researcher's role - please clarify if the researcher's relationship to CEOs with respect to any previous engagements relating to funding the business that the CEO currently resides over.

10) Interview protocol (Appendix A) - please clarify if the respondents (in interviews and focus groups) in acknowledging that participation is voluntary that s/he can also withdraw at any point in time.

11) In the appendix please clarify what constitutes the "Information Sheet" for the potential CEO interviewees and focus group participants. At present there is an invitation letter (Appendix C) followed by a poster, followed by two academically styled pages on the project. Opening letter: a suggested alternative phrasing to "I would be happy to provide you..." could be "I will be happy to provide you...".

We wish you well with your future research endeavours.

Yours truly,

Denis Harrington

Professor Denis Harrington
Head of Graduate Business, and Chair of the School of Business Ethical Committee, WIT

Appendix L: Supplementary Information for Ethics Committee

Waterford Institute of Technology - Research Ethical Approval

Applicant: Eugene Crehan, Student No.: 20030595

Supervisors: Professor Aidan O'Driscoll (DIT) and Dr. Aidan Duane (WIT)

Supplementary information for Ethics Committee

Participant Selection

Case candidates will be identified from Enterprise Ireland's publicly available lists of HPSU businesses that they have supported in recent years. These lists provide company name, contact name, their email address and phone number plus the company website address. From these lists, the researcher will email a random selection of companies in the following industry sectors; Information Technology and Communications (ITC), Medical Devices, Software as a Service (SaaS) and Financial Technology (FinTech). It is anticipated that follow-up telephone calls will be required to secure volunteers. These calls will be made directly to the HPSU main telephone number listed publicly in the Enterprise Ireland directory. If the researcher experiences difficulties in reaching CEOs then persons in the researcher's network may be requested to make introductions to CEO's via email or LinkedIn.

Non-obstructive observations

Being on-site at the participant's premises allows the researcher to make ad-hoc non-obstructive observations about the location, office environment, HPSU team, etc. The observations are likely to relate to location, size and lay-out of office space as this may indicate if offices are open-plan or segregated and how freely information may be shared in the office and if (investor) money has been spent on the offices. Such resources may not be mentioned by the CEO during the in-depth interview. It would also be interesting to observe the age and gender diversity within the team and if there are any trends within sectors. Enterprise Ireland is strongly encouraging greater participation of female founders in start-ups and are tracking progress in recent years. The participants will not be overtly aware that the researcher is observing the above. No negative impact is envisaged.

Recruitment of group interview participants

During the in-depth interview with the owner / CEO the researcher will explain the purpose of the group interview and will request permission for a group interview with employees and co-founders at a date within one month of the interview. The CEO will be asked to allow the researcher to recruit participants for the group interview either by forwarding an email from the researcher or providing the researcher with email addresses of employees. In recruiting group interview participants, the researcher will explain in writing that participation in the group interview is completely voluntary and that participants can leave the group interview at any time. He will also explain the purpose of the research and the group interview. The researcher will advise that the group interview will be recorded, with the consent of all participants, to accurately capture their perspectives and to facilitate transcription afterwards.

Recording gender and age of group interview participants

In the last five years, Enterprise Ireland has been actively encouraging greater participation of female founders in start-ups and have recently witnessed a leap in female-led HPSUs from 2012 at 7% of HPSUs to 20% in 2016 (Enterprise Ireland 2017). Therefore, it would be interesting to collect data on gender diversity within the team. It is not essential to request that group interview participants indicate their age at the commencement of the group interview. The protocol for moderating group interviews shown in Appendix B, has been amended to remove reference to age. The researcher can form a view of the approximate age spread of participants from the ad-hoc, non-obstructive observations discussed in point 2.

Pilot study process

The pilot study will follow the same process as the main study in recruiting a CEO for interview and in gaining permission to hold a group interview. The researcher will recruit group interview members from names of employees and co-founders supplied by the CEO.

The researcher will email these people to explain the purpose of the research and the group interview and to invite them to participate. He will explain that participation in the group interview is completely voluntary and that participants can leave the group interview at any time. Ethical procedures around confidentiality and anonymity will be identical for the pilot as for the main study. If additional ethical concerns arise during the pilot these will be comprehensively addressed in the main study.

Anonymising participants

The researcher will ensure that the privacy of interview and group interview participants will be protected throughout the data collection, transcription, analysis and interpretation phases. Strategies to anonymise the participants will be deployed, for example, the removal of personal identifiers at the transcription stage such as peoples' names, the HPSU's names and location or other attributes that may render them identifiable. Pseudonyms will be used to describe people, companies and geographic locations.

Recording the group interviews

Audio recording will be performed by the researcher who will also be the facilitator. While it would be advantageous having a second researcher / assistant at the group interview this is not feasible due to disperse locations of HPSUs in Ireland and the associated costs of having a second researcher present. At the end of the group interview meeting, the researcher will ask if anyone wishes to clarify points made during the meeting either verbally of in writing directly to the research afterwards. The CEO will be given a copy of the transcript of their own semi-structured interview by the researcher and will be given the opportunity to clarify any points made.

Access to group interviews comments by CEO and vice-versa

Themes discussed with the CEO will be further explored in the group interview. However, if the CEO provides details of sensitive information such as financial or human resource issues these will not be shared with employees in the group interview. Similarly, comments made in the group interview will not be shared with the CEOs. The CEO will not get a copy of the group interview transcript.

Researcher’s relationship with participant CEOs

It is possible that the researcher may know a CEO of a participating HPSU, for example, the researcher may have met the CEO at an Enterprise Ireland networking event or a conference. It is possible that one of the participating HPSUs may be known to the researcher through the CEOs past participation in an entrepreneur development programme. In such case, the researcher’s prior engagement with the CEO would be as acting as a mentor or advisor. This engagement would be historical and non-commercial. These prior engagements do not detract from the potential insights to be gained from the current research as the HPSU businesses are constantly developing and these developments are relevant to the current research.

Interview protocol

The protocols for the interviews with CEOs and the group interview with employees and co-founders have been updated to clarify that the interview and group interview participants can withdraw their participation at any point in time. Participants will be requested to sign a participation consent form (Appendix C).

Invitation Letter to HPSU CEOs

A sample of the researcher’s letter to HPSU CEOs inviting them to participate in the research and providing them with information and assurances regarding confidentiality can be found in Appendix D. A visually appealing research project summary sheet will be attached to the letters of invitation being sent to CEOs: see Appendix E.

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PAPER 4: RESEARCH FINDINGS

PREFACE

Paper 4: Research Findings, was developed between October 2017 and March 2018. It was presented to the external examiners in April 2018, and the paper was recommended without further review. The External Examiners were Prof. Joseph Coughlan (National University of Ireland, Maynooth) and Dr. Malcolm Brady (Dublin City University). While editing was not required, the examiners made some recommendations about the coding system. Consequently, a more intuitive coding convention is used in the version enclosed here.

The implementation of the data collection aspects of the research took place over seven months from June to December 2017, broadly in line with the Research Project Plan presented in Paper 3. The forthcoming paper chronicles the implementation of the research plan and includes analysis and review of research findings. While the WIT DBA programme allows for a discussion of the research findings to be included in Paper 4, I opted to present a concise review of findings in this paper and, due to the large volume of data collected, I deferred detailed analysis to the Discussion, Conclusions and Recommendations Chapter, in Section Three, of the thesis.

The key findings of the research are presented, in this paper, in a structure based on the conceptual framework and the three headings broadly aligned to the RQs: 1) Goal Setting and Investor Engagement, 2) Resource Exchange and 3) Sources of Competitive Advantage. Adhering to this structure maintains a focus on emergent findings. While the findings broadly support the theoretical assumptions considered in the original conceptual framework, several emergent findings were revealed, as summarised in Table 16. Data management and analysis were supported by the use of the Nvivo software application. I manipulated the large volumes of data using Nvivo to extract themes and meaning. This process produced rich findings that I have distilled and presented in multiple tables throughout this paper.

The forthcoming paper describes the thorough approach to identification of, and access to, participant businesses deployed in this study. Adopting a quasi-random sampling method, I reviewed Enterprise Ireland directories of HPSUs for the years 2014, 2015 and 2016 multiple times, and highlighted 61 HPSUs of interest based on the business name, industry, logo style, and description. To minimise unconscious bias, I asked another person to open pages randomly and select 18 HPSU names from the 61 firms highlighted. I then invited the selected 18 HPSUs to participate in the study using an 'initial call protocol' as previously detailed in Appendix A of Paper 3. Simultaneously, I searched online for the HPSU by name. If a HPSU did not have a web presence or a current blog, or did not answer phone calls, I assumed that the business was not trading and removed it from the list. I organised the remaining HPSUs by region, industry and CEO gender, made a short-list of HPSUs to achieve a geographic, industry and gender distribution, and made phone calls to these firms to seeking their participation in the study. Seven CEOs confirmed their willingness and availability to participate in my research. Table 1 of the forthcoming paper presents a summarised distillation of the 18 shortlisted HPSUs to the 7 HPSUs selected for participation.

All the participating CEOs were male. While three of the shortlisted 18 HPSUs had female CEOs, two were unavailable to participate within the required timeframe and one female CEO was in the middle of a funding round and she was simply too busy to participate. I was concerned at the absence of female CEO perspectives being captured, notwithstanding that six of the twenty-two participants of group interview participants were female. I contacted the Enterprise Ireland HPSU Division who confirmed that female managers are more prevalent in the food sector (24% female-led) than in high-tech sectors (16% female-led) such as software and services and MedTech and Pharmaceutical sectors, which is the focus of this study (Enterprise Ireland [4]). It is worth noting that the term ‘female led’ can be misleading. Enterprise Ireland records a company as being ‘female led’ if a female owns at least 25% of the equity and holds a management position in the company, even if the CEO is male, according to information provided by EI directly to the researcher (Enterprise Ireland, 2018). Therefore, female CEOs in these high-tech sectors are estimated at between two and three percent. However, the female voice was captured in the group interviews.

While this research has produced rich data on how HPSUs approach goal setting, interacting with external investors and developing sources of competitive advantage, it also provides insights to the lives of CEOs of early stage businesses. During the in-depth interviews, some of these founders opened up to the researcher about sources of stress in performing the role of CEO. Four of the CEOs talked about the sacrifices that they have made to launch their new businesses. These included paying salaries to co-founders while only paying themselves some money for expenses, how several CEO paid technical or sales people more than they paid themselves, and how CEOs worked long hours and weekends on a regular basis. While I was not entirely surprised by these comments, I was surprised at the personal and emotional impact of these sacrifices on the lives of the CEOs, in addition to the monetary sacrifices they made. This topic is discussed in greater detail in Section Three of the thesis.

The forthcoming paper describes how the research objective to: *explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage*, has been achieved. The findings show that following a period of engagement with prospective investors, HPSUs acquired resources directly and indirectly from investors and that the HPSUs configured these resources in a manner that afforded them competitive advantage in the market. The

[4] Enterprise Ireland (2018) 'Female-led HPSUs', Enterprise Ireland May 3, 2018.

research is novel in that it focuses on the perspective of the high potential start-up (HPSU) business, as the recipient of investment.

This research extends the application of RBV theory to HPSUs, and consequently contributes to the theory and body of literature on financing and resource acquisition in early stage businesses. A contribution to practice is made by providing an understanding of HPSU-investor engagement leading to increased resource availability at HPSU level. This knowledge will be of benefit to early stage business promoters and their advisers. It also increases our knowledge on how resources such as technology, skills, social capital and professional selling can be aligned to develop competitive advantage at firm level.

The findings outlined in this paper are discussed in detail in the context of the research objectives, research questions, the conceptual framework and pertinent literature in Section 3 of the DBA thesis. The discussion describes the trajectory from the original conceptual framework development as informed by the literature, through to a description of the impact of the findings on this framework, and the presentation of a data-informed refined framework.

Doctorate in Business Administration (DBA)

Participant Name: Eugene Crehan, Student No.: 20030595

Supervisors: Professor Aidan O'Driscoll and Dr. Aidan Duane

Date: May 14, 2018

Paper 4: RESEARCH FINDINGS

ABSTRACT

This paper chronicles the implementation of the research plan to "explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage" and presents an analysis and review of research findings. This interpretivist research is focused on the perspective of the high potential start-up (HPSU) business, as the recipient of investment and adopts a multiple case study approach utilising in-depth interviewing of CEOs and group interviews with other personnel within the HPSU unit of analysis. The findings illustrate that, following a period of engagement with prospective investors; the HPSUs acquired resources directly and indirectly from a variety of sources including Venture capital firms (VCs), Enterprise Ireland, angel investors and other private investors. In support of the conceptual framework, the findings show that HPSUs configured these resources in a manner that afforded them competitive advantage in the market. This extends the application of RBV theory to early stage business such as HPSUs and contributes to theory and the body of literature on financing and resource acquisition in early stage businesses. A contribution to practice is achieved by providing an understanding of HPSU-investor engagement leading to increased resource availability at HPSU level. This research will be of benefit to early stage business promoters and their advisers by providing an understanding of the processes of engagement with external investors such as identification of investor types most suited to the HPSU's industry sector and stage of firm development. It will also add to knowledge on how resources such as technology, skills, social capital and professional selling can be aligned to develop competitive advantage at firm level.

Keywords: High Potential Start-up, Resources, External Investment, Resource-Based View, Finance.

1.0 Introduction

The aim of this research is to explore the impact of resource availability in high potential start-up (HPSU) businesses in Ireland, in the context of developing internal sources of competitive advantage. For the purposes of this research, high potential start-ups (HPSUs) are "start-up businesses with the potential to develop an innovative product or service for sale on international markets and to create at least 10 jobs and achieve over €1m in sales within 3 to 4 years of starting up" (Enterprise Ireland, 2017). The focus of this research study is on what happened in the HPSU, following receipt of investment, from the investee (HPSU) perspective. Consequently, the unit of analysis (UOA) is at the HPSU company level.

This paper is the final paper in a series of four papers developed as partial fulfilment of the Doctor of Business Administration (DBA) Programme at Waterford Institute of Technology, Ireland. A conceptual framework drawing upon resource-based view theory was presented in Paper 1 of the series, to explain the motivations of start-up business promoters in seeking external investment and to explore the impact of the investment on resource availability in the HPSU. Moreover, Paper 1, conceptualises the HPSU's resource availability in the context of developing internal sources of competitive advantage with the intent of extending the application of RBV theory to early stage businesses who need "to acquire critical resources to create a sustainable competitive advantage" (Barney, 1991, p. 634).

Paper 2, in this series, a methodology paper, articulated the research objective to "explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage". It justifies an interpretivist philosophical perspective as sympathetic to the perspectives of the unit of analysis: the HPSU, and appropriate to the achievement of the research objectives. The research is implemented adopting a multiple case study approach utilising in-depth interviewing and group interviews with personnel in seven participant HPSUs from the software, services, MedTech (medical devices and instruments) and Pharmaceutical sectors.

Paper 3 detailed the operationalisation of the case study research design, documenting protocols for participant selection, data collection, management and analysis, within the overall research plan. Furthermore, Paper 3 presented a detailed description of the pilot case study and initial findings. The pilot case findings endorsed the appropriateness of the qualitative research methods proposed by the researcher, in the methodology paper, to answer the three core research questions (RQs) of this study. Paper 4 and the final paper in the series, chronicles the implementation of the research plan to achieve the research objectives and presents an analysis and review of the research findings in relation to the research questions and resource-based view theory under-pinning this study. The remainder of the paper is structured as follows. Section 2.0 describes case selection and profiles case participants before outlining procedures for data collection, management and analysis. Section 3.0 establishes the contextual environment for external investment in HPSUs, in Ireland. The research findings are presented and discussed in Section 4.0, under a structure based on the conceptual framework and the research questions. Finally, the paper concludes in Section 5.0 with a summary of the key research findings.

2.0 Implementation of Research Plan

This section discusses the selection of participating HPSUs and provides a profile of the case firms included in the study.

2.1 Preparing Access to HPSU Case Participants

As part of the pre-access preparation process the researcher acquired physical copies of Enterprise Ireland's *High Potential Start Up Showcase* directories for recent years. These are publicly available lists of companies designated as HPSU by Enterprise Ireland (EI). A quasi-random sampling method was used where the researcher reviewed these directories multiple times and high-lighted 61 HPSUs of interest based on the business name, industry, logo style, and description. To minimise unconscious bias, the researcher requested assistance from another person who opened pages randomly and selected 18 HPSU names from the 61 firms high-lighted. These names were inserted in a spreadsheet and included HPSUs from sectors such as software, services, MedTech, pharmaceutical and engineering. No food or beverage companies were included. However, as food, pet food, breweries and distilleries accounted for just six percent of the 308 HPSUs from 2014 to 2016, their exclusion was not regarded as significant. Nineteen percent of the 18 HPSUs had female CEOs.

Statistics shared by Enterprise Ireland show that female managers are more prevalent in the food sector (24% female-led[5]) than in high-tech sectors (16% female-led) such as software and services and MedTech and pharma (Enterprise Ireland, 2018). Female CEOs in these high-tech sectors are estimated at between two and three percent.

In September 2017, a letter of invitation to participate in the research was sent to the CEOs of the 18 HPSUs to the address listed in the *Showcase* directories. At the same time, a search for each HPSU by name was conducted online. If a HPSU did not have a current online presence and was not contactable by telephone, this indicated that the business was closed and consequently it was removed from the list. The remaining 16 HPSUs were organised by region, sector and CEO gender, as depicted in Table 1. In October 2017, calls to prospective case participants commenced, using the telephone numbers listed in the EI directories. These telephone conversations were guided by a protocol for the initial telephone discussions with CEOs (Appendix A), this aided consistency in terms of the researcher's approach and in mitigating researcher bias. In the course of these conversations, it was established that despite being designated as EI HPSU companies, three HPSUs had not yet secured private investment and therefore were not eligible to participate in the study. Five other HPSUs were unresponsive or not available within the required timeframe. The remaining HPSUs who were willing to participate in this research were clustered into two broad sectoral categories: *Software and Services* plus *MedTech and Pharma*.

[5] A company is regarded as 'female led' by Enterprise Ireland if a female owns at least 25% of the company equity and holds a management position in the company.

The clustering of the sectors was to ensure the anonymity of participating companies within specific sectors. As the engineering business did not fit these sectors it was removed from the list. This left seven case participant HPSUs who had experience of the phenomenon under study and were eligible and willing to participate in the research (Creswell, 2013a; Miles and Huberman, 1984). The in-depth CEO interviews commenced in October 2017. During these interviews, each CEO was asked to provide a list of email addresses for co-founders and employees to facilitate the researcher directly inviting them to participate in a group interview.

Quasi-randomly Selected HPSU		**Quantity**	**Percentage**	**Balance**
Showcase directory year	2014	8	44%	18
	2015	6	34%	
	2016	4	22%	
No online presence / closed		2		16
Location	Leinster	9	56%	16
	Munster	5	31%	
	Connacht	2	13%	
CEO gender	Female	3	19%	16
	Male	13	81%	
Sector	Engineering	1	6%	16
	FinTech	1	6%	
	Internationally Traded Services	1	6%	
	MedTech	3	19%	
	Pharma	2	13%	
	SAAS	5	31%	
	Software	2	13%	
	Software and devices	1	6%	
Ineligible as no private funding secured		3		13
Unavailable or unresponsive		5		8
Removed engineering HPSU for anonymity		1		7
HPSU cases included in study				7

Table 1: Case Selection Procedure

The Ethics Committee at WIT had recommended in June 2017, that as part of the access process, the CEO would not nominate employees for participation in the group interviews. This was to ensure that their participation was based on free will. The researcher emailed invitations to participate in the group interviews directly to co-founders and Irish-based employees of the seven participating HPSUs in line with protocols approved by the Ethics Committee at WIT. Twenty-eight co-founders and employees agreed to participate in the group interviews with twenty-two subsequently being present for the actual interviews.

2.2 Profile of Case HPSUs

Three of the participating HPSUs were established less than two years, one was established for three years and three were established for four years. The majority (5) of the participants were based in Leinster, while one was based in Connacht and one in Munster. All the CEOs interviewed were male. Two of the HPSUs with female CEOs, referenced in Table 1, while expressing interested in this research, were unavailable to participate within the required timeframe. One female CEO was in the middle of a third funding round and she was simply too busy to participate. Five of the HPSUs were involved in Software and Services sectors while two were involved in the MedTech and Pharmaceutical sectors. A significant number (3) had participated in the New Frontiers start-up programme or in a start-up accelerator[6]. Over half the HPSUs were employing more than ten people. This is one of Enterprise Ireland’s key target metrics for HPSU companies that it supports. The participating HPSUs’ characteristics are summarised in Table 2.

[6] Start-up accelerators support early-stage, high-potential growth companies through equity-finance, education and mentorship. The accelerator *process* is intense and immersive mimicking years’ worth of experience into a few months. Hathaway, I. (2016) 'What startup accelerators really do', *Harvard Business Review*, Vol. 1.

Metric	Quantity	Percentage
Year business established		
2013	3	43%
2014	1	14%
2015	3	43%
Location		
Leinster	5	71%
Munster	1	14%
Connacht	1	14%
CEO Gender		
Female	0	0%
Male	7	100%
Sector		
Software and Services	5	71%
MedTech and Pharma	2	29%
Start-up Programme		
New Frontiers or Accelerator programme	3	43%
Employees		
1 to 10	3	43%
11 to 20	3	43%
Over 20	1	14%

Table 2: Profile of case HPSUs

2.2.1 Profile of Participants within the Case HPSUs

Twenty-nine people from seven HPSUs participated in this research. Seven were CEOs while the other twenty-two were made up of co-founders and employees who participated in the group interviews. The UOA has two categories; 1) CEO, and 2) co-founders and employees. Each of CEOs had been involved in their respective company since it was founded; an average of three years across the seven HPSUs. Co-founders and employees had been with their respective companies 22 months, on average. Only one participant was less than one year working for their HPSU, however this person was highly experienced and familiar with start-ups. Therefore, all participants were considered to be knowledgeable of the phenomenon, within HPSUs, of interest to the study. Group interview participants' roles within the HPSUs were clustered into commercial (eight people) or technical (fourteen people) The gender split was six females and sixteen males. All participant characteristics and UOA codes are summarised in Table 3.

Participant No.	UOA	UOA Code	Role	Years in Firm	Gender	Interview Duration (mins)	Age Bracket
1	CEO	A0	CEO	2	Male	90	40 - 49
2	CEO	B0	CEO	2.5	Male	75	40 - 49
3	CEO	C0	CEO	2.5	Male	70	40 - 49
4	CEO	D0	CEO	4	Male	65	40 - 49
5	CEO	E0	CEO	3	Male	60	30 - 39
6	CEO	F0	CEO	4	Male	60	30 - 39
7	CEO	G0	CEO	4	Male	75	40 - 49
8	Group	A1	Commercial	1.5	Male	100	30 - 39
9	Group	A2	Technical	1.5	Male	100	30 - 39
10	Group	B1	Commercial	1.5	Female	55	20 - 29
11	Group	B2	Technical	2	Male	55	40 - 49
12	Group	B3	Technical	1.5	Male	55	20 - 29
13	Group	B4	Technical	1.5	Male	55	30 - 39
14	Group	B5	Commercial	0.5	Male	55	30 - 39
15	Group	C1	Commercial	2.5	Male	60	40 - 49
16	Group	C2	Commercial	2	Female	60	20 - 29
17	Group	C3	Technical	2.5	Male	60	40 - 49
18	Group	C4	Technical	1.5	Male	60	30 - 39
19	Group	D1	Technical	1	Male	40	40 - 49
20	Group	D2	Technical	1	Male	40	30 - 39
21	Group	E1	Technical	3	Male	50	30 - 39
22	Group	E2	Technical	2	Female	50	20 - 29
23	Group	E3	Technical	1.5	Female	50	30 - 39
24	Group	E4	Technical	1.5	Male	50	30 - 39
25	Group	E5	Technical	2	Male	50	30 - 39
26	Group	F1	Commercial	2.5	Female	40	20 - 29
27	Group	F2	Technical	4	Male	40	40 - 49
28	Group	G1	Commercial	2.5	Male	45	40 - 49
29	Group	G2	Commercial	1.5	Female	45	20 - 29

Table 3: Profile of Participants and UOA Codes

The majority of females (5) were in the 20-29 age bracket and one was in the 30-39 age bracket. Only one of the sixteen males in the group interviews was in the 20-29 age bracket. Nine males were in the 30-39 age bracket, with six males in the 40-49 age bracket. The researcher maintained a spreadsheet containing case details such a date of interactions with participants and other information extracted from the data such as participants age bracket and qualifications (per LinkedIn).

2.3 Implementation of Data Collection Methodologies

Data were collected through semi-structured in-depth interviews with CEOs in their offices, followed some weeks later by group interviews with the HPSUs co-founders and employees. These interviews were loosely guided by the interview prompt questions presented in Appendix B, to capture data from a number of sources. This helped to establish a chain of evidence from different perspectives. Interviews followed the protocol guidelines presented in Paper 3, and all interviews were recorded, using two voice recorders, with the agreement of participants. Table 4 summarises how data validity and reliability were managed for this research.

Tests	Case study design	Implemented in current study
Construct Validity	Use multiple sources of evidence	Semi-structured in-depth interviews with the HPSU CEO plus group interviews with co-founders and employees at a later date.
	Establish a chain of evidence	Data from semi-structured interviews was introduced for discussion in the group interviews to establish consistency of data. Comprehensive research database maintained to facilitate replication of study.
	Have key informants review draft case study report	Following each in-depth interview, the researcher transcribed the discussion and emailed written copy to the interviewees for approval. Group interview participants were provided with a transcript of the group discussion. Each group nominated a person to review their transcript.
Internal Validity	Do pattern matching	A pattern of data analysis was established ensuring that data collection, management and analysis was consistent across all HPSUs.
	Do explanation building	Multiple sources of data were accessed, CEO and group interviews, Pitch Decks, LinkedIn profiles, websites, to build description of the HPSUs engagement with external investors and the acquisition of resources. These sources enabled cross-referencing of CEO and group descriptions of events to construct a more complete description.
External Validity	Use replication logic in multiple case studies	The researcher used replication logic with the 7 HPSUs based on a tight-linkage inductive approach to engage in theory building. RBV theory is used as a template to analyse data and to extend its application to early stage businesses.
Reliability	Use case study protocol	The researcher developed a case study protocol which was successfully tested during a pilot case study.
	Develop case study database	The researcher maintained a comprehensive case study database that included all research collateral.

Table 4: Managing Validity and Reliability (Yin, 2014)

The researcher made personal notes in the Evernote software application after each interview to capture thoughts and reflections. Interviews were promptly transcribed to Microsoft Word documents and sent to interviewees for approval; namely to the CEOs for in-depth interviews and to a nominated person within each of the groups, for the group interviews. Data were collected from additional sources such as investor pitch decks and LinkedIn profiles to improve validity of data management. Given the multiple sources of data and capacity of interview participants to express informed opinions, the researcher was satisfied that adequate data saturation was achieved. As recommended by Yin (2014), the case study protocol, presented in Paper 3 to guide the operationalisation of this research, was deployed in the data collection phase to facilitate the replicability of this study and an extensive research database (sample enclosed in Paper 3) has been maintained by the researcher.

2.4 Data Management and Analysis Process

A significant amount of data were collected through the 885 minutes (circa fifteen hours) of semi-structured and group interviews, HPSU pitch decks, LinkedIn profiles of CEOs and numerous websites. The management of such volumes of data can be challenging, therefore the researcher opted to leverage the power of the Nvivo software application for the storage and analysis of data (Creswell, 2013a; Miles and Huberman, 1984). The data analysis approach for this research is based on thematic analysis. The researcher systematically reviewed all transcripts and other available data in an iterative process; discovering, interpreting and then coding themes and patterns of meaning within the data in conjunction with note taking using the memo function in Nvivo. During this process, shown in Table 5, a total of 45 inductive and deductive codes were generated as listed in the Nvivo Node Summary Report enclosed in Appendix C. If sections of the transcripts did not suit a particular node, it was placed in a temporary node called *interesting information.* Comparative analysis of related themes from various data sources (CEO and group interviews and pitch decks) was regularly performed as recommended by Glaser (1967), and nodes relating to competitiveness were analysed to explore the application of RBV theory to HPSUs. Memos were created and updated in Nvivo to collate thoughts, insights and ideas as the researcher progressed through the data analysis process, while direct quotes were extracted and arranged into theme-based tables in Microsoft Excel spreadsheets. The project data in Nvivo were revisited multiple times during the writing of findings stage to capture additional insights and incorporate them into the findings. Several strategies to optimise the benefits of using the Nvivo Pro qualitative analysis software were integrated into the data analysis process. The researcher regularly ran Node Summary reports and saved or printed these reports (Ryan, 2009). The data reduction process involved the interpretation of meaning of nodes and linking related nodes (Kathleen M Eisenhardt, 1989; Miles and Huberman, 1984). The data reduction process resulted in the initial 45 codes being compressed into eight higher-order themes.

Step	Stage	
	Preparation	
1	Listen to all interview recordings	
2	Transcribe all interviews anonymising all participants	
3	Update and test NVivo software	
4	Create new project in Nvivo	
5	Set up internal folders	
		CEO interviews CEO LinkedIn profiles Group interviews Pitch Decks
6	Import interviews, profiles and Pitch Decks to folders	
7	Set up external folders	
		Interview recordings HPSU websites
8	Link interview recordings and HPSU websites to folders	
9	UOA codes applied to conceal participant identities	
10	Initial nodes created	
11	Codebook printed and saved	
	Analysing data	
12	Listen to all recordings again	
13	Initial review of all interview transcripts	
14	Additional codes created from initial thoughts on data	
15	Thoughts noted in Nvivo memo function and in case	
16	Reviewed researcher notes	
17	Second review of transcripts, Pitch Decks, profiles and web sites	
18	Additional codes created for emerging themes	
19	Additional thoughts noted in Nvivo memo function	
20	Node summaries printed	
21	Printed node summaries carefully reviewed	
	Data interpretation	
22	Memos created for key themes in entrepreneurship research, the conceptual framework	
23	Comments on initial thoughts added to memos	
24	Reviewed all nodes for possible overlaps or linkages	
25	Reviewed transcripts at a deeper level to identify overlaps and linkages	
26	Commenced pattern coding to aggregate nodes. Some new nodes created, others deleted.	
	Collating findings	
27	Reviewed and updated memos	
28	Printed memos	
29	Reviewed memos and related to major themes	
30	Memoed initial findings	
31	Expanded on findings	

Table 5: Stages of Data Analysis

These are presented in the Nvivo Node Summary Report (Appendix D) and are broadly aligned to the conceptual framework and research questions (presented in Paper 1), entrepreneurship themes identified from the literature as presented in Paper 2, and key themes emerging from the data (Boyatzis, 1998; Braun and Clarke, 2006).

3.0 Contextual Environment

All of the HPSUs in this study received equity-based finance from external investors such as private angel investors, Enterprise Ireland and VCs. The Irish Venture Capital Association's *Venture Pulse* bulletin noted that Irish technology companies raised €994 million in investment funding during 2017 (IVCA, 2018). Early stage *seed funding* investments reached €131million in 2017, an increase of €61million on 2016, signalling that venture funding is now a mainstream source of external investment for Irish start-ups and scaling businesses such as HPSUs. In line with earlier studies by Barry *et al.* (2012) and Mason and Harrison (2004), this research found the high potential companies sought investment to fund product development or to exploit their innovations, prior to generating revenue from sales. This research discovered that while all of the HPSUs secured external investment, none, was in receipt of bank debt, *"you just wouldn't get any, the banks just wouldn't look at you because you have no predictable cash flow"*, (E0). Instead, they relied on money provided by founders, family and friends, *"the 3 Fs"* as described by some of the CEOs (E, M, O), until they secured external investment. While this research gives evidence to how external investment supports the development of sources of competitive advantage, the majority of CEOs immediately mentioned *survival* when asked *"Would you say that the business is better off overall having received the investment"?* (Table 6). Despite *survival* being mentioned by many of the CEOs and resource constraints being a common theme (discussed later), not one of them mentioned the word *failure* during any of the interviews. This understanding and acceptance of risk, in pursuit of business goals, is amongst the traits typically associated with entrepreneurs and evidenced in the current research (McClelland, 1965; Palmer, 1971).

UOA	CEO comment
A0	“The business would not be alive today if it wasn’t for investment”
B0	“I would probably be closed down”
C0	“Well, I think we would still have survived”
D0	“We wouldn't be here without it, I mean from survival and scaling the business as we did”
E0	“It was crucial at the time …. but we got a loan from family to bridge a couple of times”
F0	“We had to find investors to do this”
G0	“No, we wouldn’t, it’s as simple as that, we wouldn’t be here”

Table 6: Perceptions of Investment on Firm Survival

4.0 Analysis and Review of Research Findings

The key findings of the research are presented in a structure based on the conceptual framework and the RQs. A classification of themes aligned to the RQ is outlined in Table 7.

Research question	Classification of themes
1. Why do HPSUs engage with external investors to increase resource availability in the business?	Opportunity recognition and goal setting Investor engagement Challenges to securing investment
2. What impact do external investors have on resource availability within HPSUs?	Resource exchange Resource constraints Resource acquisition
3. How does increased resource availability within HPSUs contribute to the development of internal sources of competitive advantage?	Sources of competitive advantage Business knowledge, physical, technical, social and human resources

Table 7: Classification of Themes Aligned to RQs

4.1 Opportunity Recognition and Investor Engagement

RQ1 is based on pre-investment activities depicted in the conceptual model and presented in Figure 1. It is concerned with the motivations of the HPSU and the CEO, to engage with prospective external investors. The pre-investment activities represented in the conceptual framework are evidenced in the data and presented in Sections 4.1.1 and 4.1.2. The data support the conceptual framework rationale for CEOs engaging with investors. Several CEOs knew that fund-raising was inevitable; *“I knew myself that this space we’re in requires* *considerable capital"* (C0), *"We always knew we were going to need capital"* (A0) and *"It was it was part of the IP deal, it was expected of us"* (F0). Other founders with limited personal funds engaged with potential investors from the beginning; *"I would have lined up the initial investment before I started the company at all"* (D0) and "*I had no personal funds and we wouldn't have had any other funds really in the [founding] team"* (E0).

Figure 1: Pre-investment Activities

4.1.1 Opportunity Recognition and Goal Setting

The need for investment is directly related to aspirations and goals of the HPSU. The data reveal HPSU CEOs aspirations for their respective businesses from the time the company was founded. These included longer term strategic goals:

"to develop an Irish company that could pretty much go all the way to IPO" (C0) and

"to raise enough finance to plan an aggressive IP strategy and secure global patents to build a business worth a €100 million" (D0).

Other CEO goals were developed in response to opportunity recognition as expressed by CEOs;

"to develop a solution around [specific market] services that would be sold globally" (A0), and

"to commercialise the potential of this great IP that we had" (F0). Table 8 catalogues different HPSU approaches to opportunity recognition and goal setting emerging from the data.

Opportunity recognition and goal setting approach	HPSU Statement	UOA
Industry experience / contacts	"I'd been in the industry for a long time, we had contacts and I had some ideas"	A0
Customer engagement	"We meet prospective clients constantly and they might have ideas on our product we can investigate"	A1
Research the industry	"I wouldn't have come in blind, I would have done my own research to see what the information is telling me"	C0
Network within target industry	"I'm talking to the largest provider of corporate [activity] in the world, they have six million users"	B0
Track major industry trends	"The [technology] industry players are going to run with this. I could see where it's going, I can see the applications"	F0
Engage sales consultancy to assess market	"I wouldn't be a naive jumper-in type of start-up promoter. I had started a business previously, I wanted to hear validation"	D0
Network at industry conferences	"We attend industry conferences and network to build relationships with key people in our niche"	E0
Transfer of idea from another market or sector	"The product our previous company created only applied to [specific application], it missed the biggest part of the market"	A2
Ask investors what [business types] they like	"I went in really to get a grilling, I just wanted to see what they would ask me, and I had a re-think about the business"	B0
Quantify application of the technology to specific uses	"There's 101 ideas coming into the [specific] sector. [We'll] see how many can go the whole way"	C2

Table 8: Opportunity Recognition and Goal Setting Approaches Emerging from the Data

Interestingly, HPSU goals as articulated by employees and co-founders in the group interviews, tended to focus more on the potential of the product capability than strategic business goals, as evidenced from the following quotes from group interviews.

> "It was never that we started with some huge plan that we had everything nailed down what we wanted to do. So, we looked at the whole engineering side of the internet. We knew if we could bring together a good technical team, if we could merge that with the business side then we were onto something" (C3) and
>
> "The idea from the beginning was let's get one live. So that has really been our focus from day one, is let's demonstrate that our technology works, that this new kind of crazy idea, that everything works, and that the revenue model works" (A1).

The data revealed that the HPSUs did have processes for identifying commercial opportunities for the business. Such processes are aligned to goal setting practices that have both short-term and long-term timeframes.

4.1.2 Attracting External Investment

While several of the CEOs knew that fund-raising was inevitable, the need to acquire resources created the impetus to engage with external investors. Opportunity identification led to goal setting within the HPSUs as articulated in Section 4.1.1 The CEOs and their co-founders (where relevant) identified additional resources required by the HPSU to pursue goals established for their companies. The CEO/founder was responsible for fund-raising activities in all of the case HPSUs. The data highlighted the challenges of fund-raising during the early stages of the start-up journey. This is supported by (C0), who noted "Ireland is a great place to start a business and there are so many great supports available, but Ireland is a difficult place to raise money" Many CEOs felt unprepared for the task while being conscious of the need to communicate a strong and credible investment proposal to prospective investors. For example, (A0) states; "With all my experience in business, one of the areas that I had never dealt with was raising funds".

The CEOs recognise that they are effectively competing with other HPSUs to secure money from potential investors and from Enterprise Ireland. Three of the CEOs (B0, A0 and E0) confirmed that their participation on a start-up support programme such as New Frontiers or an accelerator programme was seen as a form of endorsement and in addition to equipping them with business management skills it enhanced the credibility of their company in the eyes of potential investors. Winning industry-based competitions or awards was also seen as external endorsement of the HPSU (B, D and G) and were a source of funding for some HPSUs in this study. HPSUs who had registered intellectual property rights (IP)[7] found it

[7] Intellectual Property Rights (IP), in a business context are legal property rights enjoyed by the creator of ideas or inventions. These rights are protected by patent law, industrial design and trade mark law (Irish Patents Office, 2018).

easier to get a meeting with prospective investors than the companies not having IP. This experience is particularly evident for HPSUs (D, F) when making initial contact with venture capital companies (VCs), who were reported to be "very receptive to having a meeting" (F0).

Engagement with the investment community was described as an iterative process. One CEO realised that understanding what investors are looking for in investees would increase his chances of securing investment:

> "I started to engage with external investors early on and the conversations actually helped me know what [kind of business do investors regard] is investable, so I changed our goals" (B0).

CEOs (G0) and (E0) said that positive feedback on their pitch or endorsement of the HPSU's business model, by a prospective investor, gave the founders confidence in what they were doing and their goals for the business. This gave them enhanced self-belief in pitching to other investors. CEO (B0) confirmed that two VCs and one angel investor were "*competing with each other*" to invest in his company because the technology was *"in a market that was hot space to be in"* at the time.

Co-founders assisted the CEOs in preparing investment proposals and pitch decks and usually attended investor pitches along with the CEO. Some employees were not aware when interactions with potential investors were taking place, as explained by (B4) "*Well, I wasn't really staying close in terms of funding, it was the responsibility of our CEO actually. He did a good job of separating things so that we could focus on our [technical development] work and he worried about the finances and fund-raising"*. Meanwhile, others were aware of contact with investors but were not directly involved, (E3) said she "*wasn't involved with the meetings or actually setting up meetings, but I was aware of the meetings, I actually forget how our CEO went around getting in contact with investors"*. A participant of group (A) recalled a similar experience; "*Yeah, I would say, definitely our CEO was really leading that, as far as identifying and engaging with the investors, my role was probably more kind of* *behind the scenes. So, I was helping prepare the documentation that he was using with the different potential investors he was talking to*" (A2).

The process of engaging with investors is time consuming and draws the CEO away from the day-to-day running of the business. This can be frustrating for the CEO and the employees. A group (G) participant thought that the HPSU would be better off focusing on getting customers *"rather than at the fundraising side of it, because you could spend just as much effort to get where you would be with the focus on sales and getting clients live"* (E4). The founders of some HPSUs found it difficult to align technical and commercial visions into an investment proposal as described by CEO (C0); *"It was frustrating because there was several different [co-founder] opinions on how this should be done, so it took forever"*. A list of the multiple steps for HPSUs engaging with investors emerged from the data and is summarised in Table 9.

Step	HPSU Action	Comment	HPSU Experience	UOA
1	Review lists of VC and angel investors	Available from Enterprise Ireland's website	“There was a decent amount of information online it was just a case of working out which ones are relevant to the industry [and] the stage of the company we were in.”	F0
2	Introduction letter / summary proposal	Sample summary proposal form enclosed (Appendix E)	“So, the New Frontiers I suppose helped educate us on the investment side of it, and I suppose out of that we pivoted…. But part of that was working on the investment proposal and product idea.”	E0
3	Meet prospective investors at start-up events	Organised by angel networks, start-up programmes and	“So, I was spending a lot of time networking [with potential investors], and in fact the New Frontiers Programme was probably one of the earlier catalysers of my networking.”	A0
4	Contact investors and seek a meeting	Introductory/ screening meetings with investor(s)	“[Angel investor] introduced me to a potential investor, who is obviously very well connected in the investor community, and from that then it just kind of snowballed.”	B0
5	Investment proposal submitted	To VC contact person or lead angel investor	“And when we had that letter, we sent proposals to potential investors and raised [money] to match the EI money.”	D0
6	Opportunity to pitch to investors	CEO and co-founder attend pitch.	“I would say it took the guts of a year to write up a business plan and go around and pitch to all the angel networks.”	G0
7	Investors consider investment and set conditions	VC or angel group drafts terms of their investment	“I mean it was essentially a case of we pitched in front of multiple groups of people, angel syndicates and VCs and individuals and then [the investors] picked us and sent us the terms	F0
8	Investor Term Sheet issued, and conditions negotiated	The HPSU, EI and investors may negotiate some of the terms	“And then it came to a point when we were going through negotiations with investors, we were just unsuccessful.” / “I had already signed a term sheet with the Angels and so we were going through the actual investment agreement, so I knew I was close that Angel deal.”	C0 A0
9	Investor's legal team drafts Agreement based on agreed Term Sheet.	Some HPSUs sought professional and legal advice. Some HPSUs reluctant to	“Very few apart from maybe one of the top legal firm can understand the EI [investment] agreement; we used a financial expert, he couldn't figure out the share cap conversions.” / “Because further funds would dilute the existing shareholder stake.”	C1 G1
10	Documentation completed. Funds transferred to	The HPSU may have to pay investor's legal costs.	“Everybody has their own legal costs, yes. You will take your investor’s legal costs in some cases and you pay them a management fee and you will pay them interest.”	G0

Table 9: HPSUs-investor Engagement Process Emerging from Data

However, not all HPSUs followed these steps in the same sequence. There is evidence to suggest a CEO having prior start-up experience or participating in a start-up programme led to earlier engagement with prospective investors (D0, E0, B0 and A0). Nearly all of the CEOs said that fund-raising took longer than they expected and that there were several steps to the process. This sentiment was expressed by CEO (D0) who described his experience of the process:

> "For the original [funding] round, I contacted 7 or 8 potential investors and I'd say 2 or 3 of them were actual pitches to the VCs, but I knew that they wouldn't invest at the early stage even though they were interested. So, I turned to angels …. the meetings with angel investors were not really pitches they were more conversations over coffee. …. we did the professional pitching to them later. But with all the over and back with term sheets[8], cap tables,[9] etc., it's an incredibly slow process. The round was spread over nearly 3 years".

4.1.3 Challenges to Securing Investment

HPSUs engage with prospective investors to acquire resources in pursuit of business goals. The data reveal several of the case HPSUs experienced difficulties in attracting and securing investment at different stages of the start-up journey, as summarised in Table 10. Many of the CEOs reported challenges encountered when, 1) attracting investment, 2) completing the investment event and 3) looking for follow-on investment. As evidenced in the data, pre-investment delays were attributable to lack of expertise, gaps in team skills, limited market knowledge and the general newness of the HPSU. Further delays occurred as the HPSU laboured in completing complex documentation as part of the investment event. All of the CEOs claimed that the initial investment round was insufficient to fully develop the product offering or to finance the business to break-even. HPSUs experiencing resource constraints face the dilemma of focusing on delivering professional services for readily available revenue versus funding (from external investment) the development of product that may have a greater pay-back, in the longer term. Despite the acknowledged requirement for investment for product development, some CEOs and co-founders (A0, C1) who felt that they gave away

[8] Term sheet: The terms of the investment proposal prepared by the potential investors. Typically includes investment amount, equity sought and conditions of investment and expenditure.

[9] Cap (capitalisation) table: lists the percentage company ownership by founders, **i**nvestors, and other owners.

too much equity in the initial investment round were reluctant to re-engage with external investors due to concerns over equity dilution. A perspective shared by (C1); "Do we take investment in or do we go and do it organically with sales? To grow the company, without diluting the shareholders already there. There's different pluses and minuses to all of those, and we're weighing them up at the moment to be honest, to see which is the best fit for us".

Stage	Contributing Factors	Challenge Experienced	HPSU Perspective	UOA
Attracting investment	Significant number of VCs, angels and individual private investors	Trying to identify suitable investors for HPSU market sector and stage of development	"We were seeing ones and then you dig a little bit deeper and see they're actually ghost capital companies or private equity companies"	F0
	Multiple steps to get to investor pitch	Understanding steps and how to pitch	"So, the New Frontiers I suppose helped educate us on the investment side of it"	E
	Newness of the HPSU	Gaining credibility	"They would find out that I was still early stage and just not give any really serious consideration"	A0
	Difficulty in investors understanding the business concept	Investors won't invest if they do not understand the technology	"It's tough when you're looking for funding when you're in an area that became hard to explain, kind of a niche area"	C1
Completing the investment event	Complex documentation from investors	Understanding cap tables, Shareholder Agreements	"We had to get [well known auditors] in to sort out our cap table"	G0
	Complex legal documentation	Understanding legal terminology and completing legal documents	"Yes, form filling, chasing lawyers and trying to get the stuff finalised to get a cheque from EI, from the time of getting funding approval to getting the cheque in the bank and all the work and time that's spent in that process"	F0
	Complex documentation from EI	Completing detailed documentation.	"Enterprise Ireland want to do their due diligence on our technology and how it works"	A1
	Time delays negotiating terms of investor documents	Resource and cash-flow constraints at HPSU. Not focusing on business	"I would have taken the money from someone else because it was a stressful couple of months there waiting for the money to come in"	B0
Follow-on investment	Initial investment insufficient to complete product development	HPSU engages in 'services' work to get revenue instead of building core product.	"I wanted it to be a product company, but when you have revenue coming in from services you can't complain either about that" and "further investment means further equity dilution"	C0 and D0
	Each investor, incl. EI uses a different law firm	6 investors in a round meant 7 legal firms adding to complexity and delays	"Every time I want to bring in another tranche from EI, there are seven legal teams passing documents around in circles"	G0

Table 10: Key Challenges to Securing Investment Emerging from the Study

Data illuminating the extent of resource constraints within HPSUs and how it impacts product development and business growth are presented in the next section.

4.2 Exchange of Resources

RQ2 is based on activities concerned with exchange of resources between the HPSU and external investors depicted in the conceptual model and presented in Figure 2. The resource exchange activities represented in the conceptual framework are evidenced in the data and presented in Sections 4.2.1 and 4.2.2.

Figure 2: Pre-investment Resources

4.2.1 Resource Constraints Emerging from the Data

Unsurprisingly, the extent of resource constraints within HPSUs, before securing investment, was evident in the data. However, resource constraints persisted even after external investment was injected into the business. A summary of emergent resource constraints as experienced by HPSUs, prior to receiving the initial investment from external sources is presented in Table 11.

Constraints Identified in Data	HPSU Experience	UOA
Money to pay developers	"Frankly I had to fund it myself in order to bring the whole team together before outside investors"	A0
Cash to start the business	"Because I didn’t have any money"	B0
Product not ready to sell; no revenue	"It's the frustrating bit where you can't really sell a product because you don’t have a product to sell"	D0
Co-founders couldn't afford to quit their jobs	"I was still working in my old job and doing this part-time"	E0
Difficult to attract key employees to HPSU	"Like any start-up don’t have much to offer an employee because you don’t have the security and [all the benefits] What you can attract a young developer with, is stock options"	G0
Unable to hire key employees	"We identified kind of gaps in our knowledge, we needed some expertise, so instead of hiring full-time employees…we found people willing to work for us as a contractors"	A1
Acquiring essential technical infrastructure	"I mean at that time we not necessarily had all the infrastructure in place"	A2
Limited research and development capability	"There has to be a research and development arm to this business to come up with a product with IP"	C3
Private investor not secured so not eligible to get EI HPSU investment	"We still need to secure the remaining €XXX,000 from an external investor to draw down the EI offer [of investment]"	C0

Table 11: Pre-investment Resource Constraints

Resource constraints experienced by HPSUs prior to receiving the initial investment included; the lack of start-up cash, limited funds to hire skilled employees and insufficient technical infrastructure. CEOs opted for paying contractors to carry out essential product development work or other tasks within the HPSU, instead of hiring employees. Access to contractors provided HPSUs with flexibility in selecting the relevant human resources required during the early stages, as colourfully described by CEO (G0) *“It was like you’re the conductor of an orchestra but none of the people playing the instruments actually worked for you, you just call up the musicians you need”*. Other resource constraints restricted critical research and development activities required by HPSUs intending on developing intellectual property. For some HPSUs (B, C, and G), delays in securing private investment meant that they were not eligible to receive pre-approved investment from EI, until external private investment was received. A condition of EI investing in HPSUs is that they must see evidence that the HPSU secured an equal or greater amount of money from private investors or VCs.

The existence of resource constraints within the HPSUs persisted even after funding was secured from external investors. The data reveal the constraints were manifested by insufficient working capital, lack of funding to address the human resource requirements and lack of access to specialised equipment. These resource constraints arrested the advancement of product development and IP and hindered the HPSU in generating revenue from product sales. Resource constraints experienced by HPSUs after securing the initial investment are listed in Table 12.

Emergent Constraints	HPSU Experience	UOA
Insufficient working capital in the HPSU	"We had the bare outlines of our product. So, we had a team, we had a functioning company, but we nearly went to the wall a few times"	C0
Lack of people to scale-up the business	"We're trying to build out our sales processes now to take advantage of that sweet spot that we've identified"	A0
Small size of investments by angels and private investors. Unable to invest at next round	"There is plenty of people in Ireland that want to give you €50,000 or €100,000, but the reality is it's probably not enough follow-on money to be competitive on a global scale"	C0
Delay in commercialising IP due to cash constraints	"Being small in our industry is perceived as a weakness .... other players in this market might be watching us and waiting for us to fall over and [laughs] try to catch our IP"	D0
Delay in developing product based on IP due to cash constraints	"So, we were extremely cash tight and all things take a lot longer than you think and to save cash burn we decided to stop product development while trying to raise funds"	G0
Access to specialised equipment to develop market-leading products and win customers	"Specifically, as tools for our work, there's a really big price difference [20 times] in terms of the quality of speciality equipment and software"	B4

Table 12: Post-investment Resource Constraints

The data uncovers the frustration experienced by some CEOs anxious to increase sales and scale up the business. Continued resource constraints delayed the growth of the HPSU because the core product was not fully developed. *"We have a product at the minute, but it would want to be a lot more polished and you would have to sell a lot of it* (G1). In many cases, this forced HPSUs to do professional services work to generate revenue. This was regarded as a temporary cash-flow solution adopted by many CEOs until follow-on or second round funding was received, as explained by (C0) "*there was never going to be a hope in hell we would raise enough capital from service work, we would never be able to do it that way. We'd have needed to raise the €250,000 anyway to get EI money*".

4.2.2 Resource Acquisitions

The data confirm that both financial and non-financial resources flowed from investors to the HPSUs. Table 13 summarises the sources of financial investments received by the HPSUs from the time of company formation to the completion of at least one funding round. Note, VCs only participated in a second round of funding. All of the founders and many of the co-founders invested personal funds in their start-up. In some cases, the money invested by founders was provided by family members. Crowdfunding, a relatively recent funding source for start-ups, was used by one of the HPSUs in this study. Crowdfunding is described as the *"*practice of funding a project or venture by raising money from a large number of people who each contribute a relatively small amount, typically via the internet*"* (Oxford Dictionary, 2015).

Stage / Round	**Pre-investment**	**Round 1**	**Round 1**	**Round 1 and Subsequent Rounds**	**2nd and Subsequent Rounds**
Founder money	**Accelerator / Crowdfunding / New Frontiers**	**Angel Investor(s)**	**Investor Location**	**Enterprise Ireland (EI)**	**Venture Capital (VC)**
Founder		Private angel	Ireland	HPSU	Angel
Founder	Accelerator, New Frontiers	Private angel	International	CSF and HPSU	Angel
Founder	New Frontiers	Angel syndicate	International	HPSU	Angel
Founder		Angel syndicate	Ireland	HPSU	
Founder		Angel syndicate	Ireland	HPSU	VC
Founder	Crowdfunding, New Frontiers,	Private angel	Ireland	CSF and HPSU	VC
Founder		Private angel	International	HPSU	VC

Table 13: Source of External Investment Emerging from Data (UOA code not shown to protect identity)

All of the companies received investment from angel investors acting alone or in a syndicate group. Three of the angels were located outside Ireland. The seven HPSUs secured funding from Enterprise Ireland that matched the angels' investments, while two companies also secured the EI Competitive Start Fund (CSF). Three of the HPSUs secured second round funding from VCs. The VC investments, ranging from €200,000 to €300,000 were matched by similar amounts from Enterprise Ireland. The data findings support the conceptual framework by revealing that both financial and non-financial resources were exchanged between the external investors and the HPSUs. Table 14 lists resources exchanged between investors and HPSUs emerging from the data.

From Investor to HPSU	**From HPSU to Investor (VC /Angel)**
Capital to acquire physical, human resources (Y)	Equity in the enterprise, potential ROI (Y)
Access to investors' resource network (L)	Entrepreneurial resources; skills, agility (L)
Coaching and strategic advice (Y)	Firm specific skills of HPSU owner and team (Y)
Help in attracting additional finance (L)	Non-financial investments of HPSU owner: time, energy, commitment and sweat equity (N)
Refer key management staff (N) and non-executive directors (L)	Network of start-ups and new ideas (N)
Contacts with suppliers (N), customers (L)	Temporary transfer of CEO shares to lock-in the CEO (Y)
Socialisation in business norms (Y)	Preference shares based on convertible loan (Y)
Endorsement of enterprise business model (Y)	Board director position (Y)
Reputation of securing investment (Y)	Board observer role (Y)
Technical knowledge (N)	

Table 14: Resources Exchanged between HPSU and External Investors Emerging from the Data

The following legends were applied: (Y): emerged from data (N): unseen in data, (L): limited evidence in data.

Resources flowing from investors to HPSUs were broadly in line with those presented in Table 2, Paper 1 (Conceptual Paper). However, the data revealed some HPSUs provided investors with additional resources such as the transfer of CEO shares, convertible loans and board positions. External investment facilitated the HPSU to acquire specific resources needed to develop the business. Hiring staff to fill key technical and commercial positions was a priority for most of the HPSUs, as confirmed by a number of respondents: *“It meant I could hire people, developers from the UK and US* (B0), *“it’s all people in our costs base, they make up 85%”* (E0), *“It was mainly for people*” (F0). Key staff and the investment allowed the HPSUs to *“accelerate product development and IP strategies”* (D0), and *“get the system development under way”* (G0). Other CEOs reported *“It allowed us to start investing formally in our technology”* (A0) and *“Getting better equipment and our software licenses updated”* (B0). All of these resources were within the HPSUs control, once the investment arrived. However, the data reveals that some CEOs had expected to receive non-financial resources and benefits from investors. When choosing between investors, several CEOs spoke about looking for *“smart money”* (A0, D0, G0); investors who could provide finance and additional benefits to their fledgling business. CEO (G0) describes his rationale in choosing one VC over another:

> “So, we chose [VC1] in the end, even though they were offering less money, because we felt they knew the space. One of their first investments had been a company that was [similar business] and they got a massive exit. So, we felt they know the space and they talked up a lot about being able to bring people to the party in our space and that they would bring more than money, they would bring contracts and all that”.

The data reveal that other CEOs displayed similar logic in trying to select the *“smart money”* investors for their respective HPSUs. However, the research showed that for some HPSUs, those *“other benefits”* did not materialise or if so, then only to a limited extent. The data also provided evidence that the investors negotiated additional benefits and resources from HPSUs, the most notable being the temporary transfer of a CEO’s shares in the HPSU to the investor, as described by the CEO:

> “I had to divest my shares and have them re-vested over a 3-year period. That means giving over my shares to the VC and earn them back. I know that people can get very emotional over this type of condition set by VCs. But I didn't really mind as I have every intention of being here working for the company for the next 3 years. Because obviously they don't want me to leave the business. This mechanism is a way to anchor the founders into the company. Well, essentially, these people, the VCs are investing in me” (UOA code not shown to protect identity).

Another CEO disclosed that the angel investment was structured "as a convertible debt, so it's technically a loan. The angel has the option to convert to equity at a future funding round, at a preferred valuation" (A0). This CEO while acknowledging the non-financial supports received from investors, believes that benefits are stacked in favour of the investors when engaging with early stage businesses. Other CEOs supported this perspective as broadly evidenced in the data.

4.3 Sources of Competitive Advantage

RQ3 seeks to understand how the flow of resources from investors to HPSUs, as depicted in the conceptual model and presented in Figure 3, contributed to the development of internal sources of competitive advantage, from the HPSU's perspective.

Figure 3: Sources of Competitive Advantage

The data, drawing on CEO and group interviews, confirm that the initial investments funded activities such as the development of basic prototypes to facilitate some customer trials, to validate product performance and to better understand specific needs of customers and users. However, in general, the CEOs felt that the limited funds secured in the initial investment round were not sufficient to develop competitive advantage. They felt that HPSU based resources were still scarce and that this delayed the advancement of product development and in some cases, the potential to exploit IP. Several HPSU were hindered in generating revenue from product sales by not finalising the product development phase or having a market-ready product.

Many of the CEOs described time as a scarce resource and confirmed that hiring people into key technical and commercial roles in the HPSU released the CEO from some of the day-to-day tasks. The distribution of roles and tasks to a broader team allowed the CEO to increase their own expertise. This led to a shift in focus for many CEOs from short-term operational issues to longer-term planning, opportunity identification and goal setting. The newly acquired talent contributed to the development of skills and capabilities within the HPSUs. Enhanced capabilities in the technical and business functions of the HPSU proved critical for many of the case companies.

4.3.1 Competitive Advantage in the Context of HPSUs

All the CEOs spoke about developing products with specific features for known market gaps or finding customers for the HPSU product under development. Three CEOs (A0, F0, and G0) referred to this as the *"sweet spot"*. This is a specific usage of the HPSU's product where it delivers the greatest value to the customer. Other CEOs referred to this in terms of Customer Value Proposition or Product/Market fit and talked about how getting the product right would give the HPSU competitive advantage, in the market. When asked if the HPSU was *"better able to compete, after the investments"*, six of the seven CEOs said "yes" and expanded on their response as summarised in Table 15. Most CEOs claimed that overall the HPSU was better off and better able to compete in the market. Resources acquired that increased competitiveness included; technical and commercial capabilities in the form of people hired, feature-rich products that were better than competitors' products, intellectual property rights, and the confidence to compete for new business.

Agree	Impact of Investment on HPSU's Ability to Compete	UOA
Y	"We've been able to hire resources to build our platform and we're alive. All of the things that I've described to you in terms of what we received in capital and support and services have all led us to a very good position. There is no single negative"	A0
Y	"Yes, definitely. Overall the business is more competitive at this stage because of the investments. Simply, because of the IP. This is how we will compete it creates a distance between our company and all the competitors in the market. We were also able to make key hires, I believe that you should hire people who are better than you"	D0
Y	"Yes definitely. So, the technology that the team have built uses the latest technology and is very user-focused, whereas a lot of the other companies might have built their systems 10, 15 or 20 years ago. We've the foundation of all the tech we've built in the last three years and when we want to recreate a new product 70% of the work will be already done"	E0
Y	"As I said, we wouldn't exist without it. It was everything, it was patents, it was product development, it was sales, it was staff."	G0
Y	"I could hire people, so hire a lot more people quicker. The equipment as well and we moved here [new offices]"	B0
Y	"Clearly the answer is yes, so let's hire that sales person and some technical people because we know that money will be coming in. At a minimum it's a safety net that allows you to confidently commit to things. So, it gave us a full-time person focused on sales who was able to follow up and do more outbound work. And we hired developers"	F0
N	"I suppose, we hired an operations guy really, he's a very good guy and some went towards developing the backend as well. I think you would need a much bigger fundraise to be able to really compete"	C0

Table 15: CEOs' Perspectives on Ability to Compete as Emerging from the Data

HPSUs are constantly seeking external validation of their products and how they will be used in the market. External validation by customers acknowledging that the product addresses specific market needs, that are experienced by large numbers of customers (indicating it's a scalable opportunity), increases the value of the business and the credibility of the team, making the HPSU more attractive to future investors. The CEOs are conscious of the importance of projecting a positive image to prospective customers and investors, as exampled by (F0),

> "We sort of presented an image of [company name] that was bigger and bolder than the company actually was at the time and we felt we needed to do that in order to have competitive advantage, but I think it was having the investment and having gone through that process that allowed us to do that".

The data revealed that the CEOs having confidence in their vision for the HPSU, and projecting a positive image to employees, is important in retaining key employees and attracting new people, as emerged from group interviews (B and E).

> "The CEO had a clear vision of what he wanted from the business …. and he knew what he wanted to do, and he was just getting the people to do it. There has never been not complete confidence about the direction that this business is going and how the investment is going to happen. It's always been about building confidence. When it comes to the CEO we were told this is what's going to happen, it always happens" (B3).

While (E2) said that she was attracted to the work culture,

> "the huge reasons I came to work for [this company] was [the founder] said to me in my interview that it would be about fostering the culture you want to work in, that it's a start-up, it's small enough, you can create that atmosphere"

Given the important relationship between employees' technical and commercial capabilities and their impact on developing competitive advantage, it is not surprising that CEOs place such emphasis on projecting a positive image about the culture of the HPSU.

4.3.2 Investor Role in Development of Competitive Advantage

The data support the fact that investors played a pivotal role in providing funding to HPSUs enabling them to acquire resources and skills to develop sources of competitive advantage through people, products and intellectual property. Evidence emerged that some investors provided additional funds to HPSUs between funding rounds without specifying the price (equity required). In such situations, the money was required for critical cash flow purposes or to fund product delivery to a trial customer. The research demonstrates that for some HPSUs looking for *"smart money"* investors to provide non-financial benefits such as access to investors' networks, technical advice or staff referrals, there was limited evidence of the transfer of such benefits. However, when questioned about this, several CEOs admitted that they did not formally request such supports or in some instances believed that the HPSU had superior technical knowledge to that of investors.

5.0 Summary of Key Findings

The research objective is to "explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage". The focus of this study is from the perspective of the HPSU in receipt of the funds. The data presented in this paper support the application of resource-based view theory (RBV) in the conceptual framework to depict interactions between the HPSU and external investors and gives evidence to the exchange of resources between investors and the firm. The summary of the key research findings is presented in a structure based on the conceptual framework and the research questions. Additional themes emerging from the data are classified in alignment with the RQs, as summarised in Table 16.

RQ	Theme	Summary of Key Findings
Why do HPSUs engage with external investors to increase resource availability in the business?	Investor engagement: Opportunity recognition and goal setting Investor engagement Challenges to securing investment	HPSU goals are established based on founders' experience and market research. Attracting investors is a competitive and lengthy engagement process before offer of investment. Challenges to securing investment, include newness of HPSU. Complexity of investment documentation and founder(s) concerns over equity dilution delayed investment completion.
What impact do external investors have on resource availability within HPSUs?	Resource exchange: Resource constraints Resource acquisition	Pre-investment resource constraints in HPSUs evident Resource constraints persisted after initial investment HPSUs secure investments from multiple sources enabling them to acquire resources. Non-financial resources received from investors, but not to extent expected. Investors negotiate more benefits from HPSUs than anticipated.
How does increased resource availability within HPSUs contribute to the development of internal sources of competitive advantage?	Sources of competitive advantage: Business knowledge, physical, technical, social and human resources.	Resources acquired that increase HPSU competitiveness include: Technical and commercial capabilities in the form of people hired Feature-rich products that were better than competitors' products Intellectual property rights Confidence to compete for new business.

Table 16: Summary of Key Findings

5.1 HPSUs Engagement with External Investors

This phenomenon is aligned to RQ1, which is concerned with understanding the HPSU's motivations for engaging with external investors, from the HPSU/CEO perspective. The data confirm that HPSUs commence a process of engagement with investors to increase the availability of certain resources at HPSU level. The requirement for additional resources is directly related to goals established by the HPSU through a process of opportunity recognition guided by the founders' prior experience, up-to-date research on industry trends or through customer engagement. The goals of case HPSUs range from providing solutions to specific market challenges, to the commercialisation of intellectual property to longer-term strategic goals to dominate certain industry sectors.

The data confirm that while many CEOs believed that fund-raising was inevitable in an early stage business, the need to acquire resources to pursue business goals created the impetus to engage with external investors. The data reveal that the task of fund-raising was the responsibility of the CEO/founder. Ten (non-sequential) steps experienced by HPSUs in engaging with potential investors emerged from the data (Table 9). Several challenges of fund-raising experienced by HPSUs are uncovered in the data. These include, communicating a strong investment proposal, over-coming a lack of business credibility due to the newness of the HPSU, and being aware that they were competing with other early stage businesses for finite investment funds.

Several CEOs noted that fund-raising took longer than expected and even when an offer of investment was received, the HPSUs faced several challenges to complete the funding event. These challenges included dealing with complex documentation originating from prospective investors and Enterprise Ireland. Understanding investor terminology and navigating unfamiliar legal documents presented further challenges. In some cases, the completion of the investment event was delayed by disagreements over the level of equity that founders would have to transfer to investors as founders sought to resist the dilution of their ownership of the HPSU. The data answers RQ1 by providing evidence that HPSUs are motivated to engage with external investors to secure investment to acquire key resources to enable the HPSU to utilise those resources to achieve their business objectives.

5.2 Exchange of Resources between Investors and the HPSU

RQ2 is concerned with the impact of external investments on resource availability within HPSUs. The data support the conceptual framework by revealing that interactions between case HPSUs and a variety of potential external investors resulted in financial and non-financial resources flowing to the HPSUs. Examination of the data show that the HPSUs experienced resource constraints during the early stages of its existence, prior to receiving funding from external sources. Constraints suffered by the HPSUs included lack of start-up cash, insufficient funds to hire skilled employees such as developers and sales people, and the limited technical infrastructure. Delays in securing private investment restricted the HPSU in acquiring much needed resources. The data highlighted the fact that lack of private investment meant the HPSU was not eligible to receive pre-approved matched funding from Enterprise Ireland. Close examination of the data revealed that resource constraints persisted within the HPSUs after initial funding was secured from external investors. To the frustration of case CEOs, the continued resource constraints arrested the advancement of product development and IP and hindered the HPSU in generating revenue from product sales. HPSUs responded by engaging in professional services work to generate revenue to maintain positive cash flow.

The data showed that both financial and non-financial resources did in fact flow from investors to the HPSUs as summarised in Table 14. Investment sources included founders' own funds, angel investors, venture capital companies and Enterprise Ireland. A number of case HPSUs also secured lower levels of funding from start-up support programmes or a crowdfunding platform. Securing external investments enabled the HPSUs to acquire specific resources needed to develop the business, primarily key staff, but also equipment and software. In selecting certain angel investors and VCs, the CEOs expected to gain non-financial benefits for their fledgling business, in addition to the investments. However, the research revealed that non-financial benefits did not materialise for some HPSUs and were evident only to a limited extent for others, as summarised in Table 14. Close analysis of the data revealed that some professional investors imposed special conditions on their investment, for example, where a CEO was required to temporarily transfer their shares in the HPSU to the investor and would earn them back over a three-year period.

5.3 Sources of Competitive Advantage

RQ3 is concerned with how financial and non-financial resources received by HPSUs contribute to the development of internal sources of competitive advantage for the HPSU. This is aligned with RBV theory and supports the overall research aim to discover the impact of increased resource availability on developing internal sources of competitive advantage, as perceived by the HPSU. The data show that the initial investments were used to fund the development of prototypes for customer trials in order to validate product features and performance from a user perspective. As revealed by the data, CEOs believe that initial investment rounds were insufficient to contribute to the development of competitive advantage. Subsequent funding rounds were required to fund the development of specific product solutions for opportunities identified in the market, and to exploit the potential of intellectual property, to contribute to developing competitive advantage in the market.

The data confirm that six of the seven CEOs believed that the investments helped them to compete in a better manner in the market, as summarised in Table 15. Resources acquired that contributed to the development of competitive advantage included; staff with technical and commercial capabilities, feature-rich products that were better than competitors' products and addressed specific customer needs, and the development of intellectual property rights. Investors contributed to the development of competitive advantage in HPSUs by providing funding that enabled them to acquire critical resources and skills that could improve the HPSU's position in the market. The data proved that HPSUs acquired relevant resources directly and indirectly from investors and that these resources allowed HPSUs to compete better in the market as summarised in Table 16.

The author contends that this extends the application of RBV theory Barney (1991) to HPSUs and it makes a contribution to theory and the body of literature on financing and resource acquisition in early stage businesses (Kathleen M Eisenhardt, 1989). Additionally, the author contends that the findings contribute to practice by providing an understanding of why HPSUs engage with external investors and what type of investors are most suited to the HPSU's sector and stage of development.

6.0 Conclusion

This paper presents the findings of an interpretivist study utilising a multiple case study approach of in-depth interviewing and group interviews with personnel in seven HPSUs in Ireland. The research objective to: *explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage,* has been achieved. The findings have shown that HPSUs acquired resources directly and indirectly from investors and that the HPSUs configured these resources in a manner that afforded them competitive advantage in the market. This extends the application of RBV theory to early stage business such as HPSUs, and consequently it contributes to theory and body of literature on financing and resource acquisition in early stage businesses. A contribution to practice is made by providing an understanding of HPSU-investor engagement leading to increased resource availability at HPSU level. The researcher is conscious of a number of research limitations, mainly the limited number of case HPSUs and the fact that all were based in Ireland. While attempts were made to include female CEOs to this study, none were available within the timeframe of the research plan. The findings will be discussed in detail in the context of the research objectives, research questions and the literature in Section 3 of the DBA thesis.

Appendix A: Protocol initial telephone discussion with prospective case CEOs

1. Introduce myself, reference my email and letter of invitation to participate in my research. Ask if they are free now to talk about the letter.

2. Explain my own background of working with start-ups and early stage companies and the reasons that I am undertaking this research at WIT.

    - I have been working with start-ups, as an advisor, for 14 years. I am currently undertaking research to explore the impact that external investors have on the availability of resources (financial and non-financial) in HPSUs such as yours. I'm curious to know if resources acquired as a result of investment may have contributed to the development of competitive advantage within HPSUs such as yours. I would be very grateful if you were to get involved in this research as I feel that you could provide really valuable insights from the business owner / CEO perspective.

3. Explain that participation is entirely voluntary, and participants can withdraw at any time.

4. Tell them that I have seen their company name listed in the Enterprise Ireland Showcase directory as an EI HPSU approved company. Congratulate them on achieving HPSU approval. Ask if they have received private investment and drawn-down the EI investment funding.

    - If they have not received the EI funding, they are not eligible for participation in the research. Explain this to them, engage in polite conversation about their company and thank them for their time.

5. If they are eligible to participate, then specify my 'ask' of the CEO. If you were to agree to participate, I would be looking for your support with the following:

    - A face-to-face interview with you lasting about 1 – 1.5 hours. I propose to record the interview to facilitate transcription later. I will be happy to provide you with a copy of the transcription. Is that OK?

- And a group interview for approximately one hour with your team to explore their perspectives of what happened / changed as a result of the investment. Ideally, the group interview will take place a few weeks after my interview with you and can be scheduled to minimise disruption to your business e.g., at break times. Advise that this interview will also be recorded with the permission of the participants. Are you OK with that?

6. If CEO agrees to above, ask him/her to provide email addresses for co-founders and staff and suggest collecting these when we meet for the CEO interview.
7. Assure the CEO that all conversations and data collected by me about their HPSU will be treated with the strictest confidence. Advise that each CEO and group interview will be assigned a number/letter code anonymising the company, its location and everyone who participates in the research in order to ensure that their identities are not revealed during my analysis and write up of findings.
8. Advise that it is possible that the research findings will be published but that they will not be identified (as above).
9. Ask the CEO is they have any questions and address any concerns that they raise.
10. Ask again if they are willing to participate in a face-to-face interview and for me to have a group interview with their co-founders and staff to capture alternative perspectives. Advise that I would like to record these discussions for transcription later. If in agreement, tell them that their participation is greatly appreciated and thank them for their support.
11. Arrange a meeting time for the CEO interview and clarify location and directions if necessary.

Appendix B: Interview Prompt Questions

When you started the business, what were your aspirations / goals?

Have you ever been involved in a start-up before?

What industry sector are you in?

When did you begin to engage with external investors?

What prompted you to start this process?

Did you ever think that you could do it without investors?

Did you have a system for identifying and contacting investors?

How did you make contact with potential investors?

How many potential investors did you contact and how many physical pitches did you do?

Did you have a Pitch Deck? Did it change much along the way?

What type of investors did you contact – any FFF?

Did you take on debt?

Did your own knowledge of the industry and your networks assist you in getting funding?

If you were back at the start of the process of engaging with investors what would you do differently now?

How many investments did you take in?

Were shares diluted more in earlier rounds?

Were you attracted to any specific investor or investor type and if so why?

What resources or benefits had you hoped to acquire from the investors?

What resources were acquired as a result of these investments?

What else (resources) did you get from investors?

Was there anything that you expected to get from them but didn't?

Did you feel that you had more or less control of the business?

If you were back in time negotiating the terms of your first investment, what would you do differently?

What non-financial resources did the business gain from investors? Prompt examples.

How were business opportunities identified?

Do you feel that the business was better off because of the investment(s)?

Do you feel that the business was able to compete better? [How?]

What specific resources helped you to compete better?

Did these resources help you to compete more effectively? [How?]

Overall, do you feel that the business is more competitive as result of investments?

Is being small / new in itself a competitive advantage?

What is your Value Proposition?

How does the business generate revenue – what is the business model that makes money? Transaction based / transaction value based / licence deal?

Copy of Pitch Deck? Or other documents.

Did you notice much difference in Term Sheets from VCs Vs Angel /|FFF investors?

Were new classes of shares created at any funding round?

Were there any requests for investment repayments by Angel / FFF investors?

Appendix C: Initial 45 nodes

Nodes\\Thematic nodes - HPSUs Resources and CA

Name	Description
Ambition	Ambition or vision Personal or for the business
Angel investors	Angel, professional angel or private equity investors
Attitudes to risk	HPSU attitude to risk taking
Barriers to securing investment	Perceived barriers to securing investment. Complexity
Conflict amongst co-founders	Disagreements, different perspectives, goals,
Context	Context in terms of interviewee
Control	Internal locus of control (Lit) Willingness to relinquish partial control in lieu of equity based investment. Autonomy. General control
Customer engagement	Customer identification, communications, involvement in product development
Delays with funding	Delays/complexity in funding applications, approval and receiving funds.
EI HPSU unit	Enterprise Ireland High Potential Start-Up unit. Rules, communications.

Name	Description
Engaging with investors	Investor identification, pitches, communications pre and post money
External endorsement	Endorsement of HPSU team skills or product or services
Feeling appreciated	Feeling appreciated by employer / HPSU owner
Fitting the culture	Fit with company culture and colleagues
Founders experience and competencies	Career experience and competencies for the founders and early team
Goal setting	Business goals and objectives
Government	Government policy, incentives or activity
Innovation	Examples of innovation including IP developed
Interesting information	This node represents information that may be useful or interesting
Investor benefits	Non-financial benefits received from investors
Isolation	Feelings of isolation
Meaningful work	Work that employees regard as meaningful or leading edge. Attracted them to HPSU.
Need for investment	Reason to interact with investors

Name	Description
Need for resources	The HPSU's need for resources or assets
Networks	Networks and networking
Opportunity recognition	How business opportunities are recognised and evaluated (Lit)
Paranoia	Examples of the CEO or staff feeling paranoid
Personal skills and development	Personal development of the CEO. Upskilling. Dealing with investors and Board
Product Vs Services	The dilemma of selling services or developing scalable products
Product-market fit	The extent to which the product fits the needs of the market
Professional reputation	The reputation and experience of founders
Professionalising the HPSU	Examples of how the HPSU becomes more professional or business-like
RBV	RBV Resource Based View
Regrets	Regrets or disappointment by CEO or groups
Resource acquisition	Resources acquired as a result of the investment or from or through the investor(s)

Name	Description
Resource constraints	Resource constraints especially limiting development of CA
Sources of competitive advantage	What resources, financial and non-financial, actions or skills are regarded as sources of competitive advantage
Start-up experience	Start-up experience of founders or early hire employees
Strategy	Strategy including pricing strategy & business model
Stress	CEO founders and employees mentioned stress
Survival	Business survival is critical to early stage businesses
Uncertainty	Uncertainty about the future, markets, customers, revenues, survival
Understanding target market	Understanding the customer problem and how HPSU solution addresses it
Value proposition	Customer value proposition. The benefits of HPSU products or services to customers or users
Venture capital	Venture Capital company or VC

Appendix D: Key thematic nodes following data analysis process

Nodes\\Thematic nodes HPSUs Resources and CA

Name	Description
1. Barriers to securing investment	Perceived barriers to securing investment. Complexity
Conflict amongst co-founders	Disagreements, different perspectives, goals,
Delays with funding	Delays/complexity in funding applications, approval and receiving funds.
2. Engaging with investors	Investor identification, pitches, communications pre and post money
Angel investors	Angel, professional angel or private equity investors
Attitudes to risk	HPSU attitude to risk taking
Control	Internal locus of control (Lit) Willingness to relinquish partial control in lieu of equity based investment. Autonomy. General control
EI HPSU unit	Enterprise Ireland High Potential Start-Up unit. Rules, communications.
External endorsement	Endorsement of HPSU team skills or product or services
Venture capital	Venture Capital company or VC

Name	**Description**
3. Founders experience and competencies	Career experience and competencies for the founders and early team
Ambition	Ambition or vision Personal or for the business
Networks	Networks and networking
Personal skills and development	Personal development of the CEO. Upskilling. Dealing with investors and Board
Professional reputation	The reputation and experience of founders
Professionalising the HPSU	Examples of how the HPSU becomes more professional or business-like
Regrets	Regrets or disappointment by CEO or groups
Start-up experience	Start-up experience of founders or early hire employees
Survival	Business survival is critical to early stage businesses
4. HPSU Culture	Culture of HPSU, championed by the CEO
Feeling appreciated	Feeling appreciated by employer / HPSU owner
Fitting the culture	Fit with company culture and colleagues
Isolation	Feelings of isolation

Name	Description
Meaningful work	Work employees regard as meaningful / leading edge. Attracted them to HPSU
5. HPSU Goals	Business goals and objectives
Interesting information	This node represents information that may be useful or interesting
6. Investor benefits	Non-financial benefits received from investors
Product-market fit	The extent to which the product fits the needs of the market
Customer engagement	Customer identification, communications, involvement in product development
Innovation and IP	Examples of innovation including IP developed
Opportunity recognition	How business opportunities are recognised and evaluated (Lit)
Product Vs Services	The dilemma of selling services or developing scalable products
Strategy	Strategy including pricing strategy & business model
Understanding target market	Understanding the customer problem and how HPSU solution addresses it

Name	Description
Value proposition	Customer value proposition. The benefits of HPSU products or services to customers or users
7. Resource acquisition	Resources acquired as a result of the investment or through the investor(s)
8. Resource constraints	Resource constraints especially limiting development of CA
Need for investment	Reason to interact with investors
Need for resources	The HPSU's need for resources or assets
Sources of competitive advantage	What resources, financial and non-financial, actions or skills are regarded as sources of competitive advantage

Appendix E: Sample summary proposal document (provided by a CEO)

Company profile:
website
industry
Number of employees
Date founded

Contact Information:
Name Contact
Phone
Email

Financial Information (EUR):
Company Stage: (ex. full product ready/product development/beta customer etc)
Previous Capital:
Monthly Net Burn:
Pre-Money Valuation:
Breakeven forecast:
Capital seeking:

Management:
key employees

Advisors
Accountant, Lawyer, mentors.

Investors:

[Company Name+ Logo]

[[Add a short tagline to describe your business]

INTRODUCTION / BUSINESS SUMMARY
Provide a short (3-4 lines) description of your business (we sell/ develop a??). This section should grab the investors attention (the market is forecast at?? / existing clients are?? etc)

MANAGEMENT/RELEVANT EXPERIENCE
This is an important section; you should cover the relevant experience of the senior members of the team (naming roles and companies), demonstrate domain knowledge, and identify any gaps in the team.
Investors typically look for experience of establishing organisations (especially start-ups) and evidence of leadership abilities and credibility of the team. (e.g. this is our 2nd start-up in the sector).

CUSTOMER PROBLEM/OPPORTUNITY
Describe your target buyer's need or desire. Avoid technical terms and focus on explaining the problem/opportunity. Include details on target customers.

PRODUCT/SERVICES
Describe how you plan to address this need or opportunity. Concentrate on the benefits to the customer. List evidence that supports your assumptions such as beta trials/customers, sales, successful competitors.

TARGET MARKET
Describe your target market with as much detail as you can, based on your knowledge of your product or service. Explain why this is a market worth targeting.

CUSTOMERS
Describe your initial target customers and longer term.

EXECUTION PLAN
Describe how you plan to capitalize on the opportunity.
Summarize your sales, marketing, development and partnership plans.
Highlight milestones achieved to date e.g. product development, partnerships established, customer trials etc…

REVENUE MODEL/POTENTIAL RETURN
Describe your revenue model and expected profit margin. Demonstrate to the investor how you are going to make money for them.

COMPETITION
Name potential competitors and explain your competitive advantage over them.
Highlight recent VC funding of competitors. And remember that competition can also include customers doing nothing.

FINANCIALS
Describe the financial resources that you need to make the plan successful.
Explain how far the investment will take you and how you plan to continue from there. The numbers should relate to your revenue model.

Financials (€)	2017	2018	2019	2020
Revenues				
Expenditures				
Net Profit				

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SECTION THREE:

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

1.0 Introduction

The purpose of this research, as outlined in Section One, is to explore the impact of resource availability in high potential start-up (HPSU) businesses in Ireland, in the context of developing internal sources of competitive advantage (Alvarez, 2005; Barney, 1991; Foss, 1997; Mahoney and Pandian, 1992). The focus of the study is from the perspective of the HPSU in receipt of the external investment. A conceptual framework presented in Paper 1 of the Research Paper Series founded on resource-based view (RBV) theory (Barney, 1991; Barney *et al.*, 2001; Peteraf, 1993; Wernerfelt, 1984), was developed to illustrate the motivations of HPSUs and investors to interact and to exchange resources. The framework presented in Paper 1 as outlined in Figure 1, sought to conceptualise resource availability within the HPSU in the context of developing sources of competitive advantage with the intent of extending the application of RBV theory to smaller, early stage businesses.

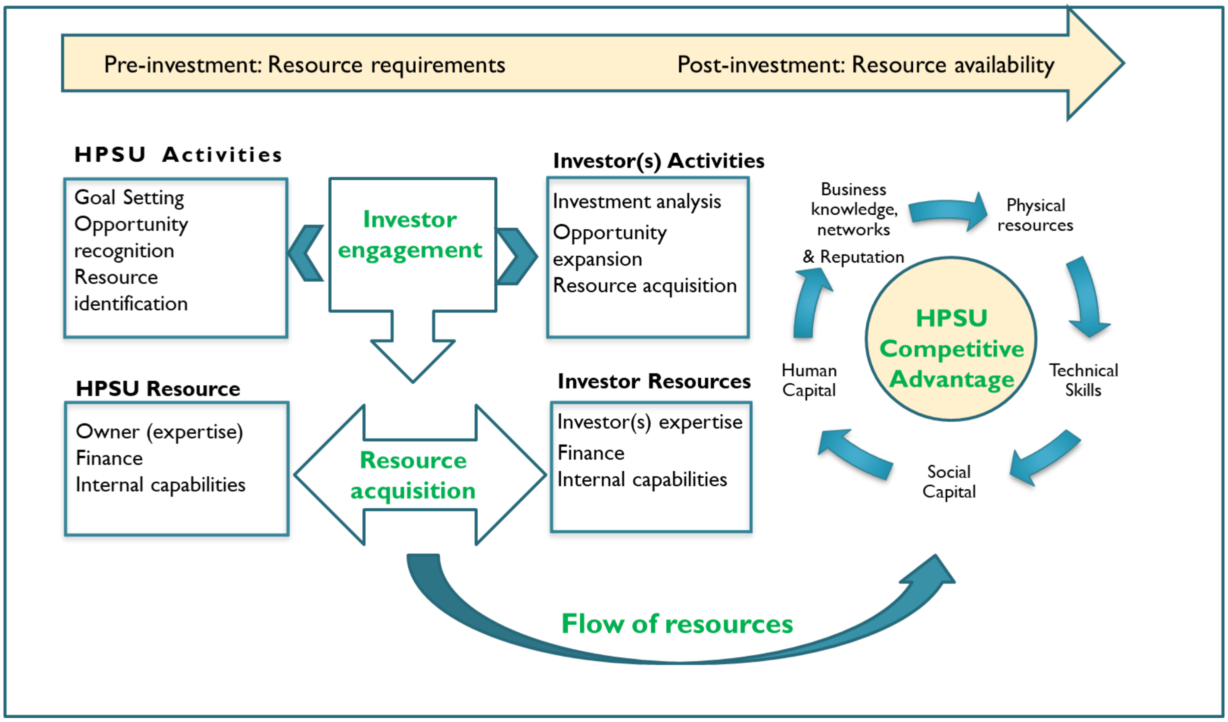

Figure 1: Initial Conceptual Framework - Resource Impact of External Investors on HPSUs

Following a review of extant literature, the research objective was crafted to "explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage". In supporting this research objective, three specific research questions (RQs) were articulated.

RQ1: Why do HPSUs engage with external investors to increase resource availability in the business?

RQ2: What impact do external investors have on resource availability within HPSUs?

RQ3: How does increased resource availability within HPSUs contribute to the development of internal sources of competitive advantage?

The research project commenced in October 2014. The researcher chose an interpretivist case-based research method for this study (Yin, 2013). A case-based research approach is highly suited to investigating a phenomenon in its natural (firm-based) context and is therefore appropriate for researching early stage businesses such as HPSUs (Curran and Blackburn, 2001). The primary data collection and analysis took place over a fifteen-month period from June 2017 to September 2018. This chapter draws conclusions based on the research project. Following a recapitulation of the research aim and objectives, a discussion of the research findings and extant literature is presented. A discussion of the research findings and the conceptual framework and emergent themes follows and sets the stage for the development of a refined conceptual framework.

The research findings support a case for RBV theory to be extended to a specific category of early stage business: high potential start-ups. Detailed contributions to practice of relevance to HPSUs, investors and state bodies that support entrepreneurs are articulated. The contributions to theory are outlined in terms of new areas of description and conditions for the extension of RBV. The chapter concludes with a review of research limitations and suggestions for further studies.

2.0 Discussion of Key Findings and Themes

The major findings from the research study are presented in Paper 4 of the Research Paper Series. The findings are clustered under three headings broadly aligned to the RQs: 1) Goal Setting and Investor Engagement, 2) Resource Exchange, and 3) Sources of Competitive Advantage. The findings presented in Table 16 of Paper 4 in the Research Paper Series are summarised in Table 1 for convenience. The findings broadly support the theoretical and business assumptions considered in the original conceptual framework while enriching our understanding of HPSU-investor engagement and the development of competitive advantage within HPSUs. This section discusses the research findings with regard to prevailing literature. The discussion is framed by the summary of research findings in Table 1. Adhering to this structure maintains a focus on emergent findings and helps to mitigate against potential bias as the researcher can be regarded as an insider in this space, due to his work with early stage businesses (Saunders *et al.*, 2009).

RQ	**Theme**	**Summary of Key Findings**
Why do HPSUs engage with external investors to increase resource availability in the business?	Investor engagement: - Opportunity recognition and goal setting - Investor engagement - Challenges to securing investment	- HPSU goals are established based on founders' experience and market research. - Attracting investors is a competitive and lengthy engagement process before offer of investment. - Challenges to securing investment, include newness of HPSU. - Complexity of investment documentation and founder(s) concerns over equity dilution delayed investment completion.
What impact do external investors have on resource availability within HPSUs?	Resource exchange: - Resource constraints - Resource acquisition	- Pre-investment resource constraints in HPSUs evident - Resource constraints persisted after initial investment - HPSUs secure investments from multiple sources enabling them to acquire resources. - Non-financial resources received from investors, but not to extent expected. - Investors negotiate more benefits from HPSUs than anticipated.
How does increased resource availability within HPSUs contribute to the development of internal sources of competitive advantage?	Sources of competitive advantage: - Business knowledge, physical, technical, social and human resources.	- Resources acquired that increase HPSU competitiveness include: - Technical and commercial capabilities in the form of people hired - Feature-rich products that were better than competitors' products - Intellectual property rights - Confidence to compete for new business.

Table 1: Summary of Key Research Findings

2.1 Impetus for Investor Engagement

Data collected and analysed relating to RQ1 reveal the HPSUs' motivations for engaging with external investors. Following a process of opportunity recognition, the HPSUs commenced engagement with prospective investors motivated by a need to increase the availability of resources within the firm. While several of the CEOs in this study understood that fund-raising was an inevitable step in the start-up journey, the findings confirm that it was the need to acquire resources for product development or securing customer trials, amongst other reasons, that prompted HPSUs to engage with external investors.

2.1.1 Opportunity Recognition and Goal Setting

For many early stage businesses, strategy development, planning and operational considerations are synonymous, where strategy is the *thinking part* and operational considerations lead to *actions* being taken by the business. Approaches to opportunity recognition in early stage businesses, such as HPSUs, are often a process of trial and error in what Nicholls-Nixon *et al.* (2000, p. 494) describe as "strategic experimentation". The case HPSUs, in an attempt to leverage maximum benefits from the limited available resources, engage in a process of opportunity recognition and action planning. This provides empirical evidence of similar findings by Alvarez (2005); Barney (1991); (Foss, 2011); Lin and Nabergoj (2014); Raley and Moxey (2000) who claim that opportunities identified by firms results in changes to resource demands within the business, especially if aiming to develop competitive advantage within their target market. The case HPSUs employ several techniques to discover opportunities for their respective businesses including, researching industry trends, customer engagement (either directly or through consultants) and networking within their target markets or with former colleagues (see Paper 4, Table 8).

The research findings show that the HPSUs adopt multiple approaches to opportunity recognition. The findings are aligned to prior works by Davidsson (1991) and Cunneen and Meredith (2007) who found that entrepreneurs display astuteness in opportunity recognition within a market, selecting the most appropriate opportunities for their company's capabilities. Specific approaches taken by HPSUs include looking for new geographic markets for a technology that has been proven in trials. This is described by CEO (A0), "so we look at geography, we have core market [segments] that we're targeting, so we're trying to zoom in on what we identified as a sweet spot within the [specific industry] sector". During the embryonic stage of a new business, an owner who possesses strong problem-solving and decision-making skills helps a business to "navigate through a wide array of problems ….

inherent in the development of new firms*"* (Alvarez and Busenitz, 2001, p. 759). The CEO of HPSU (D) is a highly experienced, technology-business founder and is a good case example of such decisiveness. He had huge confidence in the technology being developed, however he wanted evidence of market demand to show investors and therefore decided to outsource aspects of opportunity recognition:

> "So, I always knew there was an opportunity there and it was just a matter of pushing the scientists to develop it. We engaged the services of a sales consultancy company to assess the market to look at different industry verticals and to do a gentle outreach to a selection of potential client companies. The sales company were pleasantly surprised what came back, to the point where we had to stop the outreach, as the response was too positive" (D0).

This reflects Schumpeter's (1936) argument that entrepreneurs 'create opportunities' for their enterprises as opposed to being merely alert to opportunities that arise (Kirzner, 1993). This is similar to De Wit and Meyer's (2010) inside-out strategy development approach where entrepreneurs create the opportunities for their firms. Self-belief in one's own ability is a common trait amongst entrepreneurs; labelled in the literature as having a strong internal locus of control (Brockhaus, 1980; Timmons and Spinelli, 2004). Entrepreneurs with a strong locus of control believe that goals are accomplished due to their own capabilities, such as how they approach opportunity discovery or their superior technical skills and their actions such as strategy formation and implementation. In addition to (D0) who wanted "to build a business worth €100 million", several other HPSU CEOs can be described as exhibiting high levels of self-belief. For example, (C0) wanted "to develop an Irish company that could pretty much go all the way to IPO", and (A0) who exclaimed "I've got to be honest with you, we have big ambitions to make this company very successful and global". These founders' real-world experiences helped them to *think big* and create impacts in their target markets and disrupt how tasks are performed, similar to what Whittington (2012) calls *big strategy*. Six of the CEOs, in the study, can be regarded as high achievers as each one possessed at least one of the following characteristics: prior start-up founder experience, a PhD or MBA qualification, or participation on a sought-after start-up programme (e.g., New Frontiers or an accelerator). All the CEOs in this study are founders of their respective businesses and in six of the seven cases, they established the business with co-founder involvement. When co-founders' experience, educational attainment and the HPSU's ownership of intellectual property are considered, several of the case HPSUs can be regarded as rich in non-financial resources, prior to securing external investment. Some of the HPSUs possess a wealth of knowledge, experience and cutting-edge technology. These talents are advantageous when seeking new opportunities for the business or setting and prioritising goals. The founders have real world experience and demonstrated sound judgement in identifying opportunities that suited the HPSUs' capabilities. These types of benefits, real world knowledge, industry experience, and important business contacts are highlighted in Schramm's (2018) book *Burn the Business Plan: What Great Entrepreneurs Really Do*, as strengthening a firm's competitive position. Table 2 summarises founder/co-founder education and experience and HPSU ownership of intellectual property rights.

Qualification, Experience, Intellectual Property	Quantity	Holder
PhD	2	Founder (1) or Co-founder (1)
MBA	2	CEOs
New Frontiers Programme	3	Founder (2) or Co-founder (1)
Accelerator Programme	1	HPSU Founder
Prior Start-up experience	4	Founder (3) or Co-founder (1)
Intellectual Property Rights (IP)	3	HPSUs

Table 2: Qualification, Experience or Intellectual Property Attainment

The findings confirm that CEOs use their talents (and those of their teams) to identify opportunities for their respective businesses and to manage available resources to pursue business opportunities. This reflects themes in the entrepreneurial literature highlighting entrepreneurial traits and talents such as opportunity seeking, recognition and exploitation (Schumpeter, 1934; Shane and Venkataraman, 2000). There is significant variance in firm specific goals across the HPSUs, ranging from providing solutions to specific customer and market challenges, to the commercialisation of intellectual property, to longer term strategic goals, such as disrupting market norms in order to dominate certain industry sectors. The findings also reveal variance in how goals are expressed within individual HPSUs by the CEOs/co-founders and employees, and how goals are articulated for an external audience via a pitch deck or the CEO's LinkedIn profile (see Table 3). HPSU goals, as expressed by co-founders in the group interviews were generally aligned to goals expressed by the CEOs during in-depth interviews. They articulated goals around developing a business to exploit the potential of their technology or intellectual property rights (IP). In some HPSUs, the CEO and co-founders were not in agreement on strategies to be adopted in pursuit of goals. This is discussed in more detail in Section 2.2.1.

HPSU	CEO/Co-Founders	Employees	Pitch deck	LinkedIn
	Internal audience		**External audience**	
A	Disrupt market / industry / Go global.	Product focus: get it launched.	Disrupt markets by empowering B2B customers.	Empower B2B customers.
B	Become major player in their industry. Showcase their innovation.	Product focus: users will love products and developers like working on them.	Not available	Transform customer experience.
C	Build business to exploit new technology / Go	Product focus: Develop engineering capability.	Market disrupter. Make customers more efficient.	Solutions focused: increased efficiency & security.
D	Build a business to exploit IP / Go global.	Team arrived after goals established.	Not available	Launch leading edge technology. Dominate industry.
E	Build self-sustainable long-term business.	Develop products for changing customer needs.	Automating delivers greater customer efficiency.	Solutions focus: Automate complex tasks.
F	Build a business to leverage advanced technology.	Move from being a service company to a product company.	Sell new technology to high-value markets. Build firm to be acquired.	Solutions focus: augment customer productivity and competitiveness.
G	Build a business to exploit a disruptive innovation.	Find customers who need the innovative technology.	Commercialise Intellectual Property of innovative process.	Solutions focused: increase customer efficiency & competitiveness.

Table 3: Divergence in Expression of HPSU Goals

In contrast to CEOs' longer-term focus, goals expressed by employees, during group interviews, tended to have shorter-term or product focus. Employees spoke about the next product release, developing "cool features" (B4) and attendance at conferences, amongst other things. Co-founders present in the group interviews, having expressed longer-term goals themselves, did not interject when employees expressed short-term goals. It is reasonable to deduct that the CEOs and co-founders formulated long-term goals prior to hiring employees and instructed new employees to focus on shorter-term goal delivery, such as product development. This in itself is an example of resource-based view where the CEOs manage scarce resources (employees) to maximise their outputs (product development). There was also variance in how goals were communicated to external audiences. Goals communicated to potential investors, via a pitch deck, communicated the intention to gain a strong (competitive) position for the HPSU in the marketplace while excelling at addressing customers' needs. On the other hand, goals expressed by CEOs on their LinkedIn account tended to highlight customer benefits, using words like "empowering", "helping" and "transforming" customers.

2.1.2 Investors Engagement

Following the process of opportunity identification and goal setting articulated in Section 2.1.1, the CEOs and their co-founders began a process of identifying additional resources required by the HPSU to pursue those goals. While several of the HPSUs were rich in knowledge resources, they realised that the HPSUs required finance to fund resource acquisition (Barry *et al.*, 2012; Kelly, 2007). Nascent enterprises lack personal or firm-based assets to use as collateral against bank debt (Kelly, 2007; Mason and Kwok, 2010; Revest and Sapio, 2012). These claims are supported by the findings as none of the case HPSUs secured bank loans. Most did not even try to secure bank debt as they didn't expect to be successful, as articulated by one of the CEOs "in terms of the bank giving us any money, there wouldn't be much hope of it" (E0). All of the HPSUs decided to seek finance to fund resource acquisition from external investors who are aware of the risks involved in investing in early stage businesses (Mason and Kwok, 2010; Revest and Sapio, 2012). As the business founder and the person most concerned with financing the enterprise, the CEO was responsible for fund-raising in all HPSUs. This is an important task for a CEO as the potential investors will critique the value of the firm's expertise and the track-record of the business owner, their commitment to the business, and their ability to manage resources being transferred to the business (Franke *et al.*, 2008; Mason and Kwok, 2010). The precarious nature of early stage businesses is exemplified by several CEOs claiming that they relied on money provided by family and friends, to keep the business afloat until the HPSU secured external investment (E0, C0 and B0). This form of bootstrapping is not unusual for early stage businesses (Neeley and Van Auken, 2010; Winborg and Landström, 2001). Fund-raising was regarded as a critical, lengthy and often stressful activity by the CEOs who understood that they were competing with other HPSUs for investor money. The challenges of fund raising are recognised by Enterprise Ireland (EI), as acknowledged by Mr. Joseph Healy, Head of Enterprise Ireland's HPSU Division, speaking at the HPSU Class of 2017 Showcase event, in February 2018:

> "Access to finance remains a key challenge for early stage companies, and although there is VC funding in the market and a very active Halo Business Angel Network, there are still challenges for many of the founders in the room in raising their next round of funding to continue on their growth journey" (Healy, 2018).

The findings presented in Table 9 of Paper 4, reveal ten non-sequential steps experienced by HPSUs in engaging with potential investors which are reproduced in Table 4 for convenience.

Step	HPSU Action	Comment	HPSU Experience	UOA
1	Review lists of VC and angel investors	Available from Enterprise Ireland's website	"There was a decent amount of information online it was just which ones are relevant to the industry [and] the stage of the company we were in."	F0
2	Introduction letter / summary proposal	Sample summary proposal form enclosed (Appendix E)	"So, the New Frontiers I suppose helped educate us on the investment side of it, and I suppose out of that we pivoted…. But part of that was working on the investment proposal and product idea."	E0
3	Meet prospective investors at start-up events	Organised by angel networks, start-up programmes and	"So, I was spending a lot of time networking [with potential investors], and in fact the New Frontiers Programme was probably one of the earlier catalysers of my networking."	A0
4	Contact investors and seek a meeting	Introductory/ screening meetings with investor(s)	"[Angel investor] introduced me to a potential investor, who is obviously very well connected in the investor community, and from that then it just kind of snowballed."	B0
5	Investment proposal submitted	To VC contact person or lead angel investor	"And when we had that letter, we sent proposals to potential investors and raised [money] to match the EI money."	D0
6	Opportunity to pitch to prospective investors	CEO and co-founder attend pitch.	"I would say it took the guts of a year to write up a business plan and go around and pitch to all the angel networks."	G0
7	Investors consider investment and set conditions	VC or angel group drafts terms of their investment	"I mean we pitched in front of multiple groups of angel syndicates, VCs and individuals and then [the investors] picked us and sent us terms after that."	F0
8	Investor Term Sheet issued, and conditions negotiated	The HPSU, EI and investors may negotiate some of the terms	"And then it came to a point when we were going through negotiations with investors, we were just unsuccessful." / "I had already signed a term sheet with the Angels and so we were going through the actual investment agreement, so I knew I was close that Angel deal."	C0 A0
9	Investor's legal team drafts Agreement based on agreed Term Sheet.	Some HPSUs sought professional and legal advice. Some HPSUs reluctant to	"Very few apart from the top legal firm can understand the EI [investment] agreement, we used a financial expert, he couldn't figure out the share cap conversions." / "Because further funds would dilute the existing shareholder stake."	C1 G1
10	Documentation completed. Funds transferred to HPSU	The HPSU may have to pay investor's legal costs.	"Everybody has their own legal costs, yes. You will take your investor's legal costs in some cases and you pay them a management fee and you will pay them interest."	G0

Table 4: HPSUs-investor engagement process emerging from data

These steps were not the same for all HPSUs. CEOs who participated on an accelerator programme or on a start-up support programme such as New Frontiers felt that they were better prepared to engage with external investors and this meant that they skipped some of the investor engagement steps. See Table 5, for CEO perspectives on how their participation on a start-up programme assisted them in becoming investor-ready. Start-up accelerator programmes, a relatively new phenomenon, support early-stage, high-potential growth companies through equity-finance, education, mentorship and organised access to networks (Cohen and Hochberg, 2014; Hathaway, 2016; Miller and Bound, 2011). In this study, participation on the accelerator programme resulted in the HPSU surrendering eight percent equity to the entity running the accelerator. The accelerator process is intense and immersive and can provide participants with years' worth of experience in just a few months, making participating firms more attractive to investors (Table 5).

Programme	**Benefits of Start-up Programme for Investor Engagement Preparation from CEO perspective**	**UOA**
New Frontiers	"Then when we were on New Frontiers, the Programme Manager introduced me to a potential investor, who is obviously very well connected in the investor community, and from that then it just kind of snowballed, gave them the seed of my idea, got a prototype developed, some sales came in, then got introduced to a Venture capital company. I haven't really had to pitch to so many investors to be honest".	B0
New Frontiers	"New Frontiers I suppose helped educate us on the investment side of it. So, we had to have a pitch deck towards the end of New Frontiers. But part of working on the investment proposal and product idea was to try and look for I suppose people [investors] within our industry that understood the [market] problems, high net worth people to try and pitch one or two of those to get some initial funding together".	E1
New Frontiers	"I subsequently became a huge fan of the New Frontiers programme because while I might have been over confident going in, the time I spent with the mentors particularly reshaped my view of our business, you know, our sales position, our value proposition for customers and investors".	A0
Accelerator	"Then we did an accelerator programme. We were able to show the accelerator investment as part of our cap table so that helps [because of their reputation]. We actually signed our first B2B clients, while we were on that programme. And then that involved getting a letter from the accelerator talking up our [company] prospects. So, all trying to stack up the bits and pieces of credibility".	E0

Table 5: Benefits of Start-up Programmes for Investor Engagement Preparation

Participants on the EI funded New Frontiers programme receive €15,000 stipend over a six-month period without surrendering equity in their business. The findings confirm that participation on these programmes is viewed as a form of endorsement and enhances the credibility of the HPSU in the eyes of potential investors, in line with Hathaway (2016). This positive endorsement of start-up programmes will be of interest to EI who channel significant funds into these programmes and other initiatives to support high potential start-up businesses in Ireland. Three CEOs participated on start-up programmes, of the four who did not, one CEO was a prior founder, two CEOs held MBAs and one CEO attained a PhD (Table 2). Three of the HPSUs had registered Intellectual Property Rights. The findings provide evidence of Baum and Silverman's (2004) claim that investors are attracted to businesses holding IP, as borne out by HPSUs who had registered IP (D and F), and who found it easier to get a meeting with venture capital companies (VCs), who they claimed were "very receptive to having a meeting" (F0).

2.1.3 Challenges in Securing Investment

The numerous challenges encountered by the HPSUs during the fund-raising process are presented in Paper 4. Challenges were encountered when, 1) attracting investment, 2) completing the investment event and 3) looking for follow-on investment. A detailed summary of challenges experienced, contributing factors, and the HPSUs' perspectives of these are presented in Table 10, Paper 4. As evidenced in the data, pre-investment delays were attributable to lack of expertise, gaps in team skills, limited market knowledge and the general newness of the HPSU. The newness of the HPSU affected the credibility of the HPSU in the eyes of prospective investors:

> "They would find out that I was still early stage and just not give any really serious consideration" (A0).

During the early stages of a start-up, a time when some businesses often have a critical requirement for external investment, many experience difficulties in attracting new investment because the business is not deemed to be investment-ready by prospective investors (Kelly, 2007; Mason and Kwok, 2010; Revest and Sapio, 2012). This is corroborated in the findings as the HPSUs confirmed that fund-raising took longer than expected. The HPSUs struggled with communicating a strong investment proposal and claimed that over-coming credibility issues due to the newness of the business was a challenge.

> "It's tough when you're looking for funding when you're in an area that became hard to explain, kind of a niche area" (C1).

Further delays occurred as the HPSU laboured in completing complex documentation as part of the investment event. All of the CEOs claimed that the initial investment round was insufficient to fully develop the product offering or to finance the business to break-even. Even when an offer of investment was received, the HPSUs faced further challenges resulting in delays in closing the investment round. Both CEOs (F0) and (E0) evidence this:

> “From the day we first pitched to an investor until the time money hit our bank account was 16 months, which is quite a long time” (F0).
>
> “Form filling and chasing lawyers for updates and trying to get the stuff finalised to get a cheque from EI, from the time of getting approval for the funding to getting the cheque in the bank and all the work and time that’s spent in that process” (E0).

Some of the challenges were as a result of founders’ and their co-founders’ unfamiliarity with complex investment documentation, investment terminology and legal documents. In some cases, the completion of the investment was delayed by disagreements over the potential level of equity that founders would have to transfer to investors, as founders (A0, C1) sought to resist the dilution of their ownership of the HPSU due to concerns over loss of control. These reactions are aligned to prominent entrepreneurial traits referenced in the literature including; independence, the wish to be their own boss and to make their own decisions (Birley and Westhead, 1994), a high need for achievement, (McClelland, 1961; Rhee and White, 2007), and an internal locus of control (Brockhaus, 1980; Timmons, 1978).

Thus, the findings address RQ1 by describing CEO motivations to engage with external investors in order to secure funding to facilitate the acquisition of key resources such as people, technology and increased office accommodation that enable the HPSU to utilise those resources to achieve their business objectives.

2.2 Resource Exchange

RQ2 is concerned with resource constraints at HPSU level and the exchange of resources between external investors and the HPSU.

2.2.1 Resource Constraints

As envisioned, the findings expose resource constraints within the HPSUs during the early stages of their existence prior to receiving funding from external sources in support of prior studies (Kelly, 2007; Mason and Harrison, 2004; Revest and Sapio, 2012). The HPSUs talked about a lack of start-up cash, insufficient funds to recruit key employees, little R&D activity, inadequate technical infrastructure and threats to survival, providing empirical evidence of Gans and Stern's (2003) claim that resource constraints are especially acute in high-tech firms. Table 11, of Paper 4, provides a summary of pre-investment resource constraints emerging from the data. The findings reflect claims in the literature that resource constraints expose firms to vulnerabilities while limiting their potential to pursue business opportunities (Phillipson *et al.*, 2004; Raley and Moxey, 2000; Stinchcombe and March, 1965). Unfortunately, for the majority of the HPSUs resource constraints persisted even after the initial investment round. Case CEOs claimed that this hampered the advancement of product innovation and the development of IP. This had negative effects on overall development of the firms as it hindered the HPSUs in launching new products and generating revenue from sales that might get the business to break-even point. CEO (G0) illustrates the critical importance of investment to fund product development:

> "With no money you don't end up with a system. If you've no system you've nothing to sell, you have no revenue, you don't exist, so money is the life blood of the start-up, absolute lifeblood" (G0).

The literature documents several studies finding high failure rates amongst new businesses (Aldrich Howard and Ruef, 2006; Bruderl and Schussler, 1990; Ucbasaran *et al.*, 2009;

Rosenbusch *et al.*, 2013). These studies also note that financial resources protect early stage business from environmental shocks during the start-up phase. The current findings provide further empirical evidence supporting those prior studies by highlighting that cash conservation was a common theme amongst several HSPUs. This is evidenced by HPSU (C) who was fearful of running out of cash:

> "When you're in a position of desperation without cash, we've been watching every goddamn penny so far, that's the fear that we have, will we have enough cash and I think it's a fear for a lot of companies" (C2).

Several of the HPSU CEOs responded to the scarcity of cash by adopting shorter-term strategies such as engaging in consulting/professional services in order to generate revenue to maintain positive cash flow. This resulted in significant debate within several HPSUs (A, C and G) as CEOs and co-founders disagreed on strategies to be adopted in pursuit of goals. The CEOs and co-founders grappled with the dilemma of delivering professional services for readily available revenue or focusing on core product development. The HPSUs understood that the development of the core product/service might have a greater payback for the HPSU in the longer-term. Some HPSUs believed that by undertaking professional services/consulting work they were not creating value in the business and were therefore further compounding resource constraints. C0 claimed:

> "We're so buried in doing [consulting] work for others and so reliant on doing work for others that we're not flexible or agile in developing our own core product at all" (C0).

This is reflective of Makhbul and Hasun (2010), O'Regan and Ghobadian (2004), and Simpson *et al.*, (2012) each of whom claimed that resource limitations often result in the business adopting a short-term focus on operational issues, (exhibited as short-term revenue generation) rather than adopting a more strategic perspective.

2.2.2 Financial Resources Acquired

The findings confirm that financial resources flowed from external investors to the HPSUs. The literature reveals the two main sources of equity-based finance supporting the development of new and existing entrepreneurial businesses are venture capital firms and private (angel) investors (Ehrlich *et al.*, 1994; Franke *et al.*, 2008; Sapienza *et al.*, 1996). The findings confirm that the HPSUs secured investment from external sources such as private or syndicated angel investors, an accelerator, three venture capital companies and Enterprise Ireland, in exchange for equity in the businesses. In addition, three of the HPSUs acquired lower levels of non-equity funding from start-up support programmes and a crowdfunding platform. The typical staging of investments in young enterprises sees angel investors committing funds at an earlier stage than venture capital firms (Freear and Wetzel, 1990; Kelly, 2007; Mason and Harrison, 2004; Revest and Sapio, 2012). This staging sequence was reflected in the findings where angel investors invested in first round investment cycles, while the second round saw angels and venture capital firms investing (Table 6). EI provided funding to match these investments at each investment stage up to an agreed 'matched' investment amount. As evidence of the challenges of fund-raising, C1 admits, "We were struggling A few things we learned about fundraising in Ireland in particular, and dealing with VCs, can be very slow". Similarly, for some HPSUs the second-round investment cycle was really a delayed, continuation of the first round. This was because the HPSUs struggled to secure external investment equal to the 'matched' amount approved by EI's HPSU Division, with private investments often being received in tranches, over a period of up to two years.

Pre-investment	**First Round**	**Enterprise Ireland (matched funding)**	**Second / Subsequent Rounds**
Founders	Private angels	HPSU	Angels
Founders / New Frontiers	Accelerator International private angel	CSF and HPSU	Angels
Founder / New Frontiers	International angel syndicate	HPSU	Angel syndicate
Founders	Angel syndicate	HPSU	Angel syndicate
Founder	Angel syndicate	HPSU	VC and angels
Founder / New Frontiers & Crowdfunding	Private angel	CSF and HPSU	VC
Founders	International private angel	HPSU	VC

Table 6: Source of External Investment by Stage

Enterprise Ireland launched the Competitive Start Fund (CSF) in 2011 to support start-ups with potential for developing international sales. It is a form of bridging investment, where EI invests €50,000 for 10% of the firm's equity, until the firm secures their first external investment and qualifies for HPSU matched funding. The CSF investment values the company at €500,000 and the firm is required to raise €5,000 in private funds. The EI website describes the purpose of the CSF "to accelerate the growth of start-up companies that have the capacity to succeed in global markets, the fund is designed to enable those companies to reach key technical and commercial milestones" (Enterprise Ireland, 2017). The findings reveal that the CSF was particularly helpful for two of the HPSUs who did not hold IP rights or lacked strong market connections and therefore found fund-raising difficult. CSF helped them to develop their product for customer trials and to attract investment, as expressed by CEOs:

> "Then the Competitive Start Fund, we pitched for and we got that, which was €50,000, that was like our first demo product nearly paid for then" (B0).
>
> "So, we got the CSF and that go us to the €100,000 [investment] with him [investor]" (E0).

However, for HPSUs holding IP rights or securing early paying customers, and therefore having a significantly greater potential company valuation, the CSF was not regarded as an attractive investment proposition. This is because CSF establishes a company valuation of €500,000 and this is not considered to be sufficient to allow a HPSU holding IP to secure significant additional fund-raising for the anticipated costly product development and commercialisation process. This is especially true for Pharmaceutical or MedTech companies who require significant investment to fund customer trials and other tests to bring products to market. This is exemplified by (D0) and (A0) who explain:

> "It's that very delicate balance between not really having a [tangible] valuation and the juggling around how much equity to issue out for the investment. I didn't apply for Competitive Start as it wouldn't have been at the right valuation" (D0).
>
> "It doesn't quite work right, I can't give you 10% of my business for €50,000 when I'm selling it to another angel group at a higher valuation" (A0).

The Irish Venture Capital Association stated that early stage seed funding investments reached €131 million in Ireland in 2017 and suggest that venture funding is now a mainstream source of external investment for Irish start-ups and scaling businesses (IVCA, 2018). Despite the growing levels of venture funding in Ireland in recent years (€70 million in 2016), some case HPSUs were unsuccessful in fund-raising in Ireland and turned to their international networks. Three of the HPSUs secured funding from international angel investors. Reasons cited for their success in securing international investors, as opposed to Irish investors, included, the international investors understood the target market and the good reputation (example of non-financial resource) of the CEO amongst their professional network. The *Action Plan for Jobs* noted emerging alternative sources of finance available to start-ups such as crowdfunding, peer to peer business lending and invoice finance as potentially valuable sources of funding for businesses (Action Plan for Jobs, 2016). Only one of the case HPSUs availed of crowdfunding and was pleased to report that his fund-raising target from crowdfunding was over-achieved.

The findings clearly demonstrate Enterprise Ireland's leading role in the provision of funding to HPSUs, supporting Barry *et al.'s* (2012) contention that state provision of equity finance to businesses is practised by many governments, to ensure the availability of venture capital for early stage businesses. It also highlights Ireland's prominence in this practise compared to European peers. Such is the extent of Enterprise Ireland's direct and indirect investment in early stage businesses that EI is ranked among the Top-3 VCs in the World for seed investments (Action Plan for Jobs, 2016). In addition to the funding channelled through EI to start-ups, the Irish state provides investment funding to start-ups through other channels as summarised in Table 1, Paper 1, of the Research Paper Series. However, the findings reveal that finance was provided to HPSUs via only four of the six (literature-informed) sources suggested in Paper 1. Table 7 summarises the state supported sources of finance and numerates the number of HPSUs availing of funds from each source.

State supported Sources of Start-up Finance	Policy Intent or Activity	Occurrence (Quantity)
Strategic Banking Corporation of Ireland (SBCI)	Provide wholesale lending to institutions to lend to businesses.	N
Enterprise Ireland	Direct equity investments in early stage Irish companies.	Y (7)
Local Enterprise Offices	Advise on funding and provide small grants and loans.	Y (2)
Seed and Venture Capital Scheme	Leverage private capital. Support seed and VC funds.	Y (2)
HALO Business Angels Network	Support network of individual and syndicated angel investors who invest in early stage Irish companies.	Y (1)
Microfinance Ireland	Support early stage lending (up to €25,000).	N

Table 7: Take up of Irish Government Initiatives to support Business Access to Finance (APJ, 2016) - The following legends are applied: (Y) emerged from data (N) unseen in data, (no. occurrences).

The two funding sources not evident in the findings are both debt-based finance, provided by the Strategic Banking Corporation of Ireland and Microfinance Ireland. The reasons why these state-backed sources of finance were not accessed is not clear from the findings.

2.2.3 Non-financial Resources

External investments secured by the HPSUs enabled them to purchase resources such as highly skilled staff, or sophisticated equipment and specialised computer software required to develop the business. In line with research by Kerr *et al.* (2011), Mason and Harrison (2008) and Patel *et al.* (2011) amongst others, the HPSU CEOs claim that when offered money by different investors they tried to compare the investors' value-added benefits in order to select angel investors or VCs who could bring a range of non-financial benefits to their fledgling business. Investors can provide mentoring and guidance to investees and facilitate access to their business networks as a route to customer acquisition or investment. This is illustrated by (A0):

> "But my goal originally was bringing in smart money, right, bring in people who understand our industry, have a lot of contacts, can open up doors, accelerate our sales" (A0).

The provision of non-financial resources to early stage businesses by investors is described by Mason and Harrison (2004, p. 2) as resources such as "coaching and strategic advice to the management team, assistance in attracting additional finance, managers and non-executive directors and providing contacts with suppliers, customers and advisers". Interviews with CEO and others within the HPSUs discovered that while non-financial resources did flow to the HPSUs, certain non-financial benefits were not received to the extent expected by CEOs. Most notably, the transfer of technical skills, contacts with suppliers and referring staff did not occur at the levels hoped by CEOs. Table 8 summarises non-financial resources provided by external investors to the HPSUs.

From Investor to HPSUs	**Overall Perspective**	**Individual HPSU Experience**						
		A	**B**	**C**	**D**	**E**	**F**	**G**
Access to investors' resource network	Limited	L	Y	N	Y	N	Y	N
Coaching and strategic advice	Yes	Y	Y	Y	Y	L	Y	L
Help in attracting additional finance	Limited	Y	Y	N	Y	N	L	L
Source/refer key management or staff to HPSU	No	N	N	Y	N	N	N	N
Refer non-executive directors	Limited	Y	Y	N	Y	N	Y	N
Contacts with suppliers	No	N	N	N	N	N	N	N
Contacts with customers	Limited	Y	Y	N	Y	N	Y	N
Socialisation in business norms	Yes	Y	Y	Y	Y	N	Y	Y
Endorsement of enterprise business model	Yes	Y	Y	N	Y	Y	Y	N
Reputation of securing investment	Yes	Y	Y	Y	Y	L	Y	Y
Technical knowledge	No	N	N	N	N	N	N	N

Table 8: Non-financial Resources provided by Investors to HPSUs

The following legends are applied: (Y) emerged from data (N) unseen in data, (L) limited evidence in data.

It is not surprising that the HPSUs did not receive technical knowledge from investors given that several of the HPSUs possessed leading-edge technical skills that were unique or superior to those of investors. The findings indicate that angel investors were generally more supportive than VCs, with angel syndicate groups providing the highest levels of hands-on support. The advantage of syndicate groups of angels is based on the diversity of skills available within the syndicate versus the narrow skills repertoire of a lone angel investor. CEO (F0) recalled the range of supports offered to him and his co-founders by the syndicate that invested in their HPSU:

> “Look, we’ve got an accountant here and there’s a lawyer, there’s somebody with a project management background, there’s somebody who is CFO [Chief Financial Officer] and some corporates” (F0).

He noted that the syndicate was very forthcoming in offering practical assistance to the HPSU, on multiple occasions in areas such as project management and cost accounting while preparing quotations for larger (potential) contracts. One of the angels introduced a HPSU to a VC and other investors who subsequently invested in the business. The findings only partially support Sapienza’s (1992) claim, that added-value services provided by VC firms have a strongly positive impact on the performance of their investee businesses. Just one HPSU, Company B, was really satisfied with the support received from their VC investor. Interestingly, this HPSU indicated that they received more non-financial supports than the other HPSUs, as shown in Table 8. This may indicate that Company B is different to other HPSUs. Reasons for this anomaly may lie in how B0 projected the image of his HPSU and how he interacted with VCs, as illuminated by these quotations extracted from Paper 4:

> “I started to engage with external investors early on and the conversations actually helped me know what [kind of business do investors regard] is investable, so I changed our goals” (B0).

> "This new technology is going to be big and we don’t have much competition in the space and we have been early players and we’re very well known" (B0).

> “Then the Competitive Start Fund, we pitched for and we got that, which was €50,000, that was like our first demo product nearly paid for then” (B0).

B0 also claimed that two VCs and one angel investor were “*competing with each other*” to invest in his company because the technology was *“in a market that was hot space to be in”*. HPSU B attracted the attention of potential investors because the CEO knew what type of businesses VCs invest in, that their leading-edge technology had few competitors, and they had already received investment from the Competitive Start Fund to develop their demo product. It is reasonable to assume that the investors committed numerous non-financial resources to Company B because they believed in the potential of HPSU, the quality of its technology and the prospect of a significant return on their investment. The HPSU CEOs were surprised by the special conditions imposed by the VC firms on their company. The most extreme case was where one CEO was required to temporarily transfer his shares in the HPSU to the investor and would earn them back over a three-year period, subject to firm performance and conditional on the CEO staying at the helm. Two of the three VCs stipulated having a 'board observer' at board meetings instead of taking up a board seat. This was viewed negatively by CEOs who felt that the VC placed themselves in a position of influence while avoiding the fiduciary responsibilities of a non-executive director. The HPSUs believed that both VC and syndicate investors helped them in increasing the professionalisation of the HPSU through socialisation of business norms such as participation in board meetings with investors and preparing further investment proposals, in support of similar findings by Kerr *et al.* (2011) and more recently, Huang and Knight (2017), and exemplified in this research:

> "I think it has been really constructive, as we grew we have to introduce management and control systems and organisational structure, and I think that's really healthy and positive and it will help us scale more effectively. So, I think although obviously there's elements of we have to change how we're working, I think in the long run it's really healthy and actually very helpful" (B2)

Lone angel investors had a more casual approach to their involvement with HPSU investees. There was little socialisation of business norms or offers of assistance in the business as described by E1:

> "I suppose maybe our naivety being first time founders we probably expected a bit more or hoped for a bit more than we did get, but then we didn't ask" (E1).

Perhaps as novice entrepreneurs (E0 and E1) did not feel that their relationships with their investors was strong enough for them to 'ask' for resources. This is in line with Huang and Knight's (2017) view that a positive relationship needs to exist between investor and investee before non-financial resources flow to the investees. Consequently, E0 found an alternative source of advice:

> "I'm involved in a small network of start-ups and we have a WhatsApp group, and we would regularly message each other back and forth for advice on that, and I find myself to be going to there [for advice] well before we would go to investors for advice" (E0).

Some HPSUs felt that their investors were concerned about their own reputations and were cautious about endorsing the HPSU's capabilities during the early stages:

> "I think them [angel investors], they're like everyone else in that they want to see this live and working before they really extend this out to their network" (A1).

Three of the HPSUs stated that Enterprise Ireland provided practical support for their business in the form of market intelligence via EI's overseas offices and introductions to prospective buyers at events organised by EI. Others regarded EI as being hands-off, except for sending information about masterclass workshops and networking events.

The findings support the conceptual framework (Figure 1, Section 1.0) by confirming that interactions between case HPSUs and a variety of potential external investors resulted in both financial and non-financial resources flowing to the HPSUs. Resources gained by the HPSUs resulted in easing of time constraints of CEOs in support of Kelliher and Reinl (2009) and Phillipson *et al.* (2004)'s findings. This allowed them to think more strategically and focus on developing competitive advantage in their respective HPSUs, for example, exploiting IP or allocating human capital to the development of leading-edge products and services. These strategies are discussed in the next section.

2.3 Sources of Competitive Advantage

RQ3 is concerned with how financial and non-financial resources received by HPSUs contribute to the development of internal sources of competitive advantage for the firm. This is aligned with resource-based view theory (RBV) and supports the overall research aim to discover the impact of increased resource availability on developing internal sources of competitive advantage, as perceived by the HPSU. RBV is concerned with how strategically valuable internal resources within an organisation, such as a HPSU, are coordinated to develop key capabilities that contribute to the development of competitive advantages for the firm (Barney, 1991; Foss *et al.*, 2008; Peteraf, 1993; Wernerfelt, 1984). As noted in the previous section, resources can be financial and non-financial assets owned by, or available to, the HPSU. In support of prior research by Makhbul and Hasun (2010), O'Regan and

Ghobadian (2004), and Simpson *et al.* (2012), the findings illuminate how CEOs were continuously trying to maximise benefits derived from scarce internal resources in the HPSUs to develop key capabilities. Day (1994, p. 38) describes such capabilities as "complex bundles of skills and collective learning, exercised through organisational processes that ensure superior coordination of functional activities". However, in order to develop competitive advantage for the enterprise, Brown and Eisenhardt (1995) claim that these capabilities must be continuously adjusted and refined by the HPSU. More recently, McGrath (2013) discussing fast-moving competition, claims that firms need to develop a portfolio of advantages to retain competitiveness in the transient economy.

CEOs argued that initial investment rounds were insufficient to support the development of competitive advantage and subsequent investments were required to fund the development of specific product solutions and to exploit the potential of intellectual property. This provides empirical evidence to Kerr *et al.'s* (2011) claim that entrepreneurial businesses flourish when market opportunities are matched with financial and non-financial resources. Overall, the HPSUs reported gains in competitive advantage by optimising the resources and capabilities within the business, notwithstanding that some strategies necessary to build competitive advantage were delayed due to limited cash reserves. Restrictions on cash reserves were compounded by long lead times from the offer of investment to the receipt of cash. These findings are aligned to Phillipson *et al.'s* (2004) research who reveal that some actions desirable for building competitive advantage in the business are delayed due to resource availability. Table 9 summarises various resources contributing to the development of competitive advantage (CA) as perceived by HPSUs, and also notes the source of the resource as internal (HPSU) or external (investors or Enterprise Ireland). In support of the conceptual framework (Figure 1, reproduced in Section 1.0), six of the seven CEOs confirmed that the external investments helped them to develop sources of competitive advantage, as detailed in Table 9. Resources acquired that contributed to the development of competitive advantage are classified as tangible and intangible, plus human and social capital.

Resource Category	Resource	Resource Source	Developing HPSU CA	HPSU Quote
Tangible Resources	Working capital for product dev., equipment, software Offices, IP /legal fees.	External - Investor funds	A, B, C, D, E, F, G.	"So really the investment is what got the company on its full commercial footing"(F0). "All that infrastructure in place. Cloud technology turned out to be a great enabler for our business model" (A2). "Now we have a big area there where we can work in teams, we're able to do a better job for our customers" (B3). We have to register the IP, it's €2,000 a country" (G0).
Intangible Resources	1) Intellectual Property 2) Founders' experience 3) Founder/ HPSU reputation perceived by Investors	Internal - HPSU	1) D, F, G. 2) A, B, C, D, E, G. 3) A, B, C, D, F, G.	1) "We've 2 patents granted...and have 13 other global patents pending This is how we'll compete" (D0). Develop the technology ...get industry recognition you can show to the next investor" (G0). 2) "We developed this technology ourselves, its proprietary technology and I'd explain how it works. People love that because they want to work with the guys who are the experts in the field" (F0). / "I 've seen a lot of policy documents and industry experts talking where the [tech] world is going" (C0). 3) "This new technology is going to be big and we don't have much competition in the space and we have been early players and we're very well known" (B0). "It's future proofed and some of our customers say, 'you're very far ahead of the pack' in some of the things we are doing" (C2).
	Reputation for securing investment and EI support perceived by customers	External - Investor funds	A, B, C, D, E, F, G.	"To have competitive advantage, but it was having the investment" (F2). / "For example, for big Irish companies, the big thing [for them] was that we had got the HPSU investment cos that was kind of a guarantee or a security or a certification from EI" (C2). "We're offering them a patented solution that'll make their products better, it gives them a competitive advantage and they realise that" (D0).
Human Capital	Technical skills (employees) Commercial skills (employees) CEO time (strategic focus)	External - Investor funds	A, B, C, D, E, F, G.	"We couldn't have done it without the team" (A0). It gives us advantage on conquering the partners. We are like a fast pilot boat chasing big tankers" (A2). "It's the people you can hire are more important because they give you the competitive advantage" (B0). "More experienced staff made a difference, particularly on the [user interface]. We've people who worked on multiple similar products in much bigger companies" (B4). "So, being small and nimble I suppose we out-manoeuvred the bigger companies. We were out-manoeuvring them on being nimble, agile and being very creative technically" (E0). "It gave us a sales capacity.... a full-time person focused on sales who was...able to do more outbound work" (F0). "It paid for salaries and it meant you could think in a strategic fashion rather than in a reactive fashion and this allowed us to take a bigger picture view" (C1).
Social Capital	CEO/Founder networks	Internal – HPSU	A, B, C, D, E, G.	"I have a good network internally in EI and they were very keen to invest" (D0). "We got people from multinational companies overseas where I have contacts, the engineering talent there is fantastic" (C2)
	Investor Networks	External- Investor	A, B, D	"Someone with a global network with experience about being through this in the past themselves. [Mr A. in VC A] was ideal" (D0). "One angel investor referred the VC to us as well" (B0).

Table 9: Resources perceived by HPSUs as Developing Competitive Advantage (CA)

2.3.1 Tangible Resources

Tangible resources acquired or developed by HPSUs, as a result of securing external funding, included the following, working capital, specialised equipment or software and professional services such as legal fees and costs for registering intellectual property. HPSU personnel claim that these resources contribute to the development of competitive advantage in their respective HPSUs by funding product development and the recruitment of staff with specific technical and commercial skills. Having sufficient cashflow is regarded as critical, by CEOs, to support the business until it generates revenue from product/service sales:

> "This is a long sales cycle working directly with the [customer]. It takes a year to sell them and it takes another nine months to implement, so we have to have a long runway" (A0).

Entrepreneurial authors Steve Blank (2013) and Eric Ries (2011) promote a philosophy of customer buy-in aligned with lean start-up principles. They claim that a key focus for start-ups should be around target customer engagement to achieve optimal product-market fit. This is developing and refining products or services that provide the best solution to fit the customers' problems and needs. The HPSUs were conscious of the benefits of delivering just what the market requires, even if it is a basic version of the product or service. This basic version is referred to as a minimum viable product (MVP) by Blank (2013) and Ries (2011). Several of the HPSU instigated a customer feedback loop to ensure that products/services being developed were what the market required. A0 recalls, "we kept getting into, you know, details of the product features, (C1) would help me put the dots together, I'd go back to the [customer]". This process ensured that products or services were not developed in isolation and that the customer received the features that they valued most.

2.3.2 Intangible Resources

The most valuable intangible, firm-based, resource for three of the HPSUs was intellectual property rights. IP proved to be a competitive advantage when seeking funding from external investors and also in the development of feature-rich products that were better than competitors' products and addressed specific customer needs. Co-founder D1 highlights the significant competitive advantage of product differentiation derived from their IP:

> "I think that it makes our company unique. The marketplace is crying out for this [solution] and a lot of companies have been working on this for years, but they've been unsuccessful, so this patented technology, our product, due to the nature in which it's employed [by customers] ticks all these boxes for the market" (D1).

For other HPSUs, the CEOs' and other founders' experience was a source of competitive advantage as prospective industry customers valued their significant industry knowledge, prior start-up reputation, or deep domain knowledge of specific technologies. E0 describes how founders' experience helped them to win business:

> "We pitched a large American company and we were competing with large multinational software vendors and the feedback from that [pitch] was that we had the best product demonstration and [most] knowledgeable pitch. I suppose from a competitiveness and technology basis that was a validation of us, our company" (E0).

Prospective investors also valued the founders' and the HPSU's capabilities recognising that it gave the HPSU competitive advantage in the market as revealed by B0, "We have been early players and we're very well known". For several HPSUs, the benefits of achieving HPSU approval from Enterprise Ireland should not be under-estimated as a source of competitive advantage:

> "A lot of companies, for example big Irish companies when we told them we were HPSU status that was a big kudos, their finance department actually got in contact with me and their whole idea was to have a partnership with an Irish company, but they wanted to be sure that we won't be gone out of business in 6 or 12 months" (C2).

The findings demonstrate that intangible resources, especially those that can be protected from imitation or replication by competitors, that are embedded in the HPSUs' ways of doing business, for example R&D and customer engagement, are robust sources of competitive advantage.

2.3.3 Human Capital

Interestingly, two HPSU CEOs, who attended New Frontiers programmes in different parts of Ireland, broadly made the same statement that "it's better to be creating jobs than looking for one" (B0, E0). Human capital increases firm capabilities of discovering and exploiting opportunities and to acquire other valuable resources such as finance and physical assets, (Baum and Silverman, 2004; Cooper *et al.*, 1994; Sohn *et al.*, 2006; Unger *et al.*, 2011). Several HPSUs stated that the lack of managerial and commercial capabilities restricted firm growth initially. All of the HPSUs cited hiring talented employees, funded by external investment, as being instrumental in developing competitiveness in their HPSU. In Barney *et al.'s* (2011) *The future of resource-based theory: revitalization or decline?* they review the development of RBV since Barney's 1991 seminal paper and acknowledge the positive impacts for firms that can attract, retain and motivate human capital, describing this as a source of competitive advantage. Case CEOs and co-founders were unanimous about the benefits of increased human capital as a result of securing external investment as illustrated by (B0) and (F2):

> "It's not only the money, it's the people I have as a result of the investments I knew I got quality techies who could deliver what I was planning…. it's the people you can hire are more important because they give you the competitive advantage" (B0).
>
> "Two things that were key, in terms of winning customers, were the depth of scientific expertise in our team and then our own knowledge of the industry and the fact that we had been in the industry for quite a number of years" (F2).

A highly valuable resource to the HPSUs is the knowledge, skills, prior career experiences and networks of the founders when leveraged in identifying and exploiting new opportunities for the firm. This provides empirical evidence to research on cognitive aspects of entrepreneurs, linking the entrepreneur's experience to opportunity exploitation to generate competitive advantage (Baron and Ensley, 2006; Ucbasaran *et al.*, 2009). For many of the HPSUs, the CEO's time seemed to be a scarce non-financial resource. The findings revealed that the HPSUs were restricted in developing expertise and sources of competitive advantage within the HPSU until the second round of investment was received. The second-round investment enabled some CEOs/founders to delegate technical and commercial tasks to skilled employees, releasing them to focus on business strategy:

> "I suppose, our CEO has put all his own time and effort into it by the time the investment came in, then I came on board at that stage where we're taking it from the lab to get it to commercial ready, sales ready and the investment was critical to do that" (D1).

The CEO of that HPSU believed that the investment enabled them to hire highly talented people to sell to sophisticated international customers:

> "We were able to get to the point where we could release out the sales people into business development activity…. it's quite a technical sale, they are selling to B2B customers who are very knowledgeable, you know, a globally educated person, with for example, masters level education, they could be engineering or product development people" (D0).

G0 understood that he was competing with other employers who were offering benefits such as a company car or health insurance, to attract talented staff critical to the HPSU in order to exploit IP and increase the HPSU's competitive advantage. He revealed his strategy:

> "You can attract a young developer with stock options and if he/she believes in the technology or gets excited about it, then he/she can do fairly well financially [from the share/stock options]" (G0).

Greenbank (2000) claimed that a business owner's mind-set influences the culture of the firm and significantly affects the potential for business growth and the range of strategies selected in pursuing that growth. Several CEOs spoke about the importance of hiring people who would fit into the culture of the HPSU highlighting the risks of hiring someone who would not fit the culture of the HPSU:

> "I have refused some really quality people here because they just wouldn't fit in with the team. If you get one bad person here, you will end up losing four of your good tech people" (B0).
>
> "So, when we were interviewing, obviously it came down to 'can they develop? and what's their work like?'; but a huge factor we always took into account was will they fit with our team" (E0).

It wasn't just the CEOs who had concerns about new hires fitting in, employees in HPSU E, shared their worries in a group interview, "when we heard new people were coming in, it was important that people don't come in and just totally change the mood in the office or the culture".

2.3.4 Social Capital

Social capital is sometimes discussed in similar contexts to human capital on the premise that firms who invest in human capital also invest in social capital (Bosma *et al.*, 2004; Unger *et al.*, 2011). Social capital can provide firms with access to human capital such as technical or business knowledge or desirable skills. The development of social capital has strong relevance with CEOs and founders of small businesses who need to develop ties with stakeholders including investors and customers (Bosma *et al.*, 2004; Brüderl and Preisendörfer, 1998; Pennings *et al.*, 1998). Huang and Knight (2017, p. 96) claim that a positive relationship between investor and investee "precipitates the exchange of valuable resources that contribute to the growth of the venture in the long term". This was evidenced in the data as three of the HPSU CEOs leveraged their relationships with their external investors in order to access the investors' networks. This access further increased the HPSUs' social capital and directly contributed to HPSUs securing further investment or making contact with international customers. This access to finance was regarded by these HPSUs (A, B and D) as a source of competitive advantage as it provided the HPSU with further access to investors' money critical to fund product and company development, and to securing paying customers who transferred revenues to the HPSU. The HPSU CEOs believed that investors helped to augment the professionalisation of the HPSU through socialisation of business norms such as participation in board meetings and meetings with funding bodies. HPSU CEOs who participated on start-up programmes claimed that their networks expanded through fellow programme participants, programme mentors and facilitators, in addition to personnel at Enterprise Ireland.

CEOs and founders also leveraged their own professional networks to develop sources of competitive advantage by exploiting access to investors, technical staff (scientists and developers), commercial staff, funding from EI and other investment sources as evidenced by the following:

> "I knew the industry well enough that ... I was able to overcome that [start-up] credibility gap because they already trusted me" (A0).
>
> "I would have gone through the network of people, so, my own network would have brought people to us" (C0).

> "I have quite a good network of business contacts that helped me to raise finance and to cover various other challenges" (D0).
>
> "I've over ten years' experience in the [specific] industry; there are people I can use" (E0).
>
> "In my last life, I've helped so many people down through the years and there's a great network there with the research community" (D1).

Several of the HPSUs can be considered rich in non-financial resources. While not specifically described as 'social capital' by the HPSUs, the CEOs and founders possess social capital in the form of specialised knowledge about specific market or industry sectors, scientific procedures or leading-edge technologies. Prospective investors and customers recognise and value these HPSU-based resources resulting in the firms enjoying positive differentiation versus their competitors in the market. HPSUs leveraged this differentiation to secure investors and to create unique products and services that afford them competitive advantage in the market.

In support of the conceptual framework, the findings confirm that strategically valuable internal and external resources, such as tangible and intangible resources plus human and social capital did contribute to the development of competitive advantages for the HPSU. While the findings did not signal the existence of specific growth strategies to compete in the market place, all of the HPSUs were generating revenue from international sales, albeit at varying levels. From a HPSU perspective, six of the seven HPSUs confirmed gains in competitive advantage as a result of securing external investment and access to investors' networks.

2.4 Challenges Experienced by Female Entrepreneurs when Seeking Funding

As noted in Section 2.2.1 of Paper 4, six of group interview participants were female. All of the CEOs who participated in the in-depth interviews were male. Three of the eighteen HPSUs, invited to participate in the study, had female CEOs. The Enterprise Ireland *HPSU Class of 2014 Showcase* directory indicates that eighteen percent of HPSUs supported are 'female led' (Enterprise Ireland, 2015, p. 4). The absence of female CEOs, in this study is a consequence of their availability to participate. Two of the short-listed HPSU female CEOs while expressing interest in this research, were unavailable to participate within the required timeframe. However, their absence is not critical to the study from a sampling perspective as the female voice was captured in the group interviews. It is worth noting that the term 'female led' can be misleading. Enterprise Ireland records a company as being 'female led' if a female owns at least 25% of the equity and holds a management position in the company, even if the CEO is male, according to information provided by EI directly to the researcher (Enterprise Ireland, 2018). Additionally, statistics shared by EI show that female managers are more prevalent in the food sector (24% female led) than high-tech sectors such as software and services and MedTech and Pharmaceutical (16% female led). Consequently, female CEOs in these high-tech sectors are estimated at between two and three percent.

As noted previously, female founders are more prevalent in food and beverage sectors than high-tech sectors, the focus of the study. A number of organisations are working to increase the numbers of females founding technology companies in Ireland. In recent years, EI increased their efforts in encouraging and supporting female entrepreneurs. In 2012, just eight percent of companies supported by EI were 'female led'; this increased to eighteen percent in 2014. TechIreland are also active in their efforts to increase the number of female founders. Niamh Bushnell, CEO of TechIreland, interviewed in the *Irish Times* newspaper, claims:

> "It's about encouraging women to seek co-founder roles in early-stage companies and encouraging more women to set up their own companies" (Bushnell, 2018).

Contemplating this anomaly of investment in female/male led early stage businesses, I recalled my reflections as a practitioner-researcher as illustrated in this April 2018 extract from my reflective log:

> I attended a lecture in WIT this week [April 19, 2018] entitled *Gender and Equity Crowdfunding* by visiting Professor Dr. Jörg Prokop, of Oldenburg University, Germany. I was pleased to meet with Dr. Prokop afterward the lecture to discuss his experience of female entrepreneurs and funding for high tech enterprises. I was interested to hear that his colleagues' research discovered that some female founders, in Germany, appoint a male CEO

> in order to increase the potential of the company to raise higher levels of funding from private investors and VCs (Prokop, 2018).

This prompted me to look at funding levels received by Irish female led early stage companies. Aside from the imbalance in the number of females versus males founding technology businesses, I discovered that Irish female founders and co-founders receive significantly less funding than their male counter-parts. TechIreland is tracking the number of female led (founder or co-founder) businesses in Ireland and the levels of funding secured. Some studies on gender differences claim that female founders are more risk averse than men (Barber and Odean, 2001; Deo and Sundar, 2015). The TechIreland database indicates that 17% (similar to the first-cut sample short-list for this research) of the 1,873 Irish based technology businesses in their database are female led businesses (TechIreland, 2018). Additionally, they claim that female founded start-ups receive considerably less funding, than male founded companies. When all public and private funding sources are included, the average funding raised by female founded companies is €1.1M versus €2.4M raised, on average, by male only founded firms (TechIreland, 2018). This disparity increases significantly when private funding, especially VC funding, is measured. *The Irish Times* technology journalist, Adrian Weckler, reported recently that just five percent of available venture capital in Ireland was secured by firms founded or co-founded by women, in the previous twelve months (July 2017 to June 2018), claiming there was no breakthrough for ambitious female led technology companies seeking significant levels of funding (Weckler, 2018). When the size of the funding round is measured, Weckler (2018) states that, in the period 2015 to 2018, the average investment round in a male-led company was in the range of €5m to €6m, while female led firms secured a fraction of this at between €500,000 and €1m, on average. To further emphasise the imbalance, he notes that several of those (female led) companies had male chief executives. This female/male funding anomaly is not unique to Ireland. An EY report of 2,766 CEOs of companies across twenty-one countries found that 52% of high potential female led companies have no external funding (EY, 2018). The report entitled *Is the X chromosome the X factor for business leadership?* also discovered that 20% of female CEOs of companies with turnover of €1M to €3M have no fundraising plans compared to 3% of male CEOs. Interestingly, the report states that 30% of the female led companies had growth aspirations of greater than 15% in the next year compared to 5% of their male counterparts despite difficulties in accessing investment capital (EY, 2018).

Low levels of female entrepreneurship and externally secured funding success are common themes internationally. Governments in Europe, the US and Australia, amongst other nations, have developed policies and initiatives to increase the rate of female entrepreneurship. The success of such initiatives varies by country. The Global Entrepreneurship and Development Institute produces a Female Entrepreneurship Index (FEI) to measure the success of such initiatives, scoring countries out of 100 marks. The FEI tracks the entrepreneurial environment ecosystem and individual aspirations of female founders across 77 countries and focuses on improving the conditions for the development of high potential female entrepreneurs. Ireland ranks 11th in the 2015 FEI with a score of 64.3, up from 16th place in 2014. The top three countries in 2015 were USA (82.9), Australia (74.8) and United Kingdom (70.6). It is interesting to see Australia ranked in second place in consideration of the following (September 2018) extract from my reflective log:

> After presenting my working paper [on this research] at the IAM [Irish Academy of Management] conference earlier this week, I attended a keynote address by Prof. Carol Kulik on gender equality initiatives in Australia. She talked about how Australia, which has a poor historical record on gender equality, implemented several policy initiatives, including a quota system, in recent years, which were now bearing fruit (Kulik, 2018).

Irish policy makers can be optimistic that greater focus on initiatives to support female entrepreneurship will also bear fruit in the form of increased levels of female founders; higher funding rounds secured by female led HPSUs and increased employment in the Irish economy.

2.5 Reflection on Resource Based View Theory (RBV) and HPSUs

Several authors consider the resource-based view as the dominant theory in strategic management, making it relevant to business planning in small firms (Acedo *et al.*, 2006; Kelliher and Reinl, 2009; Newbert, 2007). Two key streams of RBV are prominent in the literature, the first, as a strategic management tool used by firms to analyse strategic options

Wernerfelt (1984) and the second, and of relevance to this study, as an entrepreneurial framework used to analyse sources of competitive advantages of an enterprise (Barney, 1991; Barney *et al*., 2001). RBV has attracted the attention of multiple authors over the years. The inputs and insights from cognate disciplines such as economics, sociology, strategic management and entrepreneurship have enriched RBV and broadened its application. Foss *et al.* (2008) attribute several important contributors to RBV theory including Dierickx and Cool (1989); Peteraf (1993); Rumelt (1997); Wernerfelt (1995). Other significant contributors to the overall development of RBV include, Alvarez and Busenitz (2001), Conner and Prahalad (1996), Prahalad and Hamel (2006) and Priem and Butler (2001). The confluence of their perspectives has aided the evolution of RBV (Barney *et al.*, 2011) which has become one of the most significant theories within organisational sciences according to Kellermanns *et al.* (2016). As evidence of this claim they point to the current popularity of Barney's (1991) and Wernerfelt's (1984) seminal RBV papers on *Google Scholar*, and suggest that RBV is being "leveraged with greater frequency in entrepreneurship and it is becoming increasingly influential" (Kellermanns *et al.*, 2016, p. 27).

Despite the influence of RBV, Kellermanns *et al.* (2016) believe that RBV needs to be further adopted for the field of entrepreneurship and that contextual conditions are important for the application of RBV to entrepreneurship. This research extends the application of RBV to the entrepreneurial environment of small firms by describing the contextual environment of HPSUs and how they organise their firm resources to develop sources of competitive advantage.

The key assumptions of RBV, germane to this study, are that HPSU businesses, restricted by resource constraints, organise scarce resources within the firm, engage with external investors to acquire additional financial and non-financial resources, and organise firm resources to develop sources of competitive advantage. The findings illustrate that case HPSUs organised available resources creatively to maximise benefits derived for the business. This is in line with Lin and Nabergoi's (2014) research that links entrepreneurial creativity to resource constraints where the firm responds to constraints by creatively using their available resources. The relevance of RBV as an entrepreneurial framework has been increasing as researchers acknowledge that entrepreneurial founders and key employees are valuable, rare, inimitable and non-substitutable resources available to the firm (Akio, 2005; Foss, 2011; Kellermanns *et al.*, 2016; Teece, 2012). The findings of this study emphasise the role of founders, as a resource to the HPSU, in attracting investors to the firm, in acquiring additional resources, in engaging with key customers and in guiding the development of competitive advantage. As resource-based view theory continues to evolve and extend its application to new avenues of entrepreneurship certain cautions must be observed. Authors such as Barney *et al.* (2011), Foss (2011), Kellermanns *et al.* (2016) and Kraaijenbrink *et al.* (2010) endorse the broader application of RBV with caveats that the contextual conditions of application and the boundaries of use are adequately specified. These conditions are met in the current study as demonstrated in contributions to practice and theory, outlined in Section 4.0.

2.6 Reflections on HPSU CEOs

A popular image of a technology start-up founder is that of a confident, high-energy, tech-savvy whizz kid, in their twenties. However, data from a recent US study discovered an entirely different reality; the average age of a successful start-up founder was found to be forty-two years, with less than one-percent of successful founders being in their twenties (Azoulay *et al.*, 2018). The study of 2.7 million start-ups between 2007 and 2014 was drawn from US Census Bureau data and it identified successful companies as the top 0.1% of companies achieving the highest growth rates. Their research found that the older founders (those in their forties) had more industry experience, knowledge and contacts and considered these as contributory factors to the firms' success. Founders having prior experience in the same industry as the new business were 125% more successful than founders from a different industry (Azoulay *et al.*, 2018). This reinforces the value of the intellectual resource of the CEO. The profile of founders in the US study is very similar to the findings of the current research as presented in Table 10.

Category	US firms Average Age	Research findings Age Bracket
High tech founder age	43	40 - 49
VC backed firm founder age	42	40 - 49
Patented firm founder age	45	35 - 45

Table 10: Average founder age US (Azoulay *et al.*, 2018) versus current study

Five of the HPSU CEOs/founders were in the 40 to 49 age bracket, while two were in the 30 to 39 age bracket. Three of five HPSUs that secured VC funding had founders in their forties, while neither of the two HPSUs with founders in their 30's secured VC funding. Two HPSUs with founders in their forties had registered IP while one HPSU with a founder in their 30's had registered IP, giving a slightly lower average age that the US study. These findings provide further evidence to the claim made in Section 2.1.1. that CEOs in the current study, can be regarded as high achievers, placing them on par with US peers. However, this accolade and the positive self-image, projected by all participant HPSU CEOs clouded the personal vulnerabilities expressed by some individual CEOs. During the in-depth interviews, some of these founders opened up to the researcher about sources of stress in performing the role of CEO. However, when these CEOs were asked to approve the interview transcripts, a few of them edited or deleted sections of their interview, because they felt they sounded negative or petty, others asked for their comments to be watered-down. I respected their wishes by removing contentious sections from the transcripts. However, I later reflected on their comments and added my own thoughts in the reflective journal that I maintained during the research project as noted in this November 2017 reflective log extract:

> Four of the CEOs talked about the sacrifices that they have made to launch their new businesses. These included paying salaries to co-founders while only paying themselves some money for expenses, how several CEO paid technical or sales people more than they paid themselves and how CEOs worked long hours and weekends on a regular basis. While I was not entirely surprised by these comments, I was surprised at the personal and emotional impact of these sacrifices on the lives of the CEOs in addition to the monetary sacrifices they made. Some of the notable comments made by the CEOs include:
>
> "We don't own a house and won't any time soon"
>
> "I am doing a lot more work than, you know, my co-founder and I feel he/she wouldn't mind that much if I left the business"

> "I'm earning a lot less now than I was at [former employer]
>
> "We had to postpone our wedding, because we can't afford to get married"
>
> "I haven't been on a holiday in at least five years"
>
> I had not considered these sacrifices previously or the personal impact on the lives of company founders. Several of the CEOs had significant industry experience and relevant real-world knowledge. I had not anticipated that they could be so economically and emotionally vulnerable, at this stage of their lives.

When talking about being subjected to financial constraints for extended periods, one CEO suggested that banks might provide bridging finance to HPSUs while they wait for completion of investment rounds (see Recommendations for Practice, Section 4.3). Another suggested that successful Irish companies might [get tax incentives to] buy equity in start-ups businesses to release cash to founders. Asked if they thought the business was "better off overall having received the investment", six of the seven CEOs admitted the business would not have survived without the external investment, as summarised in Table 6, Paper 4. Despite their concerns about business survival or their own personal finances, none of the CEOs mentioned the word *failure* during the interviews. This resilience in dealing with challenging situations is among the traits typically associated with entrepreneurs and is evidenced in the research (McClelland, 1965; Palmer, 1971).

3.0 Research Conclusions and Refinement of Conceptual Framework

This section discusses the emergent findings in the context of the initial conceptual framework and extant literature.

3.1 Development and Refinement of the Conceptual Framework

At the commencement of the current study, the researcher developed a preliminary conceptual framework (Figure 1, Section 1.0), informed by pertinent literature and underpinned by RBV. The framework depicted interactions between HPSUs and external investors to increase resources availability at HPSU level. The framework sought to conceptualise resource availability within the HPSU in the context of developing sources of competitive advantage with the intent of extending the application of RBV theory to smaller, early stage businesses. The initial conceptual framework reflected resource availability at both HPSU and investor level as informed by the literature and summarised in Paper 1, Table 4, reproduced in Section 1.0 of this chapter, for convenience.

The initial conceptual framework reflected activities such as HPSU opportunity recognition, goal setting and resource identification at the pre-investment stage (RQ1). It also depicted HPSU-investor engagement motivated by the HPSU's need to acquire resources (RQ2). It then conceptualised how the acquisition of financial, technical, social and human resources contributes to the development of sources of competitive advantage (RQ3). The initial conceptual framework serves as a starting point on the trajectory from the original, literature informed framework, to the data-informed refined framework as presented in Section 3.3.

Criteria	HPSU	External Investor(s)	Literature
Expertise	Owner-based expertise. Limited time to develop new expertise.	Offers sectoral level experience. Business knowledge and expertise.	Barry *et al*., (2012), Mason and Harrison (2004), Revest and Sapio (2012).
Access to Finance	Limited to owner funds, bank debt and informal sources initially.	Wider access to finance plus value-added services.	Barry *et al*., (2012), Mason and Harrison (2004), Mason and Kwok (2010), Sapienza (1992).
Internal Capabilities	HPSU owner skills & domain knowledge. Innovation focus.	Physical, Human, Social capital; technical skills, various experts. Networks. Entrepreneurial orientation.	Cooper *et al* (1994), Kerr *et al*. (2011), Simpson *et al.* (2012); Wiklund & Shepherd (2005).
Opportunity	Constrained by resource availability. Opportunity recognition. Proximity to market.	Expanded opportunities via physical, human, social assets and technical skills provided to HPSU.	Nicholls-Nixons (2000), Phillipson *et al.* (2004), Raley & Moxey (2000), Timmons and Spinelli (2004).
Goal Setting	Focused, niche based. Primarily dependent on organic growth.	Enhanced, sectoral view; investment analysis. Growth potential expanded.	Brockhaus (1980), Foss (2011), Kelliher and Reinl (2009).
Resource Access	Limited resource availability. Constraints restrict development of competitive advantage.	Supply finance for resource acquisition. Access to non-financial resource enhances potential advantage.	Ehrlich *et al.* (1994), Kerr *et al.* (2011), Jain & Kini (1995), Lerner (2000), Raley and Moxey (2000).

Table 11: Resource Availability at HPSU and External Investor Level

3.2. Summary of Research Conclusions

While much of the criteria included in the initial conceptual framework remain valid, contemplation of the research conclusions necessitates that several refinements to the conceptual framework are required to reflect the emergent activities at HPSU and investor level. To aid the refinement of the conceptual framework, themes illuminated in the findings, in tandem with conclusions extracted from the data and discussed in Section 2.0 are summarised in Table 12, to exemplify findings that support extant literature and those that enhance the literature.

Themes	Sub-theme	Authors	Findings supporting existing literature	Emergent findings enhancing existing literature
Opportunity Recognition and Goal Setting	Process of opportunity recognition, goal setting	Alvarez (2005); Barney (1991); Lin and Nabergoj (2014), Raley and Moxey (2000).	In order to leverage maximum benefits from the limited available resources, HPSUs engaged in a process of opportunity recognition, goal setting and action planning.	HPSUs employed multiple techniques for opportunity discovery: researching industry trends, customer engagement (directly or through consultants) and networking with founders' former colleagues.
	Locus of control	Brockhaus (1980), de Vries (2002), De Wit and Meyer (2010), Timmons and Spinelli (2004).	Self-belief: goals are accomplished due to founders' capabilities, approach to opportunity discovery or superior technical skills.	Belief in self and HPSU underpinned by prior achievements: start-up experience, PhD / MBA qualification, or endorsement of being selected to join sought-after start-up programme or accelerator.
Access to Finance	Bank debt	Barry *et al*. (2012), Kelly (2007), Mason and Kwok (2010)	HPSUs lacked personal or firm-based assets to use as collateral against bank debt.	HPSUs didn't even try to secure bank debt as they didn't expect to be successful
	Investor engagement	Kelly (2007), Mason and Harrison (2004), Revest and Sapio (2012).	HPSUs sought finance from external investors who understand investment risks in new businesses.	Fund-raising was regarded as a critical, lengthy, iterative and often stressful activity by CEOs who understood they were competing with other HPSUs for finite investor money.
		Mason and Rogers (1997) Revest and Sapio (2012).	Potential investors analyze the value of HPSU-based expertise and CEO's track record and ability to manage resources.	CEOs who participated on a start-up support programme or accelerator were better prepared to engage with external investors.
	Challenges in securing investment	Douglas and Shepherd (2002), Mason and Kwok (2010).	Fund-raising took longer than expected as HPSUs struggled to communicate strong investment proposals and over-coming credibility issues due to their newness.	Some HPSUs with critical requirement for investment experienced difficulties securing investment because firm not deemed investment-ready by prospective investors.
	Locus of control	Brockhaus (1980), Timmons and Spinelli (2004).	Some HPSUs resented the loss of control resulting from selling equity to investors as some wanted to be their own boss, especially at the early stages.	Completion of the investment was delayed in HPSUs as some founders negotiated the level of equity dilution amid fears of relinquishing control to investors.
Resource Availability	Resource constraints	Phillipson *et al*. (2004), Raley and Moxey (2000), Revest and Sapio (2012)	Resource constraints exposed the HPSUs to vulnerabilities (cashflow and survival and limited their potential to pursue certain business opportunities.	Resource constraints persisted after initial investment and had negative effects on overall firm development. Delayed HPSUs launching new products and generating revenue from sales that might get the business to break-even.

Resource Availability	Resource constraints	Aldrich and Auster (1986), Bruderl and Schussler (1990), Gans and Stern (2003).	HPSU founders accessed additional short-term financial resources (from friends, family and founders) to protect against environmental shocks during start-up phase.	Founders' dilemma of delivering consulting services for immediate revenue, while delaying R&D or increasing efforts to secure investment to fund development of core product/service with greater long-term payback.
	Financial resource acquisition	Franke *et al.* (2008), Mason and Harrison (2004), Sapienza *et al.* (1996)	HPSUs secure investment from external sources, private or syndicated angel investors and venture capital companies.	Prior to securing private and VC investment, HPSUs received funding from government sources, start-up programmes and crowdfunding.
	Non-financial resource acquisition	Ehrlich *et al*. (1994) Mason and Kwok (2010), Phillipson *et al.* (2004).	Investors' value-added benefits and non-financial benefits were not received by HPSUs to the extent expected.	Angel investors were more supportive than VCs. Angel syndicate groups provided highest levels of hands-on support due to diversity of skills available within the syndicate.
Developing Sources of Competitive Advantage		Barney (1991), Foss (2011), Perteraf (1993), Wernerfelt (1984).	Financial and non-financial resources received by HPSUs contributed to development of internal sources of competitive advantage.	Six of the seven CEOs confirmed that external investments and non-financial resources received helped them to develop sources of competitive advantage.
		Brown and Eisenhardt (1995), Foss (2011), Makhbul and Hasun (2010), Priem and Butler (2001).	CEO continuously tried to maximise benefits derived from scarce internal resources in the HPSUs to develop key capabilities to support development of competitive advantage.	Some founders brought their own technical expertise to the HPSUs. These skills were improved through customer engagement that helped to develop innovative products and services.
		Kellermanns et al., (2016), O'Regan and Ghobadian (2004), Perren (1999).	Investments helped put HPSUs on commercial footing, funded key enabling technologies and IP registration to support development of competitive advantage.	The combination of advanced technology, intellectual property protection and highly skilled employees enabled some HPSUs to create unique products and services.
		Blank (2013), Day (1994), Ries (2011), Simpson *et al.* (2012)	Several of the HPSU instigated a customer feedback loop to ensure that products/services being developed were indeed what the market required.	Some HPSUs working closely with target customers developed unique feature-rich products or services that disrupted aspects of their industry.
	Culture of the HPSU	Foss (2011), Greenbank (2000).	The HPSU CEOs' mind-set influenced firm culture and significantly impacted growth potential and strategies adopted.	CEOs placed importance on hiring people who would fit the HPSU culture claiming that staff not fitting the culture could impede growth and competitiveness.

Table 12: Findings that Support and Enhance Extant Literature

The overarching conclusion is that HPSUs are not typical early stage firms in that they are not resource poor in all categories. The HPSUs can be regarded as rich in non-financial resources such as founders' experience, skills, Intellectual Property and valuable connections via founders' networks. Therefore, the HPSUs have potential that is curtailed by limited financial resources and that potential is accelerated through the injection of external investment.

3.3 Research Conclusions and Refinement of the Conceptual Framework

Interpretivist case studies are an effective methodology to test or challenge prior theoretical assumptions and inform the development of case concepts (Merriam and Tisdell, 2015). This research explores prior assumptions of HPSUs' motivations and actions as depicted in the initial conceptual framework (Figure 1). The key findings summarised in Table 12, extend the literature on financing and resource acquisition in early stage businesses. They also challenge the initial conceptual framework necessitating its refinement. Salient conclusions to capture in the refined framework are listed in Table 13 and are presented in reference to specific RQs.

Conclusions	**RQ**
Founders' skills and experience influences opportunity recognition and goal setting.	RQ1
Fund-raising is time-consuming, iterative and competitive.	RQ2
Start-up programmes and government entities provide advice and pre-investment finance.	RQ2
Investors and potential customers value founders' qualifications and experience.	RQ2
Start-up programmes prepare HPSUs for investor engagement.	RQ2
Resource constraints persist after first investment.	RQ2
Short-term consulting work delays core product development and defers development of competitive advantage.	RQ3
Investors provide non-financial resources and other benefits to the HPSU.	RQ3
Founder skills, IP and skilled employees helps HPSUs create unique products and services affording the HPSU competitive advantage.	RQ3
Leading edge technical knowledge at HPSU level coupled with close customer engagement helps HPSUs develop feature-rich products (and services) resulting in significant competitive advantage over competitors.	RQ3

Table 13: Conclusions Influencing the Refinement of the Conceptual Framework

The extent to which these findings influence the refinement of the conceptual framework (CF) are discussed and the rationale for refining the CF is presented. The revised CF reflects the salient conclusions emerging from the research. Amendments to the conceptual framework are incorporated at the pre-investment, HPSU-investor engagement stage (RQ1), the resource acquisitions stage (RQ2) and post-investment development of competitive advantage stage (RQ3).

1. The CF needs to show that a founder’s experience, skills and networks increases the HPSU’s non-financial resources, augments the HPSU’s capacity for market knowledge, opportunity recognition and goal setting, and is valued by potential investors. Participation on start-up programmes strengthen HPSU readiness for investor engagement and also provide short-term finance at the pre-investment stage.
2. The CF needs to illustrate that fund raising and engagement with investors is an iterative process with many stages. HPSUs pitch to potential investors, receive feedback from investors that is incorporated into HPSU planning and refinement of the HPSUs investment pitch.
3. The initial CF does not take account of barriers to securing investment, experienced by the HPSUs. Barriers include founder reluctance to relinquish HPSU share equity and control, the firm’s newness and the lack of market-ready products. These are important insights emerging from the findings, as delays in securing investment results in short-term financing requirements and continued constrained access to financial resources. The HPSUs may respond to financial constraints by, for example, undertaking consultancy work and securing finance from an accelerator programme or start-up programme. Each of the activities place additional pressure on the limited human resources within the HPSU.
4. Engaging in consultancy work to alleviate financial constraints delays product development, resulting in revised planning at HPSU level before re-engaging with potential investors. It also provides HPSUs opportunities to engage with prospective customers and increase their market knowledge. This regress / progress needs to be reflected in the CF.

5. Investors provide non-financial supports to the HPSUs in the form of human and social capital. Although the findings reveal that angel syndicate investors provide more supports than VCs or lone angel investors, these non-financial resources need to be mapped in the refined CF to reflect the value to the HPSU.
6. Intangible resources such as founder skills and IP are leveraged by human resources such as skilled employees and freed-up CEO time, to help HPSUs create unique products (and services) that afford them competitive advantage in their target markets. The inter-dependence of resource types was absent from the initial CF and is reflected in the refined CF. Due to the competitive nature of markets, HPSUs need to continuously refine their sources of competitive advantage, therefore the CF needs to reflect a loop back to planning.
7. Leading edge technical knowledge at HPSU level coupled with close customer engagement helps HPSUs to develop feature-rich products (and services) resulting in significant competitive advantage over competitors. Customer engagement in developing sources of competitive advantage was absent in the initial CF.

The key research conclusions and omissions from the initial CF, as noted above, are reflected in the refined conceptual framework presented in Figure 2.

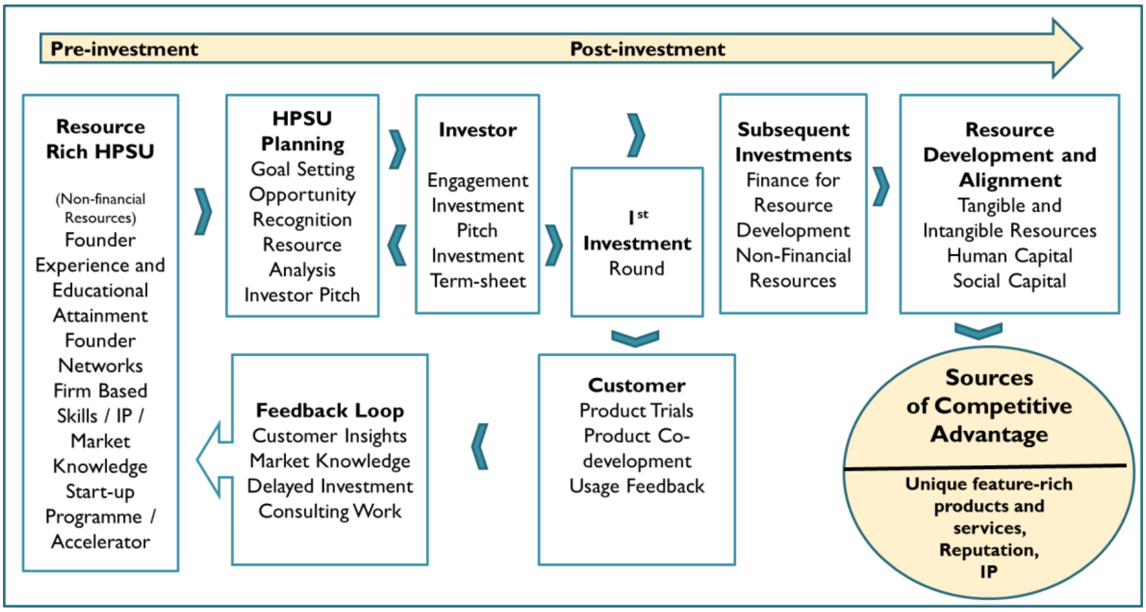

Figure 2: Revised Conceptual Framework: HPSU Investment and Resource Development Framework

4.0 Contributions to Knowledge

The conclusions of this research are underpinned by interaction with pertinent literature to extract new meaning. In keeping with the principles of a professional doctorate, the conclusions of this DBA research project make valuable contributions to both theory and practice. The overarching conclusion is that HPSUs are not typical early stage firms in that they are not resource poor in all categories. They can be regarded as rich in non-financial resources such as founders' experience, skills, IP rights and valuable connections via founders' networks. Therefore, they have potential that is curtailed by limited financial resources and that potential is augmented through the receipt of external investment.

4.1 Contribution to Theory

As stated by Yin (2014), the richness of data extracted from a multiple case study research project such as this study, is fundamental for researchers seeking to test, extend or develop theory. The process of data extraction, reinforced by robust data management measures at collection and analysis stages, provides a solid foundation for the extension of theory (Blackburn and Kovalainen, 2009). This research study extends theory by bringing new meaning to our understanding of early stage businesses such as HPSUs and extends resource-based view theory of the firm. The discussion in Sections 4.1.1 to 4.1.4 clarifies these contributions to theory.

4.1.1 HPSU Perspective of Engaging with Investors

A unique aspect of this research is that it views investor-investee engagement from the perspective of the entity receiving the investment; the HPSU. This is a perspective of investment in early stage businesses that has received little attention previously in the literature. Prior studies by Bottazzi and Da Rin (2002), Conti *et al.* (2013), Jain and Kini (1995), Kelly (2007) Manigart and Van Hyfte (1999) and Rosenstein *et al.* (1993) sought to retrospectively explain the impact of external investment on enterprise performance, in terms of sales and/or employment growth. Earlier work by Freeman *et al*. (1983) and Brüderl *et al.* (1992) focused on the impact of external investment on survival retrospectively, or as a predictor of future growth. These prior works have not explored the relationship between firm engagement with external investors and resource acquisition. This research highlights the benefits for CEOs who join start-up or accelerator programmes in terms of readiness for investor engagement and enhanced reputation as perceived by investors and customers.

4.1.2. Approaches to Business Planning in HPSUs

This research enhances understanding of business planning in HPSUs, providing descriptions of how HPSUs approach opportunity identification and goal setting, leading to resource needs analysis, building on prior work by Alvarez (2005), Barney (1991), Barney and Clark (2007), Raley and Moxey (2000), and Timmons and Spinelli (2004). This understanding is reflected in the revised conceptual framework (Figure 2, Section 3.3) illustrating the impact of founder experience on planning and use of HPSU-based resources. It recognises that HPSUs undertake short-term revenue generating activities while trying to secure investment, resulting in regressive/progressive steps in the attainment of investment and HPSU strategic goals.

4.1.3 Resource Impact on Sources of Competitive Advantage

The research illustrates how resources flowed to the HPSUs and how resource availability contributes to the development of competitive advantage for the early stage businesses. It adds context to prior works by Barney *et al.* (2001), Eisenhardt and Martin (2000), Foss (2011), Priem and Butler (2001), Rumelt (1997) and Wernerfelt (1995). It demonstrates that the majority of HPSUs believed that they were better able to compete as a result of resource acquisition and their efforts to develop firm-based resources in pursuit of competitive advantage. However, findings contradict Sapienza's (1992) claim that VCs have a strongly positive impact on firm performance. This study shows that it is not strong as just one HPSU, (B), was very satisfied with the support received from their VC investor.

4.1.4 Extension of Resource-Based View Theory

Resource-based view (RBV) theory has served as a framework to explain the development of competitive advantage in large enterprises (Barney, 1991; Foss, 2011; Peteraf, 1993; Priem and Butler, 2001; Wernerfelt, 1984). To date, it has not been applied to HPSUs to explain how they acquire and organise financial and non-financial resources to develop sources of competitive advantage. This research extends the application of RBV to resource-rich but cash poor high-tech / high potential small businesses such as HPSUs. The research findings extend evidence from prior studies (Barney, 1991; Foss, 2011; Perren, 2000; Peteraf, 1993; Priem and Butler, 2001; Wernerfelt, 1984), that small firms strive to maximise benefits derived from their firm resources to develop key organisational capabilities by describing how HPSUs leverage internal and external resources to gain competitive advantage. The findings extend prior theory (Nicholls-Nixon *et al.*, 2000; Van de Ven and Polley, 1992) in describing how HPSUs configure available resources in order to differentiate the business within the market, in an effort to create competitive advantage. The extension of RBV to HPSUs helps to explain the process where HPSUs seek external investment in pursuit of resource acquisition. The trustworthiness of research should be evidence based and specific about the limitations of usage (Cohen *et al.*, 2002; Eisenhardt and Graebner, 2007; Foss, 2011; Kellermanns *et al.*, 2016; Kraaijenbrink *et al.*, 2010). The extension of RBV to HPSUs is a niche theory and cannot be generic to all start-up or small businesses. HPSUs are not normal small businesses; they are rich in non-financial resources such as founders' experience, IP, and access to valuable networks. These firm-based non-financial resources mean that they have greater than normal potential and that potential is accelerated when the HPSU secures external investment facilitating the further acquisition of resources such as human and social capital IP rights, and capacity to develop prototypes.

4.2 Contributions to Practice

On a practical level, this research study provides a detailed description of how HPSUs approach goal setting and subsequently how they engage with external investors to acquire funding and additional non-financial resources in pursuit of these goals. This study provides insights into how the HPSUs deploy internal firm resources to develop sources of competitive advantage for the business, allowing it to compete effectively in the market. Descriptions and insights extracted from the research findings make a practical contribution to business and academic knowledge.

A key requirement of a professional doctoral research study, such as the DBA, is a contribution to business knowledge and practice. The conclusions of this research enhance business knowledge for people planning to launch a new business and are especially relevant for founders starting a high potential business or one exploiting leading-edge technologies. The conclusions are also of benefit to CEOs of nascent businesses seeking investment and for state bodies with responsibility for supporting early stage HPSUs. This research also makes a knowledge contribution to debt providers (banks), private investors and VC companies. Key knowledge contributions are summarised by intended beneficiary or key activity in the following sections.

4.2.1 HPSUs and Prospective HPSUs

1. This research illustrates how founders and co-founders of new high potential businesses utilise their skills and prior career experiences (in tandem with researching industry trends, customer engagement and networking with former colleagues), to identify opportunities for the new business (2.1.1)

2. The research shows that some CEOs/founders employ external consultants to assess how their product/service will be utilised in the market, in order to quantify potential market demand (Section 2.1.1).

3. The findings also reveal that early stage businesses express a variety of business goals depending on the audience; internal or external. They illustrate how CEOs/founders communicate longer-term goals to potential investors, short-term product-focused goals to employees and communicate product-based goals to potential clients (Table 3).

4. This research has produced practical learning on how tangible and intangible resources acquired by the HPSUs resulted in gains in competitive advantage. For example, working capital funded product development, the purchase of technical equipment and software, office accommodation and legal fees for IP registration. Working capital was used to leverage benefits from intangible resources such as IP, founder experience and reputation. Human and social capital helped the HPSUs to develop and to market leading edge products that gave the early stage business competitive advantage in the marketplace (Table 9).

4.2.2 Investor Engagement

1. The findings indicate that the CEOs/founders of the HPSUs were solely responsible for fund-raising in most cases and that co-founders' involvement was mostly as a support to the CEO (Section 2.1.2).

2. The research findings have practical relevance to CEOs of high potential businesses planning on raising external funding by providing ten non-sequential steps (see Table 4, Section 2.1.2) in engaging with potential investors.

3. The findings from this study show the benefits that non-financial resources such as intellectual property rights, founders' educational attainment, prior networks and prior start-up experience have on attracting prospective investors (Section 2.1.1).

4. It also shows that information on potential market demand, gained by hiring consultants is used in investor pitches by early stage businesses as evidence of potential market demand (Section 2.1.1).

5. This study provides insights into how start-ups experience difficulties in attracting investment because of their newness (Section 2.1.3).

6. The findings expose several barriers encountered by businesses when trying to access and finalise an investment. These range from unfamiliarity with complex investment documentation, investment terminology and legal documents, to disagreements amongst co-founders regarding transfer of equity to investors as they try to resist the dilution of their ownership and control of the business (Section 2.1.3).

7. The findings indicate that financial resource constraints persisted for HPSUs even after the initial investment. This hampered the advancement of product innovation and the development of IP. This insight may guide company founders to seek larger first investment amounts or to manage their cashflows more efficiently. It also shows that HPSUs undertook consulting work for immediate income, to the detriment of progressing the HPSU strategy (Section 2.2.1).

8. The findings document a variety of relevant sources of finance (such as private or syndicated angel investors, an accelerator, VCs and Enterprise Ireland), accessed by early stage businesses and flags additional sources of finance not currently

accessed by participant HPSUs (e.g. Strategic Banking Corporation and Microfinance Ireland), (Table 6).

9. Of particular relevance to female founders, this study provides insights into the significant challenges faced by female founders and co-founders in securing private investment for their businesses. It illustrates that female founders received much less investment from VC firms than their male counterparts. This anomaly could be related to unconscious bias of VCs and other investors or may indicate that some female entrepreneurs are not pitching for investment or believe that they may be unsuccessful (Section 2.4).

10. There is an expectation amongst HPSUs that investors can provide benefits such as mentoring and facilitate access to their business networks. The findings highlight that certain non-financial benefits were not received to the extent expected by CEOs. Such benefits most notably include the transfer of technical skills, contacts with suppliers and referring staff (Section 2.2.3).

11. The findings indicate that CEOs of nascent enterprises who participate in start-up programmes or accelerator programmes (such as the New Frontiers programme or a start-up accelerator) are better prepared for engaging with external investors and that they tend to secure investor meetings sooner. It also shows that businesses holding IP also find it easier to secure meetings with potential investors (Section 2.1.2).

4.2.3 Funding Bodies Supporting Start-ups and Early Stage Businesses

1. The findings further show that participation on start-up programmes increases a firm's attractiveness to potential investors. This will be of interest to state bodies that fund start-up and accelerator programmes who spend considerable amounts supporting early stage businesses (Section 2.1.2).

2. The findings reveal challenges encountered by businesses when trying to finalise an investment due to the difficulties in understanding complex investment documentation issued by funding bodies. This delayed the receipt of external investment and compounded cash constraints within the HPSU (Section 2.1.3).

4.2.4 Banks and Other Debt Providers

1. The findings from this study have practical relevance for banks and other lenders by revealing that most of the early stage businesses did not try to secure bank debt as they didn't expect to be successful in the application. This suggests that debt providers may need to evaluate their marketing campaigns and try to alleviate the bureaucracy of the loan application process (Section 2.2.2).

This research makes a practical contribution to business knowledge on early stage businesses by providing insights into a specific type of early stage business: the high potential start-up. The contributions include: knowledge on how they approach planning, goal setting, financial management, investor engagement, resource acquisition and how they organise their resources to support the development of competitive advantage. Such insights have real-world value for early stage business owners/managers, consultants, mentors and other advisors to nascent businesses. They are also of relevance to state bodies that support new business creation and development and to investors in early stage businesses. In addition to the practical contributions to business knowledge, this research makes important contributions to theory and the body of literature on financing and resource acquisition in early stage businesses as discussed in the next section.

4.3 Recommendations for Practitioners

The findings from this HPSU case-based research provide practical insights into how firms engage with external investors to acquire financial and non-financial resources to develop sources of competitive advantage for the business. Several recommendations for practitioners are drawn from these insights and are summarised by intended beneficiary and presented in Tables 14 to 17. These recommendations have relevance for people planning to launch a new business, their advisors and for early stage high potential businesses. Recommendations are also offered to state bodies charged with supporting start-ups and early stage businesses, to investors and providers of debt. For high potential or high-tech early stage businesses, recommendations are made regarding planning for growth, preparing to engage with prospective investors, including state bodies that provide funding for early stage businesses, and participation on start-up programmes. For investors, recommendations are made regarding simplifying their investment documentation, the benefits of providing additional non-financial benefits to investees and potential unconscious gender bias. Recommendations are offered to state funding bodies regarding their start-up programmes, investment documentation, assisting high potential firms to develop growth strategies and supporting female founders of technology companies. Debt providers are encouraged to promote their products to nascent businesses.

State Bodies Supporting Start-ups and Early Stage Businesses	
Conclusion	**Recommendations**
Some start-ups not aware of Start-up / Accelerator programmes that assist them in becoming investor ready.	1) State bodies need to increase awareness of these programmes through national awareness campaigns and through other start-up support stakeholders and digital marketing. 2) State bodies need to understand barriers preventing high potential businesses participating in these programmes.
HPSUs regarded the investment documentation from state funding body and investors to be complex and the language difficult to understand, e.g., Cap Tables. Regular lawyers/accountants were inadequate therefore, HPSUs hired expensive specialist lawyers and accountants.	1) Simplify the investment documentation content and language, using less jargon. 2) Provide workshops on navigating the investment documentation and calculating Cap Tables for entrepreneurs at pre-funding stage. 3) Negotiate set fees with specialist lawyers and accountants for entrepreneurs signing state investment documentation.
Some high potential businesses have developed CA but is it sustainable? There is a need to leverage their CA through growth strategies.	State co-funded businesses could be offered masterclasses / training in developing growth strategies to leverage the benefits of their competitive advantage before competitors catch-up. This training should take place after the firms receive investment that is sufficient to fund such strategies.
Female led technology businesses have increased to 18% of HPSUs but female CEO-led tech companies numerate just 2-3%. They receive a fraction of average investment secured by male CEO-led firms. VCs say they 'see' female CEOs.	1) This international phenomenon has societal aspects. State bodies should continue to look to international best practice. 2) Consider quota system for investors to invest in female CEO-led early stage tech businesses and reward with higher ratios of state supports. 3) Increase visibility of female CEOs and female co-founders to VCs at arranged networking, including female only, events. 4) Support the development of a female only, *Female Founders VC Fund*
Early stage businesses lack of awareness of state-backed SME and micro-firm debt instruments e.g., SBCI and MFI. They also feel that they are unlikely to secure loans	1) State bodies need to promote awareness and access to state-backed sources of SME and micro-firm debt via other start-up support stakeholders and digital marketing. 2) State bodies need to understand barriers preventing high potential businesses participating in these programmes.

Table 14: Recommendations for State Bodies Supporting Start-ups and Early Stage Businesses

Banks and Other Debt Providers	
Conclusion	**Recommendations**
High potential early stage businesses experience financial constraints due to delays in closing the investment round.	This is an opportunity for banks or state-backed SME and micro-firm debt providers to offer short-term loans to high potential early stage businesses secured against the impending investment.
Early stage businesses lack of awareness of state-backed SME and micro-firm debt instruments e.g., SBCI and MFI. They also feel that they are unlikely to secure loans.	1) To address the miscomprehensions, the public-sector providers of state-backed SME and micro-firm debt need to promote awareness of their existence and guide early stage businesses how to engage with them. 2) Banks need to understand barriers, such as bureaucracy, perceived by early stage businesses that prevent them from applying for bank loans.

Table 15: Recommendations for Banks and other Debt Providers

Early Stage High Potential Businesses and their Advisors	
Conclusion	**Recommendations**
Findings did not signal existence of specific growth strategies to compete in the market place	High potential early stage businesses need to develop growth strategies to exploit their resource-based competitive advantages, to grow sales and maintain their competitiveness.
Understanding how VCs and investors evaluate prospective investees increases the chance of securing investment and more non-financial resources.	High potential early stage businesses are advised to engage with investors and VCs early to understand how they evaluate investment pitches and be aware of the type of businesses / business models that investors consider 'investible'. This knowledge increases prospects of securing higher levels of financial and non-financial resources.
Some VCs impose special conditions on investees incl. the temporary 3-year transfer of CEO's equity to VC.	Entrepreneurs seeking investment for their high potential business need to understand all the special conditions that VCs impose on investee firms and their founders. These conditions should be requested prior to the investment pitch stage.
Accelerator programmes take on average 8% of participant company's equity.	Entrepreneurs should consider the value of participation on an accelerator programme in light of requirement to surrender equity. A start-up programme may provide similar learning experiences with the transfer of equity.
Syndicate angel investors provided more non-financial resources and benefits to the investee firm than sole angel investors or VCs	Entrepreneurs reviewing investment terms provided by investors should seek to clarify the non-financial benefit offered on prospective investors and clarify their nature and frequency.

Table 16: Recommendations for Early Stage High Potential Businesses and their Advisors

Recommendations for Investors	
Conclusion	**Recommendations**
HPSUs regarded the investment documentation from investors to be complex and the language difficult to understand.	Investors should seek to simplify their investment Term Sheets, Cap Tables and other documentation by providing prospective investees with explanations of terms, templates/spreadsheets to calculate Cap Tables and use less investment jargon.
Female led HPSUs receive a fraction of available VC investments and those who succeed receive a significant less funding than male counterparts.	1) VCs may benefit from training in recognising and managing unconscious bias. 2) VCs could consider establishing a *Female Founders VC Fund.* 3) VC could host training for female founders in networking, influencing and communicating an investment pitch.
Syndicate angel investors provided more non-financial resources and benefits to the investee firm than sole angel investors or VCs.	Lone angel investors and VCs should increase their understanding of the specific practical supports required by investees in order to be better placed to support the firms' development needs. Lone investors should join angel investor networks to increase their investor skills and increase their social capital.

Table 17: Recommendations for Investors

While the focus of this research has been on resource-rich, cash-poor HPSUs, the findings also have relevance for any early stage start-up business. Research findings that could be deemed useful to a broad spectrum of early stage start-ups are listed below. Further research would be required to validate how these findings could be applied to non-HPSU start-ups.

1. Approaches to quantifying market potential
2. How firms can arrange and utilise, tangible and intangible, resources to develop sources of competitiveness.
3. The identification of barriers to securing investment including firm newness, unfamiliarity with investment terminology and legal documentation.
4. Specific challenges faced by female founders and co-founders in securing private investment for their businesses.
5. On a positive note, the research identifies additional sources of finance under-utilised by early stage (e.g. Strategic Banking Corporation and Microfinance Ireland) and suggests that debt providers may need modify their marketing campaigns to attract more loan applications.

4.4 Application of HPSU Investment and Resource Development Framework

The refined Conceptual Framework: HPSU Investment and Resource Development Framework (Figure 2) reflects salient research conclusions (Table 13). In tandem with the contributions to practice (Section 4.1) and the recommendations for practitioners (Table 14), the framework is a practical resource for entrepreneurs in early stage high potential businesses, for their advisors and for government agencies with a remit to support enterprise creation and development. To enable practitioners to operationalise the refined Conceptual Framework in the context of HPSUs, a workflow model is developed to guide practitioners through the stages of firm level planning, engagement with external investors, resources acquisition, and development in pursuit of competitive advantage, as depicted in Figure 3.

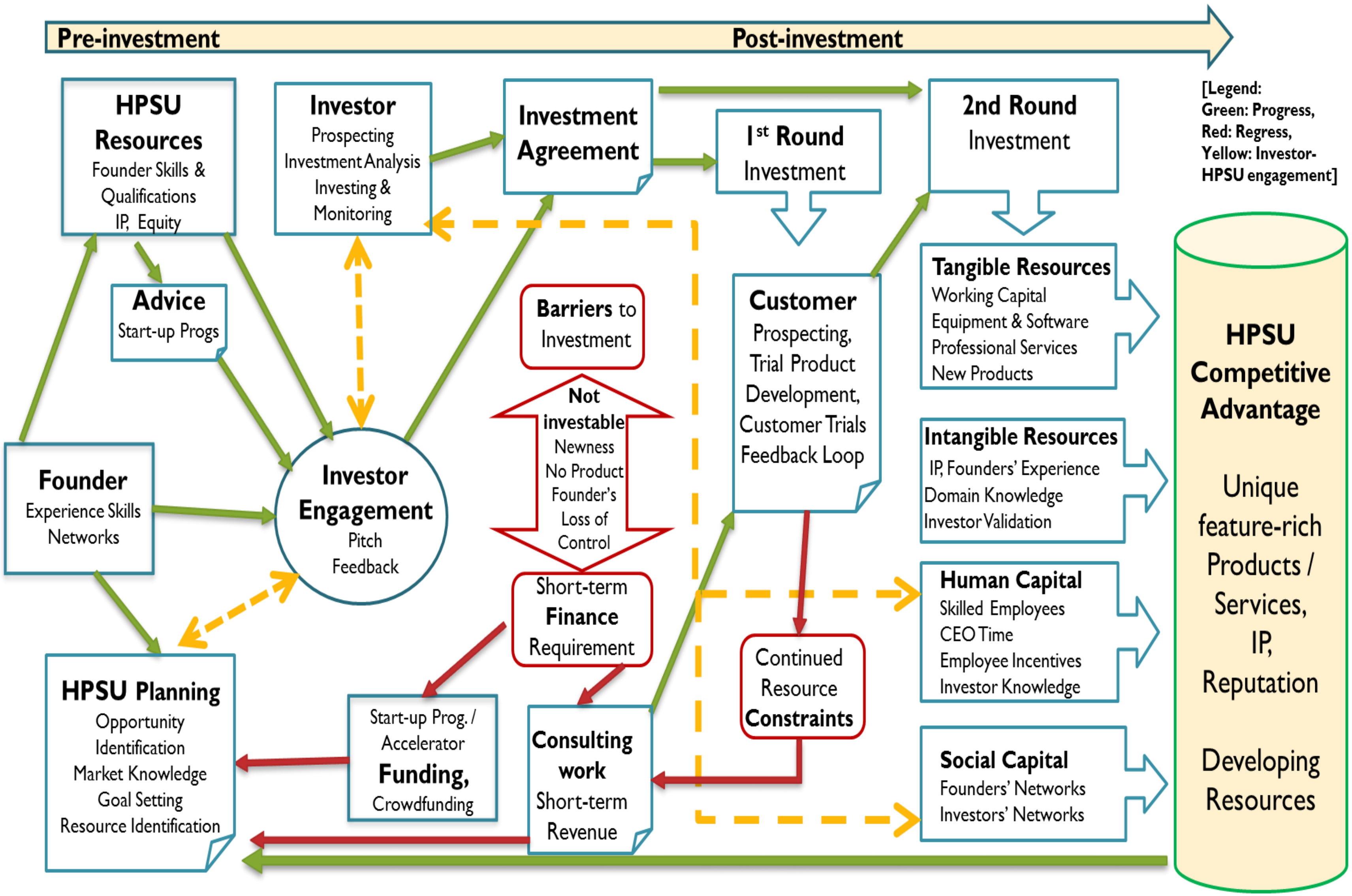

Figure 3: Operationalising the HPSU Investment and Resource Development Framework

1. The work-flow model starts with the founder and shows how a founder's experience, educational attainment and networks increases the HPSU's non-financial resources and has a positive impact on firm planning and goal setting. The founders' non-financial resources aligned with firm-based skills and IP rights deem the HPSU to be rich in non-financial resources.
2. Goal setting leads to resource needs analysis and subsequently engagement with external investors. Start-up programmes help HPSUs in becoming investment ready and allows them to skip some of the investor engagement stages.
3. The workflow model illustrates how engagement with investors is an iterative process. The HPSU pitches to potential investors and receives feedback from investors. This feedback helps the HPSU to identify and address gaps in their investment proposal pitch.
4. The model proves that delays in securing investment, caused by newness of firm and lack of saleable products, results in financial constraints and the need for short-term financing. The HPSUs may undertake consultancy work to respond to financial constraints. Consultancy work within the target market increases market knowledge, assisting in the development of market-focused products.
5. The workflow exemplifies how the first round of investment funds the HPSU to perform product trials or engage in product development with key customers. Valuable customer insights are captured through customer feedback loops strengthening the HPSU's prospects of securing additional funding.
6. The model shows that investors provide finance for tangible resource acquisition and development and that they also provide non-financial supports in the form of human and social capital.
7. The model illustrates how investor resources, in addition to intangible firm level non-financial resources, such as founder skills and IP, are leveraged by skilled employees thereby contributing to internal resource development. Together, these external and internal resources help the HPSU to develop and align available firm resources in pursuit of competitive advantage.
8. Finally, the workflow model demonstrates how leading-edge technical capabilities and industry reputation aligned with close customer engagement helps

HPSUs to develop leading-edge feature-rich products (and services) resulting in significant competitive advantage over competitors.

5.0 Research Limitations, Dissemination, and Further Research

This section discusses a number of limitations existing in this study, before sharing details of dissemination of the research and opportunities for further research.

5.1 Research Limitations

All research projects are subject to certain limitations that need to be identified by the researcher. This holds true for doctoral research and especially for a practitioner-researcher undertaking a research project on a part-time basis while engaged in full-time employment. The limitations of the current study include:

1. This study is limited to Irish HPSUs. Perhaps the experiences of HPSUs, or similar businesses, is different in other countries, would be different than those of Irish businesses and this would have enriched the data. However, Ireland has an exemplary record in entrepreneurship development. It is ranked 6th highest (of 20) in Europe on the 2017 Total Entrepreneurial Activity (TEA) Index (GEM, 2017). The Index measures national percentages of nascent and new (since 2014) businesses, and places Ireland ahead of France, Germany, and Italy, making Ireland a highly suitable location to research phenomena occurring in the start-up environment.

2. Another potential limitation concerns the fact that HPSUs are not typical early stage businesses and are more progressive businesses than regular start-ups. They are high potential businesses, developing some form of technology. Relative to other early stage businesses, they are rich in non-financial resources, and this helped them to attract financial resources. It is reasonable to assume that the inclusion of non-HPSU firms would have captured different experiences of fund-raising and developing sources of competitiveness.

3. While meeting the criteria recommended by Eisenhardt and Graebner (2007) and Walsham (2006), the sample size was limited. A bigger sample may have yielded stronger findings, particularly concerning the transfer of non-financial resources

from investors to the HPSUs. Considering that a sole, part-time researcher, employed full-time as a practitioner, and with limited resources, undertakes this study, imposes limitations on the scope of what is achievable, within the timeframe.

4. The fact that no female CEOs were interviewed during the in-depth interviews with CEOs/founders is a limitation. The inclusion of female CEOs would have provided opportunities to capture the experiences of female founders and co-founders. Their experiences of fund-raising would have been valuable not least to make a comparison with male CEO experiences. Analysis of their experiences would be useful in crafting additional policies to support female founders and CEOs. However, their absence is not critical to the study from a sampling perspective as noted in Section 2.4 female founders are more prevalent in food and beverage sectors than high-tech sectors. The term ‘female-led’ is misleading as it refers to a company where a female owns at least 25% of the equity and holds a management position in the company, even if the CEO is male. Consequently, female CEOs in these high-tech sectors are estimated at between two and three percent. Two of the female CEOs contacted by the researcher were unavailable to participate within the required timeframe, while another was in the middle of a funding round and she was simply too busy to participate

5. A final limitation of this research study relates to the time frame for its implementation and completion. The DBA at WIT is a structured professional doctorate designed in a manner to allow practitioners, engaged in full-time professional roles, to pursue doctoral research on a part-time basis. The four-year WIT DBA is structured to assist the novice researcher to develop advanced research skills during the first two years of the programme, submitting multiple assignments, while simultaneously identifying and narrowing the focus of the research. Papers for the Research Paper Series are developed over years three and four, of the DBA programme cycle, while simultaneously undertaking the research data collection and analysis. Being cognisant of the DBA structure, the researcher must plan a study that is achievable within the available timeframes. The researcher’s choices of methodology, sampling, participant access, data collection and analysis are influenced by these timeframes.

5.2 Dissemination of Research

In the course of undertaking the DBA, the researcher has contributed to theory by collating a single body of literature on investing in early stage business and how high potential early stage businesses develop resources in pursuit of competitive advantage. Further contributions have been made by sharing this knowledge with research peers pursuing the same doctoral programme. The researcher also presented a summary of this research, in poster format, at the WIT Research Day 2017 (Crehan, 2017a); see Paper 3, Appendix B. Furthermore, the researcher presented a conceptual paper, based on Paper 1 of the Research Paper Series, at the Institute of Small Business and Entrepreneurship 2017 Conference (Crehan, 2017b) and a conference paper, based on Paper 4 of the Research Paper Series, at the Irish Academy of Management 2018 Conference (Crehan, 2018).

5.3 Opportunities for Future Research

The current study has uncovered valuable and interesting insights into how HPSUs in Ireland manage goal setting, interact with external investors and organise firm resources to develop sources of competitive advantage. While the scope of the research has been restricted by the limitations outlined in the previous section, the findings make valuable contributions to knowledge. This new knowledge may serve as a foundation for avenues of further research. Researchers with an interest in planning in high potential / early stage businesses, resource acquisition, or developing sources of competitive advantage in small businesses might be interested in undertaking research in the following areas.

1. Researchers could widen the scope of the research in a number of ways:
    a. Undertake a comparative study of how HPSU and non-HPSU businesses (i.e. firms not approved by EI) develop sources of competitive advantage.
    b. Include UK or EU high potential businesses in a study to assess differences in approaches to planning, resource acquisition and investor engagement.
    c. Perform the same study as current study, with a larger sample (Ireland, UK and EU) to test the strength of the findings.
2. The refined conceptual framework (Figure 2) maps the interactions between HPSUs and investors and includes a customer feedback loop to inform HPSU

planning. Researchers could apply this conceptual framework in another country to test its applicability.

3. The findings confirm that HPSUs developed sources of competitive advantage but is the competitive advantage sustainable? Researchers could consider a study of older (6 to 10-year-old) HPSUs to see if businesses retained their competitive advantage over time.
4. The current research did not measure firm performance over time, as this would not have been possible within the time available on a structured DBA programme. Indeed, measuring the performance of high potential / high technology businesses would present challenges, as many HPSUs are pre-revenue. Researchers could consider a longitudinal study of HPSUs, capturing data on sales and employment growth, amongst other metrics retrospectively.
5. The absence of female CEOs in the current study has been acknowledged. Future research could capture the experiences of female CEOs and co-founders in launching high technology businesses, pitching to investors and managing sources of competitive advantage. The inclusion of female CEOs could un-earth areas of opportunity for policy development to support female founders and CEOs in launching and growing sustainable technology businesses.
6. Female led, and female founded HPSUs receive a fraction of investment funds received by male counterparts. Future research could explore ways to address barriers and perceived barriers for female CEOs/founders to funding and to explore ways to open doorways to funding for female founders.

6.0 Concluding Remarks

A minority of new enterprises require external investment, typically those exploiting innovation or engaging in R&D. The purpose of this study is to "*explore the impact that external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage".* Following a literature review, a framework was developed in Paper 1, to conceptualise resource availability within high potential start-ups (HPSUs) in the context of developing sources of competitive advantage with the intent of extending RBV theory to smaller high potential start-up businesses. An interpretive case-based research method was proposed in Paper 2 utilising in-depth interviews with the HPSU CEOs and group interviews with employees and this methodology was adopted in the pilot case study described in Paper 3, where initial findings were presented. The research findings, presented in Paper 4, and critically discussed in this chapter, illustrate that HPSUs acquired investment from a variety of sources and configured those financial and non-financial resources in a manner that afforded them competitive advantage in the market. From a theory perspective, this research extends the application of RBV to the entrepreneurial environment of small firms by describing the contextual environment of HPSUs, and how they organise their firm resources, to develop sources of competitive advantage.

As an advisor to early stage businesses, the author is acutely aware of the risks of bringing professional bias to the discussion of findings. To mitigate against potential bias, the researcher maintained a rigorous focus on the emergent findings (summarised in Table 1), extracting meaning only from the data, supported by re-engagement with the literature. This process of immersion in the data never failed to uncover new insights and meanings for the researcher as he analysed and interpreted the data. Notwithstanding the acknowledged limitations of a small number of case HPSUs and the fact that all were based in Ireland, this research makes several contributions to practice and theory. However, aside from these contributions to knowledge, the researcher has deepened his professional knowledge and is better placed to advise early stage businesses that are either engaging with investors or attempting to develop sources of competitive advantage. As a researcher-practitioner, this is a very rewarding outcome of the DBA programme and compliments the significant gains in academic learning achieved.

This study would not have been possible without the cooperation and generosity of spirit of HPSU CEOs, co-founders and employees. Their willingness to engage with this study and share their personal and professional experiences is critical and is greatly appreciated. Their aggregate experiences will have practical everyday benefits for entrepreneurs embarking on the challenging and exciting journey of founding and funding a new business and those who join them on that journey.

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SECTION FOUR:
REFLECTIVE LOG EXTRACTS

1.0 Introduction

The benefits to professionals, and particularly researchers, of engaging in reflection and reflective practice are exalted in the literature, in terms of their positive impact on personal and professional development (Brannick and Coghlan, 2007; Costley *et al.*, 2010; Cunliffe, 2004; Ortlipp, 2008; Stake, 2005). The DBA Programme Handbook emphasises the importance of reflection to enrich doctoral students' learning journey, stating that reflective practice is an integral part of the WIT DBA process, which helps students to develop their research skills, creative practice and critical thinking as practitioner-researchers.

In compliance with the requirements of the DBA, I maintained a reflective log throughout the four years. I started my log the weekend after Workshop 1 in October 2014. The reason that I say 'in compliance with the requirements of the DBA' is that I was not completely comfortable with the idea of keeping a reflective log at that stage of my DBA journey. Nevertheless, I committed to the process of regularly making notes in my log and reading these back from time to time. I had already been using the Evernote [note-taking and productivity software] application since 2013 and I had made several hundred notes, concerning my work and family life. I realised that I already had a working practice of note taking in place and that I needed to add reflection to that practice. When I engaged in adding reflections to my note taking, I soon began to see the true value of reflection as a practice, despite my initial reservations and reluctance. Evernote proved useful not just for capturing thoughts for my reflective log but became invaluable for tracking my engagement with the literature and for recording article summaries, references and notes on relevance to my research. Today, I have almost 8,000 [research, work and family related] notes in Evernote. As notes are tagged by topic of interest, e.g., RBV, investment, theory, reflective log, I can retrieve thoughts recorded or articles reviewed quickly and efficiently. This ability to record and retrieve my thoughts proved to be an extremely beneficial resource when referencing during the data analysis, synthesis and writing up stages of this research.

In line with the guidelines provided in the DBA Programme Handbook, Section 5.0 *Composition of the DBA Thesis*, this section includes extracts of reflective thoughts that I logged throughout my doctoral journey.

2.0 Reflective Log Extracts

Extract 1: October 2014

I enjoyed the 1st DBA workshop; it reminded me of the class interactions on the MBA. It was helpful to get an overview of the DBA. It was great to hear from a past participant who has now completed her thesis. That [submitting thesis] seems so far, away from where I am now and the time commitment to get there seems enormous. I will draft a study schedule this weekend and try to set aside 20 hpw for the DBA. During the workshop we were asked to present on ideas for our research. This surprised me as I heard that it can take a year to hone on your area of focus! The areas that I mentioned are:

- Regional development / competitiveness
- Strategy development SMEs
- Innovation, Tech transfer
- Resources Based capabilities
- Best Business Model

I will give this further consideration while working on the assignment for W/S#1. We have quite a lot of reading to get through on this module.

Extract 2: December 2014

As I work on the W/S#1 assignment, I'm trying to decide on my research focus. There are a number of issues that I would like to investigate;

1) Did the investors seek to influence the strategic direction of the enterprises before or following investment events? Engle (2002) claims that 'VCs are more able to push firms to a faster and higher growth. If this is the case, then it prompts the next issue:

2) What aspects of the enterprises' strategies were altered as a result of the external funding, for example, key personnel hired, product development, markets targeted and channel selection? According to Romanelli (1997), Tushman and Anderson (1986) 'the strategic options open to a firm are broader, should more resources be available'. My research interest is concerned with the extent to which the investors influenced specific strategic options for the investee businesses.

3) Finally, did the investment result in success (annual growth of greater that 20%) for investee businesses? I could look at the businesses' growth rates following the investment. According to Wiklund (2005) 'growth as a measure of performance may be more accurate and assessable than accounting measures of financial performance'.

Extract 3: March 2015

I'm finding the readings for W/S#2 Advanced Business Theory challenging. The concepts seem to be very abstract and getting to grips with them is frustrating. I find myself re-reading the prescribed readings on theory several times. I got up early a few mornings this week to do some reading and found that my 'morning brain' was fresher and writing out notes on the core aspects of the theory helps me to understand them. I need to make a short-list of dominant theories relevant to my research study topic and present these at W/S#2 in a few weeks. Agency, Entrepreneurship and Stewardship theories appear most relevant to my research, but I will need to analyse how they have been used in prior research.

I know that I have a lot of writing to do after W/S#2. I found Mary Holden's [WIT School of Business] Live Writing Lab online workshop, last month was really helpful in developing how I write. I assumed that I write well, given all my years in industry, but I'm realising that there is much greater precision involved in academic writing. The videos and PowerPoint presentations are a great resource and something that I will be using over the coming months.

Extract 4: May 2015

The 1st of 6 learning objectives for Workshop 2 is: *Exhibit an in-depth knowledge and comprehensive understanding of the dominant theoretical concepts and frameworks which are relevant to their business context, bringing original and relevant scholarship to bear on their business management context.*

Reading the learning objectives for W/S#2 before the workshop, I realised that undertaking this DBA will require me to develop a greater capacity for assimilating learnings from the literature and reflecting on their application to me research area. Furthermore, I realise that I must choose an appropriate theory for my research and develop a deep understanding of that theory.

I was very impressed with the Advanced Business Theory W/S facilitated by Prof. Gary Davies. He has significant knowledge and experience of developing research projects and supervising doctoral students. However, he also has a very practical approach to Academia- Industry interactions. Speaking with him after I presented my short-list of dominant theories relevant to my research, he suggested an off-the-wall idea to screen potential theories for my research. As an experiment, he suggested that I watch episodes of Dragons' Den and try to identify if any of my short-listed theories are evident. I'm certainly going to experiment with that approach.

Extract 5: September 2015

I made the mistake of taking a short break from the DBA over the summer. I spent a lot of time over the last few months organising the Start-up Gathering [I was appointed City Coordinator, by Minister Jed Nash]. The Start-up Gathering head office did not honour their promise to provide admin support resulting in me doing 15 to 18 hours a week organising our event in October. Now, I am finding it very challenging to re-engage with the DBA. There is so much reading to do and I cannot find the time to do it. Working on the Start-up Gathering and trying to prepare for W/S#3 is taking many hours work each week. I would consider the option of deferring for a year, however, I believe it would be even more difficult to re-engage again next year as I may have lost the momentum at that stage.

Extract 6: October 2015

I just read the objectives for the module next week: *The three-day research design workshop includes three separate but very strongly related modules: Research Philosophy, Developing Research Ideas, and Research Techniques. Bringing clarity, focus, rigour, and integration to these in the context of your chosen field of study facilitates the building of a strong proposal for doctoral research.* With the [very successful] Start-up Gathering [October 5, 2015] out of the way, I took Friday as annual leave and worked on preparing for W/S#3 all weekend. I boked the boardroom at work, on Saturday, to map out all that I know about ‘How external investors impact the strategic direction of an early stage enterprise’, based on what I have read to date. [See Figure 1, photograph of whiteboard capturing my pre-conceptual framework map]

Figure 1: Pre-Conceptual Framework Map

This has helped to distil my thinking about the multitude of potential interactions that take place between the entrepreneur and investors. I am working on the W/S#3 presentation on my Research Topic based on the following research objective and overall research question:

Objective: Understand the process underpinning investor/investee interactions, roles, exchanges & goal alignment. Did investment create value?

Research Question: How does external investment impact strategy development in an early stage enterprise?

- Did investors influence strategy development following their investment? (Engle 2002)
- What variables were impacted by investment? Romanelli (1997), (Tushman and Anderson (1986)
- Did the investment result in success? Wiklund (2005)

Extract 7: February 2016

I met with my internal supervisor Dr. Aidan Duane last week. He has a good reputation in WIT as a supervisor and for getting papers in journals. We discussed a plan for working on the conceptual paper due in March. He said that 'planning-operations' is a useful focus but does fit with RBV. I realise that I need to match a relevant theory to my research objectives. I met with Prof. Aidan O'Driscoll, my external supervisor, in DIT yesterday after the HPSU Showcase in Dublin Castle. I brought the EI HPSU Showcase directory with me to the meeting and provided Prof. O'Driscoll with an overview of the various stages of start-up development supported by EI. In preparation for the conceptual paper, we discussed the potential gap in the literature and what contribution I hoped to make.

Actions for me: Send 2 supervisors my W/S#2 and W/S#3 assignments; continue reading articles, look for the research gap, and a relevant theory. I know that I would like to look at investor impact and I think that RBV can be used as underpinning theory. I think that having the supervisors assigned is great and ups the ante for me; I need to get a draft of Paper 1 to them in 2 weeks!

Extract 8: April 2016

Such a busy few days! We had 3 modules, Academic Writing (Aidan D presented), Critical Inquiry Techniques and Research Project Management packed into Thursday. On Friday and Saturday people were presenting their conceptual papers to the external examiners all day. The examiners were Prof. Jean-Anne Stewart from Henley Business School and Prof. Joseph Coughlan from NUI Maynooth. I'm delighted that the examiners approved my conceptual paper with only minor edits required to help me 'clean the framework development up so that you will have an easier time later on in the process when it comes to analyses, discussion and contribution'. They confirmed that RBV was the appropriate theoretical lens for my Research Objective: *To explore the impact that* *external investors have on resource availability within HPSUs in Ireland that may contribute to the development of internal sources of competitive advantage?* However, they suggested that I drop RQ1. I feel that their approval of my conceptual paper is endorsement of my research focus and the work that I have done so far. I believe that my academic writing capability has developed significantly in the past year and having the 2 Aidans as supervisors has been a big plus.

Extract 9: October 2016

Having spent the past 2 days in workshops in Qualitative Data Analysis and Advanced Statistical Analysis workshops I believe that a qualitative interpretivist approach is appropriate for my research and has the potential to achieve my research objective. Both of my supervisors are in agreement that qualitative analysis will produce rich contextual data. However, I will have to invest my time in becoming proficient in Nvivo, but I feel that this will pay dividends later when I am analysing research data. The pre-workshop assignments for both these workshops were useful in helping me to fully understand the sort of information that can be extracted from quants vs quals approach. I thought that I had *The Perfect Storm* forming during the week when I heard that the [important meeting; specifics removed] would be on the same morning as Sean Byrne's Nvivo workshop. There is a huge amount of work involved in the quants vs quals assignments due before Christmas but the readings, PowerPoint presentations and videos shared by Mary and Sean are excellent.

Extract 10: April 2017

I am developing a mini paper to use as my application for ethical approval from the WIT SOB Ethics Committee. I am using elements drawn from both my conceptual paper and my methodology paper (2) to provide the ethics committee with enough information to understand my research objective and methodology. My methodology paper based on a qualitative, interpretivist, multi-case study method, has been approved with minor edits by Prof. Alan Wilson from the University of Strathclyde and Dr. Malcolm Brady of DCU. I am developing protocols to use in the pilot study. I have identified 3 potential HPSUs to participate in the pilot study next month, subject to gaining approval from the Ethics Committee. Things are progressing well for me, I need to keep going!

Extract 11: July 2017

Doing the pilot case study was new territory for me. While, I have decades of experience in conducting meetings and job interviews, doing the pilot interview was different as I was conscious that I needed to extract quality data from the process. The CEO has been very accommodating in the interview; he didn't have any objections to me recording the interview and seemed to answer the questions in an open manner. While he gave me email addresses for his 2 co-founders and 2 developers to attend the focus group, only the co-founders attended, which came as a bit of a surprise to me. This made me think about the appropriateness of my use of focus groups, as the literature recommends a minimum of four participants for a focus group (Hakim, 2000; Saunders *et al.*, 2012). It is possible that less than four people may turn up to the focus group meetings during the main study. I will explore alternatives to the focus groups for the rest of the HPSUs.

Extract 12: October 2017

I presented Paper 3, the Design Implementation and Initial Findings to Prof. Jean-Anne Stewart from Henley and Prof. Joseph Coughlan from NUI Maynooth last week. The examiners were quick to spot the issue with focus groups. I had already looked at just going with group interviews instead and the examiners agreed with this approach. They approved my Paper 3 with the caveat that I explain my rationale for dropping focus groups in favour of group interviews. I was pleased with this as group interviews also support research legitimacy (Frey and Fontana, 1991; Saunders *et al.*, 2012). The initial findings presented confirms the appropriateness of my research design for the main study to explain: 1) *Why* the HPSU engaged with external investors, 2) *What* impact did external investors have on resource availability within this HPSU, and, 3) *How* resources within the HPSU are contributing to the development of competitive advantage.

Extract 13: January 2018

While listening to interview recordings and re-reading transcripts as I prepare them for loading into Nvivo, I am thinking about the entrepreneurs themselves, as people, not just as the CEOs of exciting early stage businesses. They have been very open with me during the interviews talking about their Boards and co-founders. Four of the CEOs talked about the sacrifices that they have made to launch their new businesses. These included paying salaries to co-founders while only paying themselves some money for expenses, how several CEO paid technical or sales people higher salary than they paid themselves and how CEOs worked long hours and weekends on a regular basis. While I was not entirely surprised by these comments, I was surprised at the personal and emotional impact of these sacrifices on the lives of the CEOs in addition to the monetary sacrifices they made. Some of the notable comments made by the CEOs include:

We don’t own a house and won’t any time soon.

I am doing a lot more work than, you know, my co-founder and I feel he/she wouldn’t mind that much if I left the business We had to postpone our wedding, because we can’t afford to get married.

I’m earning a lot less now than I was at [former employer].

I haven’t been on a holiday in at least five years.

I had not considered these sacrifices previously or the personal impact on the lives of company founders. Several of the CEOs had significant industry experience and relevant real-world knowledge. I had not anticipated that they could be so economically and emotionally vulnerable, at this stage of their lives.

Extract 14: May 2018

My Research Findings paper was approved, without requiring any edits, I must be doing something right! I have put so much effort into analysing the data in Nvivo. I have maintained an absolutely rigorous approach to extracting these findings, in order to mitigate against potential bias. Being conscious that I may bring bias as in insider in this space my rigour has paid off by allowing me to extract themes from the data and to synthesise these into tables for discussion and the creation of knowledge. I feel that I have changed in how I think, how I approach thinking. I feel that my thinking has slowed down, in a good way, to allow me to analyse what’s happening more deeply. During the preparation of papers 1 and 2, I never knew if my work was at the right standard until I received feedback from my supervisors. Now, I feel that I can critically evaluate my own work and recognise when I’m creating knowledge. This has been transformational for me. I feel that I have transitioned from a practitioner to a researcher-practitioner and that the dual roles operate well together. I am writing my Discussions, Conclusions and Recommendations Chapter now and I am systematically re-engaging with the literature to extract insights from the data. This process of immersion in the data never failed to uncover new insights and meanings for me and I am confident that my research can make contributions to both RBV theory and to practice.

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