

The Role of Artificial Intelligence in Investment Decision Making:
A Study of Senior Management Perceptions within Private Equity and Venture Capital Firms.

DISSERTATION

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Abstract

Artificial intelligence is becoming one of the key technologies in the digital transformation of organisations across industries. While organisations around the world are implementing artificial intelligence as a strategic tool to drive growth and improve processes, not all businesses are embracing this technology at the same pace. Private equity firms have been traditionally slow to adopt innovative technologies and still rely on numerous manual processes to analyse deals and perform back-office tasks.

Numerous studies have been conducted in the area of private equity, however, most of the research has involved quantitative methodology and has focused on measuring the overall performance of firms and their impact to the wider economy. Little qualitative research has been carried out to analyse perspectives of senior management regarding internal process challenges and innovative technology adoption patterns.

The overall aim of this research is to explore the views of senior management within private equity and venture capital firms regarding the implementation of artificial intelligence technologies and its potential impact on their internal investment decision making processes. To achieve this objective, this research uses qualitative research and thematic analysis methodologies. This research aims to provide an updated perspective from leaders within private equity and venture capital firms that could hopefully be useful to individuals promoting change and AI-technology adoption within the private equity sector.

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List of Acronyms

AI	Artificial Intelligence
CA	Conversational Agent
CAC	Customer Acquisition Cost
CAGR	Compound Annual Growth Rate
CCA	Comparable Company Analysis
DAU	Daily Active Users
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortization
EV	Enterprise Value
ESG	Environmental, Social and Governance
HR	Human Resources
IPO	Initial Public Offering
IRR	Internal Rate of Return
IT	Information Technology
LBO	Leveraged Buyout
LTV	Loan-to-Value Ratio
MAU	Monthly Active Users
MOIC	Multiple on Invested Capital
NPV	Net Present Value
PE	Private Equity
PII	Personally Identifiable Information
PR	Public Relations
ROI	Return on Investment
VC	Venture Capital

1. INTRODUCTION

This chapter will give an introduction to this thesis. This study will seek to analyse the feelings and perspectives of private equity professionals towards artificial intelligence using thematic analysis, which is important to understand if AI is currently being considered as an innovative tool to provide value in the industry. In this section, an overview of the private equity and venture capital industries will be provided, as well as giving context on the importance of digital transformation in the industry. The research objectives will be presented and a justification for this research will be given.

1.1. The Private Equity Industry and the new digital reality

The Private Equity (PE) industry has been developing at an extraordinary growth rate since the mid-1990s. PE firms are now accountable for immense sums of capital investment worldwide. In 2018, PE firms' deals reached \$1.4 trillion, and in the U.S., these firms have grown their investment to own more than 8,000 companies, compared with 4,000 in 2006 (Vardi and Gara, 2019). Furthermore, venture capital (VC) has become an increasingly important source of financing for innovative companies. It is estimated that one-half of initial public offerings (IPOs) in the US are backed by venture capital (Gompers *et al.*, 2020). Yet, Gompers, Kaplan, and Mukharlyamov (2016) argue that despite the healthy growth of PE firms in the financial marketplace over the last two decades, only a few academic papers have studied the actions and methods that these firms perform. There are however more abundant studies that focus on the effects of PE in the wider economy and labour markets.

PE firms can be described as organisations that make use of their own capital (or capital raised from private investors), to invest in companies and take them private, often leveraging significant amounts of debt. This strategy is commonly known as a leveraged buyout (LBO). Through LBOs, PE firms aim to improve the management of these companies, often restructuring them, with the goal of selling them at a later stage or taking them public at a profit (Nasdaq, 2019). In 2011, Professor Steve Kaplan discussed the beginnings of PE and LBOs declaring that *"LBOs can be tracked back to the early 1980s, when early firms like KKR and Carl Ferenbach's Berkshire Partners bought mature, cash generating companies and tried to improve their performance by changing the incentives facing management"* (Kaplan *et al.*, 2011). Although these firms can undertake several different strategies, it is important to distinguish PE firms that buy mature companies that are already established (mostly through LBOs) from firms that invest in start-ups with high growth potential through venture capital financing. Venture capital firms are also equity investors but focus on earlier stages in the lifecycle of a start-up. Through investing in young private companies, VC firms aim to maximise their financial return by selling the company at a later stage or by holding an initial public offering. It could be further argued that the value that VC brings to the market expands beyond IPOs and short-term profit-making goals. Studies have also shown that 15% of VC-backed companies, in fact, continued to raise capital from VC firms in the five years after going public (Iliev and Lowry, 2020).

From an operational perspective, many areas of the financial services industry have been completely transformed over the last two decades due to irruption of Fintech and Artificial Intelligence (AI) technologies (OECD, 2020). Financial services organisations are still adapting their business models to deal with constant change in customer expectations and the regulatory environment. It is becoming increasingly clear that, traditional companies that do not adopt AI, will be left behind and unable to compete with AI-driven companies that excel in the digital age (Iansiti and Lakhani, 2020). However, PE and VC firms have not been as agile as other organisations in the investment sector in taking advantage of innovative technologies. Many are still relying on traditional manual and paper-based processes to analyse deals and carry out back-office processes. Operational complexity is seen by managing partners as a growing pain in the industry, presenting a fundamental challenge now that they are in search of digital tools to improve many areas of their business and transform their operations and business processes (Doshi, Klempner and Sudan, 2016). While the industry faces numerous operational complexities, there are many areas where successful implementation of AI-powered tools and cloud services could bring value to these organisations in the short-term. A study carried out by KPMG in 2018 found that, even though PE firms are in different stages of their digital transformation journey, some have already seen value from the introduction of sophisticated data analytics models to support their pre-due diligence processes, increase deal speed and deal pricing accuracy. Other firms have implemented more advanced sentiment analysis tools to analyse social media signals to uncover investment opportunities, while other firms are just leveraging basic process automation for mid-and back-office processes (Geminder and Kollin, 2018).

The overall aim of this research is to explore the views of senior management within PE and VC firms regarding the implementation of artificial intelligence technologies and its potential impact on investment decision making processes within their firms. AI tools have the ability to transform business processes, productivity, and in some cases, anticipate future business needs and provide recommendations to its users. As AI solutions become more accessible and widespread in the industry, senior leaders within PE and VC firms must be ready to identify the key areas within their investment-decision making processes that could be transformed with these innovative technologies. Little research has been carried out in this area, and the author of this research believes that this study would enable a better understanding of the current stage of AI implementation within PE and VC firms, and obtaining updated insights from the personal perspectives of senior management regarding the value that these solutions can bring to their firms.

This dissertation will seek to review existing academic research that has been conducted. The findings will be used to carry out a thematic analysis on the topic of AI applications within PE and VC firms. Furthermore, the primary research will seek to examine the practicality of the theory based on the perspectives from senior management in these firms. Lastly, a critical analysis will be performed on the findings of this research.

1.2. Research Justification

It can be argued that previous research in PE and VC industries have mainly involved quantitative methodology and focused on measuring the overall performance of firms. There are many areas of prior study around the value creation of both PE and VC, their internal processes, business strategies and their impact to wider economy. An example of this can be found in an interview with Steve Kaplan (2007), where he discussed the reality of the industry and its effects on companies and the economy from a quantitative perspective. More recent studies such as the ones carried out by Gudiškis and Urbšienė (2015), Jegadeesh, Kräussl and Pollet (2015) or Burth and Reißig-Thust (2019), also concentrated on providing quantitative empirical evidence on the private equity industry. The PE and VC industries have not been thoroughly researched in the area of management perspectives regarding the value-add of AI implementation within their firms. This study is situated well within the growing area of study regarding the impact of digital transformation within internal business processes in the private equity and venture capital industries. The limitations of this research will be covered in detail in section 3.6. This research's objective is to contribute to the increasing literature around the applications and influence of AI in businesses' day-to-day operations but also contribute to the debate on the practicality of such tools within PE and VC firms. Furthermore, the findings of this research will aim to provide an updated perspective from leaders within these firms that could hopefully be useful to individuals promoting change and AI-technology adoption within the private equity sector.

2. LITERATURE REVIEW

This chapter will attempt to review and analyse the literature that has been carried out about alternative investment structures organisations, with a focus on private equity, venture capital and growth equity. Existing literature regarding internal processes within these organisations, their technology adoption patterns and applications of artificial intelligence to business processes will also be analysed.

2.1 Alternative investment structures: Forms of Private Equity

There are various definitions available to describe private equity. A broad definition for private equity is, a range of private investment firms that invest in companies that are not publicly traded in a stock market (Sullivan, 2017). These investments can range from investments in start-up companies, mid-market firms, to large public enterprises needing private financing to achieve their strategic goals. Venture capital is a type of PE investment for companies that are in early stages of their development. Mark Levinson (2014) defines venture capitalists as investors in “*new or young firms in return for equity in the firm*” (p.197). The ambiguity from the private equity definition is addressed by Lake and Lake (2000) by giving a clear distinction between the focus of PE and VC firms:

“Venture capital partnerships typically focus on high-technology companies and on companies driven by emerging and typically technology-linked markets. Buyout partnerships (traditional PE firms) usually invest in more mature companies, providing funding to finance expansions, consolidations, turnarounds, and spin-offs” (Lake and Lake, 2000).

As shown in Figure 1 below, another form of private equity resides at the intersection of the PE and VC definition proposed above. The type of investment in relatively mature companies that undergo a growth-stage and seek capital to expand their operations or enter new markets is known as Growth Equity (or growth capital) (Corporate Finance Institute, 2020). As described by Venero Capital Advisors (2018), “*Growth equity can be used to accelerate growth, fund acquisitions or offer liquidity to current shareholders*”. The following section will cover in detail the three main strategies of PE and VC firms, these are Leveraged Buyouts, Venture Capital, and Growth Equity.

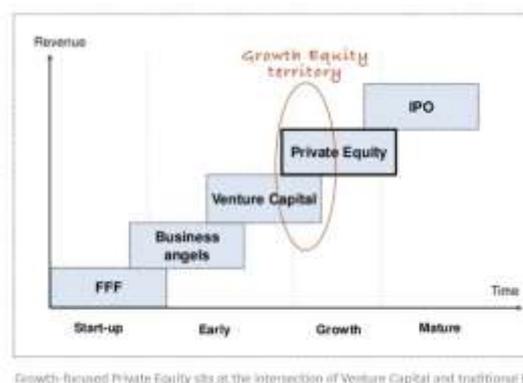


Figure 1 Company funding lifecycle (Venero Capital Advisors, 2018).

2.1.1 Leveraged Buyouts (LBO)

A leveraged buyout can be defined as the transaction whereby a company is acquired by a group of investors who use their own capital, and a large portion of outside debt, to finance the transaction. In this type of transaction, investors finance the acquisition of a business by borrowing against the projected future cash flows of the business acquired. By doing so, they aim to determine their ability to repay the loan interests (Arzac, 1992). LBOs are usually backed by 60 to 90 per cent debt often arranged by a bank or investment bank, this allows PE firms to acquire companies without having to utilise large parts of their own capital as equity, hence reducing their risk exposure (Kaplan and Strömberg, 2009). The use of debt to amplify the returns from an investment is commonly known as leverage, this tactic is what gives the name to a leveraged buyout. Investment firms that perform leverage buyouts are usually referred to as traditional PE firms.

LBOs are highly complex transactions that involve numerous parties, planning, preparation, execution phases, and require huge time investment to analyse vast amounts of financial and legal data. Francesco Baldi (2015), proposed five non-exhaustive phases on the planning of a leveraged buyout, five phases on the preparation stage and seven phases to describe the execution process for these transactions. The simplified phases applied to PE firms are the following:

Planning Stage

1. Identification of a possible target company.
2. Identification of the best economic and financial structure for the transaction.
3. Analysis of the economic and financial data of the target firm that is available, to determine the value of its economic capital.
4. Formulation of a preliminary financial structure for the transaction.
5. Stipulation of shareholder agreements between the PE firm's shareholders.

Preparation Stage

1. Formulation and presentation by the PE firm of a non-binding offer to acquire the target firm (Conditional on the positive outcome of a due diligence).
2. Performance of due diligence by the PE firm or third-party independent auditor.
3. Determination of the purchase price and final financial structure for the transaction.
4. Raising of the necessary debt capital by the PE firm.
5. Presentation of a binding offer to purchase the target firm.

Execution Stage

1. PE firm assumption of the bank loans and stipulation of the relevant contracts.
2. Purchase price negotiation between target firm owners and PE firm.
3. Granting of adequate guarantees by the lending banks.
4. Acquisition of the target firm by the PE firm.
5. Review of financing options and potential refinancing of the transaction to avail of better interest rates if available.
6. Return of the loan credit by the PE firm.

7. Once the debt has been repaid and the PE has achieved a capital gain, the PE firm will proceed to selling the previously acquired firm, frequently by listing it on the stock exchange through an IPO.

The LBO process described above entails many challenges and involves many manual tasks that could potentially benefit from AI implementation. Over the next sections, the challenges and potential solutions will be addressed. This research will aim to gain insights from the survey participants to understand their views on the practicality of enhancing this process through the implementation of AI-powered tools.

2.1.2 Venture Capital

Venture capital can be described as a form of private equity investment that targets smaller start-up companies with high growth potential. Venture capital financing is considered a riskier type of private equity due to the uncertainty of success of the targeted firms. However, through investing in smaller, riskier companies with exceptional potential, investors seek above-average returns as a payoff (Chen, 2020). Theoretical venture capital studies have also shown that in addition to the financing provided by VC firms, this type of PE investment provides other services to start-up companies that can considerably enhance their probability of success (Chemmanur, Krishnann and Nandy, 2011). For example, VC firms can help start-up firms hire competent management, provide better incentive plans for management and employees, and allow for access to a greater network of contacts, suppliers, and customers.

Venture capital financing is also considered a highly complex operation with many stages and parties involved. VC firms spend a lot of time and resources on screening and selecting investment opportunities in the market. Kaplan and Lerner (2010) defined this process as *“an intensive and disciplined one that often takes several months”* (P.37), where the attractiveness and risks of the investment opportunities are evaluated. Finding the right opportunity to invest in and identifying the economic value of a new venture has also been described as the most complex task of a decision-making process (Mechner, 1989). This statement is also validated by Gorman and Sahlman (1989) who stated that VC firms spend 110 hours per year to assist and monitor a single venture. It could be argued that business processes have changed tremendously since the late 1980s due to the irruption of new software technology and this could have helped reduced this workload to some extent. However, recent research has indicated that firms in the private equity industry have been slow to implement innovative technology, and most are still just familiarising themselves with digital innovation (Geminder and Kollin, 2018).

Through this study, the perspectives from senior management will be analysed to identify if they believe innovative AI technologies could enhance the screening and deal sourcing processes within their firms.

2.1.3 Growth Equity (Growth Capital)

As described in section 2.1, growth equity is a type of investment that does not fit within the scope of LBOs and venture capital financing, hence it can be considered a sub-category within PE. Jay Ritter (2015) proposed two definitions for growth capital. He defined growth capital

as funding tangible assets and/or acquisitions, but also as financing growth for companies. Although growth equity-backed IPOs are only accountable for a small portion of all PE and VC-backed IPOs (Figure 2), statistical studies have shown that these are often more profitable. Ritter (2015) found that, while VC-backed IPOs are profitable 41% of the times, growth equity-backed IPOs are profitable 68% of the times. These findings were also made by Russ Garland (2013), who claimed that growth equity outperformed venture capital by nearly six percentage points in a ten-year period.

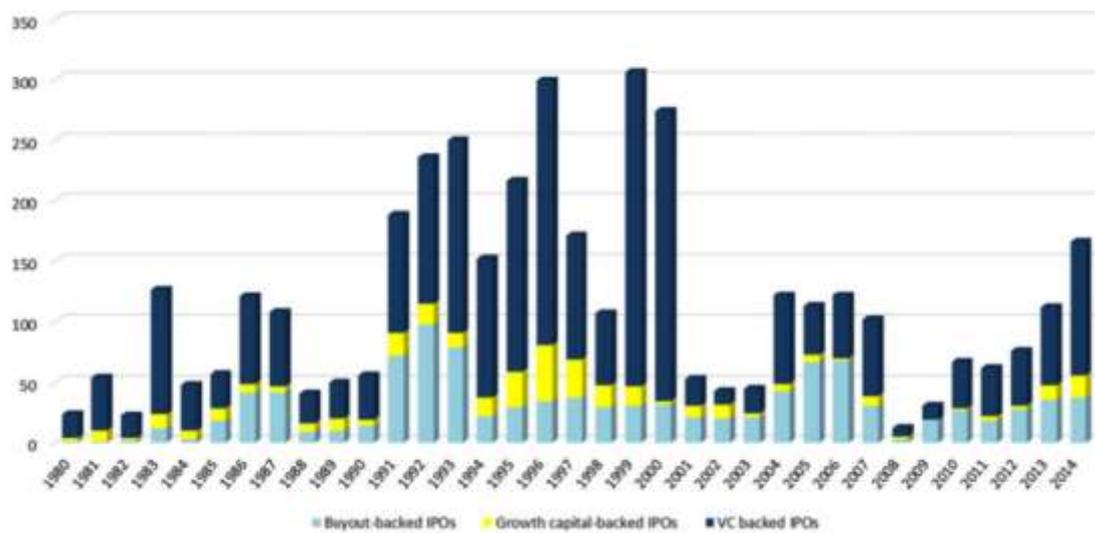


Figure 2 Financial sponsor-backed IPOs, 1980-2014 (Ritter, 2015).

The risk of capital loss varies considerably between leveraged buyouts, venture capital and growth equity. While all investors assume risk when making an investment, growth PE firms main challenge are execution and management risk. This is due to the need of a growth-stage business to integrate new corporate functions and management teams to support the intermittent growth stages (Venero Capital Advisors, 2018).

This study will aim to explore the insights gained from the survey participants to understand if they believe AI implementation could tackle execution and management risk within their firms.

2.2 Key internal processes within PE and VC firms

To understand the different areas where AI technologies could enhance investment decision making processes within PE and VC firms, their key internal processes and tasks need to be explored first. Michael Jensen (1989) proposed three value-increasing actions applicable to PE and VC firms. These are financial engineering, governance engineering, and operational engineering. Gompers, Kaplan, and Mukharlyamov (2016) managed to study the proponent's actions in detail. In this section, the financial and operational engineering actions will be reviewed, their findings will be analysed to gain an understanding of these processes, the type of data needed to execute them and to what degree they are dependent on manual procedures.

Financial engineering

To carry out this action, investors within PE and VC firms must first evaluate the attractiveness of a potential investment. To this end, the firms utilise a variety of company valuation methods and financial metrics. The research carried out by Gompers, Kaplan, and Mukharlyamov (2016) found that over 70% of private equity investors often rely on gross metrics such as IRR and MOIC, and that they do not frequently use NPV or DCF methods. Furthermore, the authors define that, to further evaluate a potential investment, firms need to be able to forecast the cash flows of that investment over a specific period. Typically, a five-year forecasting model is in place, as it was found that investors do not find it productive to forecast cash flow for a longer period. Finally, PE and VC firms need to be able to estimate the exit value of their investment after five years, this process relies on mathematical analysis and comparable company analyses (CCA) with other similar investments. This requires hours of research to compile a list of statistics from similar companies, to then analyse their valuation multiples (EV/EBITDA as an example) and make a comparison. It can be argued that the sound practice of financial engineering heavily relies on mathematical analysis and procedural tasks that could benefit from implementation of AI-based tools. The current applications of AI to financial analysis PE will be discussed on section 2.3. This research will seek to explore the perspectives of senior management within PE and VC firms regarding the potential applications of AI to their financial engineering actions.

Operational engineering

Operational engineering involves sourcing deals, select viable ones, and add post-investment value to the companies acquired. Gompers, Kaplan, and Mukharlyamov (2016) argue that a key determinant of value creation in the private equity buyout industry is the ability to find deals that are proprietary. A proprietary deal can be defined as one that lets a specific buyer have a first change to purchase the target company before that company is presented to other interested buyers by the owner (Divestopedia, 2017). Deal sourcing is the most important stage for PE firms to create a competitive advantage, however, studies have shown that firms spend considerable resources in evaluating investment that will not materialise. As Gompers, Kaplan and Mukharlyamov (2016) explained:

“For every hundred opportunities considered, the average PE investor deeply investigates 15, signs an agreement with about eight, and closes on fewer than four. This suggests that PE investors devote considerable resources to evaluating transactions despite the fact that they ultimately invest in only a very few” (p. 463)

Their research also showed that proprietary deals originate through complex relationships between PE professionals, their executive network and different third parties, making this action a very human-dependent one and potentially difficult to replace with AI algorithms. The human factor remains key to the investment process within PE firms. Raffi Kamber, partner at Alven Capital, explained that when investing in a new company for their portfolio, *“The agreement with the company head, believing in that individual and their ability to grow, continues to be what triggers the decision to invest”* (RBS, 2018). However, Carter and Shah (2017) argue that the utilisation of advanced data analytics tools within PE could provide richer and more comprehensive information from a considerably larger sample of potential

investment opportunities. This idea is validated by Gompers et al (2020) by introducing the concept of quantitative sourcing, a new trend in the VC industry where firms quantitatively analyse multiple sources of data to identify opportunities that could have a high returns. In their research, Gompers et al (2020) argue that for venture capitalist firms, deal selection becomes a higher priority than deal sourcing, with 86% of VC firms ranking deal selection as important and 49% as most important than deal sourcing. At this stage, many factors are considered to select an investment, the most important ones are the capability of management team within the target company, its business model, its product or services and the market conditions. In contrast to the actions carried out to perform financial engineering, the operational engineering stage needs complex relationship interactions that could be hard to replicate by AI-powered software. However, there are areas of deal sourcing and deal selection that rely on quantitative analysis that could potentially be enhanced or complemented with AI-based tools.

This research will try to find if managers within PE and VC are already taking advantage of AI tools to support their quantitative and financial analysis needs, or if they consider implementing these technologies in the near future.

2.3 AI technology applications to PE and VC firms

Artificial intelligence is becoming one of the key technologies in the digital transformation of organisations across industries. With a global AI market expected to be worth up to \$15.7 trillion by 2030 (PWC, 2017), it is important to understand how business leaders are planning on taking advantage of AI technology in the coming years. Furthermore, the topic of artificial intelligence applications for business are top of mind for entrepreneurs and future business leaders. A survey carried out in 2018 at the Kellogg School of Management at Northwestern University has shown that almost all MBA students were extremely interested in the topic and were eager to understand how to implement this technology in their future corporate roles (The Economist, 2018). Today, AI is a technology that firms around the world are implementing as a strategic tool to drive growth, improve processes and enhance the customer experience with digital platforms.

Iansiti and Lakhani (2020) argue that, the transition from traditional organisations to data-driven ones require more than just willingness in implementing new IT tools. Senior management in different business units need to shift from a siloed mentality to an open one. Furthermore, they need to start seeing IT not only as a performance improvement tool, but as a way to integrate business units and eliminate siloed approaches within their organisation. In many cases, organisations wanting to embrace AI will require a complete re-architecture of their organisation and operating model (Iansiti and Lakhani, 2020). While AI technology adoption presents numerous challenges to organisations, this is particularly true within the PE and VC industries. Private equity firms have been traditionally slow to adopt innovative technologies and still rely on manual processes to analyse deals and perform back-office processes (Geminder and Kollin, 2018). Furthermore, new IT implementations need to consider regulatory compliance, data governance practices and a shift from a traditional risk-averse mentality. Despite these restraints, there are now an increasing number of software companies offering niche AI-driven technologies that aim to support private equity firms in

acquiring new deals. As mentioned on the previous section, organisations that rely heavily on procedural tasks would be the first ones to benefit from AI implementation. In the case of PE and VC firms, AI technologies can certainly support with legal due diligence processes, commercial and financial analysis and many aspects of data collection and analysis during the deal process (Latham & Watkins LLP, 2019). AI implementation to solve business problems is not a new concept, an example of how intelligent process automation can bring significant efficiencies to PE and VC firms can be found in an eleven-year-old article on the Wall Street Journal. Laura Cooper (2009) described the successful journey of Pilot Growth Equity Partners on implementing AI to replace the manual tasks of deal sourcing. By substituting cold-calling tasks with a system using artificial intelligence, the firm has seen great growth, leading managers to further invest on this technology and spread it across their portfolio companies. Mckinsey (2018) proposed another example of how private equity firms are tackling operational complexity via AI implementation by *“using advanced optical character recognition to scan the reporting packages of portfolio companies and bots to upload them to a portfolio-management system”*. Whilst AI implementation in private equity is still in early stages of adoption, the areas where researchers agree this technology could positively impact PE and VC firms are deal sourcing, deal selection and due diligence processes.

Through this study the opinions of senior managers will be explored to understand if they perceive that AI technologies had an impact on the industry. Additionally, their perspectives regarding the potential of AI implementation to support their investment decision-making processes will be studied.

2.4 Conclusion

Private equity and venture capital firms face tremendous operational complexity. Through the understanding of their strategies such as LBOs, venture capital financing and growth equity, their key internal processes, and the insights regarding the potential applications of artificial intelligence to their business models, this research will aim to expand on the findings of earlier studies by focusing on the qualitative component of AI implementation within PE and VC firms. This will allow this study to be well positioned within the existing academic literature which has predominantly focus on quantitative research of the private equity industry. Furthermore, the research will add value to existing studies by exploring the personal perspectives of senior managers leading these firms.

3. RESEARCH STRATEGY AND METHODOLOGY

This chapter will outline the methods used by the author for this thesis. The following sections will cover the research question and objectives, the proposed methodology for this study, as well as giving a rationale for the chosen population and research approach. Lastly, the questionnaire utilised will be presented, and the research limitations and ethical considerations will be reviewed.

3.1. Research Question

This study will aim to explore the perspectives of senior management within private equity and venture capital firms regarding artificial intelligence technologies and their potential impact on their business operations. The question that will be studied through the answers of the participants is as follows:

“How do senior managers withing PE and VC feel in relation to AI technology implementation in their firms?”

3.2. Research Objectives

Studies have shown that over 90% of private equity firms believe AI will disrupt their sector by 2024 (Intertrust Group, 2019). In contrast to this, a recent study has found that financial services organisations have still a lot of work to do to properly implement AI solutions, and as the future is increasing becoming data-led, key decision makers need to put IT infrastructure investment at the top of their agenda (Day, 2019). The aim of this research is to analyse personal views from senior management regarding AI technologies within their firms to identify trends in the industry. Additionally, this study will seek to explore the potential impact of AI technologies on manual tasks and data analysis that could benefit investment decision-making processes for PE and VC firms. The research can be narrowed down into four main objectives:

Objective 1: To explore the views of senior managers regarding the irruption of AI technologies in the industry over the last five years.

Objective 2: To examine senior management opinions on the benefits of AI implementation within their firms, particularly around investment decision-making processes.

Objective 3: To explore what type of data senior management believes is critical for their business operations.

Objective 4: To determine if there is a defined plan of action to implement AI technologies within their firms in the short term.

3.3. Research Methodology

In order to support the main research question and the objectives presented in section 3.2 above, the different research processes and methods were reviewed first. As the main objective of this dissertation is to analyse the personal perspectives of senior managers regarding the specific topic of AI, the chosen methodology and design of the questionnaire has taken this into consideration. Furthermore, the analysis carried out through the academic literature review has been key to constructing the research methodology.

The researcher will follow a qualitative approach through this study as the main objective is to focus on the qualitative content of the participant's answers to the questionnaire. Qualitative approaches have been defined as incredibly diverse, complex, and nuanced (Holloway and Tondres, 2003). According to Clarke and Braun (2013), there is a need for clear guidance on the practical aspect of carrying out qualitative analysis. There are many definitions available for qualitative analysis and what it involves. Holsti (1969, p.14) defined it as a *"technique for making inferences by objectively and systematically identifying specified characteristics of messages"*. A more recent definition described content analysis as a *"method for systematically describing the meaning of qualitative data"* (Schreier, 2014, p.170). To navigate the complexity that qualitative research presents, many authors agree that a thematic analysis methodology should be considered as a foundational method for carrying out qualitative analysis (Braun and Clarke, 2006). The authors also highlight the importance (and value for researchers) of learning this methodology as *"it provides core skills that will be useful for conducting many other forms of qualitative analysis"* (Braun and Clarke, 2006, p.78). Further to this, Maguire and Delahunt (2017), argued that another advantage of thematic analysis is the fact that is not tied to a particular epistemological or theoretical perspective, making the method more flexible and allowing a more diverse scope for the study.

Thematic analysis can be described as a qualitative method for uncovering themes or patterns within the dataset. Braun and Clarke (2006, p.82) claimed that themes capture important elements about the data in relation to the research question and are the reflection of some level of patterned response within the data. They further argued that a key decision that researchers need to make when carrying out thematic analysis, is to focus on the right level at which themes will be identified. A distinction is made between semantic (or explicit) level, and latent (or interpretative) level, and it is recommended for researchers to focus mainly on one level of analysis for a research. In this dissertation, the author will analyse the dataset at a semantic level as the objective is to examine the answers of the participants as they are. As argued by Patton (1990), this process will allow to identify patterns in semantic content and allow the author to theorise their significance, meaning and implications, in relation to the literature previously reviewed in Chapter 2. Additionally, based on Clarke and Braun's (2013) perspective regarding the need for clear guidance while carrying out this type of analysis, the author will follow the practical guide proposed by Maguire and Delahunt (2017) to perform a thematic analysis.

3.4 Research Strategy

The review of the relevant literature presented in Chapter 2 has helped develop more insightful questions for this research. As Yin (2014, p.9) explains, the purpose of the literature review is to develop sharper questions about a research topic and not to determine the answers to it. Furthermore, when conducting research, it is important to choose the right research strategy for data collection and analysis. A successful election of strategy starts with identifying to the nature of research question asked. Yin (2014) explained that the utilisation of “how” questions lead to more explanatory answers and are likely to lead to data gathering suitable for more meaningful studies. As the main objective of this research is to explore points of view of the participants, the utilisation of “how” questions is fit for purpose. In addition to this, objectives 3 and 4 will require the utilisation of a “what” type question designed to allow the participants to enumerate types of data and deny or confirm the existence of a plan of action to implement AI technologies.

Following the guide from Bryman and Bell (2011), the author used a cross-sectional design to gather qualitative data. A self-completion online questionnaire was sent to every participant of this study via Microsoft Forms. To complement this, the author offered the participants the possibility to cover the topics through a semi-structured interview instead using video conferencing in Microsoft Teams. In the interviewing scenarios, the same questionnaire was used as an interview guide but also allowing participants leeway in the answers. The interviews were recorded using the recording feature within Microsoft Teams, and their content automatically transcribed via the software’s speech recognition feature. To ensure the reliability of the data, the author reviewed the generated transcriptions manually to correct any inaccuracies present. This approach was altered due to the current social and economic challenges caused by the COVID-19 pandemic which have limited the choices for data gathering. The utilisation of a self-completion questionnaire allowed for more flexibility for the participants to allocate time to complete it, leading to a higher number of responses. The configuration of the questionnaire and the wording of the questions allowed for lengthy answers to be stored, allowing for subsequent thematic analysis to be conducted.

The questionnaires and interview were conducted with senior managers and executives within nine PE and VC firms in Ireland and the United Kingdom. The researcher had access to a part of this population through his current employment where he manages the relationships with organisations within the banking and capital markets industry. Introduction to other participants was made possible via referral of other business contacts and through the utilisation of LinkedIn’s TeamLink tool, allowing for warm introductions to the targeted population. Due to the nature of the data collected and the possibility of participants to share confidential information from their firms, both data collection methods required the acceptance of an informed consent form by the participants prior to gaining access to the questionnaire. Additionally, all answers will be anonymised to comply with data protection regulations.

The answers collected will be examined using thematic analysis in Chapter 4. This will allow the data to be categorised in recurring themes that will help the author to compare it to the existing literature and draw conclusions to align to the objectives presented in section 3.2.

3.5. Research Participant Selection

The population for this study has been carefully considered based on its relevance to the main research question. The population of this study consist of nine senior managers within nine different PE and VC firms. These nine firms are well-established organisations within the private equity industry and have presence in Ireland, the UK and operate globally. Participants were selected based on having a role within their firms that exposes them to making investment decisions at high seniority level. Additionally, their roles are key to the successful execution of the internal processes studied through the literature review in section 2.1. A high-level profile of the participants can be found below.

Table 1, Participant roles and type of firm

Participant	Role	Type of firm
Participant 1	Director and Co-founder	Private Equity
Participant 2	Managing Director	Private Equity
Participant 3	Managing Partner	Venture Capital
Participant 4	Venture Partner	Venture Capital
Participant 5	General Partner	Venture Capital
Participant 6	Investment Manager	Private Equity
Participant 7	Managing Partner	Private Equity
Participant 8	Chief Information Officer	Venture Capital
Participant 9	Chief Information Officer	Private Equity

Prior to conducting thematic analysis, it is important to consider how the size of the sample may affect the reliability of the findings. Fugard and Potts (2015) found that guidelines for ideal sample sizes in thematic analysis are varied, ranging from 2 to over 400, but it is still unclear for researcher what value to take. The authors proposed a tool to help researchers think about what the ideal sample size would be depending on the context. Their study found that the likelihood of a theme to appear in the participants answers has a direct correlation with the sample size. As an example, with a sample size of circa 10 participants, a researcher will have 80% probability of detecting 4 instances of a theme with 50% prevalence (Fugard and Potts, 2015, Table 1.). The limitations of the chosen sample size of 9 participants will be covered in section 3.7.

3.6. Questionnaire

The questionnaire used in this study included the seven questions below. A copy of the original questionnaire can be found in the appendices (Appendix 1).

Question 1: How do you feel that AI (Artificial Intelligence) technology has changed your industry over the past 5 years?

Question 2: How do you see your organisation taking advantage of AI implementation in the near future?

Question 3: What type of data would you view as fundamental when considering a new investment?

Question 4: Do you ever question the accuracy or source of the data from the reports you use?

Question 5: How do you feel the data from the reports/tools you use influence the kinds of investment decisions you make?

Question 6: Do you believe AI technology can improve your investment decision-making processes? What key areas would you like to see improved?

Question 7: Does your organisation have a plan of action to implement AI technologies in the next 3 years?

3.7. Research Limitations

It is important to consider the potential limitations of this study. Firstly, the research has been carried out under the many challenges caused by the global COVID-19 pandemic and the subsequent social restrictions imposed by the Irish government. This situation has forced the researcher to embrace a more flexible approach for data gathering using only digital channels. The resulting situation of uncertainty, along with the global and economic challenges, has also impacted the availability of participants to take part on research studies. This has led to having a smaller sample size for this specific study. The second limitation to consider is how the characteristics of the interviewer might affect the answer from the participants. Bryman and Bell (2011) suggested that the interviewer characteristics such as gender, social background or ethnicity may bring together certain types of bias to the participant's answers. This is only a concern in the case where interviews are conducted, however, the self-completion online questionnaire might mitigate this effect by eliminating the interviewer effect, leading to less variability on the questions asked and more convenience for the respondents. It is important to highlight that eight out of nine participants in this study chose the self-completion questionnaire and only one participant preferred interviewing instead. It is also important to consider the validity and reliability of this study. Guba and Lincoln (1994) proposed two primary criteria for assessing qualitative research, these are trustworthiness and authenticity. The authors proposed a series of techniques that researchers can use to ensure credibility transferability, dependability, and confirmability of qualitative studies. However, within the scope of this MBA dissertation, time constraints have made following these techniques impractical. Nevertheless, the researcher has aimed to ensure validity through the detailed review of the available academic literature, meticulous participant selection, appropriate data gathering methodology and application of thematic analysis.

3.8. Ethical Considerations

Participants of this study were approached by the researcher via email and LinkedIn InMail first. An overview of the research was provided, as well as an informed consent form that could be reviewed before accessing the online questionnaire. A consent of participation button was provided on the Microsoft Forms survey. A copy of the consent form can be found in the appendices (Appendix 2). Due to the nature of the private equity industry, ensuring confidentiality and anonymity for the participants has been key to guarantee their contribution to this study. In the case of the interview, the interviewer asked for explicit consent for the videoconference to be recorded and transcribed for subsequent analysis. Personally identifiable information (PII) was not collected throughout the data gathering process as it did not present any value to achieve the objectives of this research.

4. FINDINGS AND ANALYSIS

As stated in the previous chapter, the aim of this study is to explore the perspectives of senior private equity professionals towards artificial intelligence using thematic analysis. This chapter will outline the findings obtained during the qualitative research process. A theme is characterised by its significance to the objectives of a research (Maguire and Delahunt, 2017). The researcher organised the qualitative data into meaningful themes through the coding process, the themes proposed will seek to find answers to the objectives outlined in chapter 3. The thematic analysis performed on the data revealed four key themes: AI in the portfolio but lack of use internally, potential benefits of AI implementation, the importance of diverse data in investment decision-making, and the feasibility of AI adoption in the short term. These themes will be covered in this chapter.

4.1. AI in the portfolio but lack of use internally

The answers gathered from the questionnaire and the interview showed that senior managers are highly interested in investing in AI technologies for their portfolio companies, as well as acquiring AI companies. Participant 1 stated that *"every deal is a tech deal; even in traditional sectors, every investment needs to be viewed through prism of what is the next disruptive technology which could render a traditional business model challenged"*. Participant 3 claimed that:

"As a Partner with a Venture Capital Fund one of our 4 key investment focus areas is Artificial Intelligence and 6 out of our portfolio of 12 companies are AI companies, I think it is fair to say most of the companies we will invest in going forward will be AI focused companies. We also see a higher percentage of AI companies in our deals in the last 12-18 months".

Participants 4 and 7 also added to this idea by stating that *"we see it as an investment focus but at the application layer in sectors like healthcare"* and that AI is only seen as *"an interesting niche for investment in itself"*. However, the research found that the majority of senior managers do not utilise AI technologies within their PE and VC firms currently as they do not see real business value from the current stage of the technology. Senior managers also agreed that the impact that AI technology has had in the industry over the past five years has been minimal. Participant 2 explained that private equity:

"Is still predominantly a people-driven business from an origination and decision basis. We all understand the proliferation of AI in the world of business and see many start-ups using this technology to address multiple markets but in sourcing early-stage and seed companies, there is rarely enough data to build models and processes. At later stage investing, where investors can plug into data intelligence tools, to find growth metrics or signals, AI will begin to start showing value. This has not developed past a PR opportunity yet for firms to say they are using AI to source start-ups, but in the next five years, it will mature to become standard in late-stage investing."

In regards to the impact of AI in the industry, Participant 7 further reasoned that PE *“is an extremely personal business based largely on relationships on the front end and a frequently “judgment” based analysis (albeit supported by substantial due diligence from scale law and accounting firms we use frequently) so to be honest in the narrow sense of AI in PE I think it will be minimal.”*

Participant 4 also claimed that, while AI is seen as *“a fundamental technology that is reshaping industries, it has not yet changed the VC industry”*. This claim is also validated by Participants 5 and 6 stating that AI has *“not significantly yet”* impacted the industry and it has not caused any *“dramatic changes on an explicit level”*. In relation to the impact of AI in the private equity industry, Participant 9 said:

“I personally I don't see that AI has changed the industry much over the last five years. I think it will change the industry over the next 5 to 10 years. I think we are starting to see it become relevant in a few areas, not just internally, but more so for the portfolio companies. But I do think that we will start seeing AI being used more and more for private equity going forward”.

The findings also showed evidence of adoption of basic AI capabilities within some firms, however they indicated lack of clarity on its real value-add. On this topic, Participant 8 mentioned:

“Slightly depends on the definition of AI. Data mining combined with fitting historical statistical patterns to emerging data appears to have become widespread, but this has existed for some time and accelerated with the emergence of "Smart Beta" strategies. A really sophisticated system which can interpret an emerging trend for which there is no historical precedent is not yet in existence (as far as I am aware). I think the company may begin using analytics systems which have an element of AI in them, but I don't foresee the investment teams using it knowingly (though I am sure it will be powering datasets and analytics provided by third party systems).”

The answers from the research participants showed clear evidence that senior management within PE and VC firms do not yet see a real impact from AI technologies within the private equity industry. However, the results also revealed that senior management is well aware of the AI opportunity in the market. Nevertheless, their current focus is on investing in AI for their portfolio companies and not to adopt the technology within their firms.

4.2. Potential benefits of AI implementation in PE and VC

In contrast with the findings outlined in the above section, the results of the questionnaire also showed that participants see potential benefits in implementing AI to support their internal processes in the short term. There is a clear trend in the answers from participants that showed that the primary area where senior management sees value for AI is on supporting data analysis processes. Participant 1 sees AI implementation as a way to provide *“better quality analysis of our portfolio company data”*. Participant 4 followed the same

rationale and sees AI as a tool to support with *“analysing mass amounts of data from companies by sector, assessing investment opportunities, pipeline development and working through capitalisation tables”*. Participant 2 sees AI as a way to extend the human capabilities by leveraging *“data intelligence tools, to find growth metrics or signals across a large geographic area like Europe. Which would have been impossible to cover previously”*.

When the participants were asked about the potential of AI technology, particularly around improving investment decision-making processes, the findings showed that seven out of nine participants believe AI can improve these processes. Participant 3 said:

“I think as AI progresses it will be in a better position to use multiple data sources and make more accurate inferences from that data resulting in more reliable and less hunch based investment decisions that humans are currently capable of”.

Participant 1 mentioned that AI could *“prove a more complete picture, far broader than just traditional analysis”* to support investment decisions. Participant 6 further argued that AI implementation could improve investment decisions if *“it led to more accurate market data”*. A more detailed perspective was provided by participant 9, distinguishing between the potential impact in traditional PE and VC:

“For me, the areas that I think you could potentially use it for, are deal sourcing and creating value in the portfolio. One thing that I am not sure about, is whether AI will really change the way we do sourcing on big buyouts. There is not a massive volume of those companies because of the type of companies that invest in. With AI and machine learning, it is all about training the machine learning model with data, using data to make the model more accurate. If there is not lots of companies that we can train the model with, I do not know how accurate the model can become. Whereas with venture companies, we are looking at thousands of companies. You are more likely to get to get some value there because you just pick up data you can train the model with”.

Participant 3 indicated that the firm *“will consider using AI systems for origination and deal selection when AI technologies become available that can help us to make more informed investment decisions based on accurate historical and forward looking industry and market data”*. Participant 7 showed a more conservative perspective towards AI capabilities to enhance decision-making processes. The participant said that the *“evidence of all of the traditional diligence reports are fundamentally critical in decision making, however they are incorporated on a direct person to person basis and I really don’t see how AI can assist this”*.

The findings of this study showed that senior management within PE and VC firms can see benefits of AI implementation for specific areas within their firms. However, from the managers’ perspectives, the real impact that AI can have to enhance decision-making processes is still unclear in most cases.

4.3. The importance of diverse data in investment decision-making

Through the literature review carried out in Chapter 1, the researcher found that key internal processes within PE and VC rely lengthy due diligence processes, manual and procedural tasks. This theme was selected to highlight the importance of the data types necessary for these firms to perform their business operations. Understanding the types of data that senior management perceive as vital to run their businesses is an important step in understanding if AI can play a role in mitigating some of their challenges. Participant 8 explained the importance of data to make future investment decisions:

“The data is vital since it is the best tool for mitigating against investment bias. However, the data alone is frequently insufficient to make an investment decision since it is backwards looking, whilst asset prices are governed by future events. We try to estimate a range of potential future scenarios and attach weighted probabilities to each scenario to make an investment decision. Data is useful for trying to make better assumptions about future scenarios.”

On the same topic regarding the importance of data, Participant 5 added *“it helps us understand the characteristics of the investment and hopefully provides us with a signal as to whether it is a good investment”*. Participant 1 also highlighted *“data integrity”* being *“critical to our investment decisions”*. A recurring theme across all participants answers is the need for diverse, rich data to educate any investment decision. The participants gave several examples of the types of data they believe is critical to shape their decisions. Participant 1 stressed the fact that *“qualitative data is as important as quantitative (earnings, cash flows, etc)”*. Participant 2 provided its company perspective emphasizing the importance of financial ratios and metrics such as *“LTV, CAC, customer acquisition by channel, DAU, MAU, market size and CAGR”*. Participant 3 explained that in addition to the metrics the firms *“looks for evidence of a strong founding team, initial market validation, early revenues and product market fit”* while also looking for *“evidence that the company can scale exponentially and meet Series A metrics within 18 months of our investment without raising further capital”*. Participant 6 said that in addition to key financial metrics, *“ESG, market valuation and liquidity”* are as important as *“macroeconomic and geopolitical”* insights. This participant also showed concern regarding data accuracy stating that *“market pricing in bonds is very questionable at times and the price given by pricing providers is often not reflective of the achievable market price”*. This concern about data accuracy is also validated by Participant 8, further explaining the potential origin of the inaccuracies:

“The market pricing data is assumed to be reasonably accurate; the fundamental data tends to be sourced directly from the company. If fundamental data is sourced through a 3rd party provider, there are errors in the data, but serious anomalies are often obvious due to the time series nature of the data. Operational market data is highly inaccurate (market size, market shares etc) and we tend to take a sample of 5 or 6 samples and take the median figure”.

The perspective of Participant 7 concerning the scope of AI analysis was low, arguing that “*traditional trade, legal, financial, commercial, technical, regulatory and management and HR*” aspects are all important as every opportunity is different and “*the scope for AI analysis*” in individual scenarios is low. Participant 8 explained:

“Primarily fundamental data (company financial accounts etc) since no investment will be considered unless the business is one that we would like to own over the long term. However, when timing trading decisions, a combination of the current share valuation (relative to the market) and technical price trends are also considered”.

Participant 9 also stressed the importance of financial data but was the only participant to also discuss the growing importance of alternative data sets and their potential when used along AI-powered tools. As the participant claimed:

“When we are looking at data, obviously it depends on the company and the industry it belongs to. But we do a lot of comparables right now. For example, we look at a target company and we look at comparable companies that have recently been acquired in the last 18-24 months (In terms of financials) and then we look at public market comparables. I also see the rise for more alternative datasets (like customer data available from search engines, click data and app usage data for example). I think alternative datasets are becoming more of a thing, and I think that, you will start to see the industry start thinking about how they can incorporate larger variety of datasets. You can analyse a lot more volume now in an affordable and timely manner, which historically you could not”.

4.4. Feasibility of AI adoption in PE and VC firms in the short term

The last theme identified is the feasibility of the firms that participated in this research to adopt AI technologies for their internal processes in the short term. Regarding the likelihood of adopting AI technology in the next three years, the answers from the participants are polarized. Participant 2 said “*we have a plan to monitor and continue testing market intelligence tools but no set roadmap*”. Participant 3 argued that, while adopting AI “*may be a little early for VC firms just now*” it could possibly be “*in the next 3 years*”. Participants 5, 6 and 7 showed a clear lack of intention of implementing AI internally, as well as Participant 8, mentioning “*I think it is unlikely, other than tools to summarise unstructured data into structured data (as a service from 3rd party providers)*”. On the other side of the spectrum, Participant 4 indicated that the firm has plans to adopt AI “*specifically around pipeline management*”. Participant 9 was the only one demonstrating a proactive approach and defined plan for AI implementation within its firm:

“Yes, I would say we do. The fact that we have hired a Chief Digital Officer just kind of tells you the intention... She is very experienced, has had some big roles in a previous life. We are proud to kick off our AI journey”.

Though the revision of the managers perspectives, the results showed that AI implementation and roadmap are still in its infancy within these firms. Only two participants demonstrated

that their firms are embracing AI technology to tackle internal challenges and enhance business processes.

5. DISCUSSION

Based on the results outlined in Chapter 6, this chapter will seek to discuss the findings in regard to the research objectives and the literature review that has been carried out in this dissertation. Through the themes revealed in the analysis, the researcher will interpret the results and provide additional observations.

5.1. AI in the portfolio but lack of use internally

There is evidence of the increasing appetite of private equity firms for investing in Artificial Intelligence. A report from the OECD (2018), found that the total worldwide investment in AI start-ups from private equity accelerated considerably from 3% in 2011, to 12% in 2018. More recently, Massachusetts Institute of Technology received a \$350 million donation from Blackstone cofounder and chief executive Stephen Schwarzman, to support research in AI ethics and policy research related to the implementation of future technologies (Wang, 2019). This is one example of how important the topic of AI has become for PE executives. However, as the review of the academic literature has shown, firms in PE and VC have traditionally been technology laggards and slow to adopt technology internally (Geminder and Kollin, 2018). This part of the literature led to the first objective of this dissertation, which is to explore the views of senior managers regarding the irruption of AI technologies in the industry over the last five years. Based on the data gathered from the participants, the findings supported the idea that PE and VC firms are indeed focused in acquiring and investing in new AI companies for their portfolios, but there is a clear lack of a defined vision on how to utilise the technology internally. Furthermore, most senior managers that took part in this study believed that AI has not had a major impact on the industry itself over the past five years.

AI could, however, become a key strategic tool for private equity firms over the next few years. EY (2020) recently carried out a survey to CFOs within PE firms to understand if they were using next-generation data or AI to support investment processes. The results showed an increase of nearly one third of PE firms leveraging next-generation data solutions over the past 12 months of the study.

5.2. Potential benefits of AI implementation in PE and VC

The literature review helped understand the operational complexities that PE and VC firms must face. LBOs, venture capital financing and growth equity strategies rely on numerous lengthy processes that are key to investment decision making, and can potentially be enhanced utilising AI-powered technologies (Geminder and Kollin, 2018; Latham & Watkins LLP, 2019; Cooper, 2019; McKinsey 2019). This led the researcher to set the second objective of this dissertation, which is exploring senior management opinions on the benefits of AI implementation within their firms, particularly around investment decision-making processes. Through examining the answers of the participants, it can be concluded that despite not utilising AI technologies currently, many of these senior managers do see the potential benefits that can result from implementing it. The benefits identified by the participants ranged from enhancing purely financially related processes, to increasing the

volume of data can be analysed at present and enhancing key areas such as deal sourcing and deal selection. The findings also showed evidence of scepticism towards the current state of AI technology, where many managers questioned of the real business value that AI can add at present for investment decision making purpose. Participant 9 explained that, the benefits of AI implementation might vary considerably between firms focused on large buyouts and firms that focus on venture capital. This is due to the fact that the two models have access to vary different volumes of data that can be utilised to train machine learning algorithms. It can be concluded that, while senior management in PE and VC could foresee potential benefits from AI implementation, they do not benefit explicitly from AI at present. There is lack of qualitative studies on the topic of AI in the private equity industry. However, there are recent studies available that focus on analysing the perception of users regarding AI-tools in other industries. Prakash and Das (2020) carried out a thematic analysis to gain insights on the factors that drive user adoption of AI-based conversational agents (CA) in healthcare. Similarly to the findings of this research, their study found that users do perceive benefits such as performance improvement, but many risks and limitations of the CA technology were also identified, leading management to constrain users to using the technology.

The recent survey to PE CFOs carried out by EY (2020), validates some of the findings of this research regarding the areas of potential benefits of AI implementation within PE and VC firms. Figure 3 below shows the areas where technology investments were made by CFOs and the return over investment (ROI) achieved by the technology implementation.



Figure 3, Areas of technology investment in Private Equity firms. EY (2020).

5.3. The importance of diverse data in investment decision-making

The revision of the key processes within PE and VC firms in section 2.1, revealed that, in order to perform financial engineering and operational engineering actions, a considerable variety of data types is necessary (Gompers, Kaplan and Mukharlyamov, 2016; Gompers et al, 2020). This led to the third objective of this study, which is exploring what type of data senior management in PE and VC deems critical for their business operations. The findings from the research validated the insights gained through the literature review in section 2.1. The participants emphasized the importance of both qualitative and quantitative data for making investment decisions, as well as manual processes to allow forecast accuracy. Financial metrics, ratios and traditional analysis of fundamental data are still key for these firms. There is, however, evidence of interest in exploring new ways of gathering business insights through the analysis of less traditional, alternative data sets.

5.4. Feasibility of AI adoption in PE and VC firms in the short term

The last objective of this research was to determine if there is a defined plan of action to implement AI technologies within the firms that participated in this research. This objective was considered important for the researcher based on the findings from previous research, which showed that AI is disrupting industries and financial services organisations around the world. It was also found that organisations that do not adopt AI will struggle to compete in the years to come (OECD, 2020; Iansiti and Lakhani, 2020). The answers from the participants showed concerning evidence that indicates that most of these firms do not have a defined plan to implement AI internally in the next three years. Only two participants had already implemented or started defining a scope for implementation of AI technologies. These findings corroborate that private equity firms are taking longer to implement innovative technologies than other organisations in the investment and financial services sector (Geminder and Kollin, 2018).

There is currently much debate on the future applications of AI in business and its ethical challenges. However, researchers highlight that it is important for business leader to separate the “sci-fi concept” of AI, to the realistic use in business applications today (Schmelzer, 2020). Brock and von Wangenheim (2019) developed a framework for AI implementation success that organisations across industries can utilise to overcome its barriers and ensure a realistic implementation of AI tools (Appendix 3). The researcher believes that this guide could result beneficial for PE and VC organisations that do not have a defined roadmap for AI implementation, as it proposes action-inducing discovery questions that leaders can exploit to understand where their firms stand on their digital transformation journey.

6. CONCLUSION & RECOMMENDATIONS

This chapter will conclude this dissertation, summarising the findings of the literature review and the results from the thematic analysis carried out through the qualitative research process. Finally, recommendations for future studies will be proposed by the researcher.

6.1. Conclusion

Throughout this paper, to understand the perspectives of senior management in PE and VC firms towards AI technology, a review of the academic literature was conducted. Additionally, an explanation of the methodology chosen by the researcher was presented, following a qualitative research process using a questionnaire and interview methods. The results were analysed using thematic analysis and its findings discussed. Throughout the literature review, it was concluded that the private equity industry operates in a highly complex environment, where the various investment strategies performed, can lead to execution and management risks for PE and VC firms (Carter and Shah, 2017; Doshi, Klempner and Sudan, 2016; Gompers et al, 2020; Gompers, Kaplan and Mukharlyanov, 2016). In addition, it was found that the internal business processes within these firms are relying on many manual traditional methods of data analysis to provide investment insights to senior management. Furthermore, it was determined that lengthy due diligence processes are present at many stages of the execution process of LBOs, venture capital and growth equity transactions (Gompers, Kaplan and Mukharlyanov, 2016). The impact that AI technology is having across industries globally can not be denied. There is evidence of operational improvement in organisations that are embracing artificial intelligence as a tool to promote change and new ways of working. There is, however, a very different tendency to adopt innovative technologies in organisations across industries. While some financial services organisations are prone to seeing technology as a fundamental business transformation tool, the private equity industry seems to be far behind (Carter and Shah, 2017; Gompers et al, 2020; Geminder and Kollin, 2018).

In conclusion, this research project examined the perspectives of senior private equity managers towards artificial intelligence implementation using thematic analysis. Based on the thematic analysis carried out in, four themes were revealed: AI in the portfolio but lack of use internally, potential benefits of AI implementation in PE and VC, the importance of diverse data in investment decision-making, and the feasibility of AI adoption in PE and VC firms in the short term. These four themes helped answer the objectives and main question of this research. The study has shown that senior management is still unsure of the real value add that AI technology can bring to their business operations. While senior management shows a clear enthusiasm for growing investments into AI related organisations for the portfolio companies, there is evidence of a lack of use of these technologies to tackle internal business challenges and enhance investment decision making processes. However, the insights gained regarding the data types that senior managers see as essential for making investment decisions, led to researcher to believe that there is still an opportunity for AI technology to play a bigger internal role for PE and VC firms in the next three years. Nevertheless, senior managers within these firms must define a clear roadmap to start leveraging the capabilities

of AI, missing this opportunity could lead to the firms becoming unable to compete, in an everchanging business environment that is becoming more and more data dependent.

6.2. Recommendation for future studies

Qualitative research has not been significantly carried out in the topic of AI in private equity. This study has a sample of nine senior managers in both PE and VC firms based in UK and Ireland. It would be beneficial to carry out extended research on a larger sample and separate the results of PE firms from VC firms. One direction for future studies could be to carry out additional qualitative research and re-analyse the perspectives of participants on this topic in three years. As discussed in section 5.2, the potential outcomes of AI implementation could differ significantly for firms executing a small number of LBOs, and for firms considering thousands of VC investments. It would be interesting to explore if this is the case in the near future after these firms start leveraging AI technologies.

A second area of further research would be in the quantitative aspect of AI implementation within the sample. As a small number of the participants had a clear roadmap for AI implementation within their firms, it would be interesting to quantify the performance and additional value added through AI implementation, to then compare the results to those firms that did not plan for AI to be included in their processes. This research direction could potentially be more practical in the next three years once AI solutions are fully implemented in the firms.

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8. APPENDICES

8.1. Appendix 1: Questionnaire

Artificial Intelligence & Investment Decision-Making Questionnaire

* Required

Questionnaire

2. How do you feel that AI (Artificial Intelligence) technology has changed your industry over the past 5 years? *

Enter your answer

3. How do you see your organisation taking advantage of AI implementation in the near future? *

Enter your answer

4. What type of data would you view as fundamental when considering a new investment? *

Enter your answer

5. Do you ever question the accuracy or source of the data from the reports you use? *

Enter your answer

6. How do you feel the data from the reports/tools you use influence the kinds of investment decisions you make? *

Enter your answer

7. Do you believe AI technology can improve your investment decision-making processes? What key areas would you like to see improved? *

Enter your answer

8. Does your organisation have a plan of action to implement AI technologies in the next 3 years? *

Enter your answer

Back

Submit

This content is created by the owner of the form. The data you submit will be sent to the form owner. Never give out your password.

8.2. Appendix 2: Consent Form

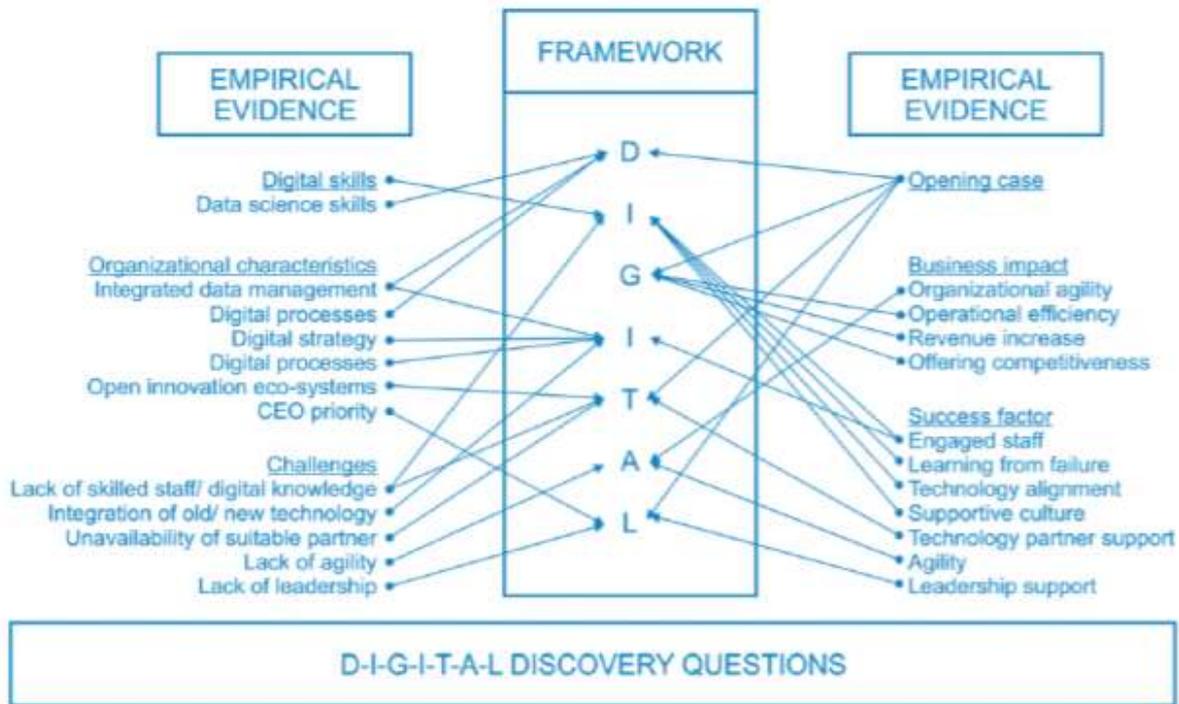
Informed Consent

- I voluntarily agree to participate in this research study.
- I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I understand that I can withdraw permission to use data from my survey within two weeks after the survey, in which case the material will be deleted.
- I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- I understand that participation involves completing a 7 question survey on Microsoft Forms.
- I agree to my answers to be recorded.
- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous.
- I understand that disguised extracts from my interview may be quoted in Oscar Sanchez's MBA dissertation.
- I understand that if I inform the researcher that myself or someone else is at risk of harm they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.
- I understand that signed consent forms and original survey results will be retained until the exam board confirms the results of the researcher's MBA dissertation.
- I understand that a transcript of my survey in which all identifying information has been removed will be retained for be two years from the date of the exam board.
- I understand that under freedom of information legalization I am entitled to access the information I have provided at any time while it is in storage as specified above.
- I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

Researcher: Oscar Sanchez (sanchezoscar@outlook.com)

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8.3. Appendix 3: AI implementation success framework



- D-I-G-I-T-A-L DISCOVERY QUESTIONS**
- D**ATA – Did your firm conduct a data inventory check?
 – Does your firm own or have access to digital data relevant and suitable to solve the business problem your DX/AI project is addressing?
- I**NTELLIGENT – Does your firm have a digital strategy?
 – Does your firm have the managerial/technical skills needed for DX/AI?
 – Does your firm have a plan to develop and acquire required DX/AI skills?
 – Is your firm willing and able to tolerate emerging rather than deterministic DX/AI?
- G**ROUNDED – Is your firm following an incremental, current business focused approach with your DX/AI project(s)?
 – Does your firm have a DX/AI projects roadmap?
- I**NTEGRAL – Have your firm's core business processes been digitalized?
 – Has your firm analyzed what existing/new offerings can benefit from DX/AI?
 – Has your firm integrated all data into one single data repository?
 – Is your firm's existing IT compatible with the DX/AI technology you plan to adopt?
- T**EAMING – Does your firm know with whom to partner in support of your DX/AI success?
 – Does your firm know with whom competitors partner in their DX/AI projects?
 – Did your firm develop or join an ecosystem to enhance its offerings?
- A**GILE – Has your firm assessed how quickly and frequently it can adapt its processes and offerings compared to its competitors?
 – Has your firm assessed how flexible it is in accommodating small, medium, large changes to its processes and offerings compared to its competitors?
- L**EADERSHIP – Is your firm's executive team and middle management comfortable and supportive of the changes that DX/AI will bring to your firm?
 – Is your firm's executive team and middle management actively endorsing and continuously communicating the status and progress of your DX/AI activities to all stakeholders?

Note: AI = artificial intelligence.

Appendix 3, DIGITAL framework, (Brock and von Wangenheim, 2019)