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Developing sales forecasting by utilizing business intelligence

A Single Case Study

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ABSTRACT :

In a highly volatile business environment, companies must utilize technological tools to make decisions effectively and efficiently. Therefore, companies use business intelligence to aid in decision-making. Sales forecasting is a key component of decision-making in companies, as it lays the groundwork for a vast number of decisions. However, only some companies have harnessed the full potential of business intelligence and sales forecasting.

This study examines how business intelligence can be utilized in sales forecasting. More precisely, this study examines the significance of capabilities in improving sales forecasting accuracy. The role of capabilities is vital as capabilities are intangible assets, in contrast to technological tools that are easily imitable and mobile.

This study's literature review focuses on business intelligence and sales forecasting literature. Previous studies of business intelligence and sales forecasting capabilities are examined to identify the key capabilities. Previous studies that synthesize business intelligence and sales forecasting are lacking. Moreover, there is a gap in the previous literature as the key business intelligence capabilities for sales forecasting have not been identified.

This thesis adopts a qualitative approach to answering the research questions. The case study method is used to examine how business intelligence can be used to develop sales forecasting. More precisely, the study is a single case study focusing on a company operating in the rental industry. The data is gathered for the study through six semi-structured interviews. The interviewees are chosen based on their business intelligence and sales forecasting expertise.

The findings of this study provide insight into how business intelligence can be utilized to develop sales forecasting. The theoretical framework developed for this study presents the key business intelligence and sales forecasting capabilities that improve sales forecasting accuracy. More precisely, the key capabilities are analyzed to get more detailed information on how capabilities can be developed to match the needs of the sales forecasting process. This study concludes by addressing its limitations and suggesting future research to extend the research in business intelligence and sales forecasting.

KEYWORDS: Business intelligence, Sales forecasts, Capabilities, Dynamic capabilities, Data, Development

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Abbreviations

BI	Business intelligence
CRM	Customer relationship management
ERP	Enterprise resource planning

1 Introduction

In a highly volatile business environment, managers need accurate internal and external information to make strategic and tactical decisions. Companies worldwide venture into information system investments such as business intelligence. (Alzghoul et al., 2022, p. 1) Business intelligence provides a wide range of benefits for a company, mainly in supporting decision-making, which correlates to improved business processes and achieving strategic business goals (Xu et al., 2022). The main aim of business intelligence is to give companies the possibility to gain a competitive advantage and improve firm performance. (Chen & Lin, 2021, p.13)

In the new global economy, sales forecasting accuracy has become a central issue for companies. Increased accuracy in sales forecasts is critical to company success. (Zhang et al., 2020, p. 6214-6215) In business history, sales forecasting has been considered a key factor in decision-making. Sales forecasts are leveraged in a wide range of decisions across various fields in a company. (Chronopoulos, 2022) Implications of sales forecasts are broad. However, the ultimate aim is to improve corporate metrics and outcomes and to gain a competitive advantage (Hoyle et al., 2020).

The past decade has seen rapid development of technologies and tools in business intelligence and sales forecasting. To utilize distinctive tools, the importance of capabilities arises. Capabilities are complex bundles of skills and knowledge exercised through processes that enable companies to coordinate and use their assets. (Davis & Mentzer, 2007) Capabilities are intangible assets that are hard to achieve, but those give the company an inimitable advantage (Bordeleau et al., 2020). Highly volatile business environments have heightened the importance of dynamic capabilities, a concept introduced to aid companies in environmental turbulence (Moreno et al., 2020).

1.1 Motivation for the study

Recent developments and fast changes in the field of business have led to an urge for companies to utilize technological tools in the decision-making process. Companies need to make business decisions effectively and efficiently. (Sangari & Razmi, 2015) Business intelligence systems provide opportunities to make sense of increasing amounts of data from internal and external sources. (Işik et al., 2013) Sales forecasting is central to the entire discipline of decision-making, laying the groundwork for many decisions. (Chronopoulos, 2022) Several researchers have reported that either sales forecasting or business intelligence is indispensable for companies. (Ensafi et al., 2022, p.14; Niu et al., 2021; Ramosaj et al., 2022, p.11; Zhang et al., 2020)

Although business intelligence and sales forecasting are indispensable, only some companies have harnessed the full potential out of business intelligence and sales forecasting. Considering the possible added value of business intelligence and sales forecasting, capabilities quickly become critical to harnessing the full potential of new technological tools such as business intelligence. Capabilities refer to the ability of companies to produce accurate sales forecasts. The importance of capabilities has received considerable attention as capabilities are intangible assets, in contrast to technological tools that are easily imitable and mobile. (Bordeleau et al., 2020) In addition, dynamic capabilities are essential because they provide capabilities to fast-changing business environments. Identifying and developing key capabilities increases the company's possibilities to compete in highly competitive business environments and, in the end, aims for competitive advantage and improved business performance. (Chen & Lin, 2021) Identifying key capabilities for the case company is extremely important as the company operates in a highly competitive market, which, in addition, is in a downward trend.

1.2 Research gap

Previous studies of sales forecasting and business intelligence have not yet dealt with the interplay of what business intelligence capabilities are essential for sales forecasting.

However, much literature has been published about identifying distinctive business intelligence capabilities. Alongside the growth in business intelligence literature, sales forecasting and sales forecasting capabilities have drawn interest from researchers. (Chen & Lin, 2021; Davis & Mentzer, 2007; Huang et al., 2018; Kulkarni et al., 2017; Ramakrishnan et al., 2016)

What is not yet clear is the role of business intelligence in sales forecasting and, in addition, how business intelligence capabilities support companies' development of sales forecasting. According to Hoyle et al. (2020), sales professionals do not fully utilize information systems and reports to predict future sales. To this end, it is unclear why capabilities are not harnessed to improve company metrics and outcomes. The study suggests future research investigating the capabilities needed to integrate emerging technologies into sales forecasting.

Although extensive research has been carried out on business intelligence capabilities, according to Ramakrishnan et al. (2016, p. 5022), there is a need to understand the concepts of business intelligence capabilities better. More specifically, research should focus on identifying business intelligence capabilities at a granular level. In addition, Sangari and Razmi (2015) stated that business intelligence capabilities are still open for future research. Moreover, business intelligence and sales forecasting create value for companies. (Alzghoul et al., 2022, p.3) (Shiau et al., 2023, p. 1182) However, much uncertainty still exists about the relationship between business intelligence and the added value of information technologies to decision-making and different aspects of company performance. (Moreno et al., 2020)

Despite the extensive business intelligence and sales forecasting literature, very few studies have investigated the topic from a rental business point of view. According to Hulot et al. (2018), accurate sales forecasts have received little attention from a rental business perspective in the literature. In addition, Yang et al. (2021) introduce the idea that forecasting methods in the rental business should be examined more precisely.

Moreover, the possibilities of utilizing business intelligence in distinctive industries are under-researched. (Kourentzes et al., 2019) All in all, previous studies have not synthesized how business intelligence can be utilized in sales forecasting. More precisely, studies have not dealt with which business intelligence capabilities support the development of sales forecasting.

1.3 Research problem and theoretical contribution

This paper seeks to identify how business intelligence can be utilized in sales forecasting. This paper examines the significance of capabilities in improving sales forecasting accuracy. This research investigates what business intelligence capabilities are critical when a company wants to develop sales forecasting. In addition, this paper examines the distinctive characteristics of sales forecasting in the rental business industry by identifying key sales forecasting capabilities for the rental business industry. Therefore, after conducting the research, this paper addresses the following questions.

Question 1: How do business intelligence capabilities support companies' development of sales forecasting?

This question seeks to identify the importance of business intelligence for developing sales forecasting. The key to answering this question is identifying key business intelligence capabilities that considerably impact sales forecasting and improve sales forecasting accuracy. Sales forecasting and business intelligence experts were interviewed to answer this question.

Question 2: How does the interplay between sales forecasting and business intelligence capabilities enhance sales forecasting accuracy?

This question will review the similarities between sales forecasting and business intelligence and, more precisely, from a capabilities point of view. Answering this question requires a deeper analysis of sales forecasting and business intelligence capabilities and

their distinctive and common characteristics. Ultimately, the impact on improved sales forecasting accuracy will be analyzed. Sales forecasting and business intelligence experts were interviewed to answer this question.

Question 3: What aspects of sales forecasting and business intelligence are essential for the rental business industry?

This question researches sales forecasting and business intelligence from the case company's point of view. The key to answering this question is understanding how business intelligence and sales forecasting add value to a company. In addition, the vital aspect that must be considered in the sales forecasting process is to choose the proper sales forecasting methodology that fits the company's and industry's needs. Sales forecasting and business intelligence experts were interviewed to answer this question.

This research provides an opportunity to advance the understanding of business intelligence and sales forecasting. This research aims to contribute to the growing study area by exploring how business intelligence can be utilized in sales forecasting. Moreover, the research offers insight into the rental business industry.

1.4 Thesis structure

The overall structure of this research takes the form of five chapters, including this introductory chapter. This research begins with a literature review of business intelligence. The second part of the literature review introduces the concept of sales forecasting. The literature review presents the basics of business intelligence and sales forecasting, and more precisely, inspects the concepts from a capabilities point of view. The final part of the literature review summarizes sales forecasting and business intelligence, and the theoretical framework of this research is presented.

Next the methodology section introduces the methodologies utilized to conduct the research. Firstly, the concepts of qualitative research methods and case study research

strategy are defined. A single case study strategy is defined more precisely as the case study method utilized to conduct the research. Moreover, the case selection process and the case company are introduced. After the case company is introduced, the data collection and analysis methods are presented. The final part of the methodology section presents how the quality is assured by analyzing the research's validity, reliability, and generalizability.

The findings section includes an analysis of the material acquired by interviews conducted with experts within the research phenomena. The key findings related to the research topic are presented. Quotes from the interviewees are used to provide evidence to support conclusions. The findings section is divided into three parts according to the research questions. The final part of the findings section presents the revised theoretical framework.

The final part of the research is the discussion sections. The discussion section consists of theoretical contributions, managerial implications, suggestions for future research, and limitations. The research findings are analyzed and discussed based on existing knowledge of the phenomena. In addition, managerial implications regarding business intelligence and sales forecasting are presented. Moreover, the discussion section introduces several suggestions for future research. In the final part of the discussion, a few limitations of the study will be presented and argued against.

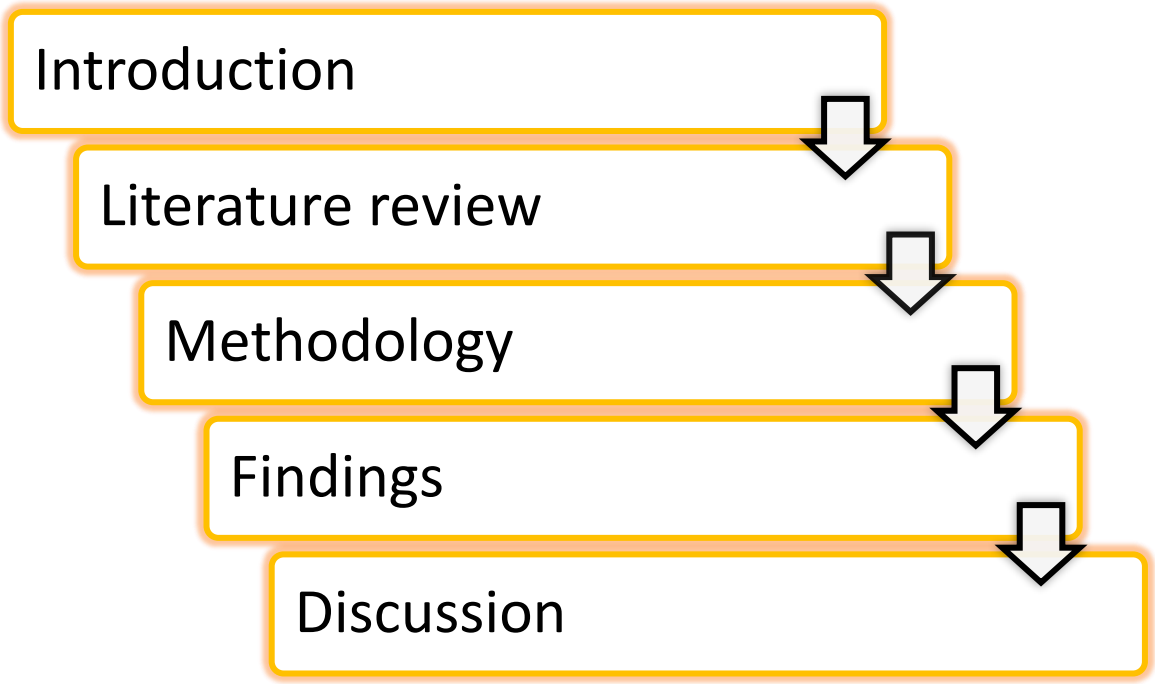

Figure 1 Structure of thesis

2 Literature review

The literature review introduces the concepts of business intelligence and sales forecasting. The literature review examines the extensive literature on business intelligence and sales forecasting. Finally, the business intelligence and sales forecasting literature will be synthesized and a theoretical framework for the research will be developed.

2.1 Business intelligence

Business intelligence systems appeared in the mid-1950s for the first time (Božič & Dimovski, 2019, p.2). Business intelligence is a term introduced in 1989 by Howard Dresner to describe concepts, processes, and methods to improve decision-making with a data support system (Sangari & Razmi, 2015, p. 357). In the late 1990s, the development of information systems led to the emergence of business intelligence systems. Business intelligence has been ranked in the top two agendas of senior executives because it is a critical foundation of competition. The popularity of business intelligence systems has increased due to their ability to produce complicated information for the decision-making process (Ain et al., 2019, p.1). The Importance of business intelligence will rise as technology advances (Shiau et al., 2023, p. 1193). Companies try to make sense of vast amounts of data generated by internal and external sources (Işik et al., 2013, p. 13).

Business intelligence is a philosophy that includes practices, strategies, technologies, and data supporting business information analysis, presentation, and publication (Dedić & Stanier, 2017, p. 2). According to Rajnoha et al. (2016, p. 187), business intelligence is statistical, data mining, hypothesis, and predictive analysis. In other words, business intelligence helps managers understand the company's economic situation. Moreover, Trieu (2017, p. 111) defines business intelligence as concepts, technologies, processes, and methods that improve decision-making. However, in the literature, business intelligence combines business analytics, big data, data mining, and data warehousing concepts. In addition, business intelligence is applications, tools, and practices to access and analyze information to optimize performance and decision-making. Business intelligence

provides the ability to process information more efficiently (Larson & Chang, 2016, p. 701).

Business intelligence consists of methods, practices and technologies that transform. Moreover, business intelligence provides access to data for all decision-makers regardless of the level of organization. (Xu et al., 2022, p. 2) According to Chen and Lin (2021, p. 1), business intelligence systems collect data into business-related information and knowledge. Moreno et al. (2020, p. 1) define business intelligence as a set of practices, applications, and processes for collecting and storing helpful business information to aid decision-making. Dabab and Weber (2018) describe business intelligence as the ability to predict changes in markets and technologies. Likewise, Sangari and Razmi (2015, p. 358) defined business intelligence as process and tools for acquiring and analyzing internal and external sources to reveal strategic business dimensions for decision-making.

From a technical approach, business intelligence is tools and technologies such as data warehousing, dashboards, and reporting tools to support decision-making. Moreover, Božič and Dimovski (2019, p. 1) define business intelligence as practices, systems, and applications that analyze knowledge from diverse business and market sources to enhance decision-making. Business intelligence is “strategic initiatives that amplify innovation capacity and business effectiveness.” Likewise, Tavera Romero et al. (2021) defined business intelligence as a decision-making process supported by analysis of a company's information resources. Furthermore, business intelligence is vital in strategic management as it is essential in maintaining relationships with other stakeholders, counterintelligence, and short-term and long-term decision-making. According to Ain et al. (2019, p. 1), business intelligence facilitates organizations in collecting, integrating and analyzing information to understand their opportunities, strengths, and weaknesses. Business intelligence can perform statistical and financial analysis and forecast model building that support decision-making. Similarly, Niu et al. (2021) define business intelligence as a process and tool that gathers information from various sources to help companies make decisions and enhance efficiency and productivity. Thus, business intelligence is vital in

optimizing company effectiveness by revealing industry insights and strengthening decision-making frameworks.

According to Kulkarni et al. (2017, p. 517), business intelligence is complicated technological solutions that provide information from data stores to tools that allow users to analyze and present information to make improved decisions. Business intelligence is a term that refers to information systems that process data into meaningful information that reduces uncertainty in decision-making (Torres et al., 2018). Similarly, Shiau et al. (2023, p. 1181) highlighted that business intelligence transforms raw data into actionable information that reduces uncertainty in decision-making. According to Xu et al., (2022, p. 8-9), information technology is a strategic tool that plays a role in advancing goals and competitive advantage and creating innovation in business.

Business intelligence is used to create strategy, analyze market information, and predict future market attractiveness (Xu et al., 2022, p .2). Niu et al. (2021) highlight using business intelligence in strategic decision-making by forecasting future thoughts and trends. Business intelligence intends to develop an understanding of business dynamics by collecting data from multiple sources (Rouhani et al., 2016). Moreover, Business intelligence is used to generate operational statistics and forecasting. (Chen & Lin, 2021, p .4) According to (Moreno et al., 2020, p. 3), business intelligence is utilized in customer relationships, marketing, sales, operations, and developing new products and services. In addition, business intelligence and innovation ambidexterity enhance faster experimentation of new products and services and boost the predictability of the value of new products and services (Božič & Dimovski, 2019, p. 12). According to Larson and Chang (2016, p. 701), business intelligence is utilized in the supply chains, sales, finance, and marketing decision-making processes.

2.1.1 Business intelligence capabilities

Business intelligence capabilities improve the ability to explore information and enhance a company's performance (Ramakrishnan et al., 2016, p. 5023). Companies must improve the development of business intelligence capabilities to accomplish success (Ain et al., 2019, p. 11). Sangari and Razmi (2015) discovered that business intelligence capabilities directly impact supply chain performance. Scholars and practitioners have highlighted business intelligence capabilities due to their significant impact on a company's performance, which does not vary by company size. Business intelligence capabilities are systems, technologies, practices, and techniques that analyze data for timely business decisions. Business intelligence capabilities are a company's capability to scan, absorb, transform, and analyze internal and external data to support business decisions. (Alzghoul et al., 2022) Business intelligence capabilities transform factual relationships into strategic planning to achieve organizational goals (Chen & Lin, 2021, p.4).

Ramakrishnan et al. (2016) separate business intelligence capabilities into three distinctive capabilities: 1) business intelligence innovation infrastructure capability, 2) business intelligence process capability, and 3) business intelligence integration capability. Business intelligence infrastructure capability is deploying business intelligence functionalities to support a company's culture and technological improvements. The capability of the business intelligence process deploys business intelligence functionalities to contain customer-centric and business-centric activities. Finally, business intelligence integration capability is acquiring and integrating business intelligence into a company's systems. Figure 2 presents distinctive utilization possibilities for business intelligence and how business intelligence requires various capabilities to achieve business organizational effectiveness.

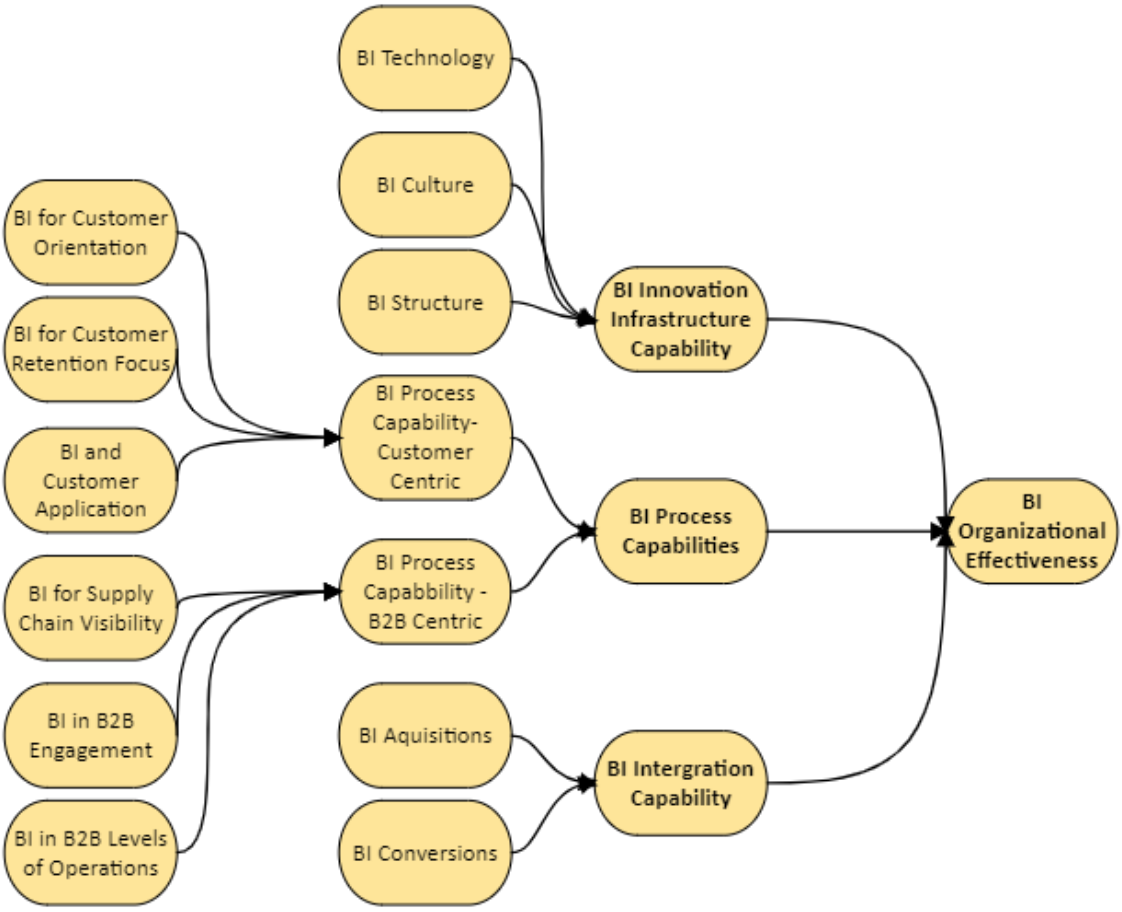

Figure 2 Integrative model of dimensions and functionalities of BI capabilities (Ramakrishnan et al., 2016, p. 5025)

Similarly, Işik et al. (2013) identified integration capability as one of the business intelligence capabilities. Moreover, the above study divided business intelligence capabilities into technological and organizational capabilities. Technological capabilities are technical solutions that include technology architecture and data standards. In comparison, organizational capabilities are assets that enhance practical business intelligence applications. The study examined five critical capabilities for companies: data quality, integration of business intelligence systems, user access, flexibility, and risk support.

Kulkarni et al. (2017) divided business intelligence capabilities into information and business intelligence system capabilities. Information capabilities refer to providing quality information with convenient levels of detail and reliability at the correct time. Business

intelligence systems capabilities are the skills to exploit information via exploration and customized applications to suit a company's needs. Management impacts business intelligence capabilities by encouraging the use of technology in decision-making and by inspiring evidence-based decision-making.

Sangari and Razmi (2015) identified three distinctive business intelligence capabilities: managerial capability, technical capability, and cultural capability. Managerial capability is the ability to process and create applicable information and knowledge to enhance decision-making. Technical capability refers to the availability and strength of using technologies, tools, and software to enhance decision-making. Cultural capability refers to the ability to develop a vigorous and effective business intelligence culture that enhances the utilization of business intelligence. The paper by Bordeleau et al. (2020) also highlighted managerial capabilities as strategic business intelligence capabilities when top management discovers actionable insights from data. Moreover, the study highlighted operational business intelligence capabilities that monitor operational processes. Thus, capabilities at the operational level are different from capabilities across the company.

Fink et al. (2017, p. 38) highlighted two distinctive business intelligence capabilities: operational business intelligence capabilities and strategic business intelligence capabilities. A framework of exploration and exploitation in organizational learning applies to the fit between operational and strategic capabilities. The study's findings validate that operational and strategic capabilities should be segregated, and companies may become ambidextrous in their business intelligence capabilities.

Business intelligence capabilities and resources are critical to business strategy. Thus, they require constant investments. However, investments in business intelligence capabilities are sometimes challenging to justify as benefits are considered intangible. (Moreno et al., 2020). A strong team of experts should develop analytical capabilities to

gain competitive advantage. Managers should identify transformation in business intelligence capabilities on operational and strategic levels. (Fink et al., 2017)

2.1.2 Dynamic business intelligence capabilities

“Dynamic capabilities are a concept that define company's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments. Dynamic capabilities thus reflect on organizations ability to achieve and innovate forms of competitive advantage given path dependencies and market positions.” (Teece et al., 1986, p. 517) After introducing the concept, Teece explained that dynamic capabilities can be divided into sensing, seizing, and transforming. Sensing is finding and judging external opportunities. Seizing is mobilizing resources to acquire value from external sources. Transforming is the ability to adapt processes to changing business environments. (Teece, 2007)

According to Chen and Lin (2021), dynamic capabilities theory posits that business intelligence is a critical organizational capability that captures opportunities and identifies threats. Dynamic business intelligence capabilities are sensing capability, transforming capability, driving capability, and incrementing firm performance. Sensing capabilities identify environmental and market changes. Transforming capability adapts information to appropriate actions through strategic planning and optimizing resource allocation. Driving capability aims to reach a consensus in decision-making to, in the end, achieve enhanced competitiveness and profitability. In addition, business intelligence dynamic capabilities enhance strategic advantages that turn into competitive advantage (Božič & Dimovski, 2019). In addition, Tavera Romero et al. (2021) highlight that business intelligence responds to dynamic markets. Opportunities rise in unstable business environments. Thus, companies require fast and efficient decision-making processes provided by modern tools provided by business intelligence.

Torres et al. (2018) introduce that business intelligence seizing and business process capabilities are applied after Teece's business intelligence sensing capability. Sensing capability is a company's ability to identify opportunities through data analysis. Seizing capability refers to integrating and interpreting data to plan the commitment of resources to support the process. Figure 3 presents how business intelligence management capability, directly and indirectly, influences sensing capability through business intelligence technical infrastructure quality. Business intelligence capabilities, including dynamic capabilities, affect company performance.

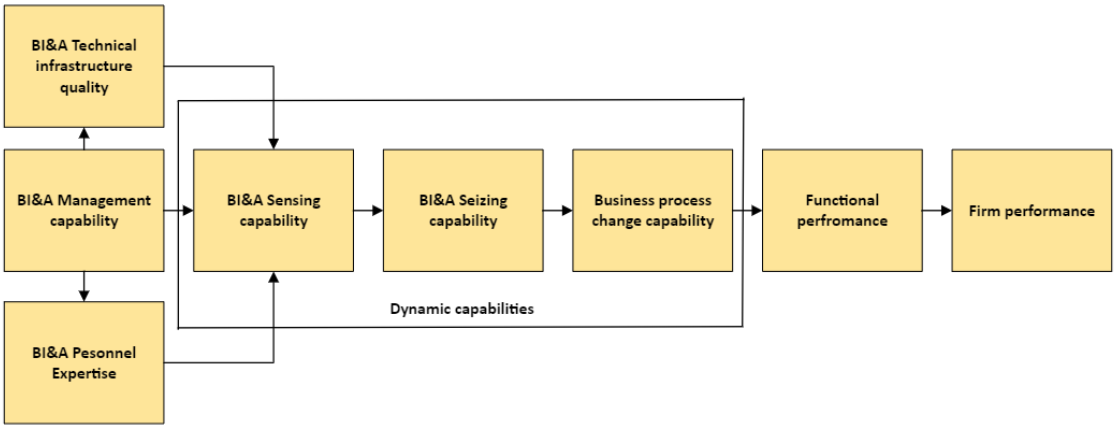

Figure 3 Dynamic capabilities (Torres et al., 2018, p. 825)

Dabab and Weber (2018) also argue that dynamic capabilities such as sensing, seizing, and transformation are tied to business intelligence capabilities. Sensing capability utilized valuable business intelligence systems to predict changes. Seizing capability combines and reconfigures assets to meet customer needs identified by sensing capability to sustain competitive advantage. In the end, Business intelligence and dynamic capabilities are tightly correlated.

2.1.3 Value for a company

Investments in Business intelligence infrastructure generate value for a company when business intelligence capabilities are enabled. Resources and capabilities create value as they support the development of dynamic capabilities that allow operational resources

and capabilities to be utilized in alignment with the company's needs. (Moreno et al., 2020) Moreover, using the right business intelligence capabilities will enable companies to realize maximum benefits from business intelligence investments (Işik et al., 2013, p. 22). Despite this, business intelligence projects and investments fail to yield expected results. Companies encounter challenges in leveraging value from business intelligence systems. (Ain et al., 2019, p.2) Larson and Chang (2016, p. 701) describe business intelligence as a value proposition that supports companies in tapping into decision-making information that regular reporting does not provide. Business intelligence adds value by providing opportunities for a company to measure performance (Shiau et al., 2023, p. 1182). Business intelligence capabilities create value for a company by improving business decisions and processes. Business intelligence capabilities support managers in making timely decisions to gain a first-mover competitive advantage. (Alzghoul et al., 2022, p. 3).

Business intelligence increases the quality of strategic and operative planning. Business intelligence systems can maximize internal and external information to create competitive advantage. More precisely, business intelligence drives revenue growth and improves a company's operational efficiency. However, increased economic performance can occur only when methods and practices for strategic management are also employed. Strategic management and business intelligence systems have increased economic performance in various industries. (Rajnoha et al., 2016) Likewise, according to Božič and Dimovski (2019, p. 1), business intelligence turns data into valuable insights that lead to enhanced decision-making and increased economic value. In addition, business intelligence improves performance, boosts efficiency, enhances productivity, strengthens business growth, reduces costs, and establishes supplier-buyer relationships, which leads to increased value and competitive advantage. Considering the increased value produced by business intelligence, information is the most critical asset of a company. Thus, it is a fundamental resource for a company's development. (Tavera Romero et al., 2021). Utilizing business intelligence creates value for a company by predicting and

solving problems that enable practical actions to support companies to achieve predefined goals (Ain et al., 2019, p. 11).

Value is created with capabilities that are the organization's ability to assemble, integrate, and deploy valued resources. In contrast, resources like information systems are easily imitable and mobile. Thus, capabilities are significant because capabilities are intangible assets. Organizational learning ambidexterity is an inimitable advantage but challenging to achieve. (Bordeleau et al., 2020, p. 174) Likewise, Božič and Dimovski (2019, p. 3) stated that companies that can achieve complementary organizational capabilities will gain more excellent value since it is challenging to establish similar capabilities.

2.2 Sales forecasting definition and methods

Sales forecasting is a process that predicts future sales using historical data. Sales forecasting is a vital technique to support a company in being more operationally flexible and growing. (Chee et al., 2022, p. 311) Even minor improvements in sales forecasting accuracy substantially impact companies (Bi et al., 2020, p. 2). Sales forecasting links internal decision-making and external factors that affect companies. (Sohrabpour et al., 2021, p. 2) Reliable sales forecasting techniques have been used since the nineteen fifties, first developed by Holt and Brown. The development of sales forecasting methods has accelerated since the arrival of information technology. (Mascle & Gosse, 2014, p. 1140)

Sales forecasting is indispensable to every company (Ensafi et al., 2022, p. 14). Similarly, Zhang et al. (2020) stated that sales forecasting is essential for modern business operations. Moreover, Ramosaj et al. (2022, p. 11) stated that sales forecasting is an indispensable part of business. Similarly, sales forecasting is one of the top priorities by the top management (Chronopoulos, 2022, p.736). The objective of utilizing sales forecasting is to improve economic performance and reduce losses (Gustriansyah et al., 2022)

Companies can increase economic benefits with accurate sales forecasts by reducing losses caused by miscalculated production plans. Sales forecasting lays the groundwork for corporate operation plans, capital budgets and short-term strategic plans. (Chronopoulos, 2022, p. 736) Likewise, according to Hoyle et al. (2020, p. 127), sales forecasting is base to budgets, manufacturing plans, and compensation structures. According to Sohrabpour et al. (2021, p. 1), sales forecasting is essential for supply chain management, production, planning, strategy, marketing, logistics, warehousing, and resource management. In addition, Fan et al. (2017, p. 90) highlighted that sales forecasting is utilized in decision-making across the fields of tasks in a company. Accurate sales forecasts streamline inventory management to aim for increased revenues (Li et al., 2023, p. 98). According to Gustriansyah et al. (2022), sales forecasting can optimize inventory and significantly allocate resources to finance and marketing. Song (2015, p. 196) stated that sales forecasting reliably affects labor scheduling systems, operational costs, and service levels.

Sales forecasting techniques are qualitative, quantitative or a combination of both. Qualitative techniques are based on human judgment and experimentation. In contrast, quantitative techniques are implied from a study of sales history. (Mascle & Gosse, 2014, p. 1042) Qualitative methods are more widely used in sales forecasting than quantitative methods. However, there is an extensive amount of research supporting the superiority of quantitative forecasting methods in most situations. (Davis & Mentzer, 2007, p. 475)

One of the first sales forecasting methods still in use is Holts double exponential smoothing method, which calculates future values based on historical sales information. A weakness of Holt's method is its reliance on past sales, which makes the forecast inadequate in changing economic conditions. (Sano & Yamada, 2021, p. 5537)

Winter's method is one of the most well-known forecasting methodologies because it is easy to implement, and gives effective and efficient results. Winter's approach captures

upward and downward trends in data, and augmented winters capture additional seasonal indexes. Utilizing machine learning and artificial intelligence techniques boosts the accuracy of the winter's method. (Karabağ & Fadıloğlu, 2021)

According to Chee et al. (2022), the simple moving average has the highest forecasting accuracy. A Time series quantitative forecasting model can predict future value based on trends and patterns of past data. In addition, the deep neural network is a time series sales forecasting method successfully adapted to product sales forecasting (Li et al., 2023, p. 97). Likewise, classical statistical methods extrapolate from historical trends and seasonal effects to predict future sales (Gustriansyah et al., 2022).

Moving averages and autoregressive integrated moving averages are some of the most straightforward sales forecasting methods to make projections about time series without remarkable seasonal patterns. (Ensafi et al., 2022, p. 2) However, according to Song (2015), autoregressive seasonal methods lack the seasonal component, thus making the method less accurate.

SARIMA sales forecasting technique implements trends, time lags, auto-regression, moving averages and seasonality. Moreover, the SARIMA technique Is computationally efficient and easy to implement. Meanwhile, the ATLAS sales forecasting technique achieves accurate predictions for sales by building a single tensor-factorization model across distinctive stores and products. (Bi et al., 2020)

Causal sales forecasting methods are proven to be more accurate and precise. The difference between time series and causal methods is highlighted when sales behavior changes in an unstable pattern and there are unpredictable fluctuations in its trend. (Sohrabpour et al., 2021, p. 7)

2.2.1 Sales forecasting capabilities

Capabilities are complex bundles of skills and knowledge exercised through processes that enable companies to coordinate and use their assets. Distinctive capabilities compared to competitors will give the company a competitive advantage. Unique capabilities require a commitment of resources and continuous learning. (Davis & Mentzer, 2007, p. 476-477)

The organizational climate shapes organizational capabilities, such as sales forecasting capability. Sales forecasting capability enhances collective learning about the business environment through superior coordination activities in the company. Organizations learn through interaction with their business environment. More precisely, sales forecasting capability is a spanning capability that includes both external and internal analyses. (Davis & Mentzer, 2007, p. 476-477)

Corporate social responsibility activities conducted by managers enhance the impact of brand awareness and customer loyalty, which leads to more accurate sales forecasts. Managers of social responsibility companies are more conscious of their loyal and brand-aware clients, and of the future benefits of social responsibility actions than of simply sales forecasting. (Chronopoulos, 2022, p. 735)

Technological capabilities of employees, especially sales managers and salespersons, improve sales forecasting accuracy. Tools such as CRM and ERP improve sales forecasts when employees' technological capabilities allow the utilization of technology. However, technological capabilities are sometimes limited, a barrier to utilizing technological systems in sales forecasting. Top management's encouragement to use technological tools will increase sales forecasting accuracy. (Hoyle et al., 2020) Data of a company can managed and integrated with technological tools and capabilities to develop sales forecasting and decision-making processes. (Chatterjee et al., 2023, p. 1)

Information technology capabilities are the ability to mobilize and deploy information technology resources in consolidation with other resources and capabilities. High information technology capabilities generate more accurate internal reports to evaluate a company's current situation and forecast future performance and sales. In addition, information technology capabilities allow for the more precise gathering of data, processes, products, and customers to utilize in sales forecasting. In conclusion, information technology capabilities enhance management forecasting accuracy. (Huang et al., 2018)

Information technology capabilities have significant connections to company performance due to increased effectiveness in business processes and decision-making. (Alyahya et al., 2023) Likewise, Huang et al. (2018, p. 49), stated that information technology capabilities increase company performance and value. Information technology capabilities are utilized in sales forecasting tools to improve the forecasting process, increasing overall company performance. Training should be provided to employees to use these tools and develop information technology capabilities to extract the best potential from the sales forecasting tools. (Chatterjee et al., 2023)

Identifying market signals both ordinary and extraordinary is a capability that improves sales forecasting accuracy. Market signals such as consumer trends, competitor actions, and sudden economic, political, and catastrophic are signals that sales forecasters can identify. Forecasting capability is not limited to the hope that future demand is a consequence of what has happened in the past. Conversely, forecasting capabilities are based on understanding market signals and historical data. (Cassettari et al., 2017) Moreover according to Zhang et al. (2020, p. 6214) employees' ability to identify macroeconomic conditions and consumer purchase decisions affects the accuracy of sales forecasts. Likewise, according to Davis and Mentzer (2007, p. 493), learning capability improves performance by increasing company's ability to respond effectively to changing market conditions.

Corporate capabilities can be considered as firm capability, that compromises activities that aim to handle environmental uncertainty. These capabilities recognize what is changing and evaluate the effectiveness to the company. Understanding the future connects to more accurate sales forecasts. (Semke & Tiberius, 2020)

Dynamic capabilities are identified as critical capabilities in sales forecasting. The dynamic capabilities approach addresses the capabilities needed to adapt to a changing business environment that threatens a company's competitiveness and survival. Dynamic capabilities in the context of sales forecasting refer to the sensing process of dynamic capabilities, based on environmental analysis. (Semke & Tiberius, 2020)

2.2.2 Sales forecasting challenges and limitations

Competent historical data are required to perform accurate forecasting (Chee et al., 2022, p. 311). Effective forecasting techniques are needed when there is little or no historical sales data. The solution to the challenge is to leverage sales data from similar products or stores. (Bi et al., 2020, p. 3) Moreover, Li et al. (2023, p. 98) presented that a critical challenge for sales forecasting is efficiently modeling complex, non-linear dependencies between time steps and various variables. According to Kongthanasuwan et al. (2023), sales forecasting is challenging because data is diverse and complex, and the amount of data is infinite. In addition, Chatterjee et al. (2023, p. 2) stated that accurate decision-making requires reliable data.

The diversity of products creates a challenge to produce accurate sales forecasts. (Mascle & Gosse, 2014, p. 1056) Other Challenges for accurate sales forecasts are the noise level in the data, the type of business where the data are from, and distinctive modeling and event handling techniques (Song, 2015). In addition, sales forecasts are challenging to formulate accurately for two reasons. Firstly, managers are biased, which has detrimental effects on accuracy. Secondly, managers cannot consider many external indicators simultaneously and weigh indicators appropriately. Moreover, sudden global events are impossible to forecast, which is one variable that affects sales forecasting accuracy.

In addition, weather patterns affect sales. However, weather patterns are complex to forecast in long-term sales forecasts. (Sagaert et al., 2018)

Traditional forecasting methods hypothesize historical trends and seasonal fluctuations to predict future sales. Thus, these methods cannot predict environmental macroeconomic changes, which affects future sales significantly. Macroeconomic changes are manually adjusted to the forecasts. However, these forecasts are biased since humans are inefficient in adjusting, and the process is time-consuming. (Sohrabpour et al., 2021, p. 2) Historical data cannot be used as the only variable in sales forecasting. Internal and external data must be utilized to improve sales forecasting accuracy. (Currie & Rowley, 2010, p. 374) Companies should observe the state of the national market and analyze economic indicators to make production plans and sales forecasts. (Zhang et al., 2020, p. 6214).

Inaccurate sale forecasts are a challenge, because overstocking or stocking out increases inventory costs, which leads to reduced return on investment. In addition, stock-out eliminates customer loyalty and complicates new customer acquisition. (Gustriansyah et al., 2022) Similarly, Mascle and Gosse (2014, p. 1039) stated that insufficient stocks lead to missed sales. Sales forecasts should be capable of covering shop's needs without causing overstock. Managing and optimizing stock levels through sales forecasts decreases insufficient stock levels. Increased forecasting accuracy improves the company's inventory performance because it will reduce the necessary level of safety stocks (Sano & Yamada, 2021, p. 5349)

Regardless of the challenges, the next decade will be the golden age for sales forecasting. The vast amount of datasets provides a clear picture of customer behavior, which will improve sales forecasting and efficiency and ultimately enhance revenues. (Boone et al., 2019, p. 178)

2.2.3 Industry-specific characteristics of sales forecasting

Sales forecasting is an indispensable part of every company, especially for companies that sell seasonal items. Accurate forecasts allocate resources to the right products in terms of profits. (Ensafi et al., 2022, p. 14). Sales forecasting based on historical patterns has become less precise in many industries (Currie & Rowley, 2010, p. 374). Socially responsible companies commit forecast errors of lower magnitude. Thus, sales forecasting accuracy is positively related to the level of corporate social responsibility (Chronopoulos, 2022, p. 734). Even short-term sales forecasting for a product produces an advantage in the competitive market (Chee et al., 2022, p. 311).

Sales forecasting methods chosen by a company depend on personal comfort, availability of data, and access to and ability to utilize appropriate tools (Hoyle et al., 2020, p. 127). The implementation process of forecasting systems is commonly conducted based on replicated concepts, targets, and principles from other companies to accelerate the implementation process (Sohrabpour et al., 2021, p. 1). In many industries, a method with a single seasonal cycle length may not be satisfactory (Song, 2015).

In the rental industry, especially in car rental accurately forecasting monthly revenue per unit received increased attention due to its ability to benchmark annual pricing. However, the challenge is that many rental industries suffer severe nonlinearity. (Hong et al., 2007) In the car rental industry, hybrid forecasting methods have the best effect, and the relative errors in forecasts are within an acceptable range (Yang et al., 2021, p. 23). In addition, according to Boldrini et al. (2019), rental sales can be accurately predicted using algorithms.

Distinctive industries have various variables that affect future sales. Sales forecasting based on rental industry standards builds on demand intervals that compensate for a natural imbalance in lost arrivals and lost departures. (Hulot et al., 2018) Revenue management applications have increased in popularity in the rental industry. Revenue management applications aid when some products record only a few sales events, making

the small sales cases necessary for practice. In addition, sales forecasting is challenging when sales depend on the availability of other products, so substitution effects need to be considered in sales forecasting. (Kourentzes et al., 2019)

2.3 Synthesis and theoretical framework

The central concepts under examination in this research are business intelligence, sales forecasting, and various capabilities connected to business intelligence and sales forecasting. This theoretical framework explores the critical business intelligence capabilities for sales forecasting. In addition, key sales forecasting capabilities will be identified in the research. Integrating business intelligence and sales forecasting provides a persuasive framework for decision-making in various business areas. Ultimately, the aim of utilizing business intelligence in sales forecasting is more accurate forecasts, which benefits companies in decision-making.

In the highly competitive business environment, companies increasingly depend on Business intelligence to gain actionable insights from data to aid in decision-making (Alzghoul et al., 2022). Business intelligence is a philosophy that includes practices, strategies, technologies, and data supporting business information analysis, presentation, and publication (Dedić & Stanier, 2017). Moreover, Trieu (2017, p. 111) defined business intelligence as concepts, technologies, processes, and methods that improve decision-making.

Similarly to business intelligence, companies depend on sales forecasting to predict future sales and support various decision-making areas. Sales forecasting is a process that predicts future sales using data. Sales forecasting is vital to help companies be more operationally flexible and grow. (Chee et al., 2022, p. 311)

Capabilities are complex bundles of skills and knowledge exercised through processes that enable companies to coordinate and use their assets. Unique capabilities require a commitment of resources and continuous learning. (Davis & Mentzer, 2007, p. 476-477) More detailed concepts are the dynamic capabilities that reflect an organizations ability

to achieve and innovate forms of competitive advantage in changing market environments (Teece et al., 1986).

There are several similarities between business intelligence and sales forecasting. According to (Ain et al., 2019, p.1), business intelligence is ranked among the two agendas for senior executives. Likewise, sales forecasting is a top priority for top management (Chronopoulos, 2022, p. 736). In addition, numerous studies have highlighted that sales forecasting is indispensable for companies. (Ensafi et al., 2022, p. 14) (Zhang et al., 2020) (Ramosaj et al., 2022, p. 11) Likewise, business intelligence is a critical concept for companies. (Niu et al., 2021)

Drawing connections between business intelligence and sales forecasting reveals that data is vital to both concepts. Business intelligence processes data to reduce uncertainty in decision-making (Torres et al., 2018). Data is generated from internal and external sources (Işik et al., 2013, p. 13). Likewise, sales forecasting depends on internal and external data. (Sagaert et al., 2018).

Information and data are the key to reliable decision-making, which, in the end, is aimed at both business intelligence and sales forecasting. Upon closer examination, it becomes apparent that business intelligence and sales forecasting connect to the decision-making process. According to Moreno et al. (2020, p. 1), business intelligence aids and supports decision-making. Likewise, Fan et al. (2017, p. 90) stated that sales forecasting is critical in decision-making across the fields of a company.

There is a notable overlap between the characteristics of business intelligence capabilities and sales forecasting capabilities. In studies, technological capabilities are highlighted as one of the key capabilities in sales forecasting and business intelligence. (Chatterjee et al., 2023; Sangari & Razmi, 2015) Also, dynamic capabilities are essential in sales forecasting and business intelligence. More precisely, in the view of business intelligence, dynamic capabilities are all three aspects of dynamic capabilities, sensing, seizing, and

transforming capabilities (Chen & Lin, 2021). In contrast, dynamic capabilities in sales forecasting refer to the sensing process of dynamic capabilities. Seizing and transforming dynamic capabilities are referred to as sales forecasting capabilities. (Semke & Tiberius, 2020)

In addition, sales forecasting and business intelligence require tools and systems to utilize these concepts in decision-making. Tools and systems have accelerated since the arrival of information technology, and the development continues in the fast-changing business environment. (Mascle & Gosse, 2014, p. 1140; Shiau et al., 2023, p. 1193) However, the importance of tools and systems stands up more often in business intelligence than in sales forecasting. This is because business intelligence systems are more comprehensive for companies than sales forecasting systems.

All in all, the business intelligence and sales forecasting concepts are central to the framework. This study is fundamental to understanding distinctive capabilities that improve sales forecasting accuracy. The interplay between business intelligence and sales forecasting capabilities is crucial to understanding the key capabilities to improve sales forecasting accuracy, leading to various company benefits. Figure 4 presents how business intelligence capabilities are connected to sales forecasting. However, the framework displays that key business intelligence capabilities that affect sales forecasting accuracy are yet to be discovered. The framework clarifies the interplay between key concepts of the research and highlights the similarities, such as the importance of data and aspects of decision-making. The framework presents various benefits for the company, but the key capabilities that lead to the result will be reviewed with qualitative research.

Figure 4 Theoretical framework

3 Methodology

The methodology section presents the methodologies utilized to conduct the research. Firstly, the research strategy and methods will be given, and more precisely, concepts of qualitative research methods and case study research strategy will be defined. Secondly, the case selection process and case company will be introduced. The methodology sections also present the research's data collection and analysis methods. The final part of the methodology section presents how the quality is assured by analyzing the research's validity, reliability, and generalizability.

3.1 Research strategy and method

The qualitative research strategy was chosen for this study. Qualitative research contributes to literature in many areas by interpreting, describing, and generating theories. Qualitative research aims to understand the perspectives and experiences in the contexts in which these perspectives or experiences are situated. (O'Brien et al., 2014, p. 1245) Qualitative methods offer an effective way of studying how business intelligence supports companies' development of sales forecasting. In addition, the study uses qualitative methods to gain insights into the capabilities and the rental industry from the view of business intelligence and sales forecasting. The qualitative methodology was employed since qualitative data is particularly effective for understanding why and how questions (Eisenhardt, 1989, p. 542).

For this study, an exploratory single case study method is chosen. The case study research method focuses on understanding the phenomena in a single setting. Case studies can contain either single or multiple cases in a single study. Case studies combine data collecting methods such as interviews and questionaries, which ultimately provide, test, or generate theory. The strengths of case studies are novelty, empirical validity, and testability. In addition, case studies are valid, especially when existing theories seem in-

adequate. (Eisenhardt, 1989) A case study approach was used to fill the gaps in the literature about the synthesis of business intelligence and sales forecasting, an area of theory that seems inadequate.

More precisely, a single case study strategy is utilized in this research. Single cases enable the creation of more complicated theories than multiple cases because a single case fits the theory exactly to the many details of a particular case (Eisenhardt & Graebner, 2007, p.30). Moreover, the research strategy relies on theoretical propositions as propositions about causal relationships answer to how and why questions (Yin, 1994). The design of a single case study and theoretical relationships offers an effective way of studying how business intelligence supports companies' development of sales forecasting.

3.2 Case selection and process

This research was conceived in the spring of 2023 with the case company. I became interested in sales forecasting and business intelligence after becoming familiar with the importance of these concepts for future company development. In addition, the construction industry's downturn began to appear even more clearly. Therefore, the importance of sales forecasting becomes even more pronounced simultaneously as it becomes even more challenging due to uncertain times in the construction industry. From the view of the case company and my interests, the development of sales forecasting will be crucial for the next few years. Business intelligence and distinctive capabilities were connected to sales forecasting, but how business intelligence and capabilities support the development of sales forecasting needs more attention.

Eisenhardt and Graebner (2007, p. 28) stated that interviewees should be highly knowledgeable professionals who view the focal phenomena from diverse perspectives. Moreover, it is recommended that the interviewees be from distinctive hierarchical levels, functional areas, and groups. The interviewees from the case company were selected based on my personal preferences for who would produce interesting insight into research topics. In addition, interviewees were selected from the distinctive divisions of

the case company to get an encompassing view of the research. Moreover, the company's top management preferred who could be interviewed to gain insight into business intelligence and sales forecasting. In conclusion, the interviewees were selected based on the criterion that they are professionals in the research topics.

The case company is a leading company offering equipment rental for construction and other services, as well as for the public sector and households. The case company belongs to one of the largest equipment rental companies in the world. The case company delivers value throughout the customer's project life cycle by helping customers move from several suppliers to one organization that offers total solutions. (Case company, 2023)

The case company fulfills customers' equipment rental and service needs conveniently and cost-efficiently through an extensive equipment fleet. The product portfolio consists of various heavy machinery, site modules, light equipment, safety equipment, and electrical and heating systems. The case company complements its equipment rental offering with services ranging from worksite planning to condition monitoring, on-site support, logistics, and fuel services to safety planning and training. (Case company, 2023)

3.3 Data collection

Data for this study was collected through interviews. According to Eisenhardt and Graebner (2007, p. 28), interviews efficiently gather rich empirical data. Interviews were held as semi-structured interviews. According to Gill et al. (2008, p. 291), semi-structured interviews have several key questions that narrow and define the research. However, semi-structured interviews allow participants to dive deeper into critical areas for the research.

Six semi-structured interviews were held in January 2024. Five interviews were held face-to-face in the case company's headquarters in Helsinki. One of the interviews was held on Microsoft Teams because the interviewee works abroad in Estonia. Interviews were pre-arranged. In addition, interviewees could familiarize themselves with the question

in advance. Four interviews were held in Finnish because the official working language in the case company is Finnish. Two interviews were held in English, as the interviewees are native English speakers. Interviews were recorded to maximize the data collection opportunities. The length of the interviews was between 26 minutes to 50 minutes. Interviews were translated and quoted by the author afterward. The identity of the interviewees is not revealed in the research.

The interviewees were selected because of their knowledge of the field of study. All the interviewees have expertise in business intelligence and sales forecasting. The interviewees work in diverse roles in the case company except for one interviewee, a former employee. Three of the interviewees are part of the executive team of the case company.

Interviewee	**Role**	**Date**	**Length**
Interviewee A	Sales support manager	18.1.2024	40min.
Interviewee B	Chief financial officer	22.1.2024	45 min.
Interviewee C	Team Leader, Business control	22.1.2024	45 min.
Interviewee D	Head of Group Planning and Business Control	22.1.2024	26 min.
Interviewee E	Sales and Marketing Director	22.1.2024	50 min.
Interviewee F	Business intelligence specialist	31.1.2024	34 min.

Table 1 Case Interviews

3.4 Data analysis

After the data was collected through interviews, the data analysis started. Transcripted and recorded interviews were carefully organized and translated into English, to begin with the data analysis. The interview data was analyzed using the Gioia methodology, a qualitative methodology used to develop a data analysis that meets the trustworthiness standards of research. The Gioia methodology is an approach that creates new concepts inductively. The Gioia methodology is applied in three stages. Firstly, the data structure

is developed. Secondly, the grounded model is developed, and, in the end, findings are presented. Data structure development includes organizing the data into 1st order and 2nd order themes to analyze the data. (Magnani & Gioia, 2023) The data structure is important as it is a sensible visual aid, and it also provides a representation of how the research progressed from raw data to terms and themes in the analyses. (Gioia et al., 2013) The interview data was coded to for developing the structure. The interview data was coded by reading and listening to the transcribed interviews many times to categorize excerpts from the interviews systematically. The data was organized into 1st order and 2nd order themes to get a more comprehensive understanding of the data.

3.5 Quality assurance

In the research, quality is assured by following three criteria. According to Adams et al. (2014, p. 245), reliability, validity, and generalizability are three criteria used for testing, ensuring the quality of data, research methods, and the accuracy of the findings. However, in quantitative research, generalization is hard. Research must assure the readers of its scientific nature, quality, and trustworthiness (Eriksson & Kovalainen, 2016, p. 305).

Validity in qualitative research refers to the findings of the research that give an accurate explanation of the phenomena. The validity provides research with a guarantee that the findings are correct. (Eriksson & Kovalainen, 2016, p. 306) A comprehensive analysis of the collected data validates the findings of this research. The interview data was coded to organize and structure the data in a way that allowed the analysis to be done systematically, which increases the validity. In addition, the interviewees were experts in the field of phenomena, which increases the validity of the research.

Reliability is an evaluation criterion that tells if the research yields the same findings if the research is repeated. Reliability reveals the degree of consistency in research by presenting if another researcher can replicate the study with similar findings. (Eriksson & Kovalainen, 2016, p. 305) This research verifies reliability with planned semi-structured interviews, which provide reliable findings. Semi-structured interviews keep the topic of

the interviews similar, even if the interviews are individual. Moreover, the interviewees could share thoughts outside the interview questions, increasing the reliability.

Generalizability is a quality measure that determines whether the findings can be extended in a broader context. In qualitative research, generalizability implies a grounded and argued selection of cases of people for the research. (Eriksson & Kovalainen, 2016, p. 307) This research provides generalizability by selecting interviewees based on high expertise in the research phenomena.

4 Findings

The findings section includes an analysis of the material acquired from the interviews. The key findings are presented in a structured manner. Quotes from professionals from the field of study are used to provide evidence to support the conclusions. The findings section is divided into three parts based on three main research questions. The final part of the findings section presents the revised theoretical framework.

4.1 Business intelligence capabilities in the development of sales forecasting

4.1.1 Current situation

At the beginning of the interviews, the current situation of business intelligence and sales forecasting was examined from the case company's point of view. It was highlighted that the company is advancing data-centric decision-making process by utilizing various technological tools. The aim is to achieve more accurate sales forecasts by using business intelligence. According to interviews, the purpose is possible as the case company has successfully implemented similar projects as part of the company's processes.

> *"Data-centric decision-making is meaningful because it creates the basis for reliable decision-making." (Interviewee A)*

However, there was a sense among the interviewees that the current sales forecasts are based on qualitative views, which can cause errors in the sales forecasts, as the information depends on a person's opinion. In addition, the data used in sales forecasts are, for the most part, historical data from past sales. Relying on historical data is common in vast sales forecasts across different industries. Sales forecasts are based preferably on numerical data. However, the numerical data can be collected from past sales and enriched with information from the order backlog.

According to the interviews, it is apparent that business intelligence supports sales forecasting. Business intelligence allows a company to utilize information from various internal and external sources. The information can be collected from sales history. In addition, data from customer relationship management tools can be collected and transferred to business intelligence tools for further analysis. Moreover, the net promoter score can be utilized for sales forecasting with business intelligence tools. However, it was highlighted that reactive information from a highly volatile market environment could be inserted into sales forecasts by using business intelligence. By using reactive information, a company can act faster and better.

> *"Business intelligence allows the merging of different data sources to create forecasts...Blending the data from different sources allows a company to generate good forecasts." (Interviewee D)*

4.1.2 Importance

Based on the interviews, it was evident that business intelligence is essential for sales forecasting. Business intelligence tools are crucial to decision-making as the data-centric decision-making process is intended to be emphasized in the future. According to an interview, business intelligence allows more extensive data analysis as the human mind may focus and embrace too small details.

From a broader perspective, by utilizing business intelligence for sales forecasting, a company can determine whether it follows the strategy. A company intends to differentiate itself from its competitors by following the strategy. The ultimate goal is to achieve a competitive advantage. However, business intelligence capabilities are essential for sales forecasting as they allow the company to produce its forecast. Otherwise, the company needs to utilize general forecasts also available to competitors. The importance of business intelligence tools is recognized, and it is evident that using business intelligence is indispensable when developing sales forecasting.

"Business intelligence is important as companies need to differentiate themselves from competitors in challenging market conditions. Due to the highly volatile market companies need to act faster and better. Therefore, decisions should be based on business intelligence, because paper and pen aren't enough." (Interviewee D)

4.1.3 Capabilities

The interviews show that business intelligence capabilities are essential for sales forecasting. Based on the background of the interviewers, the answers to identify the most critical capabilities for sales forecasting varied. However, the most common capability the interviewers mentioned was the sensing capability of dynamic capabilities. The connection between sensing capability and sales forecasting aims to predict and understand the future. Other business intelligence capabilities such as employee, managerial, learning, information, system, and technical were also mentioned during the interviews. The following chapters will present a deeper analysis of the relevance of these capabilities for sales forecasting.

Employee business intelligence capability was highlighted as one of the most critical business intelligence capabilities for sales forecasting. One interviewee mentioned that the company needs to find talents utilizing technological tools. For instance, business intelligence tools don't develop sales forecasting independently. Skillful employees are required to use these tools. From a broader perspective, interviewees compared employee capability to technical and system capabilities. Technical capabilities were highlighted as necessary by identifying the need for availability and strength of using technologies, tools, and software to enhance sales forecasting. Moreover, the system capability was highlighted by an interviewee from a decision-making point of view as it exploits information via customized applications to suit a company's needs, for example, for sales forecasting. One common aspect of employee, technical, and system capabilities is that these capabilities support decision-making and sales forecasting. Two inter-

viewees mentioned visualization of data as an aspect of previously mentioned capabilities. Building understandable reports ensures that the message is internalized at different levels of the organization.

> *"Companies should find talents that can utilize business intelligence tools. You need to make sure you've got people who can pull the different data sets together and come up with answers. In addition, the visual aspect of business intelligence is important because all decision-makers look at the same data." (Interviewee B)*

> *"The data must be clear, visual and understandable for sales forecasting. Clear numbers and pictures that reflect the development greatly help decision makers." (Interviewee C)*

Information business intelligence capability was one of the topics that arose in the conversations that discussed the essential business intelligence capabilities for sales forecasting. It is important to acquire quality information with convenient levels of detail that support the sales forecasting process. In addition, the reliability of the information means a lot to the interviewees. However, the amount of external and internal information is vast, which requires employee capabilities to identify information that harms sales forecasting.

Managerial business intelligence capabilities were also mentioned as essential for sales forecasting. An interviewee presented that managers have a key role in enhancing the utilization of business intelligence. Managers need to present why sales forecasting is vital for the company. Interestingly, only some of the employees find the value of forecasting. However, an increasing amount of thought has been turned to sales forecasting. Challenging market conditions have accelerated this thinking because it is difficult to predict how the market changes in a volatile environment.

In the interviews, the cultural business intelligence capabilities were also discussed. A recurrent theme in the interviews was a sense amongst interviewees that cultural capabilities support sales forecasting. However, one interviewee mentioned that the company operates in a pretty conservative industry, which affects the overall utilization of

digital tools. Despite this, the interviewee argues that in recent years, the culture towards digitalization has taken great strides because it is seen as a way to differentiate in a competitive market. In the end, the connection between managerial and cultural capabilities is evident. Managerial capabilities lay the groundwork for building a culture that supports business intelligence utilization in sales forecasting.

> *"We operate in a conservative industry. The old traditional and physical world. However, company culture is a significant part of utilizing business intelligence. Emphasizing and communicating the importance of data greatly affects the possibilities of data utilization. Filling in the data correctly should be rewarding, and the benefits should be noticeable." (Interviewee A)*

4.1.4 Dynamic capabilities

Interviews presented various reasons why dynamic business intelligence capabilities enhance the development of sales forecasting. A common view amongst interviewees was that sensing capability of dynamic capabilities is significant for sales forecasting. In addition, the seizing and transformation of business intelligence capabilities arise. These capabilities are important for the company but do not directly affect sales forecasting. One interviewee argued that sensing capability leads to seizing capability, ultimately enhancing transformation capability. In this case, company operations are divided into broad areas, as well as local ones. Based on sensing capability, transforming capability is possible in fastly evolving market conditions because making local transformation is more straightforward than transforming the whole company's operation. However, a critical point in transforming capability is that it has, in the end, followed the company's strategy.

The results in the last paragraph indicated that sensing business intelligence capabilities are the most important for developing sales forecasting. The interviewees emphasized that understanding the market conditions is vital for sales forecasting. The sensing capability plays a critical role, especially in the changing market conditions, because the mar-

ket's direction can be challenging to assess. According to the interviewee, sensing capability derives from long careers in the industry. Reflecting on the development of sensing capability, it is evident that it evolves with time.

> *"Market research and knowledge of the market are the most important things from the point of view of forecasts. Market knowledge comes largely from experience influenced by a long company career. Business Intelligence understanding and capabilities, knowledge-enriched management and experience-based know-how create a solid foundation for company management." (Interviewee E)*

These results show that various business intelligence capabilities develop sales forecasting. Distinctive capabilities arose during the interviews. However, the sensing dynamic capability rose the most prominently. The sensing capability develops over time, and employee capability is connected to sensing. As the capabilities are intangible assets, companies value them highly because competitors cannot replicate them conveniently. In the end, business intelligence capabilities support the development of sales forecasting. Finally, developing sales forecasting needs various capabilities and synergies between capabilities.

4.2 Improved sales forecasting accuracy by utilizing business intelligence

After covering how business intelligence capabilities can be utilized in sales forecasting in the first research question, research question two introduces the interplay between sales forecasting and business intelligence. The second research question examines the similarities between capabilities and how business intelligence increases sales forecasting accuracy.

4.2.1 Data utilization

The interviewees discovered a strong relationship between business intelligence and sales forecasting in the first research question. A recurrent theme in the interviews was

that business intelligence provides more quantitative data for sales forecasting. Therefore, the accuracy of sales forecasts increases as the quantitative data is, in many cases, more reliable than qualitative data. According to the interviewee, qualitative data depends on who you ask. Forecasting capabilities vary because people have different opinions on how market conditions affect a company's operations. Therefore, business intelligence brings valuable quantitative data to the forecast, which can be enriched with qualitative views.

> *"Business intelligence brings a more quantitative angle, which would improve accuracy. The qualitative point of view varies depending on who you ask, so it would be good to get information about, for example, from the offer base." (Interviewee E)*

Various perspectives arose when interviewees presented how data affects sales forecasting accuracy. One interviewee argued that business intelligence allows companies to use self-collected data. This suggests that self-collected data is more reliable than data from external sources. However, the interviewee clarified that data from external sources is still precious because informative forecasts about market conditions are available. In addition, one interviewee presented interestingly that business intelligence removes errors from sales forecasts. This is an exciting view as other interviewees introduced a view of what business intelligence brings to sales forecasting, but this view presents what business intelligence reduces from sales forecasts. However, common sense was that business intelligence increases sales forecasting accuracy, and in the end, sales forecasts are more precise when business intelligence is utilized.

> *"What business intelligence may allow you to do is if you're robust enough is it may allow you to remove errors and make fewer mistakes...All that BI does is improve your precision." (Interviewee F)*

According to the interviewees, data is key for sales forecasting. The data must be a comprehensive combination of external and internal data. The interviewees highlighted distinctive aspects of business intelligence, laying the ground for opportunities to handle

and collect data. Therefore, the data can be utilized in sales forecasting, and accuracy is improved.

Business intelligence enables the data to be collected at a centralized center. According to the interviewees, data can be collected, for example, from ERP, and CRM -systems. Centralized systems such as business intelligence make the analysis more accessible as the data is collected in one place. The interviewees highlighted that business intelligence makes sorting vast amounts of data possible. For sales forecasting, it is vital that data can be sorted into smaller groups for more intensive analysis. Thus, understanding the cause-and-effect relationships is possible, which enables more accurate sales forecasts.

> *"The more detailed your data is, the more you can expand it. If you only have summarized data, you can only make summarized decisions. The more detailed information you have, the more different cuts you can make and the more complex your forecasting model can be." (Interviewee C)*

> *"Blending the data from different sources allows a company to generate good forecasts." (Interviewee D)*

4.2.2 Congruent capabilities

The interviews showed a remarkable correlation between business intelligence and sales forecasting capabilities. Matching capabilities such as cultural, managerial, information, employee, and sensing were identified by the interviewees. Business intelligence and sales forecasting contain many similar aspects, for example; the importance of data and the skills of employees are highlighted. Therefore, many similar key capabilities affect the utilization of business intelligence in sales forecasting and the improvement of the accuracy of sales forecasts.

The interviewees mentioned that business intelligence and sales forecasting need managerial and cultural capabilities. Managerial capabilities are essential when data needs to be collected for business intelligence systems to be utilized in sales forecasting. An

interviewee mentioned that managers play a crucial role in implementing the importance of data filling. Employees must be made to understand why filling in the data is meaningful. In addition, managers must make the data filling rewarding, and results for sales forecasting need to be transparent. In conclusion to managerial capabilities, it is evident that managerial capability in business intelligence and sales forecasting is primarly a process to implement business intelligence's importance for sales forecasting accuracy.

The interplay between business intelligence and sales can also be seen from the points of view of cultural capabilities. Led by managerial capability, managers need to implement the importance of business intelligence for sales forecasting. According to an interviewee, a culture for utilizing business intelligence comes from managers, and culture can only be created if the employees find the value of business intelligence for sales forecasting accuracy. In addition, the culture in the company should be such that the accuracy of sales forecasts is trusted. In conclusion, combining the arguments from interviewees, managerial capabilities lay the ground for cultural capabilities in the business intelligence and sales forecasting.

> *"The data must be systematic and filled in systematically by employees. A culture where everyone does things the same way." (Interviewee E)*

> *"You as a manager should be able to justify better why forecasts are made in the first place. In addition, it is important to make employees understand the importance of the accuracy of sales forecasts in the big picture." (Interviewee B)*

Connecting the results from previous paragraphs, cultural and managerial capabilities play a crucial role in business intelligence and sales forecasting. As a transition of this, the employee capabilities were highlighted in the interviewees. Skilled employees can utilize business intelligence in sales forecasting, increasing sales forecasts' accuracy. Employee capabilities refer to acquiring and analyzing data from internal and external sources. In addition, the visual point of view becomes even more critical in the final sales forecasts. Presenting the forecasted future in a way that makes it as understandable as

possible is vital for sales forecasting. With visual presentation, the accuracy of the forecasts can also be monitored by managers more specifically.

> *"Combining capabilities improves the accuracy of sales forecasts. Companies need to build a business intelligence team to create reports that allow people to see what is happening." (Interviewee D)*

According to the interviewees, business intelligence and sales forecasting information capabilities affect sales forecasting accuracy. The ability to acquire valuable external and internal from distinctive sources affects the overall accuracy of sales forecasts. From a business intelligence perspective, the ability to process data precisely affects sales forecasting accuracy. Based on the interviews, information capabilities touch both sales forecasting and business intelligence but from distinctive views. In conclusion, this proves that the interplay between business intelligence and sales forecasting capabilities improves sales forecasting accuracy.

4.2.3 Forecasting and sensing capabilities

Various perspectives were expressed about distinctive business intelligence and sales forecasting capabilities that improve sales forecasting accuracy. However, among interviewees, forecasting and sensing capabilities were the most prominent capabilities that enhanced the accuracy of sales forecasts. The capabilities mentioned above can be very similar, but there are also different features. Sensing capability is essential to identify changes in the market environment. In comparison, forecasting capabilities describe the ability to predict the course of the future. According to an interviewee, sensing capability is, first emphasized in the sales forecasting process, and then the forecasting capabilities are highlighted. In conclusion, these results suggest a strong correlation between sensing and forecasting capabilities, which ultimately shows that these capabilities are significant for sales forecasting accuracy.

> *"Understanding the market and recognizing changes is essential; this can be combined with sensing part of dynamic capabilities. However, regarding forecasting, there is always a lack of visibility to the future, in the end you can only guess." (Interviewee B)*

The findings in this chapter indicate a strong correlation between business intelligence and sales forecasting capabilities. The interplay between business intelligence and sales forecasting capabilities improves the accuracy of sales forecasts. Interviewees highlighted distinctive capabilities, such as cultural, managerial, employee, information, forecasting, and sensing. A common view of interviewees was that the interplay between sensing and forecasting capabilities significantly affects sales forecasting accuracy. Despite this, managerial and employee capabilities create the basis for cultural capabilities, which eventually connect to sensing and forecasting capabilities.

4.3 Business intelligence and sales forecasting in the rental industry

The third chapter of the findings section presents the aspects of sales forecasting and business intelligence essential for the rental business industry. Firstly, the core of sales forecasting is presented. Secondly, the distinctive variables are discussed, and business intelligence and sales forecasting challenges are presented. Finally, the chapter presents findings on how business intelligence and sales forecasting create value for the company. Findings are presented from the rental business industry point of view.

4.3.1 The core of sales forecasting

According to the interviewees, qualitative and quantitative data from external and internal sources create the core for sales forecasting. However, data weightings are not balanced between qualitative and quantitative information in the desired result. The base for a sales forecast should include primarily quantitative data, which is enriched with qualitative views. Business intelligence provides the core for acquiring and analyzing data from distinctive sources. Therefore, interviewees emphasized the importance of

business intelligence tools in sales forecasting. These findings suggest that business intelligence tools lay the ground for data-centric decision-making, which is what sales forecasting in a company should be.

Overall, the results of the importance of qualitative and quantitative data were also emphasized by interviewees by highlighting the overall importance of data without going into more detail about what form the data is. According to the interviewees, data contains many variables that must be considered in sales forecasting. Some interviewees argue that demand is the key variable, and some argue that the overall market conditions are the key variables. However, these variables are similar in the big picture. Therefore, the critical variables for sales forecasting are external to the company.

> *"Macroeconomic variables are important for the accuracy of forecasts, but other variables must also be taken into account." (Interviewee B)*

> *"Market research and knowledge of the market are the most important things from the point of view of sales forecasts." (Interviewee C)*

4.3.2 Variables

The interviewees mentioned various variables that are tightly connected to market conditions. The overall macroeconomic situation is a core variable that connects to other variables, such as inflation and gross domestic product. In addition, the European Central Bank's decisions affect sales forecasting. Talking about these variables, one interviewee added that market conditions in a company's industry are significant for sales forecasting. In addition, one interviewee mentioned megatrends, such as, globalization, and digitalization as variables for sales forecasting. These findings suggest that there are various variables that a company cannot influence, but they should still be taken into account in sales forecasting.

> *"High-level information is essential for sales forecasts, such as inflation and gross domestic product...The European Central Bank's policy rate affects, for example, the amount of investments and indirectly many other things." (Interviewee B)*

Another variable of sales forecasting that arose in the interviews on several occasions was the company's customers. One interviewee highlighted the importance of customer segmentation, which divides customers into categories based on the desired outcome. In contrast, one interviewee highlighted the importance of the company's big customers for sales forecasting. However, this suggests the connection between segmentation and big customers, as the big customers are identified based on segmentation. In addition, one interviewee mentioned that understanding customer behavior lays the ground for sales forecasting. Ultimately, the customer data is analyzed with business intelligence tools, shaping the sales forecasts. These findings suggest that customer data is critical for sales forecasting in the rental industry.

> *"Customer segmentation allows the prediction of future sales. You can never know if people will or will not buy, but if you know the expected growth for these segments, you can put it together." (Interviewee E)*

According to the interviewees, seasonal variation must be considered in the sales forecast. However, seasonal variables in sales forecasts are largely based on historical data. Business intelligence systems predict the future based on vast amounts of seasonal data. The opinion of the interviewees shows that seasonal variables are self-evident and important, and those will be considered in every case.

Moreover, the impact of campaigns arises as a variable that sales forecast should capture in an ideal situation. However, the interviewee argued that the effect on future sales is challenging to predict. Therefore, the company has to forecast based on historical data analyzed by business intelligence tools.

A standard view among interviewees was that historical project data combined with an offer base for the future is a combination of variables that produces accurate sales forecasts. According to the interviewee, projects are different, but analyzing the data with a business intelligence tool makes it possible to capture significant information to support sales forecasting. This finding highlights the importance of internal data for sales forecasting.

> *"Learning from old projects creates a basis for forecast modeling." (Interviewee A)*

According to the interviewees, variables such as machine, time, price, and customers are essential for sales forecasting. These variables form a unique combination, ultimately, the amount of sales a company generates. Rental time in the case of a company's industry is challenging to predict as customers' needs change quickly. Therefore, the time variable is important, but determining its value is difficult. Business intelligence tools are convenient for analyzing the impact of different internal variables. Therefore, business intelligence tools are essential for sales forecasting in the rental business industry.

> *"You should find a combination of company, product, and project that can be used in decision-making and sales forecasting." (Interviewee C)*

When comparing the findings of critical variables for sales forecasting in the rental business industry, it is possible to find a suitable forecasting model. According to the interviewee, choosing a appropriate model is one of many essential things. However, the most important thing is to be systematic in the sales forecasting process and move to the final result step by step. For example, a neural network model suits the rental business industry. This finding suggests that there are many possible options for forecasting models that a company can implement.

> *"You can think of sales forecasting as a ladder, and you have to go up one step at a time...All models are suitable. If you're accurate, you are profitable." (Interviewee F)*

4.3.3 Challenges

According to the interviewees, there are several challenges in business intelligence and sales forecasting in the rental business industry. Interestingly, there were few similar answers to the difficulties that occured Interviewees mentioned various challenges, but similarities are found by connecting the answers. The unifying view of the answers is that the challenge for sales forecasting is the lack of visibility for the future.

The interviewees identified several challenges connected to finance. Interest rates and access to financing lay the base for many decisions. Therefore, the effects on sales are challenging to determine. Similarly, a company can utilize indexes in sales forecasting, but the challenge is that the indexes are only partially correct. Challenges related to finance are external challenges that the company cannot influence. Therefore, a company cannot resolve this problem by utilizing business intelligence in sales forecasts.

> *"The European central bank's policy rate affects, for example, the number of investments and indirectly many other things." (Interviewee B)*

> *"Understanding the change in interest rates and the price of financing is difficult." (Interviewee D)*

Another challenge for sales forecasting and business intelligence relates to customers and projects. The interviewees mentioned that it is challenging to forecast sales for small customers and industries that lack visibility in their operations. Business intelligence can be utilized to analyze historical data regarding small customers and difficult industries. However, the data for the future is missing, which negatively affects the forecasting accuracy. In connection to customers and industries, an interviewee mentioned that projects are challenging to predict from a sales point of view. In large projects, predicting how the project divides between customers is demanding, which ultimately influences the generated sales. This finding indicates another group of challenges to business intelligence and sales forecasting related to external factors.

Interviewees also mentioned distinctive data-related challenges. These challenges first connect to business intelligence, which acquires and analyses the data. Eventually, the effect on sales forecasting arises. One challenge related to data is the data quality. Data quality depends significantly on how the data is filled into the systems. This connects to managerial and cultural business intelligence capabilities, which are essential in how employees fill the data to the systems. Another challenge that arose was that business intelligence would supersede qualitative data. In addition, interviewees mentioned a question about how business intelligence can analyze many assets and the influence of rental times. All the challenges regarding data are mostly connected to business intelligence. The experience from utilizing business intelligence in sales forecasting is short. Therefore, the challenges related to quantitative data are obvious. However, the long experience utilizing qualitative data in sales forecasting provides trust in qualitative data. Thus, challenges related to qualitative data stand out less.

> *"A challenge can be that forecasting is too data-driven. Sensing must not be forgotten. The risk may be that the qualitative view is displaced." (Interviewee A)*

> *"A challenge is the data quality; the team is as strong as the weakest link, and the same applies to data." (Interviewee B)*

Based on the interviews, another key finding is that business intelligence and sales forecasting challenges are also managerial, cultural, and employee-related. In a company, internal factors affect the utilization of business intelligence in sales forecasting. According to one interviewee, it is challenging to implement a culture around new technological tools. It takes time and resources to implement technological innovations. Therefore, managerial capabilities emerge in the implementation process. In addition, the overall technological capabilities of employees emerge and affect the implementation speed. These arguments emphasize that capabilities are key to overcoming challenges business intelligence and sales forecasting challenges. Based on all the challenges identified by the interviewees, all the challenges have an input on the overall accuracy of sales forecasts.

"The challenge in sales forecasting is that it is useful until it's wrong, and then it's really dangerous for the company and decision-making." (Interviewee F)

4.3.4 Value

All in all, by developing sales forecasting by utilizing business intelligence, a company can create value. According to the interviewees, the only value is not money for the company's owners. Although the value measured by money was emphasized in the answers by interviewees, business intelligence and sales forecasting create value in many areas ultimately realized as money. The interviewees mentioned that accurate sales forecasts improve precision and build trust in the company. By accuracy, a company can streamline its operations to create value for various stakeholders.

"Sales forecasting creates monetary value. With accurate forecasts, resources can be planned to meet the need, which creates savings for the company." (Interviewee C)

According to the interviewees, business intelligence and sales forecasting create a stable base for decision-making. The interviewees mentioned that sales forecasts help to understand the overall picture. The sales forecast introduces a view of market conditions and the forecasted future. Accurate sales forecasts are valuable for a company as the sales forecast lays the ground for many of the company's decisions. One interviewee mentioned that sales forecasts lay the base for capacity planning. By forecasting accurately, capacity can be distributed where there is a need. Moreover, by allocating capacity correctly, a company can create value for the supply chain.

"Sales forecasting brings value to the supply chain. Value is created for the customer by guaranteeing deliveries when the equipment is in the right place at the right time. Reacting to customer needs is essential because needs change and appear quickly." (Interviewee A)

In addition, sales forecasts create value for capacity planning because the company knows where to invest. One interviewee highlighted that sales forecasting lays the ground for capital expenditures. The decision regarding capital expenditure determines which assets a company buys. The investment modifies the total capacity, which aims to meet the customer's demand and guarantees the functionality of the supply chain. Moreover, these decisions impact the overall cash flow, which is meaningful to understand in the decision-making process. These findings suggest that accurate sales forecasting creates value because it aids decision-making.

> *"Predicting the flow of cash flows in one direction and another is important, which ultimately benefits the company." (Interviewee C)*

> *"The sales forecast creates the basis for capital expenditures. Forecasts allow companies to decide which assets to buy...Business intelligence allows companies to predict forward which assets will used and how much money a company can generate from those." (Interviewee B)*

One interviewee presented that business intelligence is an expensive asset for a company. Therefore, the cost has to be recovered and the value captured. Skilled employees are needed to capture the value of business intelligence systems. Capabilities are essential when a company utilizes business intelligence. Thus, business intelligence only creates value for the company with competent employees. In addition, one interviewee mentioned that using business intelligence in sales forecasts is one way to differentiate from competitors. Differentiation with business intelligence is possible, as one interviewee noted that only some have succeeded in capturing the total value of business intelligence in the context of sales forecasting. Technological capabilities accelerating, which will positively impact the ability to capture the value of business intelligence in sales forecasting.

> *"Business intelligence tools are expensive assets, so the income needs to be recovered." (Interviewee D)*

"Business Intelligence is a new thing for many companies, so only some companies have managed to get all the benefits out of it."(Interviewee E)

4.4 Summary of findings and revised framework

The interviewees highlighted various views on how sales forecasting can be developed by utilizing business intelligence. This chapter will summarize the findings of the interviews. In addition, a revised theoretical framework is presented at the end of the summary chapter.

According to the interviews, the importance of sales forecasting and business intelligence is evident for a company. In the modern volatile business environments, sales forecasting and business intelligence are indispensable for companies. These concepts create a possibility of differentiation because it has yet to fully implement business intelligence in the context of sales forecasting in the company's operations. In connection to differentiation, business intelligence and sales forecasting provide an opportunity to research if a company follows the intended strategy. Another important aspect of business intelligence and sales forecasting is that these enhance data-centric decision-making and utilization of distinctive data sources. However, capabilities are one of the most essential aspects that allow a company to utilize business intelligence in sales forecasting. Capabilities are intangible assets that enable companies to use their resources.

The findings reveal that several business intelligence capabilities are vital when a company develops sales forecasting by utilizing business intelligence. The interviews reveal that the most predominant business intelligence capability for sales forecasting is sensing capabilities of dynamic capabilities. This finding presents the correlation between forecasting and sensing. Other key business intelligence capabilities for sales forecasting are employee, cultural, managerial, information, system, and technical capabilities.

A comparison between business intelligence and sales forecasting capabilities highlights an interesting correlation. Based on the analysis, many key capabilities are equivalent to

business intelligence and sales forecasting. Matching capabilities underline the importance of synthesis of business intelligence and sales forecasting. With a successful synthesis between business intelligence and sales forecasting, it is possible to improve sales forecasting accuracy.

The interviews also revealed a distinctive variable that sales forecasts should note. According to interviews, market conditions, trends, and customer-related variables are critical for sales forecasts. Despite the critical variables being identified, sales forecasting always has challenges. Internal and external challenges occur in the sales forecasting process. Therefore, business intelligence and key capabilities are critical to overcoming the challenges.

A valuable finding of the interviews is that business intelligence and sales forecasting create value for a company. Value is created primarily when business intelligence is utilized in sales forecasting. The predominant value for a company is monetary. However, value is created in various company areas, because an accurate sales forecast supports the decision-making process. Enhanced decision-making, therefore, creates an opportunity for a company to differentiate.

Overall, the findings indicate that business intelligence supports the development of sales forecasting. In the end, the accuracy of sales forecasts is improved. Accurate sales forecasts support decision-making and, in the end, create value for the company. Capabilities are critical when a company utilizes business intelligence in sales forecasting. Business intelligence and sales forecasting contain distinctive and similar capabilities. However, the findings suggest that the interplay between capabilities improves the accuracy of sales forecasts. The revised theoretical framework presents the key business intelligence capabilities for sales forecasting.

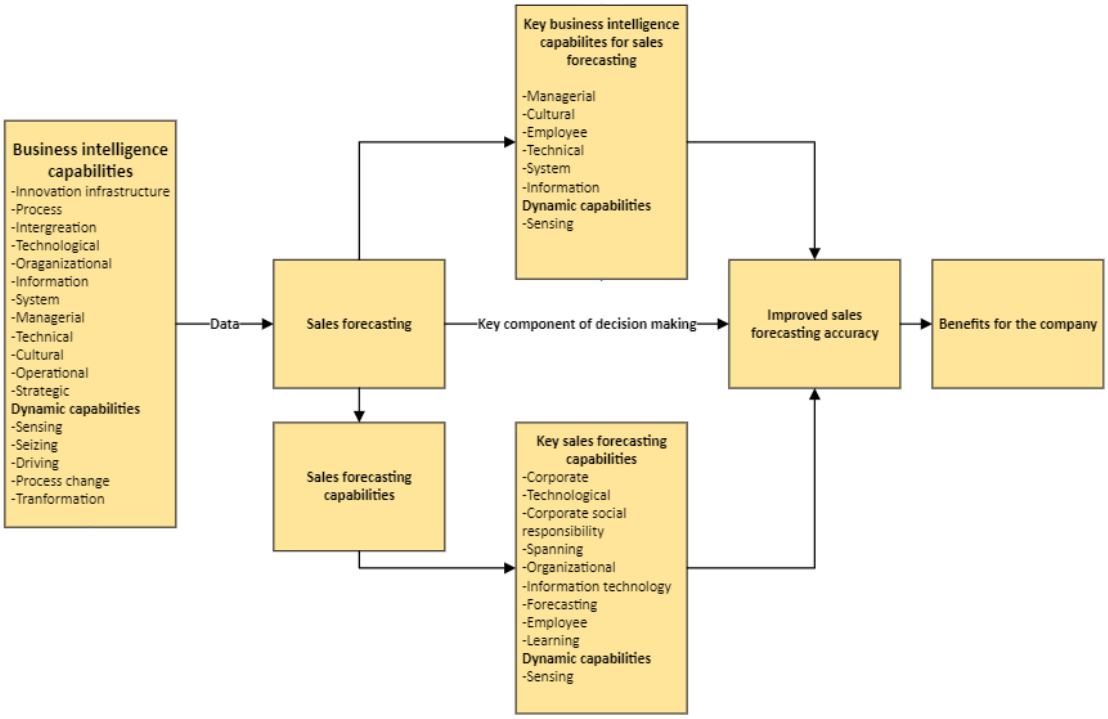

Figure 5 Revised theoretical framework

5 Discussion

The discussion section includes theoretical contributions, managerial implications, suggestions for future research, and limitations. The study's findings will be discussed and analyzed based on existing knowledge. In addition, managerial implications regarding business intelligence and sales forecasting will be presented. Moreover, the discussion section introduces several suggestions for future research. In the final part of the discussion, a few limitations of the study will be presented and argued against.

5.1 Theoretical implications

This study aimed to assess how business intelligence can be utilized in sales forecasting. Research by Hoyle et al. (2020) argued that sales professionals do not fully utilize tools and reports in sales forecasting. The results of this study suggest that technological tools are somewhat new. Therefore, companies still need to implement new technological tools successfully in their processes. In addition, technological tools are developing at a fast pace. Therefore, the developments need to be implemented constantly, which requires capabilities and resources from a company. In conclusion, this research suggests that a lack of resources and capabilities is why companies do not fully utilize tools and reports in sales forecasting.

Although extensive research has been carried out on business intelligence capabilities, the previous research suggests that business intelligence needs future research, for example, to understand business intelligence capabilities better. (Ramakrishnan et al., p. 5022, 2016; Sangari & Razmi, 2015) On the question of business intelligence capabilities, this study found exciting connections between distinctive business intelligence capabilities. The managerial capabilities connect both to cultural capabilities and employee capabilities. On the other hand, employee capabilities connect to technical, system, and information capabilities. The strong connection between capabilities extends the previous research on business intelligence capabilities.

In reviewing the literature, a lack of research emerged on what business intelligence capabilities are essential for sales forecasting. Therefore, this study aimed to assess the key business intelligence capabilities for sales forecasting. The results of this study suggest that the key business intelligence capabilities for sales forecasting are managerial, cultural, employee, technical, system, information, and sensing capabilities. Therefore, this study contributes to the literature by presenting new insights into business intelligence and sales forecasting literature.

Hoyle et al. (2020) demonstrated that future research should investigate the capabilities needed to integrate emerging technologies into sales forecasting. Business intelligence can be categorized as an emerging technology in the context of sales forecasting, as research has found that companies are emphasizing the importance of business intelligence for sales forecasting. Therefore, the identified key business intelligence capabilities for sales forecasting can also be connected to other emerging technologies. In general, it can be stated that managerial, cultural, employee, technical, system, information, and sensing capabilities are needed capabilities for a company to integrate emerging technologies into sales forecasting.

The present study focused general business intelligence and sales forecasting, but part of the research was directed to the rental business industry. The study found that business intelligence and sales forecasting contain observations that can also be generalized for other industries. These unexpected findings suggested that the business intelligence and sales forecasting characteristics are consistent across industries. Therefore, this study contributes to the literature by filling the research gaps that studies by Hulot et al. (2018) and Yang et al. (2021) presented regarding business intelligence and sales forecasting in the rental business industry.

This study's findings indicate many aspects of how business intelligence and sales forecasting create value for a company. Business intelligence supports decision-making by providing reports from vast internal and external data. Data-centric decision-making

supports the decision-making. Therefore, the ground for improved performance in a company is solid. This finding fills the gap that Moreno et al. (2020) presented, which presented a need for more research on the relationship between business intelligence and value. The present findings are consistent with other research, which found that business intelligence and sales forecasting create value for companies. (Alzghoul et al., 2022, p.3; Shiau et al., 2023, p. 1182)

In conclusion, the findings contribute to previous research by extending the earlier studies and filling the gaps presented in previous studies. This study presents new findings related to business intelligence and sales forecasting, especially from a capabilities point of view. In addition, this study confirms the implications of previous studies. There are similarities between the attitudes expressed by (Ensafi et al., 2022, p.14; Niu et al., 2021; Ramosaj et al., 2022, p.11; Zhang et al., 2020) and this study. All the studies express that business intelligence and sales forecasting are indispensable for companies. In conclusion, this study contributes to the literature by presenting findings on how companies can utilize business intelligence in sales forecasting.

5.2 Managerial implications

The findings of this study have several managerial implications on how sales forecasting can be developed by utilizing business intelligence. The managerial implications include business intelligence, sales forecasting, and synthesis between these concepts. In addition, the implications are also related to capabilities.

The findings of this study suggest that business intelligence and sales forecasting are indispensable for companies. Managers must to understand the benefits of business intelligence and sales forecasting in the highly competitive market. Managers will develop and streamline the decision-making processes by understanding the importance of business intelligence in decision-making. Therefore, decisions are based on data, which makes decisions more influential. Moreover, data is vital in sales forecasting, which makes business intelligence a critical component of the sales forecasting process.

Another managerial implication regarding understanding the indispensability of business intelligence and sales forecasting is how these concepts add value to a company. Ultimately, the value is monetary, but the value is generally created in smaller parts in different areas of the company. Managers need to recognize aspects of the operations that benefit from accurate sales forecasts. In conclusion, many areas benefit from accurate sales forecasts because the decision-making can be based on reliable information.

One key managerial implication is the importance of capabilities when sales forecasting is developed by utilizing business intelligence. Managers need to realize that the capabilities are intangible assets a company has. Intangible assets are, for example, essential when a company wants to use emerging technologies. Overall, managers need to understand the role of capabilities in the sales forecasting development process. Furthermore, managers need to internalize the importance of their capabilities. Considering a manager's capabilities is essential as managerial capability is key when a company wants to develop sales forecasting by utilizing business intelligence.

A managerial implication of this study is that sales forecasting contains several challenges. The findings of this study present several challenges related to sales forecasting and business intelligence. However, the managers can prepare for these challenges as the obstacles are identified beforehand. One challenge is that qualitative data is replaced by excessive quantitative data acquired and analyzed by business intelligence. Managers need to understand that tools can analyze vast amounts of data and point out information that a person misses. Therefore, there is a definite need for business intelligence in the sales forecasting process.

Another important managerial implication is the variables in sales forecasts. The findings of this study present several variables that sales forecasts should contain. However, the role of the distinctive variables varies. Managers need to acknowledge the key variables for sales forecasts. For example, overall market conditions and historical data lay the

ground for sales forecasts. Managers can have a limited influence on these variables. However, managers can develop the use of internal variables in the sales forecast. In conclusion, managers must to acknowledge the effects of distinctive variables for sales forecasting accuracy.

5.3 Suggestions for future research

The findings of this study present that developing sales forecasting is possible by utilizing business intelligence. However, more research is needed to understand the interplay between business intelligence and sales forecasting. The effect of accurate sales forecasts spreads to large areas of a company through enhanced decision-making. Therefore, the value of business intelligence and sales forecasting can be captured extensively. Future research should concentrate on how a company can maximize value from business intelligence and sales forecasting.

This study has identified the key business intelligence capabilities for sales forecasting. Future research might explore how a company can develop identified business intelligence capabilities internally. Developing these capabilities is important as capabilities are tangible assets. In addition, companies cannot copy the capabilities of competitors. However, a company can still acquire capabilities. Another possible future research area is to investigate how companies can acquire key business intelligence capabilities for sales forecasting. This future research can now be done as the key capabilities are identified.

One interesting finding of this study was that the managers' role in the sales forecasting development process is vital. Managers' actions affect how business intelligence is utilized in sales forecasting. The findings highlighted the role of managerial capabilities in sales forecasting and business intelligence. Future research focusing on managers' capabilities in sales forecasting and business intelligence would extend the prior research. Moreover, the research could focus on how sales forecasting accuracy can be increased

by more enhanced utilization of business intelligence with the help of managerial capabilities.

Finally, a natural progression of this work is to extend the research for various industries. In addition, the effect of a data-centric decision-making culture in a company on the utilization of business intelligence in the sales forecasting process would be an interesting future research topic. More information on different industries would help establish a greater interplay between business intelligence and sales forecasting.

5.4 Limitations

Several limitations regarding this study need to be acknowledged. The current research has only examined business intelligence and sales forecasting from one company's point of view. However, some interviewees work with stakeholders from several countries, broadening the findings from one country's perspective.

The scope of this study is limited to one specific industry, which is a limitation. However, the findings of this study are still generalizable because some perspectives do not directly apply to only one industry. For example, the key business intelligence capabilities for sales forecasting are generalizable across industries that are conservative about new technological solutions and those that are not the frontrunners in the development of technological tools.

Another limitation of this study is that business intelligence is a technology that is constantly developing at a fast pace. Thus, some findings can be invalid if the technology changes unpredictably because the findings are based on the view that business intelligence is a tool that will be even more crucial for companies in the future. However, this limitation affects a vast amount of technological research. Therefore, the limitation regarding technology is not too significant.

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Appendices

Appendix 1. Interview Questions

RQ1: How do business intelligence capabilities support companies' development of sales forecasting?

- How do business intelligence capabilities support companies' development of sales forecasting? / Kuinka business intelligence -kyvyt tukevat yrityksen liikevaihdon ennustamista?

- What are the key business intelligence capabilities that influence a company's sales forecasting? / Mitkä ovat keskeiset business intelligence -kyvyt, jotka vaikuttavat yrityksen liikevaihdon ennustamista?

- How essential are business intelligence capabilities when examining sales forecasting? / Kuinka olennaisia business intelligence -kyvyt ovat, kun tarkastellaan liikevaihdon ennustamista?

- How do dynamic capabilities support a company's operations in a changing market situation, and is the significance of these capabilities recognized within the company? / Kuinka dynaamiset kyvyt tukevat yrityksen toimintoja muuttuvassa markkinatilanteessa, ja tiedostetaanko näiden kykyjen merkitystä yrityksessä?

RQ2: How does the interplay between sales forecasting and business intelligence capabilities enhance sales forecasting accuracy?

- How does the interplay between sales forecasting and business intelligence capabilities enhance sales forecasting accuracy? / Kuinka liikevaihdon ennustamisen ja business intelligence -kykyjen yhdistäminen parantaa liikevaihtoennusteiden tarkkuutta?

- What key capabilities affect the accuracy of sales forecasts? / Mitkä keskeiset kyvyt vaikuttavat liikevaihtoennusteiden tarkkuuteen?

- What challenges arise when integrating business intelligence and sales forecast-

ing? / Millaisia haasteita syntyy, kun yhdistetään business intelligencen ja liikevaihdon ennustamisen?

- How does a company's culture impact the use of business intelligence systems in sales forecasting? Is the company culture oriented towards supporting data-driven decision-making? / Miten yrityksen kulttuuri vaikuttaa business intelligence -järjestelmien käyttöön liikevaihdon ennustamisessa? Onko yrityskulttuuri suuntautunut tukemaan dataperusteista päätöksentekoa?

RQ3: What aspects of sales forecasting and business intelligence are essential for the rental business industry?

- What are the key considerations for sales forecasting in the rental business industry? / Mitkä ovat keskeisiä asioita, jotka on otettava huomioon vuokraustoiminnan liikevaihdon ennustamisessa?

- What are the major challenges in sales forecasting for the rental business industry? / Mitkä ovat suurimmat haasteet vuokraustoiminnan liikevaihdon ennustamisessa?

- Which areas in sales forecasting and business intelligence are significant for the rental business industry? / Mitkä osa-alueet liikevaihdon ennustamisessa ja business intelligence:ssä ovat merkittäviä vuokraustoimialalle?

- What forecasting models are suitable for predicting revenue in the rental business industry? / Mitkä ennustamismallit soveltuvat vuokraustoiminnan liikevaihdon ennustamiseen?

- How do business intelligence and sales forecasting create value for a company? Kuinka business intelligence ja liikevaihdon ennustaminen luovat arvoa yritykselle?