UNIVERSITY OF GOTHENBURG

SCHOOL OF BUSINESS, ECONOMICS AND LAW

From Data to Value: How BI is used in an organization that has successfully implemented BI

Authors: Hanna Pettersson Fors & Lovis Rooth

Supervisor: Viktor Elliot

Master´s thesis in Accounting and Financial Management

Spring 2025

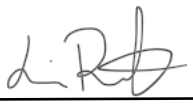
Graduate School, School of Business, Economics, and Law, University of Gothenburg, Sweden

Acknowledgements

We thank our supervisor, Viktor Elliot, for his continuous support throughout the thesis process. We would also like to sincerely thank our contact persons for their assistance in helping us connect with key individuals within the organization. Furthermore, we thank all respondents for taking the time to participate in our interviews and providing us with insightful discussions and analysis. It has been a pleasure conducting a case study with your company.

Gothenburg, 2025

Hanna Pettersson Fors



Lovis Rooth

Abstract

Title: *From Data to Value: How BI is used in an organization that has successfully implemented BI.*

Background and problematization: Due to the growing interest in innovation and technological development, the demand for information technology is increasing. ERP systems, in particular, have the potential to integrate BI functions, which contribute to analytical solutions and enhanced data processing capabilities that support knowledge development in the decision-making process. However, the majority of organizations continuously struggle to find effective ways to leverage BI systems to ensure successful usage.
Purpose: This thesis aims to explore the effects of BI usage in management accounting practices and decision-making.
Research question: *"How is BI used in an organization that has successfully implemented BI?"*

Methodology: This study follows a qualitative, interview-based case study approach, in which nine semi-structured interviews were conducted across four different companies. The Gioia methodology was employed, using the Knowledge-Based View as the analytical lens.

Conclusion: The study concludes three major findings. Firstly, a BI solution is a method to support management accountants in their daily tasks and develop their analytical capability and decision-making. The findings highlight the importance of a nuanced, context-specific approach when applying BI. The research also reveals that BI should not be seen as a universal solution but as one of many tools that, when integrated with the right resources and knowledge, can enhance decision-making and efficiency. Secondly, the study identified the crucial role of top management when utilizing BI. Top management contributes with both technical expertise and a holistic view of the organization to ensure central control and support management accountants in maximizing system benefits. Thirdly, the study emphasizes the importance of a strong initial strategy to outline expectations, and areas of application to ensure BI supports existing workflows and data environments. The study also contributes to the theory of KBV by finding that BI supports management accountants in knowledge creation, more specifically strategic decision-making. Additionally, similar to previous research the study identified all four attributes for sustained competitive advantage which suggest that BI enhances competitiveness and brings significant value. Lastly, the study contributes to the practical field by requesting further seminars, and forums to discuss examples for how to utilize BI solutions.

Keywords: Business Intelligence, Enterprise Resource Planning, Gioia Methodology, Knowledge-Based View, Management Accountants, Management Accounting.

Table of Contents

List of figures

1. Introduction

1.1 Background

As a result of growing interest in innovation and technological development, the demand for information technology is increasing, and integrated software solutions, especially enterprise systems, have developed from being optional to fundamental (Alhatabat & Hutaibat, 2024; Fähndrich, 2023). Traditional methods of manually extracting, processing, and transferring data for decision-making often require a large amount of time, and the risk of human error is relatively high (Gill, 2024; Hammouch, 2024). Standardization, integration, and availability of real-time data enable the reallocation of time from routine tasks to those with more analytical or strategic character (Papiorek & Hiebl, 2024; Kroon, Alves & Martins, 2021; Fähndrich, 2023). Enterprise Resource Planning (ERP) systems are a dominant enterprise system widely adopted by organizations to maintain competitiveness (Alhatabat & Hutaibat, 2024). The modern ERP system has the potential to integrate Business Intelligence (BI) functions, which contribute to analytical solutions, and further processing capabilities to increase knowledge development in the decision-making process (Knudsen, 2020; Ain, Vaia, DeLone & Waheed, 2019). However, organizations are in a continuous struggle to utilize the features and find the best way to leverage value from BI systems (Ain et al., 2019).

Ain et al. (2019) state that organizations face challenges in obtaining benefits from the BI system despite growing investments and market expansions. The authors continue by more specifically stating that at least 70% of implemented BI systems face failure in gaining expected returns. Similarly, Mudau, Cohen, and Papageorgiou (2024) explain that organizations have an optimistic view of the implementation of a BI system, with several beneficial expectations, however, the authors estimate failure in 50-80% of the cases worldwide. Resistance to change, integration of data, and the capabilities of engaging various actors are identified as barriers affecting the usage of BI systems (Martins, Aguiar, Sambento & Branco, 2024). Management accountants frequently use ERP systems within their day-to-day operations (Alhatabat & Hutaibat, 2024), and Martins et al. (2024) describe that changes in the role of management accountants are observed as a result of adopting BI solutions. The increased responsibilities among management accountants as a result of BI solutions include further involvement in defining strategies, organizational design, and overall business processes. Nielsen (2022) finds that the visible changes in the role of management accountants are demanding developments in current competencies, and the CFO Pulse Surveys from 2024 show limits in required competence, where approximately 83% of senior leaders announced a lack of qualified personnel (Personiv, 2024). In recent years, business leaders have shown interest in integrating Artificial Intelligence (AI) into their ERP systems to be more agile and aware of customer behavior (Bawa, 2023; Abbas, 2025).

Ain et al. (2019) recommend, based on their literature review on BI research, further research on competencies, skills, and other individual characteristics related to information technologies. The authors argue that a lack of knowledge in using the systems can result in the avoidance of applying them to daily tasks since they require too much effort. Martins et al.

(2024) discuss the mindset of management accountants as well as organizational culture as critical determinants in the utilization of a BI system, however, the authors were unable to investigate the mindset and the developing knowledge required. Rikhardsson and Yigitbasioglu (2018) recommend further research in the field of tasks and techniques provided by BI systems that can affect the role of management accountants, including visualizations and data integration. The authors also stress the importance of management accountants having deeper knowledge regarding the decision-making process, various tasks, and requirements from users within the organizations, which can all create tension that affects the usage process.

1.2 Purpose and Research Question

Previous research states that integrating BI solutions into the ERP system has the potential to achieve great benefits in terms of improved organizational performance and advanced decision-making, despite this, the success rate is still undoubtedly low (Ain et al., 2019; Mudau, Cohen & Papageorgiou, 2024). However, there are fewer studies adressing the actual usage of BI systems. From a practical perspective, this study seeks to gain a deeper knowledge of the utilization of BI solutions by investigating expected benefits and exploring the areas of use. Furthermore, research focuses on resistance to change, shortage of relevant knowledge, and organizational culture as crucial factors when utilizing BI solutions (Martins et al., 2024; Nielsen, 2022). This study aims to contribute to the field of management accounting by examining the individual users' perspective, competence, and attitude towards the features of BI. Lastly, this study seeks to contribute with a qualitative approach to understanding how BI solutions affect the value creation and overall business practice, as stressed by Papiorek and Hiebl (2024).

In discussions with an expert organization on BI implementation and BI use, they identified an organization that they considered successful in both BI implementation and BI use. As previous research mainly focuses on broader factors linked to BI use, this study examines one organization in detail that is considered successful, and the factors affecting their BI use. This results in the following research question:

- *How is BI used in an organization that has successfully implemented BI?*

The study is organized as follows. Section two presents a theoretical framework with previous literature within the field of management accounting, ERP, BI, and the Knowledge-Based View (KBV). Section three explains the methodology of data gathering and analytics, including case companies and respondents, as well as the analytical framework of the Gioia Methodology. Section four presents the empirical findings collected through interviews, which provide insights into strategies connected to ERP and BI integration, combined with a comprehensive analysis of the material through the Gioia Methodology. Section five discusses the findings with consideration of previous literature. Section six provides the concluding remarks connected to the research question, contributions to academia as well as practice, and lastly, suggestions for future research.

2. Theoretical framework

2.1 Management Accounting and the Role of the Management Accountant

There are various ways to define management accounting. Niu and Du (2015) explain that the main purpose of management accounting is to support managers in planning, controlling, and directing. The authors further define management accounting as the process of providing accounting information to managers to enable the identification and resolution of issues of operational procedures. Similarly, Hackett, Selby, Sexton, Spence, and Witt (2023) define management accounting as sourcing, analyzing, communicating, and using financial and non-financial information relevant to the current decision to generate and preserve value for the organization.

Blocher et al. (2008) explain that the definition of management accounting has shifted over time. Older definitions of Strategic Management Accounting describe management accounting as focused on identifying, measuring, analyzing, and communicating financial information to support management in planning, evaluating, and controlling. The authors continue by discussing that more recent definitions are wider, and include strategic decision-making, performance management, and collaboration with management teams to achieve organizational success. Hackett et al. (2023) state that traditional management accounting focuses on financially based decision-making, while the developed purpose is to create a broader perspective to advance the predictive judgment within value creation. This study adopts a more recent perspective on management accounting, emphasizing strategic processes and not only the analysis of financial information.

As management accounting is evolving, the role of management accountants is shifting. Moving from the traditional character of creating and distributing financial reports internally and externally, towards a strategic role characterized as a business partner (Rautiainen, Scapens, Järvenpää, Auvinen & Sjasalo, 2024; Moll & Yigitbasioglu, 2019). Nielsen (2022) states that the primary purpose of management accountants is relatively similar, however, the working methods to achieve it have changed. The author discusses the internal perspective as providing possibilities to detect new drivers of value and argues that the broad organizational understanding of management accountants supports the business in comprehending what information is necessary. Izzo, Fasan, and Tiscini (2021) discuss continuous accounting, which automatically coordinates the accounting information to match the daily activities and rhythm of the business, allowing real-time analysis instead of relying on traditional manual reporting, which enables decision-making to be conducted simultaneously with the business´s rhythm. However, Nielsen (2022) states that management accountants tend to rely on traditional data analysis instead of adapting advanced analytics tools and are thereby missing some strategic analytic opportunities.

Kroon, Alves, and Martins (2021) and Möller, Schäffer and Verbeeten (2020) state that technological development and advancements in IT further expand the role of management accountants. They continue by explaining knowledge in accounting technologies as crucial to

optimizing the technological potential. The authors further explain the concerns pointed out regarding the ability of management accountants to adapt and develop the skills necessary to fully realize the potential benefits, which is also discussed by Bucaro, Wilks, and Yust (2024). Kroon, Alves, and Martins (2024) discuss the opportunity of acquiring data scientists containing knowledge within the field of technology as a solution to bridge the knowledge gap. However, the authors continue by arguing that this would compromise the accounting quality, and despite the importance of applying and understanding advanced technologies, the inherent values in management accountants, such as reliability and risk-aversion, can not be eliminated. Kornberger, Schott, Knudsen and Andvik (2025) argue for a balanced approach that considers both the technical and human aspects of data management.

2.2 Theoretical Lens

When analyzing the use of ERP and BI for management accounting, the broader and more strategy-oriented definition justifies a theoretical lens focused on strategy. One of the most widely used strategy frameworks is KBV, and in the next section. The following section describes how the theory is applied in the analyses.

2.2.1 Knowledge-Based View

KBV is a further development of the Resource-Based View (RBV) (Spender, 1996; Alavi & Leidner, 2001; Franke & Hiebl, 2022) and is a framework within strategic management research that was introduced by Wernerfelt (1984) and Barney (1991). Wernerfelt (1984) initially found that by shifting the focus from products to resources, firms can better understand their competitive advantages, strategic growth opportunities, and diversification paths. Later on, Barney (1991) developed the idea by explaining that firms gain advantages over competitors by implementing strategies that optimize their internal strengths and respond to external opportunities. Manresa, Bikfalvi, Ligthart, and Kok (2024) explain the RBV model that competitive advantage is created by interacting human, physical, and organizational resources and capabilities that are both inimitable and non-substitutable. The two main resources required to operate the firm and achieve operational efficiency are technologies and social processes.

Barney (1991) exemplifies three steps to transform a firm’s resources into a sustainable competitive advantage. Initially, the resource is a part of total assets, including organizational processes, capabilities, knowledge, etcetera. Next, the resource becomes a competitive advantage, which is determined by the competitor's inability to implement the same value-creating resource. Finally, the resource achieves the status of sustainable competitive advantage, which means that any current or potential competitor cannot replicate a similar resource. The author further explains four more specific attributes, Value, Rare, Inimitable, and Non-substitutable, also called the VRIN framework, required for resources to have the potential to sustain competitive advantage. Barney (1991) exemplifies this through a computer that can be categorized as both a basic resource and a sustained competitive advantage, depending on how the company internalizes it. Manresa et al. (2024) explain the updated VRIN framework,

VRIO, where Non-substitutable is substituted for Organization, now including the overall organizational structure, which focuses more on rare and inimitable attributes.

Manresa et al. (2024) explain that early adopted technology resources may provide competitive advantage. However, new technology resources might also have disadvantages such as a high cost, imperfection, and incompatibility, potentially affecting quality, requiring some capabilities that are unavailable or underdeveloped, or needing time, structure, and processes to bring out the best in them. The authors also discuss that early adopting firms are also the first to find solutions to implementation problems and to use the full potential of the technology, thereby reaping the accumulated benefits over a longer period.

The KBV emphasizes the importance of knowledge (Spender, 1996; Alavi & Leidner, 2001; Franke & Hiebl, 2022). The initial perception of competitive advantage is a result of specific resources not available to competitors, which creates value while transforming raw materials into products. Knowledge is discussed as an intangible and firm-specific resource containing a higher potential to add value in the transformation process. Lastly, since tangible resources are found externally, it is more likely that internal resources achieve sustained competitive advantages according to the VRIN framework (Spender, 1996; Franke & Hiebl, 2022). Alavi and Leidner (2001) state that the success of a tangible resource is strongly dependent on the knowledge of the firm, and the authors explain that the knowledge is transferred through various functions within the organization, for example, culture, routines, policies, and systems.

The KBV focuses to a greater extent on knowledge development, meaning the firm's ability to effectively create new knowledge by applying the already existing one, instead of focusing on existing knowledge at a given point, which Alavi and Leidner (2001) believe is the base for achieving sustained competitive advantages. Franke and Hiebl (2022) explain that two types of knowledge are tacit and explicit. Explicit knowledge includes facts and theories, and can be easily communicated and shared. The authors explain that big data can be viewed as explicit knowledge because it can create valuable codified information and can thus be easily communicated and shared. Tacit knowledge is about “knowing how” and is based on experience that exists within the mind of a person and is revealed only by a person’s actions. The tacit knowledge cannot easily be codified and making it difficult to transfer the knowledge between people. From a KBV, the organization’s tacit knowledge is the most valuable because competitors cannot easily copy or acquire it.

2.2.2 Knowledge-Based View in Management Accounting Research

Pereira and Bamel (2021) found that the RBV and KBV research has a positive impact in the practical field, where it has supported organizations in recognizing their sustained competitive advantages. Helfat et al. (2023) found that technological solutions transform how organizations gain a competitive edge by shifting the value of traditional human skills to creating new technological expertise. There is an implication that organizations need to develop technological skills and adapt to new ways of leveraging human capital. However, the authors state that despite the resource being within the field of digital transformation, it does not

automatically turn into a sustained competitive advantage. Franke and Hiebl (2022) agree and explain that to effectively use data processing, it must be combined with other resources. To make sense of the data process, an organization requires the tacit knowledge of skilled employees in addition to the explicit knowledge provided by data processing sources.

Helfat et al. (2023) state that technological systems do not entirely replace human skills but change which skills are valuable, requiring managers to rethink their employees. Organizations need to train employees in technological development and decision-making while ensuring a mix of traditional and technical system skills, meaning that resources can contain several characteristics that make it unique, but there must be knowledge and skills within the organization to utilize it. Singh, Gupta, Busso, and Kamboj (2021) found that the top management significantly affects knowledge-sharing practices and knowledge-creation processes throughout the organization, which will increase firm performance. Franke and Hiebl (2022) argue that top management teams often lack the technical and cognitive capabilities to fully use data processing, and require help from experts, who may be provided by management accountants, to get access to the relevant managerial information.

Vial (2021) and Terzioviski (2010) states that organizational culture plays a crucial role in the success of digital transformation. Vial (2021) also identifies key barriers to digital transformation, particularly inertia, which arises from deeply ingrained organizational culture, identity, and legitimacy. Inertia hinders innovation, even when management recognizes the benefits of digital technologies. Another challenge is resistance, where employees oppose disruptive technologies, often due to innovation fatigue, which further delays the adoption of digital transformation (ibid). Technological development could lead to managerial frustration and financial waste if the results are below expectations (Manresa et al., 2024).

To overcome challenges in technology development, both top management and employees must embrace a strong digital mindset and enhance their decision-making processes, leveraging analytical skills to navigate increasingly complex business environments (Ardito, Raby, Albino, & Bertoldi, 2021; Terzioviski, 2010). Terzioviski (2010) continues and explains that firms should approach innovation as a strategic, market-driven process rather than focusing solely on technological advancements. Without a strong innovation culture and clear strategy, firms risk struggling to stay competitive. Vial (2021) describes that the application of an innovative and flexible organizational structure requires cross-functional collaboration, where separate entities maintain a degree of independence while having access to existing resources.

2.3 Previous Scientific Literature

When analyzing the role of knowledge as a strategic resource through KBV, it becomes important to understand the systems that support its use in practice. ERP and BI are key technologies in this regard, and the next section presents the definition and understanding of these systems as a basis for the management accounting practices.

2.3.1 ERP Systems

ERP systems, also called information systems, are software systems that combine and automate functions and processes within businesses, with the potential to integrate operations, increase efficiency, and generate more informed decisions. Instead of separate functions, such as accounting, human resources, and inventory, the functions become more integrated, which simplifies planning and information sharing since it enables control horizontally (Bawa, 2023; Youssef & Mahama, 2020).

Initially, the ambition with ERP systems was integration and information sharing across the business to centralize control by combining perspectives (Berlinski & Moralés, 2024). Research shows that ERP systems have, over time, been universally adopted to reorganize business processes while also unifying data flow. The complexity of ERP systems impacts various functions of the business, which results in significant changes in the roles of management accountants and other professionals (Alhatabat & Hutaibat, 2024; Heinzelmann, 2018). Alhatabat and Hutaibat (2024) continue by explaining that tailoring the ERP system within the implementation phase has been proven to positively affect business planning, information sharing, and problem-solving for management accountants.

Papiorek and Hiebl (2024) find that businesses are relying on their information systems to a larger extent today than ever before, which requires a focus on system quality and development. The authors provide empirical evidence that to achieve expected benefits, in terms of effectiveness and overall organizational performance, high-quality information systems are crucial. Further observations include consequences regarding the tension between functions as a result of different priorities, which puts further pressure on management in decision-making. Berlinski and Moralés (2024) find consequences that include time-consuming discussions about accessibility and what data is flowing through the systems.

2.3.2 BI in ERP Systems

BI systems are integrating tools and infrastructure for data management, analysis, and reporting by, for example, integrating tools in ERP systems that gather accurate data with real-time multidimensional analysis (Mudau, Cohen & Papageorgiou, 2024). However, Bawa (2023) states that investing in intelligence systems can be costly in both the systems themselves and the personnel and training costs.

Big data is the base for BI operations and serves as the foundation to enable effective strategies, planning, and reporting (Oesterreich, Anton & Teuteberg, 2022). Big data refers to large and complex data sets that require extensive storage and advanced analysis tools (Theodorakopoulos, Thanasas, & Halkiopoulos, 2024; Agustí & Orta-Pérez, 2022). By integrating Big data in the ERP, accountants gain access to real-time data with the potential to enhance decision-making and financial strategies (Theodorakopoulos, Thanasas, & Halkiopoulos, 2024). Despite this, ensuring data quality can be a challenge because BI is usually connected to several systems, both internally and externally to the company, and the

data can be unstructured, incomplete, and contain errors making it difficult to generate reliable insights (Theodorakopoulos, Thanasas, & Halkiopoulos, 2024; Bawa, 2023).

Martins et al. (2024) argue that BI systems in ERP allow analysis from multiple perspectives, which enables flexibility and enhances the management accountants' ability to react. Moreno, Cavazotte, and Carvalho (2020) explain that for companies to optimize BI solutions, they need to create an understanding of what the system currently is capable of. The authors found that full utilization of benefits from BI systems is achieved through monitoring the environment they are operating in and internalizing and sharing the information to enable the reallocation of resources and competence. In other words, to fully optimize the BI system, the system needs to contain as many perspectives as possible (ibid). Integrating BI with existing systems can be complex and challenging because many organizations have legacy systems that are not designed to handle large amounts of data. Collecting additional data brings along challenges with data privacy and security, with the risk of data violations and cyberattacks, companies need to implement robust security measures and ensure compliance with data protection regulations. Knowledge and coordination in both systems are required to enhance functionality and enable success (Theodorakopoulos, Thanasas, & Halkiopoulos, 2024; Bawa, 2023; Boerner, 2025).

An overall perception is that data can be perceived as a crucial asset for organizations, and understanding the data can result in benefits by serving as a stable base in the decision-making process (Chatterjee, Chaudhuri, Gupta, Sivarajah & Bag, 2023). Ferraris, Mazzeleni, Devalle, and Couturier (2019) express that large data value has the ability to manage operational and strategic potential in generating business value. Currently, forecasting is mainly based on historical data, and an interesting perspective would be to understand what role real-time data would play in forecasting and decision-making processes.

BI offers analytics tools for historical and current data, forecasting, trends, and reporting while also integrating data systematically throughout the organization to support managers during the decision-making process. Additionally, the system manages both financial and non-financial data, which is beneficial in strengthening management control (Mudau, Cohen & Papageorgiou, 2024; Ain et al., 2019). The success of a BI system is determined based on the extent to which it is adopted and integrated into daily tasks, and management accountants are required to consistently use the system and to continuously develop their skills to optimize benefits. However, users in terms of management accountants tend to revert to Excel and other traditional tools for budgeting, forecasting, and reporting instead of utilizing the potential of the BI system (Mudau, Cohen & Papageorgiou, 2024). Bawa (2023) and Abbas (2025) discusses obstacles in terms of acceptance among employees during the implementation of new technology, which the author believes is a result of an underlying resistance toward change.

Ain et al. (2019) divide BI use into two categories, routine BI and advanced BI. Routine BI involves clean purposes or analysis of past data, where the system serves as a database with limited value, excluding various features. Advanced BI is when the business utilizes the capacity and creates dynamic reports, data visualization, and dashboards for KPIs (ibid).

Advanced BI has been shown to improve performance outcomes, notably for tasks with more advanced characters. Skills and knowledge should be developed to enhance advanced BI to utilize the system and optimize performance and decision-making (Mudau, Cohen & Papageorgiou, 2024; Ain et al., 2019). However, handling BI requires skilled personnel who know both ERP and Intelligence systems, which would be challenging (Bawa, 2023). Theodorakopoulos, Thanasas, and Halkiopoulos (2024) explain that personnel need to have skills such as data analytics and data visualization, and the organization should also be required to offer training.

2.4 Theoretical Overview

ERP and BI are both crucial when integrating functions within an organization by unifying data flow and creating a broader picture of the business processes in real time, which enhance the ability of management accountants to react and respond quickly (Bawa, 2023; Abbas, 2025; Youssef & Mahama, 2020; Berlinski & Moralés, 2024; Alhatabat & Hutaibat, 2024; Heinzelmann, 2018). There are concerns regarding management accountants' current ability to adapt to new responsibilities arising from technological advancements, and the KBV addresses the fact that knowledge has the potential to create more value than tangible resources. Research shows that knowledge is best optimized to create new knowledge and transfer the knowledge across various functions internally instead of only using the existing knowledge (Spender, 1996; Alavi & Leidner, 2001).

Based on the theoretical framework, four focus areas have been developed: ERP & BI, Knowledge, External Perspective, and Opportunities, which will serve as a base when developing the interview guide. The focus areas reinforce the importance of the integration of ERP and BI systems and the importance of knowledge to utilize the process.

Focus Area	Description	Academic View	Associated Framework	References
ERP & BI	Resources with potential to provide benefits	(1) ERP and BI are crucial when integrating functions. (2) Unifies data flow and allows horizontal control. (3) Supports in reporting, forecasting trends, and decision-making.	RBV	Bawa, (2023), Youssef & Mahama (2020), Berlinski & Moralés (2024), Alhatabat & Hutaibat (2024) and Heinzelmann (2018)
Knowledge	Generating new knowledge and transferring knowledge across the organization	1) Extensions in knowledge regarding IT are required for management accountants. 2) Concerns regarding management accountants' ability to adapt to new responsibilities. 3) New methods require new knowledge to enable optimization.	KBV	Kroon, Alves & Martins (2021), Rautiainen et al. (2024), and Nielsen (2022)
Externally	Acquire knowledge externally	(1) Acquiring personnel with IT competence may optimize the use of information systems, however, the inherent values in management accountants are still too valuable to replace. (2) Collaborations have become more desirable.	KBV	Kroon, Alves & Martins (2021), and Bucaro, Wilks & Yust (2024)
Opportunities	Ability to adapt to changing market conditions	(1) BI systems enhance the management accountants ability to react. (2) BI systems can internalize and share information to enable reallocation quicker.	RBV/ KBV	Martins et al. (2024) and Moreno, Cavazotte & Varvalho (2020)

Table 1, Summary of the Theoretical Overview

3. Method

3.1 Research Design

Based on the purpose and the research question, this study was conducted using a qualitative method, more specifically, a case study. A qualitative study strives for theoretical generalization, oftentimes by exploring behaviors, values, and beliefs in the specific context in which they occur. It allows for a better understanding of perspectives and meanings (Bell, Bryman & Harley, 2019). This study relies on interviews with four organizations: one parent company, two subsidiaries, and one consulting firm. This approach provides access to both internal and external perspectives, offering real-world case examples. The goal is to gain a deeper understanding and identify patterns regarding the usage of the BI system and its impact on operations and strategy, both within and outside the company.

3.2 The Case Companies

This study employs a case study approach by interviewing participants from four companies (A, B, C, and D), with primary focus on company A, and the other serving as complementary data sources. A case study strategy focuses on organizations' everyday operations and decision-making processes (Bell, Bryman, & Harley, 2019; Eisenhardt, 1989). Regarding business research, case studies provide practical insights that contribute to project success and help organizations avoid potential challenges (Eriksson & Kovalainen, 2008). The selection of cases is a crucial aspect of research design, as it defines the population from which the sample is drawn (Eisenhardt, 1989). The study captures the case companies' practical experiences and the influence of BI usage by interviewing respondents at different organizational levels.

Company A is a Swedish family-owned private company with headquarters in Västra Götaland County. The company has been active for over 60 years and has grown into a group with several subsidiaries operating within various sectors. In recent years, the company has invested heavily in BI and made it an integral part of its business. Company A has a turnover of approximately 4,000 M (SEK), a balance sheet total of 3,000 M (SEK), and 1,400 employees.

The selection contains two subsidiaries of company A, which will be referred to as company B and company C. Company B provides IT services, and company C operates in customer services, both well-established in the group. The subsidiaries offer an internal perspective of management accountants, however, they are more users than decision-makers.

Company D is one of the Big 4 consulting firms located in Gothenburg, with expertise in advisory services for the digitalization of finance functions. Company D works directly with company A and indirectly supports company B and C. While the consulting firm has not been involved in the implementation and usage of BI systems within the group, they maintain a relationship since companies A, B and C are their clients. Company D offers an external perspective of consultants, however the whole thesis still centerns on management accountants with acknowledgements of different types of informants.

3.3. Data Gathering

The study has gathered data from both primary and secondary sources. The primary data is obtained through semi-structured interviews. A pilot interview with the previous CFO of Company A was performed to ensure the interview questions were suitable. The person was chosen because of their knowledge about the case company's BI. The interview lasted for 65 minutes and led to changes in the interview questions. The pilot interviewee is not included in the empirical material of the study.

Interviews were conducted on Microsoft Teams to employ the recording tool to be able to gather all the details. The interviewees were informed about the recording during the initial contact, and also gave their consent at the beginning of the interview. The interview was held in the respondent's native language, Swedish, and then translated by the authors. During the interview, one author had the responsibility of the interview guide while the other noted initial thoughts and observations, and both had the collective responsibility to ask follow-up questions to maximize the session. Furthermore, some respondents provided additional material, in terms of internal PowerPoint and documents to support their statements. After the interview, the authors did a reflection on the thoughts and insights of the interview to capture the initial impression of the material. Later, the authors individually listened to the interviews to ensure accurate transcription and then revised the transcription to anonymize information that may be sensitive.

In addition to primary data, the study utilizes secondary data sourced from existing empirical research, specifically, peer-reviewed scholarly journal articles (Eriksson & Kovalainen, 2008). To ensure the relevance and timeliness of the reviewed literature in the field of digital transformation in ERP and BI systems, only articles published from the recent decade are considered.

3.4. Sample and Sample Criteria

Company	Respondent	Time in the company	Respondent´s position	Interview duration
Company A	A1	25 years	Controller	56 minutes
	A2	37 years	CIO	62 minutes
	A3	1 year	CFO	58 minutes
	A4	5 years	IT-specialist / Controller	61 minutes
Company B	B1	2,5 years	Finance Manager	60 minutes
Company C	C1	1,5 years	CFO	61 minutes
Company D	D1	3,5 years	Business Advisor	47 minutes
	D2	1 year	Business Advisor	58 minutes
	D3	15 years	Auditor	62 minutes

Table outlined by the authors

Table 2, Overview of the Respondent Sample

The sample of respondents was decided from three criterias. Each respondent needs to have insight into the development of BI, usage of the BI, and knowledge of BI and ERP. The respondents who participated in the study are those meeting the criterias; the remaining employees may use the BI solution but lack an understanding of the underlying processes, or areas of use.

3.5 The Interview Guide

The interview design of the study is conducted as a semi-structured interview with prepared outlines of topics with specific questions, also called an interview guide, but also allows the interviewee to talk about their own experience without influence from the interviewer. The flexibility gives the interviewer the ability to ask additional questions based on the interviewee's responses (Eriksson & Kovalainen, 2008; Bell, Bryman & Harley, 2019).

In accordance with the recommendations of the School of Business, Economics and Law at the University of Gothenburg on the use of generative AI in higher education (School of Business, Economics and Law, 2024), the study used ChatGPT, to create the interview guides shown in Appendix A. The purpose was to create and explore the quality of the interview questions, to understand whether they are likely to provide valuable answers. It has only been used for internal validation and elaboration and is not part of the study data. The authors provided ChatGPT with questions about the study and based on the theoretical framework to ensure that the questions were aligned with the subject. Two different interview guides were developed, each containing the same questions but structured differently to account for the respondent's perspective. The interview guide for company A, B and C focus on an internal perspective, while the guide for company D incorporates an external perspective. To validate the questions, the authors asked the AI tool to respond as if it were a management accountant, ensuring the questions were well-formulated. Any necessary adjustments were then made. Finally, the questions were approved by the supervisor and the contact persons from company A and D. The interview guide was sent to the respondents before the interviews to allow them to prepare. The limited time for each interview of about one hour was to be maximized by allowing respondents to prepare, more time could be devoted to understanding the phenomenon in depth.

The interview guide is based on six sections to ensure a logical structure, starting with background information before moving into more strategic topics. The first section begins with the interviewee’s background, focusing on their role as a management accountant and their involvement in decision-making processes, particularly in relation to management accounting activities within ERP and BI systems. The second section explores how ERP and BI systems are perceived as strategic resources. It builds on the background section by moving from descriptive information to a deeper analysis of how these systems support business processes, specifically how management accountants use BI tools to produce and interpret financial information. The third section examines employees’ knowledge levels and the creation and transfer of knowledge within the organization. It seeks to understand how BI and ERP systems are used in relation to management accountants’ ability to apply them effectively in their work.

The fourth section assesses external drivers, aiming to understand how factors such as regulations, technological developments, and market dynamics influence management accounting practices within ERP and BI environments. The fifth section addresses dynamic capabilities, focusing on management accountants' views regarding change and future trends. Following the external drivers, this section captures the evolving role of management accountants in response to ongoing technological advancements. The final section consists of closing questions, giving interviewees the opportunity to share additional insights or reflections not previously covered in the guide.

3.5 Data Analysis

Once the interviews were completed, the authors thematized the data using the Gioia methodology, as outlined in Appendix B. The Gioia Methodology groundwork is applied to analyze the collected data from the interviews.

Magnani and Gioia (2023) describe that the data analysis model used in discovery-oriented research aims to generate credible explanations of how and why an organizational phenomenon occurs that links data to theory. The data analysis model consists of three stages when creating analytic codes and categories. Initially, it follows inductive reasoning but evolves into abductive reasoning due to going back and forth between empirical data and existing literature to refine theories in pursuit of the best explanation (ibid). The first stage, first-order coding, is described as organizing and grouping raw data. The second stage, second-order themes, involves more abstract conceptualizations through an ongoing negotiation between theory and data. The third and final stage involves the aggregated dimensions where the study's findings are presented based on the second-order themes, which in turn are derived from the informants' first-order quotations (Eisenhardt, 2021; Magnani & Gioia, 2023).

The aim is to construct a model that validates existing concepts, expands current knowledge, and, ideally, introduces new perspectives on a phenomenon (Magnani & Gioia, 2023). The study involves interviews with a variety of roles and organization contexts, which strengthens the diversity of perspectives. Concepts and themes have been restricted to match the field of the study, and outlier concepts have been excluded. The first-order process resulted in 92 concepts from the respondents' own words and expressions from the transcripts. While the intervention includes both internal accountants and external consultants, all data have the perspective on the usage of BI systems in relation to management accounting activities. The next step, the second-order process, resulted in 15 themes. The themes show how management accountants' thoughts are about the usage of BI systems. Lastly, were then categorized into four aggregated dimensions. The aggregate dimensions contribute to an understanding of how BI influences the evolving role of management accountants and the ongoing transformation of management accounting in a technology driven company. The process from first-order concepts to aggregated dimensions was not linear, and the authors analyzed the transcripts several times to find new concepts and trends.

3.6 Quality

Two primary criteria for assessing a qualitative study are trustworthiness and authenticity (Bell, Bryman & Harley, 2019). To ensure research quality, four key criteria contribute to the dimensions of trustworthiness: internal validity, external validity, construct validity, and reliability (Izzo, Fasan & Tiscini, 2021; Bell, Bryman & Harley, 2019). Additionally, authenticity serves as a fifth essential criterion for research quality (Bell, Bryman & Harley, 2019).

3.6.1. Trustworthiness

To generate a trustworthy study, the authors had a continuous dialogue throughout the whole process with contact persons from company A and D. The contact persons also reviewed the thesis to ensure it aligns with the company's reality and is credible. Throughout the process, there has also been a dialogue between the authors and the supervisor to provide continuous feedback during seminars and emails. This has helped the paper to maintain an independent and valid outcome.

Both authors attended all interviews for reflection and compared the observations from the session. During the interview, the authors asked follow-up questions with the purpose of understanding the interviewee's intended thoughts. After every interview, the authors discussed their thoughts to minimize the risk of misunderstanding the interviewee's answer.

The Gioia methodology, supported by scientific literature, offers an objective perspective when conducting the empirical material and analysis. The methodology is based on an iterative process between empirical data and existing literature to refine theories to ensure an accurate explanation.

3.6.2. Authenticity

The study applied authenticity in that the interviews conducted with employees from company A, B, C and D provide different perspectives on the same concepts and constructs. Respondents from various positions within the companies were chosen to ensure a diverse range of viewpoints.

The results of the thesis were sent to all respondents to ensure authenticity and contribute to the broader understanding of the usage of BI. Furthermore, the findings hopefully inspire the company to generate new ideas for further development of its BI system.

3.7 Ethical Considerations

Following the guidelines from the Swedish Research Council (Vetenskapsrådet, 2017), described by Bell, Bryman, and Harley (2019) as four main areas of ethical principles in business research: potential harm to participants, lack of informed consent, invasion of privacy, and use of deception. To ensure compliance with the ethical principles of this study, all

interviewees remain anonymous. All participants in this study have been informed about the thesis's purpose and that the study will be published, and their consent has been obtained before their inclusion in the research. To confirm that no sensitive information has been disclosed, the contact persons from companies A and D have reviewed the report for confirmation. The study also ensured that there was a mutual agreement to record the interview. The transcripts from the interview have been anonymized, such as names and company, to secure privacy. To ensure confidentiality and data protection throughout the research process, access to information is restricted to the authors and the supervisor only.

3.8 Limitations

This study employs a qualitative research method, which has been criticized for its lack of generalizability (Bell, Bryman & Harley, 2019; Eisenhardt, 1989). Qualitative research has also been criticized for being too subjective and overly reliant on human interpretation (Bell, Bryman & Harley, 2019). The interview study cannot be considered an entirely objective approach, as the researcher's understanding is influenced by their interpretation of the interviewees' perspectives. The interviewers' interpretations are just as biased as those of the interviewees. This case study will assign distinct roles to each team member to enhance objectivity to ensure that multiple perspectives are considered. Eisenhardt (1989) suggests that having one researcher interact directly with participants while another takes notes can lead to a more comprehensive and balanced understanding of the data.

The materials used in semi-structured interviews are systematic and comprehensive, while the interview's tone remains conversational and informal. Due to the semi-structured nature of the interview guide, it may be challenging to compare empirical data systematically, as participants interpret and respond to the same questions in slightly different ways (Eriksson & Kovalainen, 2008).

Certain limitations exist when applying a case study approach. Eisenhardt (1989) argues that case studies can make it difficult to identify key relationships due to the large volume of collected data. To address this challenge, the author has applied the Gioia Methodology framework to identify key relationships.

The authors' initial knowledge in this field is limited, particularly regarding the use of BI systems, which Eriksson and Kovalainen (2008) state can impact the study. Additionally, the authors lack experience in conducting interviews. Eriksson and Kovalainen (2008) emphasize the importance of interview skills in semi-structured interviews, as they require the interviewer to ensure all topics in the outline are covered while also probing for more in-depth responses when necessary. The authors ability to conduct an interview and maximize the outcome were strengthened during the pilot interview.

A further limitation of this master's thesis is the restricted time frame for conducting the study. A longer timeframe would allow for more interviews, thereby strengthening the study and making it more comprehensive and rigorous.

4. Empirical Findings and Analysis

The empirical findings and analysis summarize with the table below, which presents the data structure developed through a Gioia framework. In the sections that follow, each dimension and its underlying themes will be explored in greater depth.

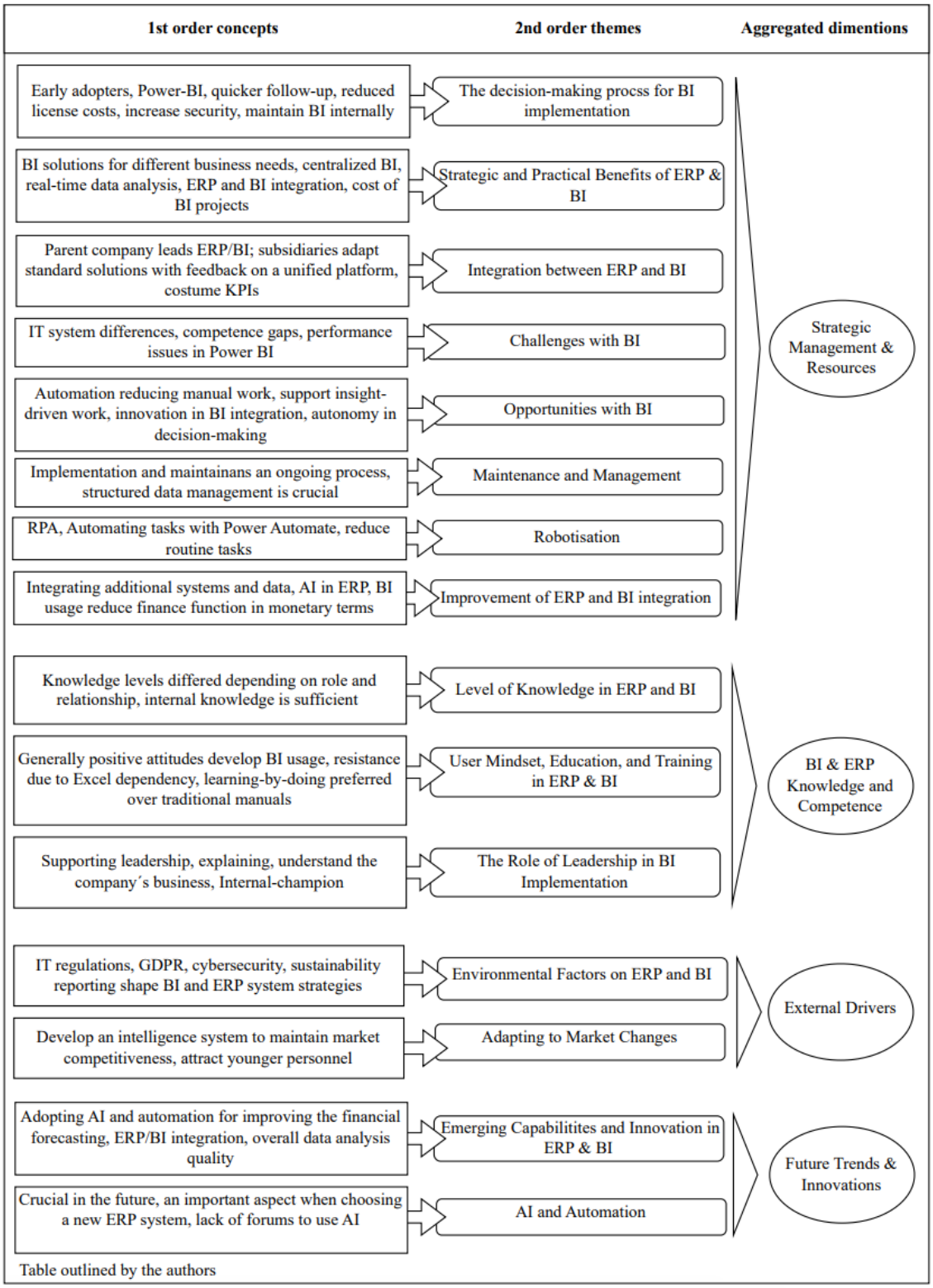


Table 3, Summary of Empirical Material Using the Gioia Methodology

4.1 Background

Four respondents provided a perspective from the parent company (referred to as A) while two respondents represented two subsidiary companies (referred to as B and C). The majority of respondents from the case company explained the group as a private, family-owned organization with short decision paths, which leads to quick decisions. This can be perceived as beneficial since knowledge can be communicated quickly in both directions. All six respondents are part of top management, but in different companies. Furthermore, the group contains several subsidiaries operating within different markets, meaning they contain different competencies and resources, and they enable cross-functional collaboration within the group by utilizing the various skills available to achieve higher benefits in comparison to hiring external organisations. Additionally, three respondents provided an external perspective from a consultant company (referred to as D) and explained that the case company is ahead of the competition in the field of BI.

What they have done with different types of BI solutions and how they have been able to access and analyze data instantly, without having to wait for a monthly statement. (...) I think they have come very far in this, unlike many of my other customers who are not there at all yet. - D:3

4.2 Strategic Management & Resources

The decision-making process for BI implementation

The interviews revealed that the case company was an early adopter of BI solutions and has additionally shifted to BI solutions in recent times. The group underwent a shift in BI solution during 2022 and 2023, shifting from Qlik Sense to Microsoft Power BI, which was discussed by all respondents from the case company. Some of the underlying motives for the replacement of the BI solution included quicker and better visual follow-up, reduced license costs, increased security, and higher abilities to maintain and control the BI solution internally. Flexibility and the ability to develop the system were also of great importance during the evaluation of BI solutions to enable add-ons in the future. The discussions and underlying motives in shifting the BI solution indicate that the case company is aware of what they find beneficial and what they require from a BI solution.

All respondents from the consultancy company are united when explaining the process behind implementing a BI solution. The respondents explain that the initial overview is very broad to get an understanding of what problems the company is facing. Since the case company already had a BI solution, they had a clear view of what they searched for.

"When you analyze a warehouse, you can ask questions like: "What products do you make the most money on?" And sometimes the answer is: "We don't know." (...) If the company doesn't have good system support, then as an auditor, you may feel you should have known this, and if you had that information, you might have made a different decision." - D:3

Strategic and Practical Benefits of ERP & BI

Observed from the interviews that the strategy behind the shift and implementation of the new BI solution was handled centrally at the parent company, and then distributed throughout the group. A:2 states that the underlying strategy with Power BI was to improve the previous BI solution, and no radical shifts were desired. This was perceived to be an improvements affecting the overall function and not specific features desirable for particular subsidiaries.

"The implementation was handled centrally, while the companies themselves had to specify their needs and requirements."- A:2

From the interviews, it was found that their approach revolves around collecting and storing as much data as possible from different segments, both internally and externally, to enable robust analysis and conclusions. A:2 explains this as probably more costly than buying a complete module, however, it contains the flexibility to add further data sources.

"It would certainly have been cheaper at the time to buy a ready-made module from our ERP system, but then we would have been locked into that particular system. We want more data sources, our service desk, our HR system, our forecast data. So, we decided to build our solution instead." - A:2

A:2 continues and explains the balancing act of comprehending the potential benefits while also considering the potential losses of the implementation to determine if the investment is profitable or not. Which becomes additionally challenging as a result of the various industries of the subsidiaries. A:4 agrees that BI can be a costly project; however, it argues that with correct knowledge and resources internally, you can make it more cost-effective. Clear from the empirical material that investing in BI solutions is costly, and it is challenging to defend the investment when trying to calculate monetary benefits. Instead, focus needs to be directed towards alternative advantages, where the system can relieve employees, ensure accurate reports, and support decision-making processes. It can be perceived that higher costs in this case are beneficial to realize the highest benefits from the BI solution, and also that the case company is prepared and willing to invest more to find further features to optimize their BI use. A:4 explains their data warehouse, to which they daily transfer data from both subsidiaries and the parent company, enabling Power BI to provide reports closer to real-time. A:4 continues by explaining that Power BI enables flexibility in both visualizations and reports and exemplifies this by stating that, depending on the receiver, reports can be visualized differently while based on the same set of data, if some require more details than others.

D:2 and D:3 explain that BI supports companies in creating qualitative analyses to better understand the organization, which is defined to be the most common incentive to implement a BI solution, also supported by an internal presentation shared by D:3. The case company requests a clear foundation to apply their BI solution, where they understand the importance of a robust set of data, structured in an understandable way for Power BI to operate optimally.

Integration between ERP and BI

From the interviews, it was found that the parent company is the owner of both the ERP system and Power BI, including responsibility for expertise both internally and externally, while the subsidiaries utilize the resources. The group contains a large number of subsidiaries, which makes the BI solution complex. The parent company requires a fixed set of reports from all companies, while the subsidiaries require individual reports for their analysis and decision-making. All respondents from the group explained the partly tailored system they are using in the BI solution, and respondent D:1 also states that the system itself is often standardized, however, the visualisations or reports are tailored after individual need. The integration between ERP and BI is visualized in a general perspective through a PowerPoint presented by the consultancy company, while a more specific dashboard is provided by the parent company. All respondents from the parent company explained the system as generic, with the possibility to create a broad overview of all subsidiaries combined, while also providing customized reports for each subsidiary to meet their needs.

"Our BI system is generic and is the same, and you can look at all companies in the same way via standard modules. But then we have just as many customizations." - A:1

Respondent A:2 explains the importance of following financial data connected to sales on a group level and how they continuously develop company-specific KPIs over their subsidiaries to better understand how they are doing. A:3 continues the reasoning of A:2 and means that some measurements work perfectly for some companies, while for some companies, they provide inaccurate information. The respondent further explained the importance of accurate information and tailored KPI packages, including both soft and hard values, to achieve correct follow-up.

"We try to build a fairly customized KPI package here, so we have had long discussions in the management team about what is important (...) and then build reports from there." - A:3

This implies that the integration of ERP and BI is crucial to enable accurate follow-up from a consolidation perspective, as the subsidiaries face different challenges and require different KPI packages to properly explain their current state. The integration is also of importance from a subsidiary perspective since KPIs regarding a different company may show no or the wrong value when applied to a different organisation, making the results inaccurate.

Challenges with BI

There are several challenges connected to the BI and ERP identified during the interviews. Boundaries within the Power BI are challenging as a result of the various industries the subsidiaries are operating in, one boundary can be beneficial for one subsidiary while harming another. The case company faces challenges in combining Power BI to individually support the subsidiaries in their decision-making, while operating uniformly to create an overview of the group for strategic decisions and consolidation. C:1 explains the separated IT environments that the group consists of, which makes access to data more difficult and results in slower processes. C:1 would want to integrate further systems, such as HR and payroll, into the ERP

system to minimize the additional work necessary when combining data. This is supported by D:1, who also discusses the limitations of technical integration. Difficulties in combining systems can easily result in the systems not operating smoothly, which can create additional work to correct and complement reports.

A:1 explains the understanding of the underlying data and the process of making the data understandable. The data is often structured in one way and is supposed to be presented in another, which creates difficulties if there is a lack of understanding of the underlying processes. D:1 explains that a relatively large number of companies tend to lack structure in their processes and in how they manage their data. In other words, without an underlying structure, additional systems like BI will not create solutions. Also supported by D:2.

"If a company goes from working without a BI solution, there may have been a lot of estimates and follow-ups in various reports. When the BI solution comes in and delivers completely different data that is taken from the ERP system, there may be a clash, and there may be some political conflict in the company." - D:2

Observed from the interviews that the working methods over the subsidiaries differ, and it seems to be where the majority of challenges are found. The interviews implies that they are aware of their difficulties and actively working to find solutions, however, this process can be both time-consuming and costly.

Opportunities with BI

Despite the challenges, the respondents also discussed several opportunities related to BI. A:2 explains the opportunities with automation of repetitive tasks, allowing employees to focus on value-creating tasks instead. A:4 discusses the rapid changes in the market, which require hasty but accurate decisions. The chance to achieve fast and correct decisions in real-time is possible since Power BI enables quicker forecasts and detection of trends compared to waiting for tomorrow´s report, which is confirmed by the consultants. Similarly, A:1 explains that through Power BI, they can combine historical data with data from their forecasting tool to enable more accurate forecasts for future strategic moves. By investigating potential opportunities in combining historical and current data, a broader understanding of the current position on the market and future trends is easier to detect, which creates greater possibilities to gain further advantages in the future. When letting manual work become automated, cost reductions are possible, while human competence can be further utilized in more advanced analysis to increase profitability.

Further opportunities with Power BI include the possibility of using innovation and creativity to combine the data in the ERP system with external data. A:1 gives an example of when they collected the IP addresses of their customers to create a geographic mapping of where their customer is located, and were able to tailor the marketing and sales strategies to achieve higher profitability. Detected from the empirical material is that the case company utilizes features within Power BI through a creative mindset, which implies that opportunities can be found by applying an alternative perspective in comparison to the traditional ones.

A:1 discusses the opportunities Power BI has to provide real-time insights into decision-making, while making data accessible to more employees, presented understandably. Further opportunities with BI, discussed by A:2, include the independent analysis and decisions that can be made when more people have access to the data. A:2 continues by explaining that previously, accountants extracted reports from the ERP system and provided them to the CEO and controllers; meanwhile, with access being distributed over the organization, users can directly investigate different problems. The empirical material implies that the case company is satisfied with the current benefits provided by the Power BI; however, it continuously seeks benefits to develop the utilization of Power BI.

Maintenance and Management

The implementation of Power BI is completed, however, the roll-out is an ongoing process where they are currently working to create new reports and reach their goals.

"It's one thing to implement it, but then it still has to be rolled out, and that wouldn't be completely done, so we're partly doing that then." - A:3

The interviews revealed the importance of structured maintenance of data before integrating it into Power BI, and that the success of BI solutions is highly dependent on the control of data. A:3 exemplifies this by explaining that one additional account makes the report unusable, which is why it is important to internally understand what happens when they change the underlying structure. This implies that the maintenance and development of the BI solution is equally important as the underlying strategies, goals, and the implementation process. A:3 continues and explains that they have a continuous investment in their IT-specialist/Controller, who is responsible for internal maintenance, overall data and system quality, and serves as an internal specialist, which according to D:1, is crucial in the BI process. However, this increases the risk of the company becoming dependent on a single employee, and A:3 explains that ensuring independence can be costly, which is why they sometimes lack reliable backups and documentation. The IT-specialist/Controller has a crucial position in maintaining the internal use of Power BI, however, this could create future obstacles in use and development if independence is not secured.

"We have a dedicated IT-specialist/Controller. I think it's a very important part because then you have the power and execution capacity in your finance department, you don't have to turn externally all the time when you want to develop something like that and he is also responsible for our BI solution technically and to build new ones he is the one you go to and the business, controllers from the business or the CEO are who say that they would have this report, then it is to the IT-specialist/Controller that they go." - A:3

D:1 stresses the importance of a clear structure in maintenance to manage the BI and ERP systems, especially if they are separated, since updates or improvements in one of the systems may unknowingly affect the other. A:4 explained other challenges with maintenance and control, which are also connected to external updates having unexpected effects internally. This

indicates that, despite internal maintenance, understanding the underlying structure of the data and processes is crucial to ensure the system operates optimally, since external updates or changes may have a greater effect than expected.

Robotization

D:3 describes automation as beneficial for companies not to drown in data and to have more time to analyze; however, it explains that many companies try to automate without having standardized processes, which means that automation is not possible. During the interviews, it was found that the case company uses Robotic Process Automation (RPA) in Power Automate, which automates routine jobs and reduces manual work. The robots are coded based on a set of rules and operate smoothly and on their own, which reduces the number of routine tasks performed by the employees. A:3 exemplifies monthly financial statements as one task being automated, which were previously structured manually. A:3 believes that they are ahead of the competition in this field; however, it makes it clear that this is not an AI solution but an automation of manual processes robotization implies that the company is actively finding solutions to optimize their processes and enable their employees to use the reports for value-creating tasks instead of creating them. A:4 explains that the reduction in manual work creates benefits in terms of independence, meaning that if one employee is not available, work can continue since the robots operate automatically.

We started using robots three years ago. We have different robots for different tasks, for example, for daily routine jobs (...), which reduces the need for manual handling and allows work to continue even if an employee is sick or on vacation. - A:4

A:4 also discusses the risk for errors where the robot may read the data incorrectly, but also states that the systems are approximately 95% correct, and where errors occur, they can correct them manually. The general perception from the interviews is that the robots operate smoothly, without creating disturbing moments of errors, and do provide decision-makers with valuable insights, letting them focus on value creation.

Improvement of ERP and BI integration

The overall perception of desired improvements within BI and ERP includes the integration of additional systems and data into the BI solution to enable deeper analysis and more accurate conclusions. C:1 desires further systems integrated into Power BI to enable correlations of internal events, for example, staff turnover, sick absence, or vacation days. This kind of analysis is currently carried out through Excel, and by integrating the data, it would be possible to achieve this in Power BI instead. The respondent also expresses a wish to distribute access to Power BI to site managers to create possibilities for them to view their numbers instead of contacting upper management.

“We've talked about spreading Power BI more across the organization, for example, to the site managers, so they can see their numbers without having to ask me (...). Right now, I'm almost the only one using the system.” - C:1

A:3 also wishes to integrate further systems into the ERP platform, more specifically forecasting tools and consolidation tools. The respondent explained both Tagetik and Workday, which they are currently using for forecasting and consolidation, however, they are not integrated into the ERP, which the respondent would find beneficial, especially the consolidation tool. A:1 finds improvements in the integration between the internal systems of BI and ERP and external data to improve reporting and analysis.

"Maybe should get a little more about market trends, more other types of external data, so that you kind of look outwards and not just look at your own company. To see how you can see how you grow in terms of turnover and profitability (...). More external data alongside these internal reports." - A:1

A:2 explains the BI and ERP system as separated, where they are using APIs to extract data from the ERP system; however, in the future, the respondent believes it would be beneficial to integrate Power BI directly into the ERP system, especially when considering the entrance of AI. The empirical material highlights the desire to improve the integration between the ERP and BI, and to introduce further systems into the relationship to enable quicker reports, deeper analysis, and further perspectives to improve decision-making.

From a consultancy perspective, respondent D:1 explains that technical improvements in the integration between ERP and BI include unknown data. The respondent exemplifies this by stating that companies may have an ERP system, a CRM system, an HR system, and so on, however, they only connect BI to the ERP system and are satisfied with the outcome, despite a large amount of data not being included. The interviews imply that the company does exclude data, however, they are aware of it and are actively working with it. Currently, the company manually transfers data from various systems to Power BI or Excel; however, based on the empirical material, it is clear that they wish for a seamless integration between the data sources and Power BI to reduce the time consumption and risk of errors. D:3 explains the technological developments in monetary terms, where the cost is reduced for the finance function. Applying automation shifts resources and capabilities to more value-adding activities. This is also discussed in the PowerPoint presentation provided by the respondent.

"It's about what it looks like in terms of cost per SEK for the finance function. (...) When you drive automation, the cost can be about 0.55% of every krona you earn. For average companies, it is around 0.76%. This means that there is a difference of 0.2 percentage points, which is quite a lot." - D:3

4.3 BI & ERP Knowledge and Competence

Level of Knowledge in ERP and BI

A general perception among all respondents from the case company is that the level of knowledge within ERP and BI differs depending on role and relation to the systems. Which is summarized by A:2.

"Using the reports, we are good at. Creating new reports or views, relatively good. But making changes to the data platform itself, there we depend on consultant help." - A:2

A:1 and B:1 explain that the knowledge level for each employee is sufficient for the current workload and is extended when necessary, otherwise, they have a learning-by-doing perspective and seek the solution themselves. A:3 explains that users do not require much knowledge about the system to utilize the features, however, the respondent finds it beneficial to invest in education and training of the system to optimize the use. From the interviews, it was observed that, except for those responsible for implementing and maintaining the BI system, mainly standard features of Power BI are used.

The consultants explain that the level of knowledge is often dependent on company size, where larger organizations tend to have higher internal knowledge of BI in comparison to smaller organizations, where larger organizations can hire BI-experts full-time. D:3 explains that the most important knowledge is to understand the flow and how it is set up to understand the process. Furthermore, D:2 states that organizations tend to have deeper knowledge of the ERP system in comparison to the BI solution, since there are often many components of the BI solution. Observed from the interviews, the case company has further features to detect and utilize, however, it continuously strives to optimize the systems to gain further advantages both as a group and as separate subsidiaries.

User Mindset, Education, and Training in ERP & BI

A:1 explained that employees responsible for Power BI received extensive education and training to make adjustments and create reports from the supplier. The information is then passed down to people with responsibility in the subsidiaries and distributed to users. The interviews imply that they prefer alternative learning methods instead of manuals and traditional training. Examples of this include learning-by-doing, workshops, online information and tutorials, and other forms of self-study. The consultants advocate for a tailored education depending on the customer's needs, both during the implementation and after, and also stress the importance of education among users as well as management.

"Learning by doing before manuals. (...) We are not a big enough company or large group, I would say, to benefit greatly from having a lot of structured information and guides and manuals for everything. I think it works better to have an open, open communication to take the problems when they arise." - A:1

From the interviews it is observed that employees within the case company still use Excel instead of Power BI to some extent, which based on the interview could be a result of shortage in knowledge of how to utilize the system, where a few respondents requested further education, seminars and external forums to develop their understanding within Power BI. This indicates that users are satisfied with the current methods of training and are using the current knowledge, both at an individual level and group level, to create and develop further knowledge. However, users find interest in gaining further knowledge about the systems, to find features not yet utilized. C:1 perceives the subsidiary as somewhat conservative in the field

of Power BI in comparison to subsidiaries that more actively use BI solutions within their operations.

"Maybe we're used to analyzing it Excel and so on and pulling out numbers and twisting and turning them (...), maybe we are a bit conservative."- C:1

C:1 also states that Power BI needs to provide easier and quicker monthly reports in a more dynamic way to be more beneficial than Excel, since the current perception is that the reports from Power BI are equivalent to those from Excel. It could change the attitude towards the BI solution by providing further knowledge in Power BI, which clearly states further features, areas of usage, and analytics possibilities. A:4 states that they are encouraging employees to use new tools and are quick to share knowledge to create possibilities for everyone to grow. A:4 also states that they have observed a general trend of increased use of Power BI and reduced use of Excel over the last two years, which the respondent finds beneficial. A:3 observes a generally positive attitude towards Power BI and explains that negative attitudes mostly arise through insecurities when the systems do not work optimally, which is why they are strongly working on ensuring quality within the reports.

D:1 explains general difficulties in mindset that may affect the BI implementation negatively, which include impatience, lack of resources and interest, and difficulties in defending the investment.

"It often comes down to the customer's priorities. Many companies want a working solution but find it difficult to dedicate the time and resources to learn the systems. Even if they buy our services and want a result, it requires an active commitment on their part. If the customer does not invest time in training, there is a risk that they will not get the full benefit of the system after we have delivered it." - D:1

Observed is an overall acceptance of Power BI, which could be a result of their internal mindset of Power BI. Despite a few employees having a hard time finding personal benefits from Power BI, they are prepared to change when BI becomes better than their current methods. Management drives the change and is prepared to increase the costs to fully utilize their investment, while also showing patience when insecurities within the users arise.

The role of Leadership in BI Implementation

A:3 explains leadership during BI implementation as a balancing between push and pull. Some subsidiaries require support so they can move forward, while others need to find potential value to make them want to use it. A:2 explains curiosity of the organization as a crucial aspect of the leadership when implementing BI solutions, as well as the ability to conduct extensive analyses to understand the underlying motives for investing in such systems. From a consultancy perspective, D:1 states that there is no universal solution, but the leadership depends on the individual and the situation, similar to A:3. D:1 continues by explaining that forcing implementations is never a good choice; however, sometimes skeptical users need clear demands, but also clear evidence of how the system supports them.

"For an implementation to succeed, management must prioritize the project and create commitment. It's also important to have a champion internally who can demonstrate success and inspire others. Most employees are already busy with their work, so when a new way of working is introduced, it is not always met with enthusiasm. Therefore, it is important that someone internally takes on the role of driving the change positively." - D:1

D:2 states that a relatively strong leadership is required when implementing BI solutions, preferably someone who understands statistics and KPIs, while also having the technical abilities required to handle the data models. D:3 agrees and also explains that a good leader must understand the company's business and dare to drive change in line with the development of technology to achieve a good BI solution. The interviews revealed that management is aware of the importance of leadership and that adapting the leadership depending on individual needs and advancement, an internal champion was also identified in the IT-specialist/Controller, who is responsible for developing and distributing Power BI internally, something the respondents believe is a strong contributing factor to their success.

4.4 External Drivers

Environmental Factors on ERP and BI

A:3 explains that the external drivers they need to consider are mainly reporting and follow-up requirements, which put pressure on the ERP system rather than Power BI. A:3 exemplifies this by discussing the developing demands for sustainability reporting, which often puts additional pressure on the supplier of ERP systems, since those are responsible for the development. D:3 explains that there is a constant pressure for companies regarding regulation and describes it as a tsunami of regulations, and an internal presentation defines around 115 current and future regulations companies need to take into consideration. D:2 also states sustainability reporting and exemplifies the ongoing discussion of Omnibus as factors affecting the ERP system, also mentioned by D:3. A:1 addresses accounting regulations as a factor affecting the ERP system; however, similarly to A:3, those aspects are often dealt with by the supplier of the ERP system. A:1 states that since Power BI is an analytical tool, there are very few regulations regarding the use of BI. D:1 states that regulations regarding customs, tax, or any other external reporting may affect the ERP system, however, they agree with A:3 and A:1 and explain that external factors often affect ERP to a larger extent than BI.

Despite the factors mainly affecting the suppliers of ERP, the perception is that they still need to consider internal consequences since the changes in the ERP structure affect their usage as well as how Power BI interacts with the ERP. B:1 states external risk in terms of where the data is stored and how to secure the data from, for example, cyberattacks, as one of the environmental factors affecting the systems, and continues by explaining that they are continuously working with information security through frequent follow-ups with suppliers. A PowerPoint presentation provided by the consultants shows that cyberattacks are the second most prioritized risk according to CEOs. By having a close collaboration and regular contact with suppliers, the case company ensures both secure data storage as well as becomes aware of

developments and updates in the ERP system, which implies that they are aware of the environmental factors affecting their technology and are ahead of changes that may occur.

"There is also a vulnerability linked to having many systems, which creates a certain complexity. Or you put all your eggs in one basket, and then you can be vulnerable in another way, for example, if a supplier suddenly raises the prices of licenses or if other problems arise. So, I would say that the security issue is a key aspect." - B:1

C:1, on the other hand, brings up sensitive information such as salaries, customer agreements, and other sensitive information, where they need to consider GDPR. The company has a large number of employees and a broad customer base, resulting in a lot of sensitive data that needs to be managed with caution. Observed from the interviews that the case company does not face any particular environmental factors specific to them, regulations such as GDPR and accounting rules affect all companies and would have occurred with or without the ERP and Power BI. Regarding the data storage, this could be company-specific when considering the large amount of data they are collecting, however, it is perceived that the data storage is outsourced to an external actor and does not affect the ERP and BI of the case company.

Adapting to Market Changes

D:3 explains that the more competitive the industry, the more companies need to develop in technology. The respondent refers to a survey that the consultancy group does annually, and the result says that if companies do not develop, they will not be around within ten years. A:1 explained that they currently are not facing market changes to a large extent; however, they discussed that by complementing their internal data with external data, they could increase the possibilities of rapidly identifying market changes and reduce the time to react. A:1 further explains that Power BI is currently used for internal follow-up and does not focus on business problems towards customers, which A.3 believes could provide further understanding of possible benefits. By observing and understanding customer behavior, the company can get an indication of possible market changes and be prepared to focus its resources in a certain direction. D:3 explains that the new generation of millennials, Xs and Zs, has a strong drive for data that drives progress. D:2 explains observations where BI projects and automation attract younger employees who wish to work in a modern way, where the company becomes perceived as an attractive employer for the future workforce.

"Being able to attract younger people who want to work in a more modern way. The labor market is an important factor here." - D:2

This has not been observed within the case company; however, it is an interesting strategy to attract employees and create an attractive workplace.

4.5 Future Trends & Innovations

Emerging Capabilities and Innovations in ERP & BI

A:3 finds it beneficial in the future to integrate Power BI directly into the ERP system, which would increase flexibility. A:4 wishes for a private data center, a project that is both costly and requires extensive maintenance; however, it increases the possibilities of correct data and reduces the risk of information being leaked. However, this was perceived as wishful thinking with no intention of being implemented soon. A:2 discusses the development of AI into BI solutions and explains that AI in the future may be able to provide support in the data structuring process. A:2 continues and argues that managing the initial structure is crucial for both BI and AI to operate smoothly, and means that otherwise the AI won't solve anything, and believes that BI projects fail as a result of a lack of control over the data. By having a clear overview of the underlying data and processes that build the BI solutions, the possibilities of developing the solution by adding further systems, methods, or purposes increase, which implies that challenges occur when time and resources are not spent to implement the solution correctly.

"Many failed BI projects are due to not having control over the data. AI may in the future help structure unstructured data better, but if your data is wrong from the start, it doesn't matter." - A:2

D:1 is certain that AI will be integrated into BI to a larger extent in the future, and believes that by integrating AI into BI, further insights into existing data can be discovered. D:2 also believes that AI will be integrated into BI in the future and explains that future trends in terms of AI will affect administrative tasks, such as reporting processes, which will result in new requirements of competence. From the interviews, it is understood that the case company contains the resources and the competence to drive this development; however, it continuously seeks new knowledge to utilize the processes. D:3 explains that systems need to be developed to provide better solutions for their processes and information flows, and analyze data more efficiently than they can today. The overall perception from the interviews is that the company contains the resources necessary for future development and actively seeks improvements in its current methods. By incorporating AI, further algorithms can be developed that can promote the ability to forecast trends and increase the possibilities to reallocate resources or update the strategy to more efficiently meet their goals.

AI and Automation

A:1 believes AI will play a crucial role in the future. Currently, Power BI provides historical data, while in the future, the goal is to use the data to find patterns and trends to forecast the future, which is why AI will grow within the field. The respondent states that internally, the overall attitude towards AI and future development is positive, where AI initiatives can be observed both at a group level but also company-wise. A:2 addresses the argument that AI is going to replace humans in the workforce and explains that AI will automate repetitive, boring work that does not bring any value, and free up time for employees to focus on value-creating tasks. Furthermore, since the overall culture and mindset of the company is positive towards

technological advancements, the perception is that they would preferably complement with further knowledge in already existing employment instead of replacing employees with external expertise. A:2 also states that during a future reevaluation of internal systems in the future, AI will be one requirement when choosing a supplier.

"When we one day choose a new ERP system or re-evaluate ancillary systems, it will be a decisive criterion that the vendor has an AI agenda and integrates AI into its solutions, instead of leaving it to customers to try to integrate AI through robotization and other external solutions." - A:2

A:2 lastly explains that automation is perceived as positive over the group where employees actively ask for improvements and developments, which the respondent finds favorable since the users are those who can identify where automation is needed. However, based on the group annual report of 2024, it becomes clear that the interest in implementing AI differs across subsidiaries throughout the organization.

A:4 states that they are currently focusing on finding the correct AI tool and explains a desire to find a solution that complements their already existing systems to enable a comprehensive overall solution. It is perceived as the case company, similarly to the BI implementation, produces a solid background to determine their needs, wishes, and desired improvements of the AI tool. This also implies that investigating what tool matches the current systems and processes is equally important as understanding how to utilize it. B:1 perceive two aspects of the development, firstly, the development of AI, automation, and flexibility, and secondly, the need for stable and secure systems. B:1 means that both are equally important, however, it is important to understand what brings the most value. Despite the rapid development of technology, it is perceived that some companies prefer to use the traditional, reliable systems, lacking flexibility but offering more security, instead of the new systems, which offer flexibility and rapid decisions. From an external perspective, D:1 states that AI is not that far away, and the current discussions address questions of what AI can support, how it is supposed to be used, and how it can bring value to the company. A:3 is certain that they have to consider AI in the future, which creates questions in terms of how to maximize AI and what systems to use. This indicates that the discussions addressed by D:1 have already reached organisations, where they develop ideas on where and how AI can be used to find maximum value. A:3 finds a lack of forums on how to successfully apply AI in finance departments and explains a balancing act between waiting for a successful example and being an early mover.

5. Discussion

Previous research has found that BI technology significantly supports management accountants in their daily tasks. By integrating tools and systems, BI can provide real-time multidimensional analysis, enhance decision-making, and strengthen management control (Mudau, Cohen & Papageorgiou, 2024; Ain et al., 2019; Theodorakopoulos, Thanasas & Halkiopoulos, 2024). However, research also found that there are challenges related to BI, in terms of cybersecurity, level of adoption, and acceptance among employees, which all affect the utilization of the technology (Theodorakopoulos, Thanasas & Halkiopoulos, 2024; Bawa, 2023; Abbas, 2025; Boerner, 2025; Mudau, Cohen & Papageorgiou, 2024). The following chapter is discussing how is BI used in a company that has successfully implemented Power BI.

5.1 Factors affect the efficient use of Power BI

The empirical material indicates that the case company adopted BI early and has gradually developed the system, tailoring reports and connecting BI directly to the underlying data within the ERP system. Since the various companies within the group engage in diverse activities, the empirical material highlights the complexity involved in choosing the BI system. However, the findings highlight that by centrally developing their version of Power BI, with contributions from subsidiaries, they found the best way to leverage value and create a robust platform that operates uniformly over the group. Top management contains the holistic perspective of the group, and their involvement in the implementation and distribution of Power BI is perceived as crucial to develop the system as well as motivate employees to utilize the features. The consultancy perspective advocates for flexibility in leadership during the implementation of BI systems, as well as the benefits of an internal champion who is responsible for driving the development internally. The case company identified the internal champion as the IT-specialist/Controller who is responsible for developing and distributing Power BI internally, something they believe strongly contributed to their success. The top management of the company contains the required capabilities, both technical and cognitive, to maintain and develop Power BI, which positively influences their leadership. By containing extensive knowledge, management has the potential to both motivate and support their employees to utilize Power BI, which can enhance the overall interest in developing individual knowledge, but also the system in general.

The empirical material identified several factors that could create managerial frustration. Firstly are the high fees for access and license of the systems. Secondly, Power BI tends to be slower in creating some reports in comparison to changing within an Excel file, which is why some employees choose to use Excel instead. This could potentially create frustrations within management, especially when considering the higher investment for the system. Lastly, updates within the ERP system may affect the use of the BI solution, and the more automated the system is, the higher the risk becomes of reports crashing as a result of external updates, which could affect the overall use. Despite these factors with the potential of creating managerial frustration, the perception of top management is that they, in general, tend to focus

on the solutions and development instead of the problems, to increase the level of use, the relationship between ERP and BI, and to optimize the value of the investment.

The company has recently undergone a shift in BI solution since the previous features and support did not meet the intentions, which required them to evaluate their expectations and the outcome of the current system to determine if it would yield further profits to implement another solution, which was the case. The interviews revealed that the case company is having rigorous management discussions on, among other things, how to optimize working methods within Power BI. However, the empirical material also revealed positive effects of discussions, regarding their robust collection of both financial and non-financial data, and how Power BI can support in optimizing the use of data to enable further perspectives and insights, which strengthens the overall management control. This indicates that, in this context, management discussions are not a time-consuming activity but rather time well spent. Additionally, during the interviews, it was found that Power BI can create different reports using the same set of data, depending on the users' requirements. This implies that BI can be used to translate strategies into understandable goals over various competence levels of the group, supporting both top management and management accountants in distributing information.

The consultants stressed the importance of reliable data to optimize the use of BI and explained it as a common challenge observed among companies. The interviews imply that the data quality is relatively high within the case company, which is explained by the rigorous work they do to ensure correct data structure and underlying processes. By understanding the technical procedures, the company has the possibility to comprehend how incomplete data affects the reports and how to correct potential errors. This reduces the risk of a decision being based on inaccurate information, and furthermore reduces the time spent on finding the incorrect aspect.

The empirical material implies that working with the BI system is an ongoing process for gaining quality data through collecting, structuring, and storing, with efforts focused on achieving seamless tracking from the initial data input to the final output. The findings revealed that the company has invested in several robots in the finance department for the automation of daily accounting tasks. The robots perform otherwise time-consuming tasks, which reduces the cost per report and allows more time to be spent on value creation. This method provides data as close to real-time as possible, enhancing accuracy in decision-making, since the decisions are based on the current state of the company, which most likely will reduce the risk of errors arising from the time aspect, as well as increasing the efficiency in reallocating resources. The case company currently focuses primarily on internal data; however, they discuss that by incorporating external perspectives in the future, they could enhance their analysis and become ahead of market reactions, understand the competition, and strengthen their position on the market. The interviews also revealed a desire to integrate separate functions such as accounting, human resources, and inventory, since it would allow for smoother operations within Power BI, creating possibilities for a broader understanding of what affects profitability.

From the empirical material, it is understood that the subsidiaries have adopted Power BI less than the parent company, where both respondents from the subsidiaries stated that they are still partly operating in Excel. Despite Power BI offering powerful analytical tools, the system may not be superior to traditional tools in all aspects. Power BI is supposed to support decision-making and reporting to increase efficiency and profitability, however, sometimes the most efficient working methods are a combination of traditional, robust tools and advanced, flexible systems. It is observed from the interviews that the technological advancements have put pressure on the management accountants to develop their skills in IT, however, the empirical material indicates that the challenge is not the management accountants' ability to adapt, but rather identifying the appropriate paths to pursue.

The empirical material identifies two types of knowledge. The users of the systems contain explicit knowledge of the Power BI, including an understanding of how to extract reports, while employees who develop the BI solution, such as the IT-specialist/Controller or CIO, have more extensive knowledge of the system. The company mainly uses standardized BI reports developed by the parent company. However, the case company argues that they would prefer to increase the internal competence but also distribute it further down the organisation to reduce the dependence on a single employee. In this context, the level of knowledge is perceived as sufficient, where additional education may disturb the individual user and create unnecessary insecurities. Furthermore, securing independence is, from the company's perspective, beneficial, however, it could also relieve those employees who possess the skills, since the responsibilities would be distributed.

The findings highlight that the diverse activities across the group foster cross-functional collaboration and resource sharing, which not only enhances internal knowledge but also contributes to long employee tenure. The already existing cross-functional collaborations within the group could be a contributing factor to the flexible and adaptive environment over the companies, where both knowledge and resources are distributed to, among other things, develop the use of Power BI. By collaborating and collectively handling complications, the overall attitude toward technological development would improve since the liabilities are shared.

The interviews provided an overall realistic view of the BI project, including both implementation and use, with a clear overview of expected benefits as well as challenges, which could be factors affecting the outcome of the project. The empirical material implies a positive mindset and an overall optimistic culture towards technological development, where automation is requested from various functions within the group to tackle time-consuming work and improve efficiency within operations. The organizational culture could be a factor positively affecting the development of the group in terms of both technological advancements and shaping new strategies, and could explain the smooth implementation of Power BI. The interviews revealed that applying creativity to the already committed mindset allows alternative perspectives to appear apart from the traditional analytical perspectives, which provides further insights and deepens the understanding to enable adjustments in strategies and reallocations of resources to increase profits.

The empirical material further discussed the strengths and limitations of implementing Power BI and expressed the process as costly, with high requirements of maintenance. If the company were to choose a BI already integrated into the ERP system, it would be less flexible, and the ERP system would be more costly to customize. The findings indicate an ambiguity around whether to adopt a single, integrated system or to rely on multiple, specialized systems. By adopting a single, integrated system, the company would face benefits in terms of stability and robustness, which could be limited in multiple systems. This solution would also probably provide greater possibilities for a smooth introduction of future AI applications. Instead, by choosing multiple systems, the solution would appear to be more flexible and reduce the risk of widespread data violations and cyberattacks. Since the attack would likely be limited to a single system, instead of affecting the system as a whole, the possibilities for business operations to continue are increased.

The empirical material implies that the company continuously seeks improvements within the technological field, which is crucial to staying competitive in the market. The case company is currently investigating the opportunities with AI, but also clarifies that they require a solid strategy for the implementation and use, to enable optimal benefits from the solution to match their business. By actively implementing AI tools, the company could further enhance its decision-making capacity since the systems become even more agile and enable quicker responses to changes in the market. The consultancy perspective in the study provided an interesting perspective on why companies invest in technological advancements, not discussed in the literature, which is to attract new employees, more specifically younger workforce who have a higher interest in working for a modern employer.

5.2 Developing Power BI through the lens of Knowledge-based View

The KBV emphasizes the importance of internal knowledge and to utilize the knowledge to effectively create further knowledge. The technological advancements have impacted knowledge creation and put pressure on both management and employees to develop their skills to stay competitive (Helfat et al., 2023; Franke & Hiebl, 2022; Alavi & Leidner, 2001). Observed from the interviews that learning by doing is relatively frequently used when developing knowledge within Power BI, in comparison to standardized manuals. This implies that there is an overall interest in understanding the methods and features available to optimize the system for individual purposes, which automatically develops the overall internal knowledge that can be utilized further in the future. Additionally, the findings indicate that the company prefers to develop internal competence instead of replacing it with external skills, which implies that top management has strong confidence in their employees' ability to develop the required skills to sustain the technological development.

The findings indicate that the case company continuously seeks new methods to create knowledge, understand the market, and the current state of the company. They use traditional techniques in terms of seminars and meetings, but also more innovative approaches with workshop arrangements, and applying creative perspectives. Observed during the interviews is

a flexible approach towards learning, where the company is moving from strict education towards more agile learning occasions, depending on the current requirement. The cross-functional collaborations across the group support this statement since the operations in various markets allow for deeper insights, further perspectives, and innovative ideas that could have been difficult to find in other, maybe more strict contexts.

The KBV, as an extension of the RBV, has developed the VRIO framework with four specific attributes required to achieve sustained competitive advantage towards competitors (Manresa et al., 2024). Power BI supports management accountants in creating reports quicker and closer to real time in comparison to traditional methods, additionally, the system has the ability to treat the group uniformly as well as individually as separate subsidiaries. Lastly, the system supports the company in structuring data and creating reports on a daily basis, reducing the cost spent per report and increasing the accuracy in decision-making, which indicates that the value attribute is achieved. Furthermore, the different perspectives, tailoring of reports, and various data sources create a technological environment that is hard, if not impossible, to replicate, which indicates that the rare attribute of the VRIO framework is achieved. Power BI is an existing product on the market, available for all companies. However, the company has applied Power BI to their already existing internal systems, tailored the reports to operate according to their business, and has the internal knowledge required to maintain the majority of the system internally. This implies that the requirements for competitors to imitate this usage of Power BI would be both costly and time-consuming, which indicates that the inimitable attribute is achieved. Lastly, employees adapting to new responsibilities, translating strategies, and showing an interest in developing individual knowledge all indicate that the organizational structure supports the implementation and utilization of Power BI, which indicates that the organizational attribute is achieved as well.

To summarize, all four attributes of the VRIO framework are observed, some more than others, which indicates that Power BI from the case company's perspective is categorized as a sustained competitive advantage. This implies that the management accounting resource, combined with the management accountants internal knowledge and skills, creates advantages towards competitors, and makes them stronger on the market.

6. Conclusion

6.1 Concluding Remarks

This study aimed to explore how BI is used in an organization that successfully has implemented BI. Firstly, the findings explain the importance of moving from the black or white mindset and include more nuanced perspectives into the discussions. When operating in and developing Power BI the methods should be context dependent. The empirical material highlights a use of both traditional and innovative methods where Excel is combined with Power BI, and traditional seminars are mixed with innovative workshops. By understanding the demands for individual situations, the correct tools can be applied to solve the current issues more effectively. Power BI should not be perceived as a universal tool, but rather one of many tools that, combined with other resources and knowledge, can increase efficiency in analysis and decision-making.

Secondly, the findings show the importance of top management involvement in the process of utilizing Power BI. Top management of the case company contains excessive knowledge regarding the technical aspects of the system but also a holistic perspective of the group which has a positive impact on the use of Power BI. By centrally controlling the BI solution, developments and updates are managed more efficiently, while the system operates uniformly over the group, allowing management accountants' to focus on using the system and maximizing profit. Additionally, top management spends a relatively large portion of time to discuss improvements of the system, and the underlying data which in this context is perceived as beneficial since this provides possibilities to expand the system to operate more aligned with the group demands, while also be prepared as leaders to both motivate and support management accountants' in their use of Power BI. Lastly is the technical aspect where the findings highlight that operating in the system is relatively simple, however, finding the areas of usage and how the system should support can be challenging. The case company emphasizes the importance of a robust initial strategy of the expectations, where support was required, and how the Power BI should support. This was to minimize the risk of investing in a system that lacks features to support the business, is not compatible with current data sources, or aligns with the management accountants´ preferred working methods.

6.2 Contribution to literature

This study contributes to the research of management accounting by providing an understanding of the importance of incorporating technological advancements into the finance function, but also the role of mindset, culture, and user perception. This study specifically contributes to Martins et al. (2024) and Nielsen (2022), who both claim resistance to change, shortage of relevant knowledge, and organizational culture as crucial determinants when implementing BI. This study confirms their concern by providing empirical evidence that a positive culture and mindset were among the factors positively affecting the implementation and development of the Power BI. Regarding resistance to change, this could be partly confirmed. The finding identified resistance to operating within the system, however, this was

perceived as a result of previous methods being equal to BI, and not resistance towards the change itself. The study also contributes to the study of Kroon, Alves, and Martins (2021) and Bucaro, Wilks, and Yust (2024), who discuss the concerns pointed towards management accountants' ability to adapt to new technological requirements. This study contradicts their concerns and finds that the management accountants have the potential and interest of developing their competences within the technological field, however, they lack the resources, in terms of seminars, education, and forums, to do so. Lastly, this study contributes to Papiorek and Hiebl (2024) by confirming the importance of information systems, but also future developments in automation as crucial to gain benefits, and adds that applying creativity to large data sets can find further analytical paths.

The study also contributes to the theory of KBV by providing evidence that technological advancements, in this case BI, support management in knowledge creation processes. By integrating BI with an ERP system, companies can gain advantages in creating strategies by having further insights not possible when extracting reports manually. The BI solution also reduces the amount of time required to provide the reports, and allows strategies to be created as close to real time as possible, which makes them more agile to reallocate resources and respond to market changes, extending the research of Helfat et al. (2023). From the empirical material, all four attributes for sustained competitive advantage, discussed by Manresa et al. (2024), could be identified, which implies that utilizing Power BI increases the company's competitiveness, making it stronger on the market and bringing overall value to the company.

6.3 Contribution to practitioners

This study contributes to the practical field by providing findings from a company that is actively working with its BI solution, both with daily tasks but also for development purposes. This can be perceived as a successful implementation since the outcome matches their initial goals, despite having further improvements ahead. The findings show a lack of seminars and forums to discuss and provide examples for how to utilize the BI solution. This study could serve as inspiration for practitioners and shed light on areas not yet considered.

6.4 Future Research

This study found a relatively strong focus on implementing AI into the daily work, however, previous literature states that above 50% of all BI projects fail. The case companies do stress the importance of a solid BI system before applying AI. This highlights the need for future research on the subject to understand the perception of how AI can support BI for management accounting purposes, as well as what the result could be of AI implementation on insufficient BI. A qualitative study has limited generalizability, and this study is restricted to one company, which results in further reductions in generalizability. Future research could investigate further organizations to find out if the results are company-specific or apply to other organizations as well. It would be beneficial to understand the impact size, age, and organizational structure have on BI projects over various industries, since technological advancements require extensive organizational knowledge and internal control to succeed.

References

Abbas, K., 2025. Management accounting and artificial intelligence: a comprehensive literature review and recommendations for future research. Brit. Account. Rev. 101551. https://doi.org/10.1016/j.bar.2025.101551

Agustí, M. A., & Orta-Pérez, M. (2022). Big data and artificial intelligence in the fields of accounting and auditing: a bibliometric analysis. *Spanish Journal of Finance and Accounting / Revista Española de Financiación Y Contabilidad*, *52*(3), 1–27. https://doi.org/10.1080/02102412.2022.2099675

Ain, N., Vaia, G., DeLone, W. H., & Waheed, M. (2019). Two decades of research on business intelligence system adoption, utilization and success – A systematic literature review. *Decision Support Systems*, *125*(1), 113113. https://doi.org/10.1016/j.dss.2019.113113

Alavi, M. & Leidner, D. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly: Management Information Systems,* 25(1), 107-136. https://doi.org10.2307/3250961

Alhatabat, Z. & Hutaibat, K. (2024). ERP integration: Shifting roles and emerging skills for management accountants within production companies. *Management and Production Engineering Review,* 15(3) pp.1-11. https://doi.org10.24425/mper.2024.151494

Ardito, L., Raby, S., Albino, V., & Bertoldi, B. (2021). The duality of digital and environmental orientations in the context of SMEs: Implications for innovation performance. *Journal of Business Research*, *123*, 44–56. https://doi.org/10.1016/j.jbusres.2020.09.022

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Bawa. S. (2023). How Business can use ERP and AI to become Intelligent Enterprise. *Zenodo (CERN European Organization for Nuclear Research)*, *8*(2). https://doi.org/10.5281/zenodo.7688737

Bell, E., Bryman, A., & Harley B. (2019) *Business Research Methods*. 5 ed. Oxford: OUP. ISBN: 978019254909, Pp. 362-378.

Berlinski, E., & Moralès, J. (2024). Digital technologies and accounting quantification: The emergence of two divergent knowledge templates. *Critical Perspectives on Accounting*, *98*, 102697–102697. https://doi.org/10.1016/j.cpa.2023.102697

Blocher, E., Dearman, D., Glover, H., Kovacic, M., Lawson, R., Thomson, J., Van Der Merwe, A., Weiss, S., & White, G. (2008). Statements on Management Accounting Definition of Management Accounting. In *Institute of Management Accountants (IMA)*.

https://www.imanet.org/api/sitecore/CallToAction/CallToActionClick?itemId=7CDFE8A2C463483089D612D06D8D9710 [2025-02-20].

Boerner, X., 2025. Of light and shadow: uncovering simultaneous opportunities and threats from business analytics for management control departments and avenues for future research. J. Manag. Cont. 1-59. https://doi.org/10.1007/s00187-025-00387-8

Bucaro, A., Wilks, J. & Yust, C. (2024). Current issues faced by controllers. *Accounting Horizons,* 38(4), 31-49. https://doi.org10.2308/HORIZONS-2022-158

Chatterjee, S., Chaudhuri, R., Gupta, S., Sivarajah, U. & Bag, S. (2023). Assessing the impact of big data analytics on decision-making processes, forecasting, and performance of a firm. *Technological Forecasting and Social Change,* 196. https://doi.org10.1016/j.techfore.2023.122824

Eisenhardt, K. (1989) "Building theories from Case Study Research," *Academy of Management Review*, 14(4), pp. 532–550. https://doi.org/10.2307/258557

Eisenhardt, K. (2021). What is the Eisenhardt Method, really? *Strategic Organization*, *19*(1), 147–160. https://doi.org/10.1177/1476127020982866

Eriksson, P. & Kovalainen, A. (2008). Qualitative Research Materials, In: *Qualitative Methods in Business Research*, SAGE Publications Ltd, Pp.

Ferraris, A., Mazzoleni, A., Devalle, A., & Couturier, J. (2019). Big data analytics capabilities and knowledge management: impact on firm performance. *Management Decision*, *57*(8), 1923–1936. https://doi.org/10.1108/md-07-2018-085

Franke, F., & Hiebl, M. (2022). Big Data and Decision quality: the Role of Management Accountants' Data Analytics Skills. *International Journal of Accounting & Information Management*, *31*(1). https://doi.org/10.1108/ijaim-12-2021-0246

Fähndrich, J., 2023. A literature review on the impact of digitalisation on management control. J. Manag. Cont. 34 (1), 9-65. https://doi.org/10.1007/s00187-022-00349-4

Gill, S. (2024). *How and Why Accounting Teams Should Deploy AI | IMA*. IMA. https://www.sfmagazine.com/articles/2024/december/how-and-why-accounting-teams-should-deploy-ai?_gl=1 [2025-01-27].

Hackett, D., Selby, I., Sexton, L., Spence, P., & Witt, K. (2023). *Effective management accounting: Improving decisions and building successful organisations*. https://www.aicpa-cima-cn.com/upload/file/File20230710170611.pdf [2025-02-20].

Hammouch, H. (2024) Enhancing management control through ERP systems: A comprehensive literature review. *Journal of management,* 6(3), pp. 125-133. https://doi.org/10.52131/jom.2024.0603.0128

Heinzelmann, R. (2018). Occupational identities of management accountants: the role of the IT system. *Journal of Applied Accounting Research,* 19(4), 465-482. https://doi.org10.1108/JAAR-05-2017-0059

Helfat, C., Kaul, A., Ketchen, D., Barney, J., Chatain, O., & Singh, H. (2023). Renewing the resource-based view: New contexts, new concepts, and new methods. *Strategic Management Journal*, *44*(6), 1357–1390. https://doi.org/10.1002/smj.3500

Izzo, M. F., Fasan, M., & Tiscini, R. (2021). The role of digital transformation in enabling continuous accounting and the effects on intellectual capital: the case of Oracle. *Meditari Accountancy Research*, *30(4*). https://doi.org/10.1108/medar-02-2021-1212

Knudsen, D.R., 2020. Elusive boundaries, power relations, and knowledge production: a systematic review of the literature on digitalization in accounting. Int. J. Account. Info. Syst. 36, 100441. https://doi.org/10.1016/j.accinf.2019.100441

Kornberger, M., Schott, C.R.M., Knudsen, D.R., Andvik, C., 2025. Mapping data-driven management in accounting: the premise and promise of the debate and how to move beyond. Qual. Res. Account. Manag. 22 (2), 186-198. https://www.emerald.com/insight/1176-6093.htm

Kroon, N., Alves, M., & Martins, I. (2021). The Impacts of Emerging Technologies on Accountants' Role and Skills: Connecting to Open Innovation—A Systematic Literature Review. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(3), 163. https://doi.org/10.3390/joitmc7030163

Magnani, G., & Gioia, D. (2023). Using the Gioia Methodology in international business and entrepreneurship research. *International Business Review*, *32*(2), 102097. https://doi.org/10.1016/j.ibusrev.2022.102097

Manresa, A., Bikfalvi, A., Ligthart, P., & Kok, R. (2024). Insights into the digitalization-performance relationship: the role of flexibility and quality enhancing organizational practices. *Production Planning & Control*, *35*(14), 1–17. https://doi.org/10.1080/09537287.2024.2303344

Martins, A., Aguiar, M., Sambento, M. & Branco, M. (2024). Business intelligence system adoption and the leveraging of reporting process capabilities. *Journal of Accounting and Organizational Change.* https://doi.org10.1108/JAOC-11-2023-0204

Moll, J., Yigitbasioglu, O., 2019. The role of internet-related technologies in shaping the work of accountants: new directions for accounting research. Brit. Account. Rev. 51 (6), 100833. https://doi.org/10.1016/j.bar.2019.04.002

Moreno, V., Cavazotte, F. & Carvalho, W. (2020). Business intelligence and analytics as a driver of dynamic and operational capabilities in times of intense macroeconomic turbulence. *Journal of High Technology Management Research,* 31(2). https://doi.org10.1016/j.hitech.2020.100389

Mudau, T., Cohen, J., & Papageorgiou, E. (2024). Determinants and consequences of routine and advanced use of business intelligence (BI) systems by management accountants. *Information & Management*, *61*(1), 103888. https://doi.org/10.1016/j.im.2023.103888

Möller, K., Schäffer, U., Verbeeten, F., 2020. Digitalization in management accounting and control: an editorial. J. Manag. Cont. 31 (1), 1-8. https://doi.org/10.1007/s00187-020-00300-5

Nielsen, S. (2022). Management accounting and the concepts of exploratory data analysis and unsupervised machine learning: a literature study and future directions. *Journal of Accounting & Organizational Change*, 18(5), 811-853. https://doi.org/10.1108/jaoc-08-2020-0107

Niu, S., & Du, J. (2015). *The Review of Management Accounting*. Www.atlantis-Press.com; Atlantis Press. https://doi.org/10.2991/icemet-15.2015.31

Oesterreich, T., Anton, E. & Teuteberg, F. (2022). What translates big data into business value? A meta-analysis of the impacts of business analytics on firm performance. *Information & Management,* 59(6). https://doi.org/10.1016/j.im.2022.103685

Papiorek, K. & Hiebl, M. (2024). Information systems quality in management accounting and management control effectiveness. *Journal of Accounting & Organizational Change*, *20*(3). https://doi.org/10.1108/jaoc-09-2022-0148

Pereira, V. & Bamel, U. (2021). Extending the resource and knowledge based view: A critical analysis into its theoretical evolution and future research directions. *Journal of Business Reseach.* 132, 557-570. https://doi.org/10.1016/j.jbusres.2021.04.021

Personiv (2024) CFO Pulse Survey. (2024). Personiv.com. https://info.personiv.com/cfo-pulse-survey [2025-01-27].

Rautiainen, A., Scapens. R., Järvenpää. M., Auvinen, T. & Sjasalo, P. (2024). Towards fluid role of management accountants: A case study of a Finnish bank. *The British Acounting Review,* 56(4). https://doi.org/10.1016/j.bar.2024.101341

Rikhardsson, P. & Yigitbasioglu, O. (2018). Business intelligence & analytics in management accounting research: Status and future focus. *International Journal of Accounting Information Systems,* 29, 37-58. https://doi.org10.1016/j.accinf.2018.03.001

School of Business, Economics and Law. (2024). *Generative AI guidance to staff and students*. University of Gothenburg. [2025-05-28].

Singh, S., Gupta, S., Busso, D. & Kamboj, S. (2021). Top management knowledge value, knowledge sharing practices, open innovation and organizational performance. *Journal of Business Research,* 128, 788-798. https://doi.org/10.1016/j.jbusres.2019.04.040

Spender, J. (1996). Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal,* 17, 45-62. https://doi.org/10.1002/smj.4250171106

Terziovski, M. (2010). Innovation practice and its performance implications in small and medium enterprises (SMEs) in the manufacturing sector: a resource-based view. *Strategic Management Journal*, *31*(8), n/a-n/a. https://doi.org/10.1002/smj.841

Theodorakopoulos, L., Thanasas, G., & Halkiopoulos, C. (2024). Implications of Big Data in Accounting: Challenges and Opportunities. *Emerging Science Journal*, *8*(3), 1201–1214. https://doi.org/10.28991/esj-2024-08-03-024

Vetenskaprådet (2017) Good Research Practice. Stockholm: Swedish Research Council. https://www.vr.se/english/analysis/reports/our-reports/2017-08-31-good-research-practice.html [2025-05-05].

Vial, G. (2021). *Managing Digital Transformation - Understanding digital transformation* 13–66. https://doi.org/10.4324/9781003008637-4

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, *5*(2), 171–180. https://doi.org/10.1002/smj.4250050207

Youssef, M. & Mahama, H. (2020). Does business intelligence mediate the relationship between ERP and management accounting practices? *Journal of Accounting & Organizational Change,* 17(5) pp. 686-703. http://dx.doi.org/10.1108/JAOC-02-2020-0026

Appendix

A: The Interview Guide

The Prompts are sent into ChatGPT to make the interview guide:
Jag vill skapa en intervjuguide där jag kommer att intervjua ett företag som har implementerat en BI-systemlösning i sitt affärssystem som en naturlig del av sin verksamhet. Jag kommer även att intervjua ett konsultbolag som hjälper företag med implementering av BI-system. Jag vill att du skapar två intervjuguider som har samma frågor men att frågorna är vinklade till ett användarperspektiv och ett konsult perspektiv. Gör sex sektioner: bakgrund, strategisk resurs, kunskap skapande och överförning, externa drivkrafter, dynamiska förmågor och till sist slutsats. Syftet med intervjun är att få en djupare förståelse för hur ERP- och BI-system används inom företaget. Vi vill undersöka hur dessa system påverkar beslutsfattande, strategisk planering och den dagliga verksamheten, samt få insikter i hur trygga medarbetarna känner sig i att använda systemet. Vi hoppas kunna identifiera både framgångsfaktorer och utmaningar i integrationen av ERP och BI samt undersöka hur dessa system kan förbättras för att stödja företagets framtida strategiska arbete. Gör en intervjuguide för en timmes intervjufrågor.

Interview Guide for the Company A, B, and C

Section One: Background

1. Can you describe your role and responsibilities within the company? How long have you worked here?
2. What motivated you to start working at this company, and how has your career developed there?
3. What was the decision-making process like when you chose to implement a BI solution? Can you provide a concrete example?
4. What is your overall goal/strategy for using ERP and BI systems?
5. How does the interaction between ERP and BI systems function in your company (parent company/subsidiary)?

Section Two: Strategic Resource

6. How do ERP and BI systems work in practice in your company? Can you provide examples of how they complement each other?
7. What specific business problems did you aim to solve with BI?
8. What are the biggest challenges and benefits of BI implementation?

Section Three: Knowledge Creation & Transfer

9. How do you assess the general level of knowledge about ERP and BI systems in the company?
10. What type of training or education have you offered employees to help them use the systems effectively?
11. How do you assess leadership's role in driving BI implementation and creating value through the system?
12. Are there examples of how you use creativity to develop or use BI systems innovatively?

Section Four: External Drivers

13. How are ERP and BI systems affected by external factors such as new regulations, technological advancements, or market changes?

Section Five: Dynamic Capabilities

14. How do you use ERP and BI systems to identify and adapt to market changes?
15. Based on your experience, how would you like to improve the integration between ERP and BI to strengthen the company's strategic work?
16. What are the biggest trends and future developments in ERP and BI that you foresee?

Section Six: Conclusion

17. Is there anything else you think is important to bring up regarding ERP and BI systems and their impact on your company?

Interview Guide for Company D

Section One: Background

1. Can you describe your role and responsibilities in the consulting firm? How long have you worked there?
2. What motivated you to start working at this company, and how has your career developed there?
3. What does your process look like when helping companies implement BI solutions? Can you provide a concrete example?
4. What are the overall goals/strategies of the companies you assist with ERP and BI implementations?
5. How do ERP and BI systems typically interact in the companies you work with?

Section Two: Strategic Resource

6. How do ERP and BI systems work in practice for the companies you work with? Can you provide examples of how they complement each other?
7. What is the primary strategic reason companies choose to implement BI in their ERP system?
8. What are the biggest challenges and benefits of BI implementation?

Section Three: Knowledge Creation & Transfer

9. How do you generally assess companies' knowledge levels regarding ERP and BI systems when you start collaborating?
10. What type of training or education do you typically offer companies to ensure they can use the systems effectively?
11. How do you assess leadership's role in the successful implementation of BI solutions?
12. Are there examples of how you use creativity in innovatively implementing BI systems?

Section Four: External Drivers

13. How are ERP and BI systems affected by external factors such as new regulations, technological advancements, or market changes, according to your experience?

Section Five: Dynamic Capabilities

14. How do you help companies use ERP and BI systems to identify and adapt to market changes?
15. Based on your experience, how would you like to improve the integration between ERP and BI to strengthen companies' strategic work?
16. What are the biggest trends and future developments in ERP and BI that you foresee?

Section Six: Conclusion

17. Is there anything else you think is important to bring up regarding ERP and BI implementations and their impact on companies?

B: Gioia Framework

1st order concepts

ERP and BI integration enhances data visibility, analysis, and decision-making	BI tool selection balances flexibility, scalability, and initial external support
Standardization of templates and guidelines to ensure uniform systems	Enables business monitoring and analysis through Power BI
Experience with Qlik Sense: comparison, transition and analysis to Power BI	Few work directly with the systems, but usage is good
Make data easily accessible and up-to-date in real-time for insight-driven decisions	Supports business processes and enables broader insights into the organization
Creative solution to integrate external IP data with ERP systems for visual customer analysis	Performance issues in Power BI can impact efficiency
Separation of operational and analytical systems for better management of heavy analysis	New rules affect ERP but are less relevant for BI
Iterative process with user feedback, testing and adjustment of reports	A structured needs analysis and workshops ensure effective BI implementation
A balance between security and ease of use is required for effective BI use	Centralized BI solution that integrates data from multiple sources
BI solutions offer customizable reports tailored to different business needs	Creates autonomy in analysis and decision-making
Standard solutions with the possibility of company-specific customization	External help is often needed for changes in the data platform
Clear plan, right BI system, user feedback and continuous development	Omnibus legislation may create new reporting and KPI needs
Multiple systems reduce security risks compared to a single system	Leadership means supporting, driving and explaining the benefits of BI
Automation and ERP integration reduce manual work and improve efficiency	A common platform for reporting and monitoring activities
Regulation for IT systems is managed by the external provider	Integration challenges due to IT system differences
The parent company is responsible for ERP and BI expertise, while the subsidiaries utilize the resources	Balancing flexibility, security and access control
Reduced license costs, increased security, internal control and Power BI's analytical capabilities	Power BI is intuitive, but the level of knowledge is often low
Power BI enables real-time data analysis, improving decision-making speed over traditional reporting	Standardize, integrate and coordinate all systems to get a complete BI system
External risks like cybersecurity and geopolitical factors influence BI & ERP	Integration of AI in the ERP system
HR and payroll data integrated into BI to analyze staff turnover and sick absences	Curiosity and analysis are keys to data-driven leadership
Standardized processes can streamline reporting but also create limitations	Specialized solution to integrate forecast data with historical data and BI
Focus on internal data limited insights on market changes	Interaction around monthly statements and questions about customers or suppliers
Competence and boundaries as challenges in an organization with multiple companies and different needs	Skills vary, people seek solutions themselves or use Excel
Larger companies have more BI expertise; smaller ones rely on external support	Strong leadership needed to manage data models and KPIs
New regulations and security requirements such as GDPR and sustainability reporting drive BI strategies	Higher knowledge in ERP system than BI
Automated data flows improve visibility and reduce manual work in information management	Need an internal champion/super-user for success in BI
AI and automation help companies create modern work processes and attract talent	“Learning by doing” instead of traditional training and manuals
Automation and real-time data enhance decision-making and efficiency	BI systems must continuously adapt to new regulations and business needs
The choice of Azure and Power BI creates a flexible data platform	The growing role of AI in BI - from historical data to future predictions
Implementation and roll-out of BI systems is an ongoing process	Demand to participate in forums, courses or workshops to share experience
KPI developments strengthen forward-looking insights and business decisions	More integrated ERP systems can increase ERP costs
Own IT-economics for better control and cost efficiency	Decreased Excel usage and increased Power BI usage in recent years
Real-time data used to improve financial monitoring and decision-making	BI and AI complement each other to improve data quality and analysis
Increased reporting requirements require clear communication of BI's value	Automating manual processes with Power Automate improves efficiency
AI improves forecasting, analysis and decision-making through advanced data management	Data validation and quality control are essential for BI success
Training ranges from basic sessions to in-depth workshops	Lack of economy forums that deal with how to use AI
Mobile access to data facilitates decision-making in modern BI systems	Implementing AI requires thorough testing and the right technical solutions
Sustainability reporting is growing rapidly, requiring customized BI systems and integrations	Customized KPIs enable automated follow-up in Power BI
Seamless integration between ERP and BI is essential for effective reporting and analysis	The combination of BI and automation creates powerful solutions
Consulting company trains clients in automation, system use and self-management	Soft values and HR-related KPIs are needed to complement BI reports
APIs make ERP independent and flexible for the future	The cost issue affects BI projects - they are perceived as expensive
Structured data management ensures accuracy in reporting, updates, and system changes	Customer is responsible for BI data and validation is essential
Robotic processes manage and automate routine jobs, reducing manual handling and increasing flexibility	Conservative with BI, used to Excel and traditional monthly reports
BI systems require maintenance, backups, and quick IT problem resolution	Built-in control features in robots reduce errors and increase precision
Positive attitude when using the BI tool for monitoring and improvement, quality focus	Customer engagement is crucial to maximize the benefits of the system
Automated data flows and self-managing systems become a natural part of BI	EU regulatory tsunami - a growing challenge for businesses
The impact of digitalization on tax management and information flows in companies	Efficiency through automation - focus on cost per revenue

2nd order themes

Strategic and Practical Benefits of ERP & BI
BI solutions offer customizable reports tailored to different business needs
Centralized BI solution that integrates data from multiple sources
Power BI enables real-time data analysis, improving decision-making speed over traditional reporting
ERP and BI integration enhances data visibility, analysis, and decision-making
Separation of operational and analytical systems for better management of heavy analysis
Multiple systems reduce security risks compared to a single system
Interaction around monthly statements and questions about customers or suppliers
The cost issue affects BI projects - they are perceived as expensive
More integrated ERP systems can increase ERP costs

Adapting to market changes
BI systems must continuously adapt to new regulations and business needs
Focus on internal data limited insights on market changes
Lack of economy forums that deal with how to use AI
AI and automation help companies create modern work processes and attract talent
Sustainability reporting is growing rapidly, requiring customized BI systems and integrations

Robotization
Automating manual processes with Power Automate improves efficiency
Robotic processes manage and automate routine jobs, reducing manual handling and increasing flexibility
Built-in control features in robots reduce errors and increase precision
The combination of BI and automation creates powerful solutions

Maintenance and management
Implementation and roll-out of BI systems is an ongoing process
BI systems require maintenance, backups, and quick IT problem resolution
Structured data management ensures accuracy in reporting, updates, and system changes
Customer is responsible for BI data and validation is essential
Data validation and quality control are essential for BI success
The choice of Azure and Power BI creates a flexible data platform
Mobile access to data facilitates decision-making in modern BI systems
Own IT-economics for better control and cost efficiency

Emerging Capabilities and Innovation in ERP & BI
Automated data flows and self-managing systems become a natural part of BI
Seamless integration between ERP and BI is essential for effective reporting and analysis
BI and AI complement each other to improve data quality and analysis
The impact of digitalization on tax management and information flows in companies

Integration between ERP and BI
The parent company is responsible for ERP and BI expertise, while the subsidiaries utilize the resources
Standard solutions with the possibility of company-specific customization
Iterative process with user feedback, testing and adjustment of reports
A common platform for reporting and monitoring activities
Standardization of templates and guidelines to ensure uniform systems
KPI developments strengthen forward-looking insights and business decisions
Soft values and HR-related KPIs are needed to complement BI reports
Customized KPIs enable automated follow-up in Power BI

Challenges with ERP & BI
Integration challenges due to IT system differences
Competence and boundaries as challenges in an organization with multiple companies and different needs
Balancing flexibility, security and access control
Performance issues in Power BI can impact efficiency
Standardize, integrate and coordinate all systems to get a complete BI system

Environmental factors on ERP and BI
Regulation for IT systems is managed by the external provider
New regulations and security requirements such as GDPR and sustainability reporting drive BI strategies
External risks like cybersecurity and geopolitical factors influence BI & ERP
New rules affect ERP but are less relevant for BI
Omnibus legislation may create new reporting and KPI needs
Standardized processes can streamline reporting but also create limitations
EU regulatory tsunami - a growing challenge for businesses

The decision-making process for BI implementation
BI tool selection balances flexibility, scalability, and initial external support
Experience with Qlik Sense: comparison, transition and analysis to Power BI
Clear plan, right BI system, user feedback and continuous development
Reduced license costs, increased security, internal control and Power BI's analytical capabilities
A structured needs analysis and workshops ensure effective BI implementation

Opportunities with ERP & BI
Automation and ERP integration reduce manual work and improve efficiency
Supports business processes and enables broader insights into the organization
Creative solution to integrate external IP data with ERP systems for visual customer analysis
Specialized solution to integrate forecast data with historical data and BI
Make data easily accessible and up-to-date in real-time for insight-driven decisions
Enables business monitoring and analysis through Power BI
Creates autonomy in analysis and decision-making

Improvement of ERP and BI integration
Integration of AI in the ERP system
HR and payroll data integrated into BI to analyze staff turnover and sick absences
A balance between security and ease of use is required for effective BI use
APIs make ERP independent and flexible for the future
Automated data flows improve visibility and reduce manual work in information management
Real-time data used to improve financial monitoring and decision-making
Efficiency through automation - focus on cost per revenue

AI and Automation
The growing role of AI in BI - from historical data to future predictions
Automation and real-time data enhance decision-making and efficiency
Implementing AI requires thorough testing and the right technical solutions
AI improves forecasting, analysis and decision-making through advanced data management

User Mindset, Education, and training in ERP & BI
Positive attitude when using the BI tool for monitoring and improvement, quality focus
Conservative with BI, used to Excel and traditional monthly reports
Decreased Excel usage and increased Power BI usage in recent years
Customer engagement is crucial to maximize the benefits of the system
Consulting company trains clients in automation, system use and self-management
“Learning by doing” instead of traditional training and manuals
Training ranges from basic sessions to in-depth workshops
Demand to participate in forums, courses or workshops to share experience

The role of leadership in BI implementation
Curiosity and analysis are keys to data-driven leadership
Leadership means supporting, driving and explaining the benefits of BI
Increased reporting requirements require clear communication of BI's value
Strong leadership needed to manage data models and KPIs
Need an internal champion/super-user for success in BI

Level of knowledge in ERP and BI
Few work directly with the systems, but usage is good
Power BI is intuitive, but the level of knowledge is often low
External help is often needed for changes in the data platform
Larger companies have more BI expertise; smaller ones rely on external support
Skills vary, people seek solutions themselves or use Excel
Higher knowledge in ERP system than BI

Aggregated dimension

Strategic Management & Resources	BI & ERP Knowledge and Competence	External Drivers	Future Trends & Innovations
The decision-making process for BI implementation	Level of knowledge in ERP and BI	Environmental factors on ERP and BI	Emerging Capabilities and Innovation in ERP & BI
Strategic and Practical Benefits of ERP & BI	User Mindset, Education, and training in ERP & BI	Adapting to market changes	AI and Automation
Integration between ERP and BI	The role of leadership in BI implementation		
Challenges with ERP & BI			
Opportunities with ERP & BI			
Robotization			
Maintenance and management			
Improvement of ERP and BI integration			