

## **Controlling the Uncontrollable**

*– a qualitative case study of the interplay between control and innovation*

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### **Abstract**

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This thesis examines how a company's use of the forecasting process impacts the interplay between control and innovation. The study was conducted as a qualitative case study of a digi-physical company working extensively with innovation. Our theoretical framework was based on Simons' (1995) conceptualizations of interactive and diagnostic control as well as the later research within management control systems and innovation. In line with previous research, our study revealed that the combination of interactive and diagnostic use of the forecasting process enabled the company to establish control while still pursuing innovation. Our study contributes to the area of research by suggesting that horizontal interactive use of the forecasting process is an important feature to consider when pursuing innovation. We further contribute by suggesting that resource allocation within an ambidextrous firm seems to be a decisive factor when choosing between exploration and exploitation.

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**Keywords:** Management control systems, Levers of control, Diagnostic, Interactive, Innovation

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# Table of Contents

<b>1 Introduction</b>	<b>3</b>
1.1 Background	3
1.2 Problem Discussion	4
1.3 Purpose and Research Question	5
1.4 Delimitations	5
<b>2 Previous Research and Theory</b>	<b>6</b>
2.1 The Forecasting Process as a Management Control System	6
2.2 Innovation	6
2.2.1 Innovation Modes	7
2.3 Innovation and Management Control Systems	8
2.3.1 Simons' Levers of Control	8
2.3.2 Interplay of Interactive and Diagnostic use	9
2.3.3 Innovation Characteristics and Management Control Systems	12
2.4 Theoretical Framework	15
<b>3 Method</b>	<b>16</b>
3.1 Research Design	16
3.2 Case Firm Selection	17
3.3 Data Collection	17
3.3.1 Interviewee Selection	17
3.3.2 Initial Contact	19
3.3.3 Interview Design	19
3.4 Data Analysis	20
<b>4 Empirics</b>	<b>21</b>
4.1 Introducing AlphaCo	21
4.2 Innovation at AlphaCo	21
4.3 The Forecasting Process	23
4.3.1 The Company wide Process	23

4.3.2 R&D Involvement in the Forecasting Process	27
4.3.3 Resource Allocation	29
<b>5 Analysis</b>	<b>32</b>
5.1 Combining Diagnostic and Interactive use of the Forecasting Process	32
5.1.1 Levers Pushing in Opposite Directions Giving Rise to Dynamic Tensions	32
5.1.2 Suppression of interactive use and Dominance of diagnostic use	33
5.2 Dynamic Resource Allocation to Ensure Control and Promote Ambidexterity	35
5.2.1 Resource Allocation – a Decisive Factor for Ambidexterity	35
5.2.2 Focus on Diagnostic Use to Ensure Control – in Favor of Exploitation	36
<b>6 Conclusions</b>	<b>38</b>
6.1 Summarized Contributions	38
6.2 Limitations	39
6.3 Future Research	39
<b>7 References</b>	<b>41</b>
<b>8 Appendix</b>	<b>44</b>

# 1 Introduction

## 1.1 Background

*“I believe innovation is the most powerful force for change in the world”*

*- Bill Gates*

As stated above, innovation is a phenomenon that is frequently highlighted as vital for both societal and organizational development. As innovation is of great importance for a company's competitive advantage and sustained success, companies continuously look for ways to enable innovativeness and facilitate effective innovation processes (McKinsey & Company, 2019). In order to enable innovation while also exercising control, a company's use of management control systems consequently play a crucial part. For a long time, research within management control and innovation has viewed management control systems (MCS) as detrimental for innovation through constraining elements such as boundaries and strict guidelines. However, there now seems to have occurred a paradigm shift where management control systems are seen as an integral part of the innovation process (Barros & Ferreira, 2019). Research has now pointed towards how management control systems could stimulate different types of innovation and have a positive effect on a company's ability to innovate (McCarthy & Gordon, 2011; Bedford, 2015). The significant impact of innovation for companies and society combined with the increasingly attributed positive influence of MCS on innovation, shows the importance of studying the relationship between innovation and management control.

One of the most important elements of management control has been described as managing the tension between on the one hand reaching predetermined goals, and on the other hand developing creativity and innovation (Simons, 1995). By turning to a digi-physical European company that has dramatically changed a traditional industry with its disruptive innovation, we will shed light on how its use of the dominating management control system could impact the crucial interplay between control and innovation.

## 1.2 Problem Discussion

Control and innovation has been acknowledged as a complex area to analyze, both because of the complexity and uncertainty that characterize innovation as such but also because of the various aspects that can impact the relationship and the different outcomes that may emerge in their interrelation. This complexity calls for further studies that can contribute with more in-depth as well as practical knowledge, which has been requested by authors in the research area. Specifically, qualitative case studies are needed to further increase our knowledge of the complexities between control and innovation through rich empirical data from various sources in the chosen case (Barros & Ferreira, 2019).

A particularly prominent theory within research of management control and innovation has been Simons' levers of control theory, in which four different types of levers of control are defined as *diagnostic*, *interactive*, *boundary* and *belief systems*. In recent years, research has emerged that have studied the combined use of the Simons' levers of controls and the rise of dynamic tensions (Mundy, 2010; Barros & Ferreira, 2021), the levers of control and its relation to different types of innovation (McCarthy & Gordon, 2011) as well as the balance between interactive and diagnostic use of a budget in a creative context (Knardal & Pettersen, 2015). In most companies, the most dominating management control tool is some kind of budgeting process. However, there seems to be a lack of research regarding the different uses of the budgeting process and its connection to innovation, as previous research have focused mostly on the way in which budgets are used in performance evaluation. (Hansen et al., 2004; Knardal & Pettersen, 2015).

We have identified a research gap in the intersection of the above described that can be filled through a qualitative case study with a focus on the use of the dominating management control system, namely the forecasting process, and its impact on the interplay between control and innovation. In order to fill the research gap we will hence study the use of the forecasting process through the lense of Simons' diagnostic and interactive levers of control in a European digi-physical company that transformed a market with their innovation.

### **1.3 Purpose and Research Question**

The present study aims to provide an in-depth understanding of the interplay between control and innovation, by studying the use of the forecasting process in a company working extensively with innovation. The research question is hence the following:

*How does a company's use of the forecasting process impact the interplay between control and innovation?*

Sub Questions:

- How is the forecasting process used interactively and diagnostically in the company?
- What is the relation between the company's innovation mode and the use of the forecasting process?

### **1.4 Delimitations**

Rather than examining management control systems in general, this study focuses on one specific management control system, namely the forecasting process. Moreover, based on the original theory of Simons' levers of control, a decision was made to only include two of the four levers of control. These choices made it possible to invest more time for gaining an in-depth understanding of two of the levers as well as the forecasting process. As the study was chosen as a single case study, it enabled us to gain a deep understanding of the chosen company and allowed us to interview multiple people within the same company in order to understand a broader perspective in more detail.

## 2 Previous Research and Theory

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*In this section, a review of previous research within innovation and management control is provided. Firstly, we define the concepts of the forecasting process and innovation, followed by a conceptualization of the diagnostic and interactive use of MCS based on Simons' levers of control framework. Later research within the interplay of interactive and diagnostic use and innovation, as well as the use of MCS in relation to the innovation characteristics is then presented. Lastly, a theoretical framework is developed to guide our research question.*

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### 2.1 The Forecasting Process as a Management Control System

Barros and Ferreira (2021) states that there are various definitions of management control systems in previous research. Simons' (1995) adopts the definition of management control systems as: *"The formal, information-based routines and procedures used by managers to maintain or alter patterns in organizational activities"* (Simons, 1995, p.5). Traditionally, budgeting has been the foundation and core of MCS (Hansen et al., 2003; Abernethy & Brownell, 1999). There are different parts and purposes with the budgeting process, including target setting, development of the budget, resource allocation and evaluation (Hartmann et al., 2021; Ax et al., 2015). According to Bergstrand (2010), resource allocation might be especially important when an organization is pursuing future plans that may require large R&D costs. Nowadays, rolling forecasts are a common substitute to traditional budgets, with features such as a lower level of detail, higher frequency and less limits to the calendar year (Hartmann et al., 2021). As we will study the forecasting process in the chosen case company, Simons' definition of MCS will be applied and the mentioned parts of the budgeting process will be studied, referred to as the forecasting process.

### 2.2 Innovation

There are numerous definitions of innovation, whereas Barros and Ferreira (2019) makes an effort to map out the different interpretations of the concept. A common definition is the implementation of new ideas and the process connected to that implementation. This definition often considers innovation to be linked to the use of MCSs saying that *"innovation is treated not as a random event but as a result of organizational processes able to be managed"* (Barros & Ferreira, 2019, p.345). Moreover, the same authors explain how the

concept of innovation can be comparable with the concept of creativity, where creativity is the process of coming up with novel ideas, which then transitions into innovation. These definitions of innovation and creativity is what we refer to when writing about these concepts in this thesis.

### 2.2.1 Innovation Modes

Bedford (2015) states that “*one common distinction in the innovation literature concerns the allocation of attention and resources between exploitation and exploration*” (p.12). March (1991) defines exploitation as the improvement of existing capabilities and resources within an organization while exploration is the opposite, namely the discovery and innovation of new products and processes. Moreover, exploitative innovation is generally more predictable and easier to proximate while exploratory innovation is associated with higher risks and uncertainty. Such features may result in a bias towards exploitative projects within organizations as these are easier to measure in terms of short-term financial contribution. Yet, organizations are urged to engage in some exploratory innovation as well in order to stay relevant and competitive on the market in the long term. According to March, organizations that “*engage in exploitation to the exclusion of exploration are likely to find themselves trapped in suboptimal stable equilibria*” but concurrently, organizations that “*engage in exploration to the exclusion of exploitations are likely to find that they suffer the costs of experimentation without gaining many of its benefits*” (March, 1991, p.71). As a result, March concludes that both exploration and exploitation are crucial for long-term growth and survival in an organization.

In a changing and dynamic environment, organizations might benefit from exploiting and exploring simultaneously in order to stay competitive on the market and pursue long-term survival. This balanced use of exploitation and exploration is often referred to as ambidexterity (O'Reilly & Tushman, 2013). However, allocating resources and prioritizing between these two types of innovation in order to pursue ambidexterity is an important factor to consider as well as a big challenge for the organization (March, 1991; O'Reilly & Tushman, 2013).



## 2.3 Innovation and Management Control Systems

### 2.3.1 Simons' Levers of Control

Simons' levers of control theory has been prominent in the research field of Management control and innovation. Simons (1995) specifies formal control systems in four levers of control: *diagnostic systems*, *interactive systems*, *belief systems* and *boundary systems*. With these four levers of control, companies can reach their strategic objective and manage the tensions within their organizations. One of the most important tensions for managers to handle is explained to be the need for exercising control of predictable goal achievement, while still allowing for creativity and flexibility.

According to Simons (1995), "*diagnostic control systems are the formal information systems that managers use to monitor organizational outcomes and correct deviations from preset standards of performance*" (Simons, 1995, p.59). Further, diagnostic control is used in order to guarantee goal achievement as well as estimate and evaluate results. The diagnostic control systems measure the output of performance based on a company's specific strategy, where certain *critical performance variables* have to be achieved in order to reach success with the strategy. After deciding on specific critical performance measures, the diagnostic control ensures that these are handled in an effective way. It is common that budgets and profit plans are used diagnostically, where managers ensure goal achievement through monitoring of results. The budget is hence used diagnostically to attribute responsibility to employees or functions in the company as well as to evaluate performance. A budget could be seen as a diagnostic control system in itself, but it could also be used both diagnostically and interactively. In the context of innovation, Simons (1995) suggests that diagnostic control systems tend to have a constraining effect on innovation, as its purpose is to ensure predictable achievement of goals.

Simons (1995) further state that whereas diagnostic control systems could constrain innovation and creativity, interactive control systems tend to do the opposite and positively enable innovation. Interactive control systems are formal systems that spread information between all levels of the organization, and a way for managers to be involved in the decisions made by employees. Dialogues are enhanced and employees are motivated to look for information beyond their routinized channels. When operating in competitive and changing

markets that demand constant information searching, experimenting and adaptations, diagnostic control systems are not enough. Management should instead build information networks that are able to analyze and react to important changes. According to Simons (1995), different types of management control systems could be used interactively, hence it is not a single type of control system. Any MCS that could be used for promotion of debate and idea sharing, could be used interactively. A control system is made interactive by the involvement of managers through their follow-ups, reviews and continuous dialogues with employees. Budgets are also used interactively by managers to direct attention to important strategic uncertainties as well as facilitating an environment for employees to make own decisions and come up with new ideas. According to Abernethy and Brownell (1999), a budget could also be used interactively by involving subordinates in the process of developing the budget, as well as facilitating interactions and discussions across company divisions and between different levels of management.

### 2.3.2 Interplay of Interactive and Diagnostic use

A more holistic view of interactive and diagnostic control systems has been emerging in the research field of management control and innovation, where the combined use of diagnostic and interactive controls are studied. Research emphasizes for instance simultaneous use of diagnostic and interactive management controls and the dynamic tensions that arise between the different levers of control (Knardal & Pettersen, 2015; Henri, 2006; Healy et al., 2018; Mundy, 2010; Barros & Ferreira, 2021). As the interactive and diagnostic levers of control are not necessarily MCSs by themselves, but rather a way of using a specific MCS, some studies have examined the simultaneous use of diagnostic and interactive use of a certain MCS (Simons, 1995; Knardal & Pettersen, 2015; Henri, 2006).

Henri (2006) investigated the separate diagnostic and interactive use of the performance measurement system (PMS) as well as the simultaneous use. The researcher found significant results that capabilities of innovativeness and entrepreneurship, among others, are fostered by and positively related with the interactive use of PMS. Interactive use of PMS increased communication and dialogue as well as directed attention of the organization on strategic priorities. Additionally, the study determined that diagnostic use of PMS was negatively related to the same capabilities due to its constraining effects. However, the research showed that the diagnostic use enhanced achievements of predictable goals, which further resulted in the conclusion that the combined and balanced use of both levers created dynamic tensions

which stimulated innovation while at the same time ensured goals achievement. The combination however, does not have to be used to the same extent to be effective according to Barros and Ferreira (2021) but may be used to different degrees based on the specific organization.

Further, the rise of dynamic tensions between the levers of control, as mentioned by Henri (2006), suggest that inspirational (interactive and belief) and constraining (diagnostic and boundary) levers give rise to countervailing forces that push the organization in opposite directions, which is sometimes referred to as countervailing reinforcement (Barros & Ferreira, 2021; Curtis & Sweeney, 2017). Curtis and Sweeney (2017) exemplifies the concept by explaining how countervailing reinforcement can be seen between a MCS enhancing short-term financial results and a MCS focusing on long-term growth. However, if the constraining and inspirational forces are not countervailing but rather consistent and pushing the organization in the same direction, it does not give rise to dynamic tensions according to Barros and Ferreira (2021) and Curtis and Sweeney (2017).

While Henri (2006) studied the particular use of PMS, Knardal and Pettersen (2015) investigated whether the budget can be used both interactively and diagnostically to balance control with creativity. The research showed that a combination of diagnostic and interactive use of the budget enabled more actors to gain ownership to the budget through creative decision spaces, by involving several managers in the budgeting process in a decentralized way. This ownership linked planning with decision making, which facilitated dynamic changes. Another case study by Healy et al (2018) examined how different control mechanisms such as budgets, forecasting plans and management meetings were used both diagnostically and interactively. By generating room for problem solving and innovation through the involvement of senior management as well as encouraging and fostering learning of employees these control mechanisms were used interactively. Simultaneously, in line with Henri's (2006) findings, the study showed that the diagnostic use of the same mechanisms enabled management to track performance and ensure goal-congruence towards company objectives within the firm. Healy et al (2018) further concluded that the extensive use of performance measurements in the highly innovative case company did not constrain but rather encourage innovation and creative thinking.

In like manners, Barros and Ferreira (2021) conclude that managers do not need to choose between control and innovation as they concluded that the combined use of the levers enabled innovation and control to coexist. Their study showed that “*diagnostic and boundary systems work closely with each other providing the strategic direction for the innovation effort and reducing the uncertainty of results, while the inspirational forces of interactive and belief systems create the needed proactivity*” (Barros & Ferreira, 2021). They exemplify this by referring to an analogy from Simons (2000) about the acceleration of a car, where the interactive and belief levers are the accelerating forces and the diagnostic and boundary levers act as the steering wheel controlling the direction.

Two concepts that are often connected to the diagnostic and interactive levers of control are the *controlling* and *enabling* use of MCS (Bisbe et al., 2019). Mundy (2010) studied the balance between controlling and enabling use of MCS through Simons’ levers of control framework. The controlling use of MCS was defined as ensuring that the organization reaches its goals through control, whereas the enabling use enables employees to come up with new ideas and ways of solving problems. These two roles of MCS hence pose a need for on the one hand facilitating decisions in line with the organizational goals and on the other hand creating autonomy for the employees. The study emphasizes that a balance between controlling and enabling use of MCS is needed for creating dynamic tensions, and that managers need to intervene to facilitate the possibility of dynamic tensions. The dynamic tensions will provide the organization with the ability to foster both efficiency and innovation. Balancing these different uses of MCS is complex, and constitutes a unique capability for organizations.

Some factors that affect companies ability to balance the enabling and controlling use of MCS are also identified by Mundy (2010). One of these factors is *dominance*, which occurs when one or more levers of controls have the dominant role and hence affect the way in which the other levers of control are used. This dominance can to some extent be caused by a *historical tendency* of using the levers of control according to this pattern, meaning that the organization has a history of using the levers of control in this way. The opposite of dominance is *suppression*, which means that there is an absence of use to some extent of one lever of control, which could occur both consciously or unconsciously. Suppression of one lever of control has an impact on the ability to balance the remaining levers, and could limit the way

in which dynamic tensions can arise. However, suppression may also be a logical behavior of managers in order for the organization to reach a particular goal to satisfy their stakeholders.

### 2.3.3 Innovation Characteristics and Management Control Systems

Various researchers who have examined the relationship between innovation and MCS according to Simons' levers of control framework have made connections between the characteristics of the innovation and the use of MCS (McCarthy & Gordon, 2011; Bedford, 2015; Curtis & Sweeney, 2017; Bisbe & Otley, 2004; Ravellino & Mouritsen, 2009). Some have made differences between the ex-ante perspective of the innovation efforts (McCarthy & Gordon, 2011; Bedford, 2015), another made a distinction between the ex-post innovation outcomes (Curtis & Sweeney, 2017), while Bisbe and Otley (2004) consider the characteristics in terms of degree of innovation and Ravellino and Mouritsen (2009) the innovation specific challenges.

McCarthy and Gordon (2011) conducted research about how MCS can be applied, according to the different levers of control, in order to enable R&D contextual ambidexterity. The authors state that interactive use of control systems such as the forecast and assessment systems enabled organizations to provide projections about the future and estimations of the impact on their unit. Information from these control systems, when used interactively, thereby helped the organization to know when to initiate a new project, adjust existing or stop any projects. On the contrary, diagnostic use of control systems were more progress-focused and helped to track whether everything was progressing according to plan, it also included measures focused on short-term efficiency that were used to improve and develop existing competencies. The study suggested that diagnostic control systems were used to a greater extent in order to counter exploitation while interactive control systems were preferred in order to manage exploration activity over time.

In accordance with McCarthy and Gordon (2011), Bedford (2015) also found that the use of management control systems and its impact on innovation was dependent on the mode of innovation. Likewise, this study showed that interactive control was beneficial for exploratory innovation organizations while diagnostic control was associated with exploitative innovation organizations. Moreover, the research suggested that a simultaneous and intensive use of diagnostic and interactive control systems were advantageous for ambidextrous organizations.

However, in line with Mundy's (2010) findings about the support of organizational capabilities through dynamic tensions, this research shows that also the relative balance between the interactive and diagnostic use played an important role for ambidextrous organizations. With that said, this study suggests that "*an imbalance between diagnostic and interactive control levers can result in either/or decisions that negatively affect the capacity of the organization that jointly pursue exploitative and exploratory innovation*" (Bedford, 2015, p.26).

Furthermore, Curtis and Sweeney (2017) conducted a qualitative case study where they examined the relationship between the generation of dynamic tensions between two types of innovation and mutual reinforcement of MCSs. Instead of dividing the types of innovation into exploration and exploitation, they referred to the outcome of the innovation mode which were (1) customer-oriented innovation, where the customer's demand is the source of innovation and involved only problem solving, and (2) technology innovation, where the innovation requires more creativity and involves both problem finding as well as problem solving. Customer-oriented innovation was, in line with the findings of exploitation in McCarty and Gordon's (2011) research, associated with clearer short-term results than technology innovation. The results showed that diagnostic systems were consistent and aligned with customer-oriented innovation. Surprisingly, the research showed that interactive systems likewise increased the level of customer-oriented innovation. The explanation was that "*the interactive control systems served to reduce potential resistance to altering the balance of R&D activity in favor of activity with a clearer short-term outcome for revenue generation*" (Curtis & Sweeney, 2017, p.336) which resulted in a crowding out effect of technology innovation.

Furthermore, due to the case companies' high achievements of short-term financial goals, Curtis and Sweeney (2017) found that the crowding out of technology innovation did not draw any attention from the managers. So in contrast from Bedford (2015) and McCarty and Gordon (2011), who found that each of the two innovation modes could be favored through the choice of diagnostic or interactive use, Curtis and Sweeney concluded that the consistent reinforcement of diagnostic use toward short-term result, in favor of customer-oriented innovation, reduced the opposing forces of interactive use and thus resulted in an crowding out effect of the long-term technology innovation.

However, rather than distinguishing between the ex-post or ex-ante perspectives of innovation, Bisbe and Otley (2004) highlights a distinction between the degree of innovation and the impact of interactive use. They state that the correlation between interactive use of MCS and product innovation is much more complex than what they initially thought. Their findings indicate that the influence of interactive use of MCS on product innovation correlates with the degree of product innovation in the specific company. In highly innovative firms, the interactive use of MCS did not seem to enhance innovation, and could even reduce innovation through the interactive process of filtering out initiatives and ideas. In low-innovating firms however, interactive use of MCS seemed to favor creativity and innovation. They further conclude that this relationship explains why highly innovative firms may not use MCS in an interactive way.

While Bisbe and Otley (2004) consider the degree of innovation, Ravellino and Mouritsen (2009) distinguish between how the innovation specific challenges should be considered when choosing MSC. They conclude that there is co-development between innovation and management control systems. As the innovation develops, certain challenges emerge that need to be managed through different uses of MCS. Challenges mentioned in their case study were for example connected to the organization's use of suppliers and the need for finding new technology, whereas every challenge was managed through the use of certain MCS such as budgets, strategic vision, and various measures. Rather than being an external part of the innovation process, the MCS were instead an integral part of the innovation and transformed together with the changes of the innovation. Ravellino and Mouritsen (2009) thereby shed light on how we should understand the design of MCS and its connection to innovation as a process, rather than designed based on the attributes of the specific MCS or the innovation. Before the innovation process takes place and unfolds, it is hard to tell whether diagnostic or interactive use of MCS are most appropriate. MCS should be designed based on the certain challenges that arise in the innovation process and the development over time, rather than based on the features of the specific MCS.

## 2.4 Theoretical Framework

Based on the previous literature within management control systems and innovation, the theoretical framework (figure 1) has been developed. This framework will hence provide the theoretical base from which we will analyze how the use of the forecasting process impacts the interplay between control and innovation.

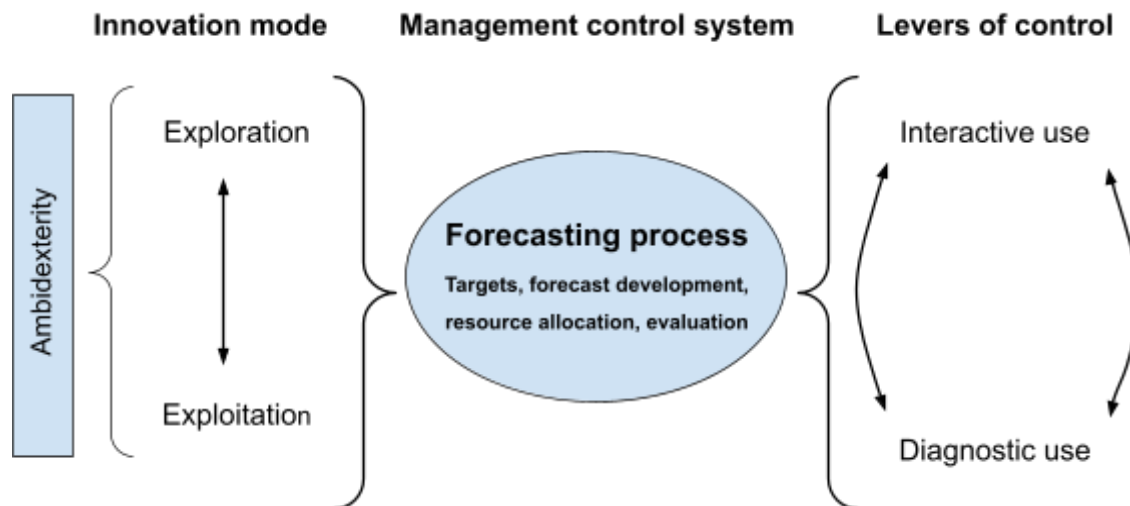


Figure 1: Theoretical Framework (Dagnå and Petersson, 2022)

### Management control system

As explained in section (2.1), Simons' definition of management control systems will be applied together with the defined common parts of the forecasting process including targets, forecast development, resource allocation and evaluation. The forecasting process in the case company will hence be the starting point of our analysis.

### Levers of control

Referring to Simons' (1995) levers of control framework, two of the original four levers will be explored in our analysis, namely the interactive and diagnostic levers. Later research within MCS and innovation, presented in section (2.3.2) and (2.3.3), that builds on the original conceptualizations of interactive and diagnostic levers will be applied. This will allow us to analyze the nature of the interactive and diagnostic use of the forecasting process in the case company and its impact on innovation.

### Innovation mode

This dimension will help understand whether the innovation activities the case company is pursuing have the characteristics of exploration or exploitation, as defined in section (2.2).



Further, previous research regarding innovation characteristics and the use of MCS in section (2.3.3) provide insights to the relationship between the company's innovation mode and the use of the forecasting process.

## 3 Method

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*The following section describes our research design as well as our reason for choosing the specific case company. We then describe the data collection, including the choice of interviewees and interview design. Furthermore, we provide insights into the analysis of our empirical data.*

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### 3.1 Research Design

For this study, a qualitative research method was chosen in order to understand the phenomenon on a deeper level rather than focusing on the research question in general with a quantitative method and numerical empirics (Lee & Humphrey, 2006). Previous research shows that management accounting is not static and homogenous but rather dynamic and constantly changing depending on the specific organizational context and environment we are studying (Vaivio, 2008). With that said, a qualitative research method has enabled us to zoom in on one particular organization in order to understand the question on a practical level (Lee & Humphrey, 2006). This method corresponds well when the research question is concerning *how* something is working and *why* rather than *if*, which in turn confirms that this methodology is preferred for the research question of this study (Yin, 2014).

Furthermore, given our intention of increasing our understanding in depth and due to the limited time frame, the empirics have been based on empirical data from one organization. The study has thereby been conducted as a single case study (Yin, 2014). A single case study is well suited when the aim is to provide a description and explanation for the specific phenomenon in a practical context, which indicates that the method corresponds well to our purpose and research question (Ryan et al., 2002).

This study has been conducted using an abductive approach which allowed us to move back and forth from theory to observations. New empirical findings were considered throughout the study which increased the interest in expanding and changing the selection of previous research and literature. As a result, this changed the theoretical base for the analysis of the empirical data multiple times since this was an ongoing dynamic process. Previous literature and theory have thereby been considered, discussed and related to our observations from the case in order to make sense of and develop the understanding of the given subject (Dubois & Gadde, 2002).

### **3.2 Case Firm Selection**

In order to examine our research question, an essential part was the selection of a case firm that was suitable for the purpose. Three main criteria were defined to ensure that the chosen case firm would fulfill this need. First and foremost the case company had to give us access to relevant employees and their consent to interview some of them. The second criteria was that the company had to have an essential part of their employees working within R&D and innovation. Furthermore, to enable us to examine the connection between innovation and management control systems the third criteria was formulated as having a high extent of control practices in place. The chosen case firm is a large company that is using their control practices, such as their forecasting process, throughout their organization with multiple different purposes. Therefore, the chosen company met all criteria and was thus an exceptional case firm that we believed would provide a good example and source in order to fulfill the aim of this study. The case firm is anonymized in the study and is referred to as “AlphaCo”.

### **3.3 Data Collection**

#### **3.3.1 Interviewee Selection**

The selection of interviewees was guided by the aim of receiving as rich answers as possible for the study’s research question. As the research question of the study address how the use of the forecasting process impacts the interplay between control and innovation, the interviewees were mainly chosen within the area of either Business control or R&D as employees within these functions were best suited to provide answers within the two areas. In total, nine interviews were conducted with interviewees within Business control/finance and R&D (see

table 1 for a full list of interviews). Five interviews were conducted with employees within Business control, where employees at different organizational levels were chosen. The Business control team is responsible for designing many of the MCS used in the company, especially the forecasting process, which was the area of focus in the study. Therefore, the interviewees within business control were able to provide in-depth answers regarding the design, usage and features of the forecasting process and its alignment to R&D. Three interviews were conducted with employees who have different roles within R&D, and thereby could provide varying viewpoints of the R&D work in the company. These interviewees mainly provided information regarding the nature of the innovation in the company as well as their perception of the forecasting process in their line of work.

The selection of interviewees gave us in-depth information regarding the forecasting process, which was important for the study's purpose and focus area. However, due to lack of time and limited access to other units within the company, the interviewee selection has some limitations. Interviewees within other units in the company, such as the different business areas or enabling functions, would have added an additional dimension to the empirical material but were deprioritized.

<b>Interviewee</b>	<b>Function</b>	<b>Date of interview</b>
A	Business Controller, Manager	10-02-2022
B	Business Controller	17-03-2022
C	Business Controller, Division Manager	21-03-2022
D	Business Controller	12-04-2022
E	R&D, Employee	14-04-2022
F	R&D, Area Manager	20-04-2022
G	R&D, Manager	21-04-2022
B	Business Controller	26-04-2022
A	Business Controller, Manager	26-04-2022

*Table 1: Overview interviewees*

### 3.3.2 Initial Contact

In order to give the potential interviewees time to answer when available, the first contact was initiated via email. In the opening email we provided the person with a short introduction of ourselves, a brief background of our thesis and our intentions. Since no email addresses were available on the company website, we sometimes experienced problems finding new employees to contact. Some of the previous interviewees provided us with valuable connections to additional employees, but our main source of new contacts were through the company page on LinkedIn in which we found names of new employees and could thus establish further contact through email.

### 3.3.3 Interview Design

The empirical material and primary data have been collected mainly through semi-structured interviews (see appendix 1) with employees in the case company. The questions were formulated beforehand and sent to the interviewee before the interview when requested. Semi-structured interviews are based on open-ended questions which allow co-creation between the interviewer and the interviewees. As we were always two during the interviews, one of us could lead the interview by posing the questions, whereas the other one could focus on listen closely to the answers and think out potential follow-up questions. Each interview has been individual rather than groups in order to understand the subject matter on a deeper level (DiCicco-Bloom & Crabtree, 2006). Given that an abductive approach has been used, the interviews have been spread out during the whole time period, in order to create space for reflection and the design of additional questions. We adapted our interview guide over time, based on new insights from previous interviews or the particular interviewee's role. For example, we altered the questions slightly depending on whether we were interviewing a representative from the Business control team or R&D. The interviews lasted between 30 and 60 minutes, and all interviews were conducted in online video format. Based on the approval of the particular interviewee, we recorded some interviews and could then transcribe them while listening to the interviews once again. This allowed us to gain a deeper understanding and hear things we had not the first time. During the rest of the interviews, we did manual recording by taking notes during the interviews.

### 3.3.4 Secondary Data

Although the primary source for data collection was the empirical findings from the interviews, some additional information was gathered from secondary sources to complement the information received from the interviews. This included internal documents, such as powerpoint presentations provided by the case company that addressed the processes discussed during the interview as well as some information from the company website.

## 3.4 Data Analysis

After each interview the information was transcribed and assembled in order to mitigate the risk of losing relevant empirics. This process ensured that important answers and data were captured for further analysis. Both of the researchers were present at each of the interviews and double checked the transcriptions afterwards to ensure that no essential empirics were lost. The abductive approach made it possible to simultaneously evolve theory and empirical analysis as well as the interview questions throughout the research period as the work process continued (Silverman, 2020).

A coding method was used for categorization. Main themes were identified and similar interview answers were grouped together and color coded based on the theoretical framework (figure 1). This made it possible to consistently analyze the empirical material in a structured and disciplined way throughout the collection of new empirical data (Miles et al., 2014). The initial coding structure provided theoretical relevance but as we allowed for progression of the coding method, this evolved continuously as empirical data was collected and new relevant themes were captured for further analysis (Linneberg & Korsgaard, 2019).

## 4 Empirics

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*In this section, we start by introducing our case company, referred to as “AlphaCo” followed by an overview of the innovation work performed at the company. We then present our empirical findings of the forecasting process in AlphaCo, both from a perspective of the company wide process and from an R&D perspective. The resource allocation part of the forecasting process is then presented. The empirical material is organized into “diagnostic use” and “interactive use” based on the characteristics described in section (2). This allows us to focus our analysis on the relationship between innovation and the use of MCS, rather than on the characteristics of interactive and diagnostic use.*

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### 4.1 Introducing AlphaCo

AlphaCo is a digi-physical european company in a rather conservative industry characterized by low innovativeness. The company was founded in the 21st century and has been one of the pioneers in changing the industry due to its highly innovative product and services.

AlphaCo’s organizational structure consists of Business Areas (BA’s) for the different markets, Enabling Functions (EF’s) such as Human Resources (HR), finance and marketing, as well as Research and Development (R&D). About one third of the company’s employees work within R&D, meaning that AlphaCo invests substantially in their R&D function, including both human resources and other resources. R&D is then organized into eight business verticals, where four are connected to the different markets, and four are central functions for the whole company.

### 4.2 Innovation at AlphaCo

AlphaCo was early in launching innovative digital solutions in their industry. Initially they launched their new solution in app and website format, but have lately expanded into the area of physical service providers. They now have a goal of fully integrating their physical and digital service. According to interviewee G, there is a lot of innovation happening as this kind of digital service within this industry is a new phenomenon.

The R&D division in AlphaCo is responsible for developing the software product which is the app and platform, making R&D a core function in the company. R&D do research on both existing and new products as well as development of products. Two of the central functions are DivOne and DivTwo which are doing much of the innovation work in the basal functions. Each business vertical within R&D have focus groups (for ex. product, design, tech). The product group in each business vertical have workshops where they come up with strategies and ideas on how they can improve a product. The focus group then comes up with solutions and ideas for how they should improve some existing features or whether they should introduce something new to the market. The design group is then responsible for the user experience and information architecture part, whereas the tech group does the technical architecture.

R&D's role is to support both the digital as well as the physical service centers. Interviewee G further states that in terms of their innovation, the data and analytics team build the machine learning or AI capabilities which are based on the client and their history, so that they are able to connect the client to the relevant platform and to the relevant professional accordingly. Moreover, one of the biggest new developments that R&D have executed recently is the flexible and scalable module that many of their managers and employees use, which they built from scratch. This service opened up possibilities for a whole new business model that they are currently expanding.

Interviewee F says that many of the employees at AlphaCo have previous experience from other tech companies which is an advantage for product development and the innovation of user-friendly products. However, the difference between AlphaCo and other tech companies is that they are in a rather different industry, and must keep that in mind when innovating. According to interviewee F, the company has been controlled by the product team, and the development of technical features has sometimes overrun other initiatives. There is a big advantage with having user-friendly and convenient tech solutions, but there is a need to change focus to ensure that what they develop is aligned with their clients' needs.

There are hundreds of new projects and initiatives within R&D at AlphaCo, this includes both totally new areas as well as the development of existing products and services. Interviewee F has initiated a new project and explains how the ideal solution to this project would be to create a brand new function in the app and include a new offer in their digital service with

automatic follow-ups and so on. However, this solution would require a lot of time consuming construction and development of new features and functions. So when that is not possible, the initiative-owner needs to look at their current resources and capabilities and think about how this can be developed or integrated in what they already have. How should they help clients with these problems? Can they educate their employees in this matter in order to increase the quality of the help their clients receive? Is there any existing function they can leverage?

## 4.3 The Forecasting Process

### 4.3.1 The Company wide Process

#### ***Diagnostic use***

The company has several purposes with their forecasting process. The most important part is creating alignment within the company to ensure that they can deliver on their plans and targets. Another part is to ensure that they can allocate resources, such as R&D resources, to the right place and enable them to take the right actions. The forecasting process also aim to create alignment between the financial planning and company strategy. Based on the company strategy, company objectives are formulated. To each company objective, a number of KPIs are then set that are measured on company level. Based on the company objectives, the forecast (including target setting and resource allocation) is then developed.

The first step in developing the forecasts is hence the target setting. AlphaCo's targets are set using a *triangulation analysis*, including (1) development of revenue, gross margin and EBITDA, (2) the long term 5 year plan, and (3) benchmarking with industry standards and peers. The business control team does the triangulation analysis and shares this with the Global management team (GMT). Based on this analysis, the Global management team sets the actual targets. The targets are then shared within the company's BAs, EFs and R&D which each receive certain targets within for example revenue, gross margin, EBITDA or full-time equivalents (FTE).

After communicating the targets, the forecasts are made. AlphaCo have made four full forecasts per year, where the forecast in Q4 can be compared to a more traditional budget. The forecasts have been made by budgetowners within the BA's, R&D and EF's through a



bottom-up process. They include both financial and non-financial elements with KPIs such as growth, client reach, service indicators and FTE's. When the budget owners have made their forecasts, the group Business control team performs the consolidation and analysis. The CFO and COO then present the forecasts for GMT.

However, the company has implemented changes of the forecasting process this year. Instead of making four full forecasts per year, they will do two forecasts per year (Q1 and Q4) and replace the other two with *outlooks*. The outlooks are made solely by the Business control group, or with input from top management within each area. They are hence being made without the involvement of the budget owners within each unit. These outlooks are high-level rather than detailed in order to save time, as their duration will only be 1-2 weeks. It is expressed to be enough to only make the full forecasts twice a year since there is so much work to create the detailed plans.

*“In all forms of reporting and follow-up, it is important to find a balance – that it adds more value than the effort it costs. This also applies to budgeting and forecasting – how much time do we spend on it compared to the outcome and the value added in the process”*

Additionally, the key of these outlooks is for the company to be able to quantify mitigations if they are behind plan of reaching their goals. They will also provide a cash runway control and a possibility to give an updated financial outlook to GMT. These outlooks are more in line with what the company used to do before, namely forecasts that were only made by the business control team without involving any budgetowners.

*“An outlook that does not involve everybody, and is only a finance product, may sometimes be better. The only thing that you achieve with the otherwise detailed forecasts is buy-in. For example, if a unit has made a forecast that shows that they can hire one more person, then you have a plan that they can relate to that is extremely powerful. But, if you are only interested in for example “what gross margin will the Nordic contribute with”, then you can do the outlook without involving everybody.”*

The implementation of outlooks is explained to free time for the employees. For example, they do not want a middle manager to work extensively with forecasts, but have time to focus

on their main tasks instead. AlphaCo's first outlook was made in Q1 this year, where basically only people from their business control team were involved. They conducted the outlooks through a top-down approach, where the targets they set became input for the Business areas to incorporate in their Q2 plan and deliver on. Interviewee D explains that this top-down approach may include pretty aggressive goals, and when the budget owners then incorporate these in their own plans there may be some contradictions.

The evaluation of the forecasts and outlooks are made each month by comparing the results with the previous forecast or outlook as well as to the 5-year plan. Interviewee C emphasizes that the monthly evaluations of the deviations is the most important analysis for AlphaCo. The company want to constantly develop and make changes which makes it more important for them to compare in short intervals, rather than on a yearly basis.

Interviewee F mentions that there is a lot of focus on the budget today, which probably is very good in many ways, but that it would have been better if they gradually increased the budgetary control rather than implementing everything in such a short time. It is explained that it feels more difficult to build something new today and to know who to turn to.

*“Four years ago, the space for creativity was extremely big! Today we have higher demands from stakeholders, this has been a wake up call – the fact that there is now a budget we have to consider. The result has been that the opportunity for creativity has decreased significantly”*

### **Interactive use**

The two forecasts that are made each year are developed by each budgetowner in the company through a bottom-up process, for example by managers of lower divisions and areas. Within a local BA, employees from their local business control, strategy, marketing and HR may also be involved. The forecasts are hence developed by managers at lower organizational levels within the BA's/R&D/EF's than the managers for the whole divisions. In total there are about 50 people from the company involved in developing the forecasts, and the process occurs for one month.

*“Each subdivision forecast a detailed plan regarding for example the number of summer substitutes they need for the summer, which provides a detailed plan for the locally employed personnel”*

When developing the forecast, each Business area aligns and communicates with R&D and marketing to agree on the feasibility of the plans before submission of the forecast. Based on the reporting, GMT either approves or provides feedback to each budget owner. Depending on the outcome of the feedback, the budget owners may make iterations of the forecasts and the COO and CFO then present the updated version of the forecast again to GMT.

It is explained that an important part of the forecasts is that the budget owners are able to build their own forecast, so that they have ownership of it and feel committed towards it. The ownership also enables the budgetowners to find new solutions to their problems and develop a creative mindset. Before, they used to do forecasts on headquarter level, but today their forecasts are instead anchored with a lot of details and employees from large parts of the company are involved. AlphaCo have tried to implement more high level forecasts, but they feel like the company is not yet ready for this. Interviewee D believes that if you compare a forecast that is made on a detailed level with one that is made on a high level, the result would almost be the same. However, a high-level forecast does not create the important ownership for the budget owners.

*“Every manager at the subdivisions are owners of their own P&L, they don’t feel the same ownership with high-level forecasts. A forecast is very much about ownership, to own your numbers. You want to budget your costs to feel that you have control over it.”*

The development of AlphaCo’s business model from only providing a digital service to integrating their physical and digital service have created new demands for follow-ups where each responsible person needs to have their own P&L. This has made it very complex for the company compared to before, where they only had one national system for forecasting. The monthly evaluations of the forecasts and outlooks are conducted through a physical meeting between parts of management and representatives from each BA. During these meetings they discuss their results for the month, whether the BA’s have been able to deliver on the financial and non-financial KPIs, as well as potential risks of reaching their goals going forward.

An important aspect for AlphaCo is that they constantly try to tweak, change and improve the way they work so that it becomes smooth and convenient. AlphaCo wants to achieve autonomy so that each BA middle manager feels like they have their own responsibility and can develop the projects they believe can benefit the market in the long run. But at the same time they have to run projects that benefit the company itself as well.

*“ When looking at control models such as how to establish a forecast and set targets, you have to decide how detailed control you should have. We are working to increase autonomy over time, it is very important to have confidence in those who work in the company and for each profession. With that in mind, we need to find a good balance between having autonomy and a governance model that allows us to scale up and develop things effectively across markets ”*

#### 4.3.2 R&D Involvement in the Forecasting Process

##### ***Diagnostic use***

Interviewee G explains how R&D follows an OKR-framework, which stands for objectives and key results. This starts with the translation of the company objectives to an R&D level where they decide what R&D should do in order to reach the company objectives. Each business vertical within R&D defines their own set of objectives and corresponding key results. When those are set, they start planning on which projects they should execute in order to reach the objectives and key results.

*“If we want to increase gross margin by having 200 client meetings in a week, then increasing the gross margin would be the objective and having 200 client meetings is the key result you want to achieve. In order to achieve this objective, what should we do? Then we plan the actual work which we call initiatives or projects. For example, it may require redesigning our existing solution or adding new features so that new clients are attracted toward our platform. ”*

However, interviewee E explains that there could be a stronger connection between the company objectives and what R&D actually do. The targets and goals differ a bit within R&D, in some parts there have been no direct quarterly or monthly goals but instead rolling

targets on a team basis. This may cause problems if the company vision and R&D's strategy is not really aligned. It is also explained that alignment between management control and innovation could be improved. AlphaCo is not always weighing innovation possibilities from different teams towards each other, and it is organizationally a bit challenging because they gather in the different teams, within the different areas. Ideas and suggestions span across these boundaries, but the forums that are needed for this have not really been created.

### ***Interactive use***

According to interviewee G, strategy is defined from the top but ideas and execution of new projects happens with a bottom-up approach. The employees within the R&D function are involved in the distribution process and exercise of the headcount number, given from the forecast. Each area walks through what their current budget, their anticipated growth and what their resource needs will look like. This is then communicated upwards in order to enable the most efficient resource distribution. In addition to this, each team checks on their progress and makes a 2-week-plan which they use for a small review-session. In this review-session each team reviews their progress and product deliverable based on KPIs and objectives. This is then communicated to the senior management who are using other KPIs to measure initiatives and projects.

Interviewee G also mentions how they have scheduled product councils within the R&D department, where all the interdependent areas participate and sort out any blockers. In addition to this they are also participating in the monthly review meetings where management reviews the progress for all the business verticals and if there is anything that needs to be communicated to the top management in order to find a resolution.

Interviewee F says that there are a lot of projects and ideas in the company, but that it would have been good to have a better system where they collect these and evaluate them.

*“Sometimes it feels like that if someone has an idea they choose to go with that idea, which is not necessarily the best solution. This might result in the development of something very narrow and unscalable. Possibly, if they would have communicated and considered more ideas they might have been able to solve it in a better way. But at the same time it is easy to be hindsight.”*

An ambassador program has however been initiated where employees from a key profession within the company are linked to a product group so that those who actually work with clients can provide input on what they would prefer and need. This is a step toward improving the connection between the traditional industry and product innovation in order to make them coincide and develop better products.

*“This sector is very complex and to make our products the best on the market it is very important to have a continuous dialogue”*

#### 4.3.3 Resource Allocation

##### ***Diagnostic use***

Resource allocation within AlphaCo is done to a great extent, which helps them prioritize and execute initiatives. The most obvious system that helps them manage resource allocation is the forecasts. The short term goals of the resource allocation are to ensure that their investments across BAs and R&D are well-aligned with their strategic ambitions, as well as promote transparency and accountability. Their long term goal is to take a portfolio approach and dynamically allocate resources within and across functions to optimize for their strategic ambitions and maximize value creation. They review ongoing and new projects through a two step approach where they consider (1) alignment with their strategic direction and (2) an impact vs feasibility assessment.

The R&D resource allocation has previously been made by CPO & CTO, allocating the R&D resources within each area related to the company and business area objectives. However, AlphaCo are refining and defining this process. Changes that are occurring are for example improvement of alignment between BA leads and R&D, reflection of R&D costs in BA PnL's as well as R&D committing to financial targets. AlphaCo have for example implemented a new framework, an initiative review, where they list all major initiatives across the organization in order to increase transparency. The description of initiatives includes their relation to the company objectives, revenue and gross profit contribution. This list is validated in order to identify initiatives that are misaligned with the objectives or strategy and have a small or great financial impact in the short term. Possible misalignment between R&D and BA's are also identified, for example if R&D is developing something that the market does not demand. This creates visibility, transparency and awareness for each manager in the

company. Much of this is done today in AlphaCo, but their ambition is that this new framework will be more lightweight while still supporting the organization and facilitating a good structure.

There are numerous initiatives going on in AlphaCo and to compile them in a list is quite easy, the difficult part is how they should compare them. Implementing a brand new system is completely different from starting another service line in a certain market for example.

AlphaCo have decided to evaluate new projects based on a simple model of revenue and gross profit impact. Interviewee A and B mentioned that they could do an advanced ROI or NPV but it would be too time consuming with all the initiatives being executed, there are also many assumptions and uncertainties associated with those kinds of calculations. It is especially tricky with new projects where you do not have any data to rely on, which is why they want to make it as easy and lightweight as possible.

*“The only thing we know about forecasts or that kind of calculations is that they will be inaccurate – how much inaccurate you do not know, so it is important to spend time and resources on what actually generates value”*

AlphaCo although have a lot of data they can rely on to some extent to evaluate different initiatives. However, if someone wants to build something completely new, they often start by building an MVP (minimum viable product) to test if this is something the market wants before investing too many resources.

*“Some want to build the world’s best product in step one and launch that, but we try to build step by step and feel the market so that we can easily adapt. Being in this market we still have to be agile and fast-moving based on the market demands.”*

However, Interviewee F mentions that a brand new initiative might require a lot of resources and high investments in the short run, but that it will lead to long run retention of their clients and attractions of new ones. This is a very important factor that they need to be better in considering. To be successful and stay competitive it is important that they do not focus exclusively on handling what is urgent and provide short-term results but also thinking about the longer perspective.

### ***Interactive use***

BA's and R&D departments do not work in isolation today, as there are specific R&D departments that are connected to BA's that help facilitate this communication and alignment. However, there is room for improvement in order to find all possible misalignments that are bad investments and a waste of resources. AlphaCo will thereby improve alignment between BA and R&D by letting the BA's be responsible for ensuring a continuous dialogue with their own R&D teams. The global R&D team will also take responsibility for ensuring that the global team's plans are communicated to all the local R&D teams. The local R&D teams are then responsible for keeping the global team updated regarding BA's local needs.

Each month after the monthly financial statements are made, a review meeting is held between general management, each business area and to some extent the various departments such as R&D, HR and Finance. In these meetings, the results are discussed and a decision is made whether to scale up or scale down certain areas. These review meetings give rise to idea sharing and creativity, as well as helping to sort out any blockers or new market potentials in which additional resources are needed. Additionally, these meetings help AlphaCo to reallocate resources centrally, perhaps one business area needs more support from HR or needs R&D to shift focus.

Rather than a restraining framework for resource allocation, AlphaCo want to create a mindset among the employees in every initiative they have, so that everyone thinks about what effect this has on their clients, their employees, those who pay and what value it creates for the company itself. Interviewee E mentions that an important part to consider within resource allocation and MCS is to enable flexibility and to be more mobile with where people focus. This makes it easier to create something together across the otherwise quite isolated departmental boundaries. It's also important to earlier let go of initiatives that do not show the desirable effect.

*"If you connect it to, for example, bonuses, it could become like a lock-in effect, that once you have invested in something, you continue to pursue it until it succeeds, and then there are a lot of resources used. So being able to "fail quickly" is important, and even if you have used resources, it should not be something that is bad for you in your managerial career."*



## 5 Analysis

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*Based on the theoretical framework and the empirical findings, two main themes were found regarding the use of the forecasting process' impact on the interplay between control and innovation. Our first theme is the combination of diagnostic and interactive use of the forecasting process. Our second theme is connected to AlphaCo's dynamic resource allocation and its promotion of ambidexterity.*

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### 5.1 Combining Diagnostic and Interactive use of the Forecasting Process

#### 5.1.1 Levers Pushing in Opposite Directions Giving Rise to Dynamic Tensions

Our empirical data show that AlphaCo combines diagnostic and interactive use of the forecasting process, which enables them to exercise control while also pursuing innovation. Interactive use such as involvement of budgetowners in developing the forecasts, monthly review meetings within resource allocation and the ambassador programs creates autonomy, creativity and idea sharing that contribute to enable innovation. Diagnostic use of the forecasting process through KPIs, the R&D OKR-framework and continuous evaluations based on revenue and EBITDA ensures alignment with company strategy and goal congruence. This supports the findings made by Healy et al (2018) and Henri (2006), who concluded that diagnostic use helps achieve predictable goals, while interactive generates room for innovation through the involvement of management and the opportunity for communication and dialogue.

Our findings also contribute to the research of Barros and Ferreira (2021), who concluded that the combined use of the four levers of control enables coexistence between innovation and control. Even though our study includes only the diagnostic and interactive use of one specific MCS, the forecasting process, we still find that the combined use of the two levers support the coexistence of innovation and control. It is observed that AlphaCo on one hand want to create autonomy for the employees within the business areas to develop what they believe in, but on the other hand want to have a governance model in place to develop things effectively and in line with what is beneficial for the organization in reaching its strategy. These are seen as rather contradictory forces, that push in opposite directions. As the first part is an example of interactive use and the latter is diagnostic, this seems to be an example of

countervailing reinforcement of the levers, that give rise to dynamic tensions in accordance with Curtis and Sweeney (2017) and Barros and Ferreira (2021). The company aims for developing a conscious mindset among the employees regarding initiatives, rather than them being restrained by a framework.

The combination of interactive and diagnostic use of the forecasting process creates dynamic tensions in other aspects as well. The creation of ownership that is received through the bottom-up development of the forecasts is frequently highlighted as an important feature of the forecast development. This could be seen as an active balancing between enabling and controlling use of MCS as stated by Mundy (2010), that gives rise to a dynamic tension. The involvement enables the employees to engage in the thinking process, while this enabling feature is counterbalanced by control in terms of acceptance and adjustment directives from top management, to ensure company objective alignment. This combination of controlling and enabling use creates commitment and ownership that is expressed to be of great importance for AlphaCo. These findings regarding ownership also confirm the research made by Knardal and Petterson (2015), where it was highlighted that key actors gained ownership to the budget through a combination of diagnostic and interactive use of the budgeting process.

### 5.1.2 Suppression of interactive use and Dominance of diagnostic use

AlphaCo's balance between controlling and enabling use of the forecasting process could be further explained with the concepts of *suppression* and *dominance* (Mundy, 2010). Even though the combined use of diagnostic and interactive levers of control in the forecasting process enables the company to allow for control and innovation simultaneously, the empirical data reveal tendencies of a diagnostic dominance and thus a suppression of interactive use. As mentioned, there are several elements in AlphaCo's forecasting process that have a diagnostic character, which seem to impact the way in which the interactive lever is used and hence give rise to a dominance of diagnostic use. For example, the interactive element through the involvement by budgetowners in the forecast development starts with targets set by top management, which determine the way in which the budget owners are able to develop the forecast. The dominance of diagnostic use could be explained by a historical tendency of using the forecasting process diagnostically, as the forecast development in AlphaCo was initially solely a finance product performed through a diagnostic top-down approach. Tendencies of suppression of interactive use can likewise be identified, for example

regarding the replacement of bottom-up forecasts to top-down outlooks in Q2 and Q3, and the frequently expressed need for increased alignment and idea sharing across the organizational boundaries. The implications of the above phenomenon for innovation could be interpreted differently according to previous literature and our empirical findings.

On the one hand, the empirical data show how a view is expressed from an employee within R&D, regarding the budget as a hinder for creativity. This could indicate that the dominance of diagnostic use in the forecasting process could possibly have an adverse effect on innovation, which is in line with the reasoning made by Henri (2006) who suggest that diagnostic use of MCSs might result in a constraining effect. On the other hand, in line with the findings made by Bisbey and Otley (2004), the suppression of interactive use may not hinder the company's ability to innovate. AlphaCo is considered a highly innovative firm, in which according to Bisbe and Otley (2004) interactive use of MCS does not enhance product innovation.

Based on the descriptions of interactive use by Abernethy and Brownell (1999) and Simons (1995), our findings indicate that the interactive use of the forecasting process could be distinguished into two directions; vertically (between top-management and employees) as well as horizontally (between the divisions in the company). Our study indicates that the interactive use of the forecasting process that occurs horizontally has a bigger impact on AlphaCo's possibility to innovate than the vertical interactive use. This because of the frequently highlighted need for horizontal alignment and idea sharing between areas and divisions within the company that is expressed from both an R&D and Business control perspective. The suppression that occurs horizontally thereby shows signs of a constraining effect on innovation. The empirical data displays for instance how ideas are not always considered across organizational divisions, which would have improved the ability to innovate. There is not the same expressed need for increased interactive use between top management and employees to enhance innovation, which suggests that vertical suppression is not a concern for innovation in this case.

Simons (2000) cited in Barros and Ferreira (2021) explained how the combined use of diagnostic and interactive levers can be explained through the acceleration and steering wheel of a car, where they view the interactive use of MCS as an accelerator for innovation while the diagnostic use chooses the direction of the car as the function of a steering wheel. In this

study, we find support for this analogy as the interactive use of the forecasting process is expressed to be important for accelerating innovation, especially when considering the interactive use horizontally. However, it seems that AlphaCo is to some extent trying to steer before they accelerate, as there is a dominance of diagnostic use and an expressed need for more interactive use horizontally. This indicates that further interactive use of the forecasting process between organizational divisions, would enable AlphaCo to even further accelerate their innovation.

## **5.2 Dynamic Resource Allocation to Ensure Control and Promote Ambidexterity**

### **5.2.1 Resource Allocation – a Decisive Factor for Ambidexterity**

AlphaCo was one of the first to develop their products and services on the market and introduced their digital service as a new phenomenon, with other words AlphaCo was born out of exploration. However, the empirics show that AlphaCo is today both working with the improvement of existing capabilities and resources as well as the development of new products and processes. In line with March (1991) this implies that AlphaCo is performing both explorative innovation as well as exploitative innovation, which is said to be an advantage for both long-term growth and survival on the market. As O'Reilly & Tushman (2013) stated, this simultaneous use of both innovation modes suggest that AlphaCo is an ambidextrous firm.

The empirical evidence showed implications of how the forecasting process, and more specifically the resource allocation, is central when it comes to the choice between developing something new, through exploration, or improving existing capabilities, through exploitation. This is in line with the findings of March (1991) and O'Reilly and Tushman (2013) who stated that balance of resource allocation between the different innovation modes is essential in an ambidextrous firm. Accordingly, the empirics suggest that since exploration often requires more resources and does not immediately result in short-term financial impact, a limit in resources was often a decisive factor in whether the innovation mode was exploitative or explorative. One example of this was the interviewee who wanted to develop something brand new through exploration but did not receive the resources required and thus had to use the received resources to improve existing capabilities through exploitation instead.

Moreover, the resource allocation was expressed to be crucial for the company's R&D in order to help them prioritize. The empirical data show how diagnostic and interactive resource allocation is used to some extent both to facilitate exploration as well as exploitation. Resource allocation was exercised through interactive control with monthly review meetings and ambassador programs, where the monthly review meetings were explained to be vital for the dynamic allocation of resources AlphaCo were striving for. This made it possible to identify whether they should provide any initiatives with more resources, start new projects or discontinue any initiatives. This supports the findings of McCarthy and Gordon (2011) about the use of interactive control and how it was used to provide projections about the future and adjust their resource allocation, which gave support for exploratory innovation. However, the new resource allocation framework has a greater emphasis on diagnostic use due to the focus on evaluation based on strategy alignment and ensuring that no allocation of resources are bad investments. There is for instance a greater emphasis on short-term results of initiatives through the evaluation of revenue and gross-profit impact in the closer time frame, which is in line with the findings of McCarthy and Gordon (2011) where short-term focus was stimulating for exploitative innovation rather than explorative.

#### 5.2.2 Focus on Diagnostic Use to Ensure Control – in Favor of Exploitation

Anyhow, interactive use does not seem to always favor exploration in AlphaCo as Bedford (2015) and McCarthy and Gordon (2011) suggested. Linking back to the previous section (5.1.2) there seems to be a dominance of diagnostic use in the resource allocation as well, since the diagnostic use seems to dominate and impact whether the interactive use favors exploration or exploitation. An empirical example of this can be observed as the first part of the evaluation of new initiatives has a diagnostic character and tendency to favor projects with higher short-term financial impact, so when the interactive review meetings occur these exploratory initiatives might already have been excluded and thus the interactive use rather promote the exploitative innovation further. This phenomenon could be interpreted as the kind of crowding out effect of one type of innovation examined by Curtis and Sweeney (2017). They found that the high emphasis on diagnostic systems reduced the opposing forces of the interactive systems which resulted in an increased reinforcement of the diagnostic systems and thus in favor of initiatives providing short-term results. However, in contrast from the findings of Curtis and Sweeney (2017) where they concluded that this crowding out effect passed through unnoticed, our study suggests that this is something AlphaCo are aware

of and there is not a total absence of exploratory innovation. The empirics show that they have the intentions to manage this by striving towards a portfolio approach in their innovation initiatives, where they can combine and find a balance between long term and short term projects as well as high risk and low risk projects in a systematic way.

These findings may suggest that AlphaCo is currently in a state where they cannot innovate just for the sake of innovation, but have to establish control over their innovation and make sure that what they innovate will have a positive impact on their company value. In line with March (1991) and O'Reilly and Tushman (2013) this involves finding a balance between exploratory and exploitative innovation, which is impacted by the company's resource allocation. This could be seen as a natural development for AlphaCo, as their innovation has transformed over time from disrupting a traditional market through a unique exploratory innovation, to an innovation that rather further develops their digital service and now should be fully integrated with a traditional physical service. Rather than promoting further disruptive innovation at all costs, they seem to value a thorough evaluation process of initiatives through a diagnostic use of the resource allocation to ensure that it is aligned with their strategic direction and avoids a waste of resources. Our findings hence further adds to the findings of Ravellino and Mouritsen (2009) who stated that there is co-development between innovation and management control systems. They found that it is hard to tell whether diagnostic and interactive use of MCS are most appropriate before the innovation unfolds, and that they should be designed based on the certain challenges that arise in the innovation process and based on the innovation characteristics, rather than the attributes of the specific MCS.

Even though our study does not take the same developmental perspective as Ravellino and Mouritsen (2009), we identify that AlphaCo constantly tries to adapt their use of the forecasting process, in this case the resource allocation part, to the challenges that arise in the innovation process. A challenge that has arisen for AlphaCo in their resource allocation is the need for organizing all of the initiatives in the company to increase transparency so that R&D is not developing something that the market does not demand and ensuring alignment with strategy and company objectives. The new initiative review has hence been put in place as a response to this, to clearly identify the initiatives alignment with the company objectives and financial impact. AlphaCo is also planning on improving alignment between R&D and BA's, through increased communication, which can also be seen as a response to their challenge of increasing transparency and aligning their resource allocation with the market's needs.

Hence, both diagnostic and interactive elements of the resource allocation are put in place in order to help AlphaCo overcome the specific challenges with their innovation process, rather than them being predetermined based on their attributes.

## 6 Conclusions

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*This section summarizes the conclusions and findings of the study and its implications. We also comment on the limitations of our study and provide suggestions for future research.*

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### 6.1 Summarized Contributions

The purpose of this study was to contribute with a more in-depth understanding of the interplay between control and innovation, by responding to the call for further qualitative research that could provide rich empirical findings and extend our knowledge in the complex area of management control and innovation. As some kind of budgeting process is the core of many companies' management control systems (Hansen et al., 2003), we also provide practical implications for companies by studying the use of the forecasting process through a case study. We draw upon the influential Simons' levers of control framework as well as later research within the area of MCSs and innovation to answer our research question: *How does a company's use of the forecasting process impact the interplay between control and innovation?*

The analysis suggests that the combination of diagnostic and interactive use of the forecasting process enables AlphaCo to establish control while still pursuing innovation, which confirms previous findings of Barros and Ferreira (2021). Furthermore, the analysis shows how AlphaCo's forecasting process on the one hand creates divisional autonomy and on the other hand functions as an effective governance model to steer the innovation towards its objectives, which give rise to dynamic tensions in accordance with Curtis and Sweeney (2017) and Barros and Ferreira (2021). Further, the study revealed two important findings which contribute to previous research within management control systems and its impact on innovation.

Firstly, the study contributes to the area of research by suggesting that horizontal interactive use of the forecasting process is an important feature to consider when pursuing innovation. By further contributing to the concepts of suppression and dominance, developed by Mundy (2010), the analysis shows how AlphaCo experiences suppression of interactive use of the forecasting process to some extent. The suppression of horizontal interactive use between organizational levels is experienced as constraining for innovation.

Secondly, it has previously been stated by March (1991) and O'Reilly and Tushman (2013) that finding a balance between exploitation and exploration is important for ambidextrous firms. However, we find that resource allocation is a main decisive factor when pursuing exploitation and exploration simultaneously. Moreover, the dominance of diagnostic use and suppression of interactive use of resource allocation seem to result in a crowding-out effect of long-term exploration in favor of exploitation. Although, as Curtis & Sweeney (2017) suggest that the crowding out effect passed by unnoticed, our study shows that this is an intentional choice of AlphaCo in order to establish control and that they are intending to manage the crowding out effect by taking a portfolio approach.

## 6.2 Limitations

Some limitations need to be acknowledged when considering the findings of this study. A single case study provides contextual in depth understanding of the research question, anyhow the conclusions need to be treated with awareness since the data sample was relatively limited. There is naturally a limited possibility to generalize and draw statistical conclusions based on the sample size of the study. The short timeframe is an additional factor to consider since data collection was executed throughout a period of roughly two months. Lastly, there is generally a risk of subjectivity of the researchers as the primary source of empirical data was gathered through interviews, this was treated with caution as both of us were present at each interview and followed interview guidelines with semi-structured open-ended questions.



### 6.3 Future Research

We recommend that future qualitative research is undertaken to develop a deeper contextual understanding of the relationship between management control systems and innovation. Our study points towards various aspects in which future studies could be conducted. Firstly, as our study is a single case study it would be of interest to study the same phenomena through a multiple case study in order to gain a broader perspective of the findings and enable comparisons between different firms and types of innovations. Secondly, as our study highlights resource allocation as a particularly important aspect of the forecasting process and for innovation ambidexterity, this would be an area of interest for future research as it is an area that has not been widely researched to our knowledge. Lastly, as we found the concepts of suppression and dominance (Mundy, 2010) to impact the interplay between control and innovation, these concepts would be of further interest to study in future case studies of MCS and innovation.

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## 8 Appendix

### Interview Guide

- **Background questions**
  - Role at AlphaCo
  - Main areas of responsibility
  - Organizational structure of division
- **Goals and targets of the division**
  - Who set the goals
  - Who are involved
  - Achievement of goals
  - Commitment to financial goals
- **Evaluation of the forecasting process**
  - Reporting, how often
  - Which measures
  - Managing of deviations
- **Engagement in the forecasting process**
  - Involvement in the forecasting process
  - Benefits/cons of the forecasting process
- **Encouragement through the forecasting process**
  - Generation of new ideas
  - Room for creativity
  - Established support functions
- **Communication in the forecasting process**
  - Communication and cross-functional collaboration between divisions
  - Communication with top management
  - Forums for meetings