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MANAGEMENT CONTROL AND DYNAMIC TENSION IN INNOVATIVE BUSINESS.

Case ABB Oy Marine & Ports.

Master's Thesis
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Abstract

The use of management control in an innovative business context poses both possibilities and hindrances to organizational performance. Furthermore, the contradicting forces emerging from the various management control practices may bring forth different forms of organizational tensions. These tensions, provoked by the use of management control element combinations, have been acquiring growing attention in academic literature yet still remains an area largely unknown. Therefore, further research is to be conducted to extend our understanding of the phenomenon.

This master's thesis aims to explore how management control elements and their combinations provoke tension and dynamic tension in an innovative, private sector organization. The paper explores the internal context of one case company, ABB Oy Marine & Ports, and sheds light on the organization's management control practices by conducting a case study with the means of semi-structured interviews and a multiple-choice survey. The main objective of the thesis is to extend the study of van der Kolk et al. (2020) and provide more understanding of how organizational tensions truly come about and how they can be better characterized with the means the OOC framework provided by Merchant and Van der Stede (2017).

After introducing the topic, the paper proceeds with exploring the relevant theoretical background by conducting a thorough literature review. Then, it continues by explaining how the empirical qualitative study was conducted at the selected case company, after which the case company's internal context is further described from the viewpoint of innovation and management control. Later, the paper further analyzes the identified control elements and their combinations employed at the organization as well as the organizational tensions detected to emerge from the use of control. Finally, at the end of the paper, the study's findings, managerial implications, and prospects for future research are presented as a conclusion to the thesis.

The findings of the study suggest that dynamic tensions emerge most likely in an innovative context when the control elements used in combination represent the same formality of control. Occasionally, they may belong to the same object-of-control category as well. Positive and negative tensions, on the other hand, appear to emerge when the control elements involved represent opposite formalities as well as different categories of control. Also, the study found evidence that the tensions prevailing in organizations may enunciate the tension characteristics proposed by van der Kolk et al. (2020). The thesis contributes to research by providing further understanding of how management control element combinations produce organizational tensions.

Keywords Management control, innovative business, control element, control combination, organizational tension, dynamic tension, innovation, marine engineering, people management.

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Tiivistelmä

Johdon ohjauksen käyttö innovatiivisessa liiketoimintaympäristössä asettaa sekä mahdollisuuksia että esteitä organisaation suorituskyvyn ohjaamiselle. Lisäksi erilaisista johdon ohjauskäytännöistä nousevat ristiriitaiset voimat voivat nostaa esiin erilaisia organisatorisia jännitteitä. Nämä johtamisen ohjauselementtien yhdistelmien käytöstä syntyvät jännitteet ovat viime vuosina saaneet kasvavaa huomiota tieteellisessä kirjallisuudessa, mutta ovat silti suurelta osin edelleen tuntematon aihealue. Tämän vuoksi tarvitsemme lisää tutkimusta laajentamaan ymmärrystämme ilmiöstä.

Tämän pro gradu -tutkielman tavoitteena on tutkia kuinka johdon ohjauselementit ja niiden yhdistelmät synnyttävät jänniteitä ja dynaamisia jännitteitä innovatiivisessa, yksityisen sektorin organisaatiossa. Tutkielmassa tarkastellaan yhden case-yrityksen, ABB Oy Marine & Portsin, sisäistä kontekstia, ja tutkitaan organisaation johdon ohjauskäytäntöjä suorittamalla tapaustutkimus puolistrukturoitujen haastatteluiden ja monivalintakyselyn avulla. Opinnäytetyön päätavoitteena on laajentaa van der Kolk ym. (2020) tutkimusta ja lisätä ymmärrystä siitä kuinka organisatoriset jännitteet todella syntyvät ja kuinka niitä voidaan luonnehtia Merchant ja Van der Steden (2017) luoman OOC-viitekehyksen avulla.

Aiheen esittelyn jälkeen tutkielma jatkaa siihen liittyvän teoreettisen taustan esittelemisellä syvällisen kirjallisuuskatsauksen avulla. Tämän jälkeen tutkielmassa esitellään, kuinka empiirinen kvalitatiivinen tutkimus toteutettiin valitussa case-yrityksessä, minkä jälkeen yrityksen sisäinen konteksti kuvaillaan tarkasti innovaation ja johdon ohjauksen näkökulmasta. Myöhemmin tutkielma analysoi tarkemmin yrityksessä havaittuja ohjauselementtejä, niiden yhdistelmiä, sekä ohjaustoimien käytöstä nousevia organisatorisia jännitteitä. Lopussa esitellään tutkimuksen tärkeimmät havainnot, niiden merkitys yritysjohdolle sekä jatkotutkimusmahdollisuudet.

Tutkimuksen tulokset viittaavat siihen, että dynaamiset jännitteet ilmenevät todennäköisimmin innovatiivisessa kontekstissa, kun yhdistelmänä käytetyt ohjauselementit edustavat samaa muodollisuuden tasoa. Toisinaan ne voivat myös kuulua samaan OOC-viitekehyksen kategoriaan. ’Positiivisiksi’ ja ’negatiivisiksi’ tunnistetut jännitteet taas näyttävät syntyvän, kun niihin liittyvät ohjauselementit edustavat vastakkaista muodollisuutta ja eri kontrollikategorioita. Lisäksi tutkimus löysi viitteitä siitä, että organisaatioissa vallitsevia jännitteitä voidaan tarkemmin luonnehtia käyttäen van der Kolk ym. (2020) ehdottamaa kuutta eri ominaispiirrettä. Tämä pro gradu -tutkielma edistää organisatoristen jännitteiden tutkimusta antamalla lisätietoa siitä, miten johdon ohjauselementtien yhdistelmät synnyttävät jännitteitä organisaatioissa.

Avainsanat Johdon ohjaus, innovatiivinen liiketoiminta, kontrolli, ohjauselementti, ohjauselementtikombinaatio, organisatorinen jännite, dynaaminen jännite, innovaatio, meriteollisuus, henkilöstöjohtaminen

Table of Contents

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List of tables

1. Introduction

1.1. Background to the study

Innovation as an organizational objective proposes challenges for managerial control. In an innovative context, employees are usually expected to be creative, flexible, and self-directed. Still, even in these types of contexts, people need to be managed and controlled to perform in the best interest of the organization. Therefore, management control not only intends to control but also enable employees to perform at their best and in ways desired by the organization (Merchant & Van der Stede, 2017). Still, managerial control has traditionally been argued to obstruct the prospects of creativity and innovation (Haustein, Luther & Schuster, 2014).

What is more, managerial control contributes, both intentionally and unintentionally, to the emergence of various types of *organizational tensions*. Such tensions originate from the fact that management control practices comprise several combinations of management control elements, which are not always necessarily aligned with each other. However, the literature suggests that these organizational tensions do not inevitably pose adverse effects on organizational performance, but in fact, may even contribute to the accomplishment of competitive advantage and profitable growth (Henri, 2006; Simons, 1994).

Overall, organizational tension originating from the use of management control is a phenomenon that has long inspired management control literature (e.g., Henri, 2006; Mundy, 2010; Kondo & Nishii, 2016), and within the last decade, the topic has increasingly appeared as an area of interest in academic research (van der Kolk et al., 2020). Progressively, literature has also directed more attention to studying tensions arising from the use of management control element combinations (e.g., van der Kolk et al., 2020; Barros & Ferreira, 2021), as opposed to earlier research, which tended to give focus on individual aspects of control, neglecting the interdependency between different control elements operating simultaneously within an organization (Ferreira & Otley, 2009).

This paper aims to explore and explain how management control systems contribute, both intentionally and unintentionally, to the creation of tension and dynamic tensions in innovative organizations. The objective is to extend the research of van der Kolk, van Veen-Dirks, and ter Bogt (2020) and provide more understanding to their findings on how *combinations* of management control elements provoke

tensions in organizations, leading to enhancing or diminishing control effectiveness. Moreover, as earlier research has concentrated on examining public sector organizations when exploring tensions, the thesis introduces an embedded case study to give insight into the linkage of managerial control and tensions in an innovative private sector company.

1.2. Motivation

The motivation behind the study is established on the remark that there remain several areas of interest for further research in the field. For example, the relationship between management control systems and tensions has been studied empirically in the public sector (e.g., Friis et al., 2015; van der Kolk, 2019; van der Kolk & van Veen-Dirks, 2019; van der Kolk et al., 2020), while less attention has been aimed at studying privately-held innovative companies (e.g., Curtis & Sweeney, 2017; Barros & Ferreira, 2021). What is more, prior academic literature has called for conducting more qualitative empirical studies to examine tensions in greater detail and closer to practice (Lövstål & Jontoft, 2017). Possible approaches have been suggested to be, for example, exploring how organizational tensions truly come about (van der Kolk et al., 2020) and how tensions arising at the intersection of management control and innovation are perceived by organizational members (Lövstål & Jontoft, 2017). Overall, there still remains plenty of room for advancing our understanding of organizational tensions (Barros & Ferreira, 2021). It also seems that there will always be space for conducting more research taking a holistic approach when exploring management control systems as a whole (e.g., Malmi and Brown, 2008; Barros & Ferreira, 2019).

Furthermore, prior academic literature has still not provided a sufficient understanding of tensions emerging at the intersection of management control and innovation (Lövstål & Jontoft, 2017; Barros & Ferreira, 2021). While the interdependence of control and innovation has fascinated scholars for decades (Fagerlin & Lövstål, 2020), the number of publications on the subject can still be considered limited (Lövstål & Jontoft, 2017). For instance, Lövstål and Jontoft (2017) note how the literature examining the relationship is still somewhat vague and fragmented and has not provided enough definition to what the competing demands are and how the tensions emerging at the intersection can be managed. Moreover, Barros and Ferreira (2019) have requested future empirical studies to take a 'holistic' approach and consider the use of control combinations in the context of innovation instead of examining

different control mechanisms separately from one another. All in all, control combinations are still rather unexplored of a subject (van der Kolk et al., 2020).

The study concentrates on examining an innovative business for a few reasons. Firstly, the context was selected because the interrelation of management control and innovation has fascinated and inspired academics for decades, and there still remains room for further research regarding how tensions arise in the intersection of the two (Lövstål & Jontoft, 2017). Secondly, the thesis writer has long been fascinated by both Accounting and Human Resource Management, and innovation provides a very compelling context for studying the two. Thirdly and perhaps most importantly, the case organization ABB Oy Marine & Ports, which may be characterized as an innovative business, was simply the most accessible company for conducting a case study as the thesis writer had previously been employed there. Due to these reasons, innovative business was selected as the subject and context of the thesis.

1.3. Research objectives

The thesis aims to respond to the needs mentioned above and expand understanding of management control and tensions by conducting an empirical study in an innovative private sector company, ABB Oy Marine & Ports. Firstly, the paper seeks to shed light on how managerial control may generate tensions in the daily operations of a privately held innovative business. Secondly, the thesis intends to provide more insight into how the simultaneous use of individual control element combinations contributes to the emergence of dynamic tensions in the case company. Thirdly, once the prevalent dynamic tensions are detected in the organization, the paper seeks to expand the understanding of van der Kolk et al.'s (2020) recently introduced notions of tension balance, balance tendency, and intensity.

The thesis seeks to broaden the understanding of how combinations of management control elements produce tensions in the context of innovative business by responding to the following research question:

> "*How do management control element combinations provoke tensions and dynamic tensions in innovative business?*"

The research question is examined by studying the context of the selected organization by conducting

semi-structured interviews and a multiple-choice survey among people representing different company levels. Through these study methods, the paper intends to detect tensions arising from the use of different managerial controls at the case company and further study them by using the defining notions provided by van der Kolk et al. (2020). Overall, in addition to expanding understanding on the notions of tensions balance, balance tendency, and intensity, the paper also intends to characterize the prevalent organizational tensions in regard to tension complementarity, complexity, and dynamics (van der Kolk et al., 2020).

By responding to the research question, the study will expand the existing theoretical and empirical knowledge on dynamic tensions at the intersection of management control and innovation. The question will be delved into by adopting a framework proposed by Merchant and Van der Stede (2017) as an analytical tool for exploring control. The framework, *object-of-control*, provides a useful lens to analytical research as it examines the vast field of managerial control comprehensively yet comprehensibly. The framework will be discussed in more detail in the literature review.

1.4. Schedule and completion

The thesis writing process began during the covid-19 pandemic in April 2021. Similar to 2020, the year 2021, too, was largely defined by the pandemic, which also influenced the thesis completion and schedule. The prevailing circumstances had to be considered when organizing the interviews and multiple-choice survey, and consequently, all interaction with the company representatives was conducted remotely.

At the core of the study's data are nine semi-structured interviews, which were scheduled and conducted between mid-September and early December 2021. In addition, the study comprises responses to a multiple-choice survey collected during a period of three weeks between September and October 2021. In early January 2022, the thesis draft was provided to ABB Oy Marine & Ports personnel for a final revision, after which the study was finalized and submitted.

1.5. Scope and limitations

The still-ongoing covid-19 pandemic has radically changed the way of daily business in all industries, and this has had to be considered when defining the scope of the thesis. When it comes to management control, the crisis has increased the frequency of remote working, which has required organizations to make alterations to their management control processes. In ABB Oy Marine & Ports as well, as will be discussed later, remote work is still the favored form of labor, although the vaccination rate against the disease recently reached 80 percent in Finland (Ministry of Social Affairs and Health, 2021). What is more, the interviews showed that the pandemic has somewhat permanently shifted the work culture at the examined organization. The study intends to acknowledge the prevalence of the shift without aiming excessive attention at it; the organization's management control practices are mainly discussed from the viewpoint of before and after the pandemic rather than midst it.

A few assumptions have also been applied to the study. Firstly, one of the assumptions, which is based on the notions of recent research, holds that regardless of how individual control elements are used in organizations, they are largely interrelated and interdependent and, therefore, have to be examined together in a holistic manner. Also, this thesis mainly utilizes the term 'control element' when referring to an individual unit of control, which has also been called a 'control mechanism' in earlier literature. Lastly, when examining organizational tension, the thesis leans on the main assumption that tension is something that emerges from the use of management control element combinations and manifests itself in the organizational actors' perceptions and experiences. Later, in the literature review, we will have a closer look at these assumptions and the origins and argumentations behind them.

What comes to limitations, the study will have limited generalizability to other companies and industries as it only examines a single organization and its prevailing context. However, the study represents the examined organization well since it encompasses nearly ten in-depth interviews and a multiple-choice survey from various operational levels of the company. This, in turn, increases the generalizability of the findings to other companies, especially to privately-held innovative businesses.

1.6. Thesis structure

The thesis has begun with an introductory section briefly discussing the background to the study. After,

the following parts described the motivation behind the study, introduced the research objectives, stated the matters regarding the study's schedule and completion, as well as discussed the scope and limitations. Here, we finally have a look at the structure of the thesis before moving on.

After the introduction, the paper will take a broader look into the academic literature through a thorough literature review. In this section, management control, organizational tension, and innovation are discussed more comprehensively, diving deeper into all subjects as well as their interrelationships with one another. The section seeks to explore and explain management control practices and control combinations and their contribution to producing tensions in the context of innovative business.

The third section, then, will describe the methodology regarding the embedded empirical study. Here, the applied study methods and progression of data collection are discussed in more detail. This part will also address the validity and reliability of the conducted research.

In the fourth chapter, the paper will present the embedded empirical case study conducted at ABB Oy Marine & Ports. In this part, the organization's internal context will be introduced in detail. The discussion will include a description of the organization's background, its offering, and the industry it operates in. After a detailed introduction, the chapter then discusses the organization's management control practices more profoundly, setting a foundation for understanding any tensions that are detected to prevail among the control element combinations employed at the case company.

After, the fifth part of the thesis will proceed with discussion, which seeks to provide further analysis to the empirical study and make linkages between the explored literature and the study's findings. This chapter also specifies its contribution to research in the field. In the sixth and last section, the thesis will end in a conclusion restating the objectives and main findings of the study to give managerial implications as well as recommendations for future research. Finally, the references and appendices are provided at the very end of the paper.

2. Literature review

2.1. Glossary

2.1.1. Management control

Management control systems (MCSs) may be defined as all routines and procedures that are used to direct organizational efforts, aid strategic decision-making, and facilitate the accomplishment of business goals. MCSs aim to convey *useful* information across the organization and managers utilize them to create and maintain desirable activity patterns as well as demolish or alternate undesired regimes. (Otley, 1999; Simons, 1994; Merchant & Van der Stede, 2017). Management control systems are, then, further comprised of individual *control elements*, which include all the activities used to encourage, enable, or force employees to act in an organization's best interest (Ferreira & Otley, 2009; Merchant & Van der Stede, 2017).

Drawing from the definitions above, the fundamental objective of the *management control* function is, then, to influence employees' behavior in desirable ways. If MCSs are designed and maintained appropriately, an organization is more likely to accomplish its strategic and operational goals. (Merchant & Van der Stede, 2017). Therefore, it is evident that organizations should invest in perfecting their management control practices.

The notion of management control systems originally stems from Robert Anthony's (1965) work. In his view, management control incorporates the processes that ensure that an organization obtains and uses resources effectively and efficiently when striving for the accomplishment of its objectives. Anthony's interpretation was that the purpose of control systems is to minimize the number of deviations, and if deviations were to occur, the systems would be used to rapidly steer the organization back on its intended strategic path. (Anthony, 1965, as cited by Davila, Foster & Oyon., 2009). Since then, the definition of MCSs and management control has been extended and refined by numerous researchers, as this primary approach was viewed to examine the notion of control too narrowly and neglect the importance of observing the context of managerial control in all of its breadth (Ferreira & Otley, 2009). Indeed, today's literature unanimously declares that when exploring control, one should not only ob-

serve accounting controls like the traditional approach but instead consider the whole system in which they operate in all of its breadth (e.g., Tuomela, 2005; Malmi & Brown, 2008; Ferreira & Otley, 2009).

However, this primary perspective of MCSs is by no means the only one that literature uses when examining control. As Bedford (2020) illustrates, literature around management control combinations is divided into two distinct perspectives: *management control systems* and *management control packages*. However, these two perspectives are largely interrelated as they are both established on the conception of control interdependence. (Bedford. 2020). In the thesis, we draw from his notion and assume that when academics refer to one of the two perspectives, they ultimately imply the same concept. One of the thesis' main assumptions is, therefore, that regardless of how management control elements are used, they are, in essence, interrelated and largely interdependent.

In the next subchapters, we will dive into some of the most prevalent extensions to the original MCSs view.

2.1.1.1 Levers of Control -framework

One of the earliest and most widely approved distinctions between different MCSs is Simons' (1994) framework of four levers of control, which has been discussed extensively in academic literature ever since its publication (e.g., Bisbe & Otley, 2004; Tuomela, 2005; Henri, 2006; Widener, 2007; Ferreira & Otley, 2009; Mundy, 2010; Bedford, 2015; Curtis & Sweeney, 2017; Barros & Ferreira, 2021). The levers of control (LOC) framework responded to the need for a tool to effectively implement and control business strategies (Ferreira & Otley, 2009) and gives extensive focus on managing the tension arising from the two contradictory needs of goal achievement and creative innovation (Bisbe & Otley, 2004; Simons, 1994).

According to Simons' (1994) view, MCSs comprise four dimensions, or levers, all of which have different features and serve different purposes. These four dimensions are *diagnostic control systems, beliefs systems, boundary systems, and interactive control systems,* and all of them seek to facilitate balancing *control* and *creativity* in organizational settings. In short, diagnostic control systems aim to monitor and measure employee performance in relation to the set goals, while beliefs systems' communicate core values across the organization. Boundary systems are to set restrictions and minimum

standards to the employees, and lastly, interactive control systems intent to convey learnings across hierarchical levels (Simons, 1994; Simons, 1995).

As mentioned above, the LOC framework gained a substantial amount of popularity in academic literature. The strengths of the framework are established upon the fact that it provides an advanced analytical tool for research; it examines a broader range of controls and *how* they are used, instead of focusing on their mere design, technologies, and structure (Ferreira, 2002; Mundy, 2010). The framework takes into consideration the interplay of control combinations in managing tensions in organizations (Bedford, 2015; Chenhall & Moers, 2015), and also facilitates explaining how control systems can be employed so that organizations may exert control while simultaneously encouraging innovation and learning (Simons, 1995; Mundy, 2010). In addition, the framework was developed 'in the field', which enhances its applicability to organizations' daily operations (Ferreira, 2002).

While Simons' framework has been used extensively in academic studies, it has also received some criticism. While the framework presents a usefully comprehensive perspective to management control, the dimensions have been argued to be largely overlapping, and their division has been considered not to be clear-cut; at times, one control mechanism may be part of not one, but several levers of control (Fagerlin & Lövstål, 2020; Ferreira & Otley, 2009; Ferreira, 2002). To explain, tools that are traditionally used in a diagnostic manner (e.g., budgets), may, in fact, be used both diagnostically but also interactively in daily business operations (Ferreira, 2002; Tuomela, 2005). As a result, the framework leaves excessive room for subjective interpretation (Ferreira, 2002).

Further criticism on the LOC framework has acknowledged that it does not adequately describe the control system as a *whole* but insufficiently emphasizes the broad range of existing informal controls (Ferreira & Otley, 2009), which limits its applicability to every organization, especially those of smaller size and less formal structures (Ferreira, 2002). Furthermore, the framework has been viewed to overlook the relevance of organization structure, when its importance in control design and use has been widely acknowledged in literature (Ferreira, 2002; Sandelin, 2008). Lastly, the framework does not sufficiently discuss whether interactive control in itself makes organizations more innovative, or whether it merely enhances the performance of formerly applied innovative processes (Bisbe & Otley, 2004). Still, despite its limitations, the framework seems to have provided a more fitting tool for research than many others (Ferreira & Otley, 2009).

2.1.1.2. Alternative approaches

As a response to Simons' (1994) framework's limitations, many studies have intended to find better, more definite notions to management control. For instance, some authors focus on examining controls within the dualistic concepts of *informal* and *formal control* (e.g., Tuominen, 2005; Fagerlin & Lövstål, 2020), or *mechanistic* and *organic control* (e.g., Chenhall, 2003; Ylinen & Gullkvist, 2014) depending on *how* they are used. Controls can also be classified as *proactive* and *reactive* based on *when* they are used; whether they seek to prevent problems or react to them arising (Merchant & Van der Stede, 2017).

Researchers have also attempted to offer more developed frameworks and tools to help streamline research in the field and better categorize management control mechanisms. Examples of such frameworks are Otley's (1999) *performance management framework*, Malmi and Brown's (2008) *MCS package*, Ferreira and Otley's (2009) *performance management systems framework*, and Merchant and Van der Stede's (2017) *object-of-control framework*. Some of the approaches have been adopted in further research; Otley's (1999) framework has been used by Ferreira (2002) and Tuomela (2005), for example, and Merchant and Van der Stede's approach was applied in the works of Haustein et al. (2014), Fagerlin and Lövstål (2020) and van der Kolk et al. (2020).

Despite the extensive work in theory refinement, classifying different controls distinctively still remains challenging (Fagerlin & Lövstål, 2020), and no 'ideal model' to management control has been discovered (Ferreira & Otley, 2009). In addition, while the research in the field has streamlined and grown abundantly, much of the language around MCSs remains imprecise; even the term 'control' – as it applies to the management function – has yet to obtain a universally accepted definition (Merchant & Van der Stede, 2017).

In the past, as briefly discussed earlier, research around management control often had its attention on formal control alone (Sandelin, 2008) and tended to give focus on individual aspects of control systems, neglecting the importance of informal control elements as well as the interdependency between different control mechanisms that operate simultaneously within an organization (Ferreira & Otley, 2009). As a result, the findings were often unclear and the results conflicting between different studies (Sandelin, 2008; Ferreira, 2009). More recent research, however, has recognized the need for a more comprehensive approach that would study a wider array of controls in their wider MCS context (e.g., Otley, 1999; Widener, 2007; Sandelin, 2008). Malmi and Brown (2008), for example, have emphasized the

importance of observing and examining different MCSs as a 'package' instead of concentrating on one mechanism at a time. Indeed, management control elements are most often used in combination with interrelations and linkages to one another (Friis et al., 2015; Sandelin, 2008), and they never operate in isolation (Malmi & Brown, 2008; Merchant & Van der Stede, 2017). Moreover, their simultaneous use can produce control outcomes that differ from the sum of control outcomes that the individual control elements would have (van der Kolk et al., 2020). Therefore, literature has encouraged taking a *holistic* approach and examining a broader array of management controls within the wider context they operate in (Fagerlin & Lövstål, 2020; Ferreira & Otley 2009).

In the thesis, we'll draw from the work of Merchant and Van der Stede (2017) and Fagerlin & Lövstål (2020) when classifying and examining control. As discussed above, different control mechanisms need to be examined holistically as a package as they are all interwoven and interconnected. In addition, earlier research suggests that it is more important to consider *how* controls are employed at an organization rather than *what* controls are being used (Ferreira, 2002). The framework of object-of-control proposed by Merchant and Van der Stede (2017) provides a useful analytical tool to do this, as it not only considers the array of controls comprehensively but aids in examining how management control has been employed in an organization. The view of Fagerlin and Lövstål (2020) is further added to observation in the thesis to increase understanding of the large variety of management controls. The framework and approach are discussed more comprehensively in the following chapter.

2.1.1.3. Object-of-control framework

The object-of-control (OOC) framework by Merchant and Van der Stede was published in 2007 to respond to the need for theory refinement in control research. The new approach aimed to better categorize between different management control mechanisms and to give more emphasis on employee behavior. The framework establishes that the main purpose of management control is to influence employee behavior to prevent deviations from organizational objectives. Furthermore, it addresses the questions of whether employees 1) understand the expectations directed at them, 2) strive for organizational objectives while conforming with the strategy, and 3) have the capabilities to achieve the desired results. Similarly, the need for managerial control derives from three main challenges: lack of direction, motivational problems, and personal limitations. (Merchant & Van der Stede, 2017).

The authors argue for the behavioral emphasis due to multiple reasons. Firstly, and most importantly, they remark that it is the *people* who make things happen in organizations. Secondly, they note how the people may, either intentionally or unintentionally, perform counter-effectively in relation to set goals by working against or around the established systems. Thirdly and lastly, people are not always reliable, whether it stems from their inability or unwillingness to act in the organization's best interest. Therefore, managers must use management control to encourage desirable behavior and guard against undesirable actions. (Merchant & Van der Stede, 2017).

The approach sets that there exist four types of controls: results controls, action controls, personnel controls, and cultural controls. The following paragraphs briefly review and explain each of the categories:

Results controls

Here, *results controls* represent managerial control that seeks to stimulate good results by influencing employee behavior prior to the actions they take. Therefore, the focus here is on influencing the *outcome* of employees' behavior by informing them of the potential effects and consequences of their actions. (Merchant & Van der Stede, 2017). Examples of these types of controls are both monetary and non-monetary rewards and sanctions, such as incentive pay and bonuses, as well as social recognition (Merchant & Van der Stede, 2017; Fagerlin & Lövstål, 2020). These types of controls, therefore, alleviate any lack of direction and motivational problems. (Merchant & Van der Stede, 2017; Strauss & Zecher, 2013).

Action controls

Action controls, then, are aimed at the actual employee behavior taking place in the organization. Therefore, here, the focus of control is the actions themselves. They intend to influence behavior through prescribing and monitoring desired actions through rules, pre-action reviews, behavioral constraints, action accountability, and even redundancy. Here, organizational rules address any lack of direction, while behavioral constraints deal with motivational problems. Pre-action reviews and action accountability, on the other hand, may address all three problems of lack of direction, motivational

problems, and personal limitations. (Merchant & Van der Stede, 2017; Fagerlin & Lövstål, 2020; Strauss & Zecher, 2013).

Personnel controls

Thirdly, *personnel controls* include the activities building the employees' 'natural tendencies' to perform satisfactorily on their own and control and motivate themselves without supervision. These controls encompass both more indirect influencing practices such as recruitment policies and selection processes as well as direct activities like coaching and training programs. The provision of resources, such as time, information, and support, may also be considered as a form of personnel control. (Merchant & Van der Stede, 2017; Fagerlin & Lövstål, 2020).

Cultural controls

Lastly, *cultural controls* comprise the norms, values, and beliefs shared collectively within an organization. These types of controls are designed to encourage the collective, mutual monitoring of employees by creating a form of group pressure. It results in employees influencing each other's behaviors, as the group pressure is directed on individuals who deviate from the norms and values that have been established within the group. Therefore, cultural controls are the most effective when a group has strong emotional ties or mutual dependency. Examples of cultural controls include codes of conduct, symbols and rituals, socialization processes, and both explicit and implicit organizational values and norms. (Merchant & Van der Stede, 2017; Fagerlin & Lövstål, 2020; Strauss & Zecher, 2013).

2.1.1.3.1 The OOC framework in earlier research

As mentioned earlier, the OOC framework has gained popularity in recent years (e.g., Sandelin, 2008; Haustein et al., 2014; Fagerlin & Lövstål, 2020; van der Kolk et al., 2020). This is because it responds to the need of taking a holistic approach when examining management control in organizations (Fagerlin & Lövstål, 2020), which was not, as mentioned earlier, sufficiently provided by Simons' (1994) LOC framework (Ferreira & Otley, 2009). Overall, the object-of-control framework has been proposed

to possess some considerable advantages in contrast to earlier frameworks. The authors themselves describe the framework as follows:

> "*It has clean, clearly distinguishable categories. It is also relatively all-inclusive in the sense that the reader can relate many management controls and other control classifications and theories to it. It is also intuitive, that is, students can easily see that managers must make choices from among these categories of management control.*" (Merchant & Van der Stede, 2017).

However, like all frameworks, the object-of-control approach, too, is not without limitations. For instance, Sandelin (2008), while remarking the framework's ability of capturing and explaining the richness of management control practices, also noted that the approach lacks specificity when describing the implications of control element *combinations*. Furthermore, in my own view, what needs to be considered is that the objects of control are still somewhat overlapping – just like the control levers in the LOC framework. However, not much further criticism seems to have been targeted on the OOC approach, and despite its shortcomings, it still has been seen as an adequate instrument for analysis (Sandelin, 2008). In addition, in my view, when comparing the framework to other MCS approaches, the OOC framework is comprehensive enough to capture the variety of management control while still being far more understandable and straightforward than most MCS frameworks. Therefore, this thesis will employ the approach when exploring management control in the context of the case company.

To provide an effective tool for differentiating between different types of controls, the thesis draws from Fagerlin and Lövstål's (2020) view on control. The control mechanisms will be studied by applying Merchant and Van der Stede's (2017) object-of-control framework as the main tool of analysis, and thereon, notions of formal and informal control will be included to further differentiate between controls. As Fagerlin and Lövstål note, the approach facilitates examining a wide array of controls while focusing on a confined set of four control objects. Similar to Fagerlin and Lövstål, the notions of formal and informal control are defined through the work of Richtnér and Åhlström's (2010). In their definition, formal control is regular, predictable, and often incorporates explicit communication and information transfer through formalized rules, guidelines, policies, procedures, and regulations. Informal control, then, is more implicit as it is unwritten is codified in social interaction and not explicitly planned activities. (Richtnér & Åhlström, 2010).

A similar framework was adopted earlier by Haustein et al. (2014), yet Fagerlin and Lövstål's (2020) approach resonated the most with me personally as well as with the thesis' objectives; the aim was to

adopt a holistic approach for research, yet the time available for conducting a study was fairly limited. The approach could also be considered much more comprehensive and understandable than other frameworks available. Table 1 below presents how the OOC framework can be examined when applying the lens of formal and informal control.

Control form	Examples of formal control mechanisms	Examples of informal control mechanisms
Results control	Budgeting (Haustein et al., 2014)	Social recognition (Fagerlin & Lövstål, 2020)
	Reward structures and incentive systems (Haustein et al., 2014); bonuses (Merchant & Van der Stede, 2017)	Self-monitoring; self-rewards and self-sanctions (Tucker, 2019)
Action control	Operating manuals; physical or administrative restrictions (Haustein et al. (2014)	Unwritten policies (Fagerlin & Lövstål, 2020)
	Behavioral constraints; preaction reviews (Merchant & Van der Stede, 2017)	
Personnel Control	Training programmes; selection and recruitment policies; job design (Merchant & Van der Stede, 2017; Haustein et al., 2014)	Informal selection processes; knowledge-sharing (Fagerlin & Lövstål, 2020)
Cultural control	Codes of conduct; mission statements; group rewards; physical and social arrangements (Merchant & Van der Stede, 2017; Haustein et al., 2014)	Organizational values, symbols, and rituals (Malmi & Brown, 2008); collective norms, beliefs, ideologies, attitudes, and behavioral manners (Merchant & Van der Stede, 2017)
	Formalized, official rules (Malmi & Brown, 2008); organizational traditions (Merchant & Van der Stede, 2017); Vision statement (Akroyd et al. 2019)	Socialization processes (Fagerlin & Lövstål, 2020)

Table 1. The OOC framework combined with formal and informal control (adapted from Fagerlin & Lövstål, 2020)

Now that we have gained a general understanding of management control, we may to examine how organizational tensions are related to the subject. Therefore, the next chapter will dive into the notions of tension and dynamic tension more profoundly. The discussion first explores earlier literature around the concepts, and subsequently, forms an understanding of the terminology. Then, the chapter presents how organizational tensions emerge and how their origin is linked with management control. Here, we will

also dive into the attitudes towards organizational tension as well as the research on their implications on organizational performance. The chapter concludes in why tension and dynamic tension are important areas to study further while providing a more congruent understanding of the subject.

2.1.2. Tension and dynamic tension

The notion of organizational tension has been explored extensively in management control literature, and research in the field has grown significantly in the last fifteen years (van der Kolk et al. 2020; see also English, 2001; Henri, 2006; Mundy, 2010; Kondo & Nishii, 2016; Lövstål & Jontoft, 2017). The research has included various approaches and theoretical frameworks when diving into the notion of tensions. However, despite the growing number of studies, there is still a lack of understanding of what the phenomenon really constitutes. Instead, the literature around tensions often uses tension-related terms (e.g., tension, paradox, trade-off, balance, etc.) interchangeably, without defining the applied concepts with enough sufficiency and clarity. (Lövstål & Jontoft, 2017; van der Kolk et al., 2020; Kondo & Nishii, 2016).

Subsequently, the term 'tension' has been labeled and interpreted in various ways (Lövstål & Jontoft, 2017). For example, Simons (1994) and Henri (2006) speak of inherent organizational tensions, by which they refer to a tension stemming from two important organizational objectives – predictable goal achievement and creative innovation – being in an inherently competing relationship with one another. Smith and Lewis (2011), in turn, discuss paradoxical tensions. These paradoxical tensions possess two competing demands that may seem logical when observed individually but, when brought together, appear inconsistent or even absurd. English (2001), on the contrary, interprets that tensions may incorporate a competing relationship, but alternatively, also a complementing relationship between two management control elements. Still, generally speaking, the literature around tensions has the characteristic of speaking of competing demands and expressing them in opposing terms, such as exploitation and exploration, efficiency and flexibility, and enabling and controlling (Lövstål & Jontoft, 2017; see also Henri, 2006; Mundy, 2010; Kondo & Nishii, 2016). However, while being contradictory, these demands are still largely interrelated (Lewis, 2000).

The concept of *dynamic tension*, too, has acquired a growing body of research (e.g., Henri, 2006; Mundy, 2010; Curtis & Sweeney, 2017; Lövstål & Jontoft 2017; van der Kolk et al. 2020). The concept is

rather new, and its first, brief appearances in literature seem to be from Connor and Lake (1988) and Simons (1994). However, it seems that the first predetermined application and thorough analysis of the term are from the highly cited work of Henri (2006). Still, the phenomenon was possibly discussed for the first time as early as 1986 by Cameron (1986), who spoke of *creative tensions* arising when paradoxical attributes are present in an organization and their beneficial effects on organizational effectiveness.

All in all, despite the progress made in research, both tension and dynamic tension still remain areas largely unexplored (Barros & Ferreira, 2021). Still, academic literature has been determined to extend our understanding of organizational tension, and the number of publications has been steadily increasing over the past decade (van der Kolk et al., 2020). In the following subchapters, we will explore the existing knowledge of the two phenomena: why organizational tensions may emerge, what implications they potentially have on organizational performance, what findings earlier empirical research has demonstrated concerning tensions, and why the phenomena are worth studying. In addition, we will take a look at the newest concepts developed in the field.

2.1.2.1. Why and how do tensions emerge?

Lövstål and Jontoft's (2017) literature review shows that there is a varying understanding of what exactly brings tensions about. On the one hand, as mentioned earlier, some authors consider tensions something that arises inherently in organizations as a byproduct of the two countervailing forces of control and innovation (e.g., Simons, 1994; Henri, 2006). On the other, some articles argue for a management control tension, which arises from the use of opposing management control elements, such as formal and informal controls, for example. Unlike inherent organizational tension that emerges by itself, literature mostly considers management control tension something that is purposefully created as a means of responding to another type of organizational tension. In addition, a third, less common approach in research regards the concept of tension sees that tension is something that is embedded in the organizations' social constructions and is, therefore, *experienced* by organizational actors (e.g., Smith & Lewis, 2011). (Lövstål & Jontoft, 2017).

Most often, the emergence of tensions is unintended. This can occur, for instance, when different managerial layers simultaneously impose management control in an organization and are unaware of the

actions of the other (van der Kolk et al., 2020). Also, especially in innovative settings, management control possesses a dual role of both a *controller* and *enabler*, which may, in itself, lead to the emergence of tension due to conflicting organizational needs and demands (Mundy, 2010). However, such occurrences have happened in non-innovative contexts, too, as the study of van der Kolk et al. (2020) demonstrates; in their study, the maintenance employees of a Dutch municipality experienced a rise of tension when the organizational culture, having formerly emphasized self-management and autonomy, shifted towards compulsory registration of tasks and mutual monitoring.

According to literature, dynamic tensions, on the other hand, may be produced intentionally as a means of managing organizational conflict. For example, Simons' (1994) LOC framework suggests that the conflict (i.e., tension) emerging from the need to both control and enable employees at work may be resolved by using the management control systems both diagnostically and interactively at the same time. He briefly remarked these countervailing forces of 'yin and yang' to produce a dynamic tension – a phenomenon allegedly necessary for profitable growth. (Simons 1994). Later, Henri (2006) conformed with Simons' observations and extended the notion of dynamic tension. He proposed that when management control systems are used in both diagnostic and interactive fashion to manage conflict or inherent organizational tension, a dynamic tension is created. In this dynamic tension, there is both competition and complementarity between two management control elements. (Henri, 2006; see also van der Kolk et al., 2020). Mundy (2010) further conformed with the earlier studies and emphasized how dynamic tension may be produced by *balancing* the controlling and enabling uses of management control systems.

2.1.2.2. The effects of tensions and dynamic tensions

While the implications of tensions have been discussed extensively in the literature, researchers have not yet reached a uniform consensus on whether tensions pose positive or negative effects on organizational performance. When it comes to the positive effects, earlier literature has referred to both tension and dynamic tension as 'beneficial' (DeDreu, 1991), 'necessary' (Stouthuysen, Slabbinck & Roodhooft, 2017), and a 'source of competitive advantage' (Henri, 2006). On the other hand, the proposed negative implications of tensions encompass concerns like managerial bias and substandard organizational performance (Marginson, 2002), but also unnecessary conflict, turbulence, and chaos among staff mem-

bers (Kondo & Nishii, 2016). Combining both stances, Lewis (2000) has called tensions a *double-edged sword*; on the one hand, tensions and conflicts may generate anxiety and discomfort, but on the other, they may spark critical thinking and innovation in organizations.

Moreover, it has been noted that organizations are inherently paradoxical (Lewis, 2000), and conflicting demands and tensions are, therefore, not necessarily a sign of poor management or something that organizations should avoid. In fact, such paradoxes and tensions may even enhance organizational development and performance (Lewis, 2000; Henri, 2006; Kondo & Nishii, 2016). Even Marx and Mao recognized how tensions as a phenomenon could drive change and development in societies (English, 2001). And correspondingly, the *absence* of tensions has been demonstrated to be detrimental to organizational performance, as such circumstances may foreshadow organizational difficulties (Mundy, 2010).

Similar to Mundy's (2010) remark, Cameron (1986) pointed out that in the event of tensions being absent in organizations, "schismogenesis" occurs (Cameron, 1986, drawing from Morgan, 1981 and Bateson, 1936). He explains schismogenesis as a self-reinforcing process in which, if no opposing force intercepts, an action or an attribute takes place in an organization repeating itself until it becomes excessive and dysfunctional. He explains such a schismogenetic process as follows:

> "*For example, consider the situation where one person's dominance produces submissiveness in another, which in turn reinforces even more dominance on the part of the first person and more submissiveness on the part of the second. A negatively reinforcing cycle is produced. -- Unless a paradoxical condition exists in organizations, dysfunctional cycles emerge that lead to ineffectiveness. Organizational effectiveness, then, is inherently dependent upon the presence of paradox*." (Cameron, 1986)

2.1.2.3. Empirical research on tensions

While the management control literature discoursing tension has yet to reach a consensus, the conducted empirical research has shown the phenomenon to be more of a favorable feature than unfavorable for organizational performance. Here, we will discuss some of the empirical work conducted in the field.

For example, Simons (1994) demonstrated in his study that when companies respond to organizational tension by executing managerial control in both diagnostic and interactive manner and hence, produce dynamic tension, managers may control the organizational strategy more effectively. When there is a tension between the two organizational goals of opportunistic innovation and predictable goal achievement, the concurrent pursuit for both enables the accomplishment of profitable growth. (Simons, 1994).

In his study, Henri (2006) showed empirical evidence on how managing tensions by producing dynamic tension influences performance directly and positively, especially in organizations that operate in high environmental uncertainty. The strong simultaneous focus on both innovation and efficiency (i.e., tension) enhances organizational performance by making underlying issues explicit, supporting organizational dialogue, enhancing creativity, and enabling better organizational attention and direction. These factors, in turn, contribute to developing organizational capabilities and competitive advantage. (Henri, 2006).

Kondo and Nishii (2016) consecutively collected data from 312 strategic business units of different Japanese publicly listed companies to study how strategic performance management systems aid in tension management and what implications tensions have on performance. In their study, they found out that, on average, organizations that face tensions also demonstrate higher organizational performance. However, they also remarked that the variance in performance within this group of companies is higher than elsewhere. (Kondo & Nishii, 2016).

More recently, van der Kolk et al. (2020) studied a Dutch municipality, a public sector organization, to explore its management control practices and the potential tensions and dynamic tensions arising from the use of different control element combinations. To study the phenomena, they mobilized the means of semi-structured interviews, field observations, and desk research. From the collected data, they found that there exist multiple organizational tensions arising from the use of control element combinations. As a result of their study's findings, van der Kolk et al. argue that managers should engage in a 'balancing act' with the means of *purposeful intervention*, which aids in ensuring that the tensions possessing both complementary and competing aspects do not oscillate excessively towards the competing elements outweighing the complementing relationship. (van der Kolk et al., 2020).

2.1.2.4. Why is it important to discuss tensions?

When diving into the literature around tension, the discussion turns out to be rather vague and ambivalent. Indeed, while the number of management accounting and control literature releases addressing tension and dynamic tension has grown extensively in the past decade (van der Kolk et al., 2020), research still seems to lack direction in terminology and interpretation (Lövstål & Jontoft, 2017). Moreover, as mentioned before, both concepts still remain areas largely unexplored (Barros & Ferreira, 2021), and dynamic tension, in particular, has received an insufficient body of evidence (Kondo & Nishii, 2016).

Indeed, according to the literature, the concept of dynamic tension may refer to achieving a 'balance' in management control as well as simply possessing opposing management controls in simultaneous use (Kondo & Nishii, 2016). Some of the prior studies argue that once a 'balance' between the two uses of management control, controlling and enabling, is reached, an organization achieves effective control. (e.g., Simons, 1995; Henri, 2006; Mundy, 2010). However, it has been remarked that this line of literature does not adequately explain how the balance of controls is achieved (Kondo & Nishii, 2016). Many have also acknowledged how the concept of 'balance' as a term and a goal is problematic and have, therefore, suggested adopting a more dynamic approach (e.g., Lewis, 2000; van der Kolk et al., 2020). Indeed, management control elements do not operate in isolation (Malmi & Brown, 2008) and, therefore, rarely maintain a stable balance as organizations are continuously affected by both internal and external forces that shape the business. Instead of pursuing 'balance' in itself, organizations should participate in a continuous 'balancing act' (van der Kolk et al., 2020) to reach enhanced organizational performance.

To provide a more congruent understanding of the phenomena for research, this paper draws mainly from the descriptive study of van der Kolk et al. (2020) when defining and exploring the concepts. Therefore, the term *dynamic tension*, in this thesis, refers to a tension in which the relationship between two or more management control elements involves a two-dimensional relationship with both complementing and competing aspects according to the organizational actors' perceptions (van der Kolk et al., 2020). The understanding of *tension*, on the other hand, similar to earlier literature, here incorporates any tension where the observed management control elements are either in a competing (e.g., Kondo & Nishii, 2016) or complementary (e.g., English, 2001) relationship with one another, again, in the organ-

izational actors' perceptions. In this thesis, observed tensions are further characterized as 'positive' or 'negative' depending on whether they incorporate a complementary or a competing relationship between the involved management control elements.

Therefore, in this paper, tension is discussed as a phenomenon arising from the use of management control combinations and manifesting itself in the organizational actors' perceptions and experiences. This approach was adopted due to the remark that organizational tension originating from the use of management control combinations cannot be explored fully objectively; instead, the conducted interviews and multiple-choice survey both collected responses that inherently demonstrate the participants' subjective perceptions of management control. The same approach was inexplicitly used in van der Kolk et al.'s (2020) study, as well, as the responses they collected also illustrated the interviewees' personal opinions and perceptions on the employed management control and tensions they produced; in addition to the full storylines depicting these attitudes, many of the cited responses also incorporated expressions conveying subjective feelings, such as "we want --" , "I think --", and "I am proud --". To further argue for the manner of approach, Lövstål and Jontoft (2017) have also advocated for the mobilization of this type of a practice-oriented study and the exploration of employees' perceptions of tensions between management control and innovation. Therefore, this approach was considered natural and justifiable when aiming to extend the literature's understanding of tensions with the means of this thesis.

2.1.2.5. Tension balance, balance tendency, and intensity

Van der Kolk et al. (2020) extended academic literature's understanding of tension and dynamic tension by providing more precise vocabulary to describe tensions produced by the simultaneous use of two management control elements. These key characteristics are (1) balance, (2) balance tendency, and (3) intensity, and these three concepts characterize the observed tensions in regard to the control elements' relationship with one another. Firstly, *balance* refers to the relative strength or importance the two elements have in relation to one other in the organization's management control practices. *Balance tendency*, then, implies how stable or unstable the relationship between the two elements is over time, that is, how the strength of the two tends to 'oscillate.' Lastly, the term *intensity* assesses the absolute

strength of the two control elements in tension, that is, the extent to which they are used in regard to the overall management control practices employed at the organization. (van der Kolk et al., 2020).

The authors provide two additional notions to the characteristic of balance. When examining tension balance, the two elements can either be equally strong or differ in strength. Suppose the management control elements are used to an equivalent extent, and their strength is even. In that case, the balance can be referred to as 'equal.' However, if one of the elements is relatively stronger than the other, the balance is 'biased' toward the stronger control mechanism. (van der Kolk et al., 2020)

In addition to balance, balance tendency, and intensity, van der Kolk et al. (2020) aided future tension exploration by introducing the concepts of tension complementarity, complexity, and dynamics into research terminology. In contrast to the earlier three expressions, these notions describe the observed tension as an entity, focusing less on the involved control elements. When tension demonstrates *complementarity*, it positively affects organizational performance instead of presenting negative implications. However, if these positive effects are posed simultaneously with negative ones, then the tension is to be regarded as *complex*. Lastly, the tension demonstrates *dynamics* if it may be observed to change over time. (van der Kolk et al., 2020).

Now that we have explored the concepts of tension and dynamic tension more profoundly, we may proceed to examine innovation and innovative businesses. The following chapter will shed light on the definition of innovation and its linkage with management control in innovative organizations. Finally, after the chapter, we will look at how tension and dynamic tension emerge at the intersection of management control and innovation.

2.1.3. Innovation and innovative business

Innovation as an organizational objective is an area of interest that has intrigued academic research for decades. In short, innovation may be defined as all the organizational activities that are performed with the intention of discovering new opportunities for value creation (Davila et al., 2009). These activities are often characterized by a high level of freedom, flexibility, uncertainty, experimentation, failure, and success (Davila et al., 2009; Bisbe & Malagueño, 2015; Lövstål & Jontoft, 2017). Still, innovation processes are rarely random and unstructured, especially in organizations that are larger in size and more mature (Bisbe & Otley, 2004).

In daily discussion, innovation is often understood as advancements product design, which creates new value in an organization in the form of competitive advantage, for example. However, when a company makes progress in how organizational processes and day-to-day activities are conducted, development of this form may also be considered as innovation. As remarked by Quality Manager of ABB Oy Marine & Ports, in reality, innovation and business development are largely intertwined. When defined widely, innovation can, therefore, refer to all activities contributing to enhanced organizational performance. Therefore, the term innovative business, in this paper, refers to an organization that strives for innovation and creation of new value through both technological and operational improvements in its day-to-day business.

Creativity is often remarked to be at the heart of innovation. However, creativity and innovation do not flourish in all environments but require a supportive *context* and a supportive *internal environment*. This means that the organization's external settings, as well as internal arrangements and constructs, need to be all positively aligned with the strategic objectives for innovation to be able to transform into enhanced performance. (Bisbe & Otley, 2004). The internal environment can be shaped by designing and applying an effective set of management controls (Davila et al., 2009).

However, even when the internal environment can be shaped by designing and applying an effective set of management controls (Davila et al., 2009), management control has not always been viewed as something innovative businesses should aspire for, as we will observe later in the following chapter.

2.1.3.1. Management control and innovation

When considering the traditional notions in research, management control was long viewed as detrimental to innovation (Bisbe & Otley, 2004; Davila et al., 2009; Haustein et al., 2014; Bedford, 2015). Some degree of flexibility, autonomy, and freedom are required to promote successful innovation (Richtnér & Åhlström, 2010; Fagerlin & Lövstål, 2020), and according to the traditional view, control acts as a hindrance to such qualities (Davila et al., 2009).

In the past, researchers tended to judge controls as either 'good' or 'bad' depending on how they were used (Fagerlin & Lövstål, 2020). The view was that formal control, in particular, poses a constraint to creativity, flexibility, and freedom (Barros & Ferreira, 2019; Bisbe & Otley, 2004; Davila et al., 2009). Informal controls, on the other hand, have more often been seen as a supporting mechanism for innova-

tion (Bisbe & Otley, 2004). To further elaborate, Simons' (1994) LOC framework, for example, explicitly describes diagnostic use of control as a 'negative' and interactive use as a 'positive' practice. Moreover, in earlier research, formal controls were perceived to be poorly suited to control tasks of high uncertainty (e.g., Abernethy & Brownell, 1996), and frankly, the possibility of them contributing to successful innovation was underrated and even ignored (Bisbe & Otley, 2004).

However, today's literature views that effective management control is crucial to boosting innovation (Curtis & Sweeney, 2017). More recent empirical research has found that the combined use of formal and informal controls can support innovation by providing formalized constraints (e.g., schedule, budget, etc.) and reducing uncertainty while promoting creativity and innovative culture (Fagerlin & Lövstål, 2020). For example, even Simons (1994) remarked how even the most innovative companies in the market were applying formal management controls extensively. Curtis and Sweeney (2017), too, found out that well-established management control systems create a 'push for consistency' in innovative organizations. This push, in turn, steers organizational attention and resources to producing shorter-term innovation projects and reducing excessive concentration on long-term value creation, which, in itself, may act as a hindrance for creativity (Curtis & Sweeney, 2017). Similarly, Bisbe & Otley (2004) saw that this push created by management control assists in effectively converting abstract ideas into concrete innovation and organizational performance. Later, Barros and Ferreira (2021), too, found that effective use of managerial control may permit management to better exploit innovation efforts.

However, stimulating innovation with management control is by no means straightforward (Richtnér & Åhlström, 2010). While strong reliance on formal control has been perceived counterproductive in innovative settings (e.g., Abernethy & Brownell, 1996), too little control, too, can obstruct productivity in the form of insufficient amount of guidance and feedback being provided to the employees (Richtnér & Åhlström, 2010). What is more, not all innovation possesses the same characteristics, and as a result, management control does not influence all types of creativity in the same way (Bedford, 2015). Therefore, different forms of innovation may require different means of control (Davila et al., 2009; Bedford, 2015).

2.1.3.2. Management control use in innovative organizations

As a result, different innovative businesses apply management control in different ways. Fagerlin and

Lövstål (2020) conducted a comprehensive data analysis on management control in the context of innovation. Instead of examining the types and purposes of different controls, the two examined the types and purposes of different control *uses*. In their study, they found there to be four general styles of control in use in innovative businesses. These four styles are participative, facilitative, empowering, and authoritative styles, and they all incorporate a different degree and form of top management involvement (Fagerlin & Lövstål, 2020).

Organization structure and size, too, influence how management control is applied in the context of innovation. The structure influences, for example, how information is produced and transferred, and how responsibilities are divided among organizational members (Ferreira, 2002). Furthermore, an organization larger in size naturally requires different forms of control in contrast to smaller companies; as the number of employees increases, it becomes increasingly important to, for example, clarify areas of responsibility and create more formal means of communication (Davila et al., 2009).

2.2. Tensions at the intersection of management control and innovation

While research still holds it quite unclear how tensions actually come about, earlier literature has recognized that tensions may be inevitable in creative settings (van der Kolk et al., 2020), partially due to the dual role of management control as a *controller* and *enabler* (Mundy, 2010). Tensions have been remarked to appear to arise when there exist two conflicting yet interrelated goals of predictable goal achievement and innovation (Simons, 1994). Therefore, provoking and utilizing dynamic tension in innovative businesses may be necessary, as it may aid in responding simultaneously to the two needs of predictable goal achievement and creative innovation (Bedford, 2015; see also Simons, 1994; Henri, 2006; Mundy, 2010; Stouthuysen et al. 2017).

The recently published studies have aimed to produce more information on the concepts of tension and dynamic tension by examining their implications on organizational performance (e.g., Bedford, 2015; Kondo & Nishii, 2016), revising tension-related vocabulary (e.g., Lövstål & Jontoft, 2017; van der Kolk et al., 2020), and further extending the research of others (e.g., Barros & Ferreira, 2021). However, as implied earlier, our understanding of tensions is still very limited (Barros & Ferreira, 2021), and, as a result, the existing knowledge on tensions emerging at the intersection of management control and

innovation is even more insufficient, and the quantity of publications on the topic remains small (Lövstål & Jontoft, 2017).

And, despite the little progress made in the field, close to no focus has been given to exploring tensions originating from management control in innovative, privately-held organizations with the means of a case study approach. Most evident of the contributions are from the two studies of Curtis and Sweeney (2017) and Barros and Ferreira (2021), both of which used a single case study approach and the previously-discussed LOC framework to explore organizational tensions arising within innovative private-sector companies. Firstly, Curtis and Sweeney investigated the creation of dynamic tension in an innovative private-sector medical device company, Caseco, while utilizing the LOC framework as a tool to categorize the management control systems influencing innovative practices. Similarly, Barros and Ferreira applied the LOC framework to study how the management of an innovative composite cork manufacturer, Amorim Cork Composites, mobilizes the employable management controls while attempting to encourage innovation, and subsequently, provokes organizational tension involving both complementary and competitive aspects between different forms of control.

In their single case study, Curtis and Sweeney (2017) found evidence that utilizing 'mutually reinforcing' management control systems in combination may enhance organizations' innovative practices by producing dynamic tension between different forms of innovation. In their notion, a dynamic tension is produced when the combined management control systems generate a 'push' for consistency, subsequently promoting short-term innovation. However, as Curtis and Sweeney remark in their paper, they understand organizational tension and dynamic tension, in particular, as tensions that emerge from the use of management control but exist in between different forms of innovation. Therefore, in their perception, tension does not necessarily manifest itself between different management control elements, as understood by van der Kolk et al. (2020), for instance. While they do consider management control systems' contribution to the production of tensions, their study does not provide enough understanding of how tension and dynamic tension emerge from the use of control element combinations.

Barros & Ferreira (2021), on the other hand, provided further proof that management control systems are largely interrelated and complement the use of one another. As a result, they remarked that all LOC levers – that is, all forms of control – should be employed in the management of innovation as each one of them is equally important. In addition, they noted that the use of management control systems that simultaneously pose complementarity and contradicting aspects on one another produces a 'push' in

different directions, causing organizational tensions to emerge. These detected tensions they further analyzed in their paper while considering the tension characteristics of tension balance and intensity, thus extending van der Kolk et al.'s findings on organizational tension. And, similar to Henri's (2006) understanding of tensions' positive effects on organizational performance, Barros and Ferreira, too, found evidence that these simultaneously complementing and competing control forces support product innovation while ensuring profitability and fulfillment of strategy.

Some progress has been made in the field in regard to exploring how organizational tensions arise at the intersection of management control and innovation. Even so, literature is still in need of more qualitative research applying an empirical study method to explore the subject in private-sector companies. Therefore, as stated earlier in the paper, this thesis aims to extend the literature's understanding of the subject by conducting a case study in an innovative privately-held organization, ABB Oy Marine & Ports.

2.3. Theoretical summary

In this chapter, we have dived into the concepts of management control, organizational tension, and innovation by conducting a comprehensive literature review. After discussing the three areas, we also discussed tensions arising at the intersection of management control and innovation more profoundly. Here, a theoretical summary is provided to rehearse the most important learnings of the chapter.

Firstly, in the section discussing management control, we remarked how earlier literature has applied various notions to exploring control. Most notable of the suggested approaches have been the LOC framework provided by Simons (1994) and the OOC framework by Merchant and Van der Stede (2017), both of which have also been used to explore the concept of organizational tension. While the LOC framework has been perceived as largely suitable for organizational analysis, the OOC framework may be considered to hold some advantages over the older approach; the latter provides a tool for exploring control in a comprehensive, straightforward, and most importantly, holistic manner. Moreover, this approach has yet to receive further criticism. Therefore, in this thesis, the OOC framework has been combined with the concepts of formal and informal control and applied as a tool for analysis when exploring organizational tension emerging from the use of control combinations.

Secondly, we developed an understanding of the existing academic knowledge on organizational tension and dynamic tension. As implied earlier, research in the field has grown significantly within the past two decades. However, despite the growing number of publications, our knowledge on the phenomena still remains scarce; there is a varying understanding of tensions themselves, their origins, and the implications they have on organizational performance. Even so, it seems that the majority of studies recognize tension as an occurrence that should not necessarily be avoided but, instead, something that may potentially support organizational performance and innovation. Still, tension-related vocabulary has yet to gain consistency, and more empirical evidence on the subject needs to be gathered. To provide a more harmonious understanding of the two phenomena, the most recent papers have attempted to organize and standardize the existing knowledge by conducting integrative literature reviews and further empirical research. In addition, new concepts have been developed to better describe individual tensions arising from the use of control element combinations.

Thirdly, we also had a brief look into the notions of innovation and innovative business. We learned that innovation is often defined to incorporate all organizational activities intending to discover new opportunities for value creation and that it has traditionally been seen as something that would deteriorate from the use of management control, especially that of formal form. However, more recent research has proved this conventional view to be flawed. Today, it is understood that effective management control may be even crucial for the success of innovative practices. As a result, academics advocate managers to carefully employ an inclusive array of management controls to permit the organization to better exploit its innovation efforts.

Lastly, we discussed tensions arising at the intersection of management control and innovation. Here, we remarked that the topic remains largely unexplored; the quantity of publications remains small, and especially research taking a single case study approach in private sector organizations has been conducted to an insufficient extent. Therefore, understanding of the subject is to be further extended, and more empirical research in privately-owned organizations must be conducted to better understand the phenomenon.

The following chapter will go through the data and methodology related to the conducted empirical case study. Here, the overview will incorporate discussing the stages of the applied study methods, the data collection process, as well as matters concerning validity, reliability, and limitations. After having

skimmed this chapter third in order, the reader will have a good general understanding of the complete progression of the study.

3. Data and methodology

3.1. Study method

As implied in the introduction, this thesis will discuss the context of one innovative organization, ABB Oy Marine & Ports (ABB Marine), by conducting a qualitative empirical study. To explore the phenomenon of dynamic tensions at the intersection of management control and innovation in the organization, nine semi-structured interviews were conducted as the main data-collection method, accompanied by a multiple-choice survey as an additional approach. In addition, some further data was gathered from a PowerPoint document provided by a Marketing representative (see appendices 5-8). In contrast to the study of van der Kolk et al. (2020), the scope of research did not permit performing field observations.

A case study was selected as the study method due to earlier literature having noted this approach to be most appropriate for exploring tensions (Smith and Lewis, 2011). Overall, earlier literature has called for more qualitative empirical studies to increase our understanding of the subject (Lövstål & Jontoft, 2017).

3.2. Data collection

As noted above, semi-structured interviews were at the core of the data collection process. A number of nine interviews were organized in total, and they incorporated people from various backgrounds and levels of the organization. In addition, a multiple-choice survey was conducted among 18 production line workers. Both the interview and survey questions can be found embedded in the last pages of the thesis as appendices 2 and 3.

3.2.1. Semi-structured interviews

The interviews were scheduled and conducted between mid-September and early December 2021. Due to the covid-19 pandemic, all employees were working from home, and thus, the meetings were orga-

nized remotely through Microsoft Teams. Each interview lasted for approximately one hour (see appendix 1) and was recorded with the permission of the interviewee. After, the recordings were all fully transcribed, and then, the transcriptions were sent to the designated people to affirm that the collected data was correct and could be used in further analysis.

In the end, the following employees took part in the interviews: three Project Managers, one Business Line Controller, the Vice President of Financing and Controlling, the Human Resources Senior Vice President, the Head of Large Azipod Sales, Quality Manager, and the Global Division Chief Financial Officer. Two additional interviews were scheduled but were unfortunately cancelled by the participants.

The interviewees' backgrounds varied quite greatly. Firstly, four of the participants were female, and five were male. Two of the interviewees had built their ABB careers for some 20 years, whereas one of the interviewees had joined the company very recently, in May 2021. The median length of the interviewees' career at ABB was ten years. In addition, most of the attendees had worked in other ABB positions prior to their current post, and some had gathered earlier work experience in other companies as well. Overall, the interviewees' backgrounds varied to a fairly great extent.

Prior to each meeting, the interviewees were provided with the questions of the upcoming interview as well as an introduction to what the researcher implied with the term 'management control.' As the researcher gained more understanding with each discussion, the interview questions were slightly edited between interviews to ensure their validity for research. The purpose of the interviews was to gain an understanding of what types of management controls were in place in the organization and how those controls possibly produced tensions or dynamic tensions in day-to-day operations.

Overall, the interview method was chosen as the main study method because it offers many advantages over other data collection approaches. First of all, conducting interviews enables in-depth data collection as it makes it possible for the interviewer to pose new questions midst the interview, to which they possibly didn't know they would want or need an answer prior to the interview. Also, during an interview, the interviewer may ask for clarification to any of the attendee's responses if they view it necessary. Also, unlike questionnaires, during interviews, the interviewer can ensure that the participant has understood the questions asked and the concepts used as intended. (Hirsjärvi et al., 1997). And, when it comes to the interview type, in comparison to structured and unstructured interview methods, semi-structured interviews enable gaining an in-depth understanding of the studied subject as they follow a

predefined structure but also give both the researcher and the interviewee the freedom and space to deviate from it.

Especially in the case of interviewing the case company's Quality Manager, the decision to apply semi-structured interviews as the interview method proved to be highly beneficial. This was because, in the end, some of the preset questions formed prior to the interview turned out to be largely irrelevant, and the discussion took quite a different path from what the researcher had predicted. Initially, the plan was to ask the Quality Manager about the innovation practices at ABB Marine but also discuss his view on the applied management controls – very similar to the earlier interviews. However, in the end, his familiarity with the subject of innovation and the company's innovative practices exceeded the interviewer's expectations. As a result, the researcher concluded in the midst of the interview that it was best to ignore most of the preset questions and focus on gathering more understanding on the subject of innovation at ABB Marine.

The interviewees and the interview questions may be observed in detail at the end of the paper in appendices 1 and 2. When the case study is discussed in further detail in the fourth and fifth chapters, notions of individual interviewees will be referred to by using the respective interviewee's job title.

3.2.2. Multiple-choice survey

Due to the limitations placed by the covid-19 pandemic, the survey, on the other hand, was conducted by the Production Manager at the company premises during a period of three weeks between September and October 2021. The reason for the remote approach was to minimize any unnecessary risks regarding the continuation of production. The survey template was sent to the manager prior to the data collection phase, and after, the manager printed the template to physically distribute the questions to the workers. Out of 29 production line workers, a total of 18 people responded to the survey. However, in the end, only 17 responses could be considered valid, as one respondent had uniformly answered '2' on every statement of the multiple-choice survey, which did not align with the standard deviation of the sample. Therefore, one sheet of responses was disregarded, while the other 17 were incorporated into further data analysis.

The purpose of the survey was to gain more understanding of what controls were in place at the lower levels of the company. It also functioned as a means of examining the extent to which the production line workers' perceptions on managerial control aligned or contradicted with the data collected from the interviews.

The questions used in the multiple-choice survey are embedded in appendix 3. Appendix 4, on the other hand, discloses the collected results of the survey in regard to the responses' mean, median, and standard deviation, giving insight into the production line workers' perceptions on management control practices. The survey results will be disclosed in the discussion chapter together with the notions collected from the interviews.

3.3. Validity, reliability, and limitations of the study

For a study to be relevant and contribute to research, certain prerequisite criteria need to be met regarding its validity and reliability. The extent to which the study meets these prerequisites and features any limitations will subsequently affect how generalizable its findings can be considered for further research.

3.3.1. Validity

Validity of research indicates how 'true' the collected data of the study is, hence, how well it reflects the studied, objective reality (Scapens, 1990). Subsequently, validity also demonstrates the extent to which the researcher manages to study the phenomenon they have intended to study. To secure validity, the study should integrate and combine several data sources. This approach facilitates the triangulation and verification of the obtained findings, and thus, enhances the validity of the conducted research (Vaivio & Sirén, 2010).

In this study, validity and triangulation have been acquired by combining a qualitative case study method of semi-structured interviews with a quantitative survey method of a multiple-choice survey (Modell, 2005). In addition, the thesis has used several data sources to improve the prospects of theoretically valuable interpretations (Vaivio, 2008). Furthermore, validity was also considered in the de-

sign of the interview process; to ensure that the data obtained demonstrated the intended phenomenon, the interview participants were explained what the utilized concepts meant prior to each meeting. Also, both the researcher and the attendees could ask questions at any point if something required further clarification or was not quite understood, further enhancing the collected data's validity.

3.3.2. Reliability

Reliability, then, implies how reliable the findings of the study can be considered to be. This aspect is highly dependent on the conditions under which the obtained data has been collected, and according to McKinnon (1988), may be diminished, for example, if any participant or observer biases affect the quality of the data. On the contrary, reliability may be endorsed by creating conditions that support reliable data collection. (McKinnon, 1988).

Here, reliability has been enhanced by designing the study in a way that mitigates the development of any unwanted biases and other risks. The prospects of *participant biases*, for example, have been addressed by selecting a sample as representative as possible by incorporating people from various backgrounds. In addition, all interviews were recorded and fully transcribed, after which the transcriptions were sent to the interview participants to verify that their remarks had been written down and understood correctly. Before the publication of the study, the thesis and its contents were once more reviewed by ABB Marine personnel to ensure its interpretations were not incorrect, further mitigating any unwanted observer bias. (McKinnon, 1988).

Also, as remarked by McKinnon (1998), one threat to the study's validity and reliability is posed by the researcher's social behavior in the field, and to mitigate such a threat, the researcher needs to acquire the trust of the study participants by being personable, interactive, and genuinely interested in their views. Therefore, in this study, credibility and trust were reinforced by first approaching the study participants internally by the researcher's former supervisor, after which they were contacted by the researcher themselves. Overall, the supervisor was the one to gain the majority of access to the study. According to the interviewees' remarks, this form of approach had been considered very fitting, as an external contact could have been appeared somewhat odd and unconvincing. In addition to the approach being appropriate, many of the interviewees spontaneously voiced after their interview to have liked the discussion very much and that the settings had been pleasant and enjoyable. The fact that the

participants enjoyed the process and seemingly the company of the researcher, too, may have further enhanced the reliability of the data and its findings. The researcher was even offered a possibility to work at the company again!

In addition, as the interviewer had indeed worked in the company before, data access limitations normally associated with field research (McKinnon, 1988) may have been more mitigated than they would have been in the case of a fully external researcher. As a result, the study participants may have felt more at ease when discussing the company and its internal context as they knew the researcher already had an understanding of the employed practices. And as the interviewees were also given the opportunity to remain anonymous, their will to discuss things may have been further enhanced, giving the researcher more profound access to data.

Lastly, while it could be considered a limitation that the researcher was not physically present when the multiple-choice survey was conducted, this feature may have also mitigated some potential unwanted observer-caused effects (McKinnon, 1988); the researcher's physical presence and active observation could have hypothetically unnerved the survey participants when completing the survey, and thus, potentially influenced their responses. Therefore, the remote approach may not have only posed disadvantages to the study but also some considerable advantages. This remark is further examined in the following section discussing limitations.

3.3.3. Limitations

However, naturally, there are also limitations to the conducted study. Firstly, as the study only incorporates observations in a single company, its findings have limited generalizability to other companies and industries. Also, as the data collection process was conducted remotely without face-to-face interactions, the researcher could observe the participants' actions and physical responses somewhat restrictedly, if at all. For example, the survey participants' behavior could not be examined in any way, as the staff of ABB Marine handled both the distribution and collection of material.

Still, while the study only considers the context of one organization, the collected rich empirical material on itself enhances the validity and reliability of the study. In addition, concerning the data collection process, it must be considered that the interviews were video-recorded, which further reinforces

validity and reliability; as all interviewees gave their permission to record the meetings, their body language could be later observed to some extent in relation to, for example, whether the participants were engaging themselves fully in the interview or possibly thinking of something else. Moreover, the recordings also made it possible to analyze the interviewees' tone of voice and emotions connected to their responses.

Now that we have reviewed the matters related to the study's data collection and methodologies, we may proceed to take a more detailed look at the case study itself. Therefore, the next chapter will examine the case company more thoroughly. In this part, we will explore ABB Oy Marine & Ports' organizational background, its offering, the industry it operates in, and its innovation endeavors. After a detailed introduction to the organization's internal context, we will dive into the vast array of management controls that the company has employed according to the collected data. This chapter sets the foundation for understanding the fifth chapter following after, which will discuss the organizational tensions detected to prevail at the case company in consequence of the employed control element combinations.

4. Management control at ABB Oy Marine & Ports

4.1. Case introduction

ABB Marine & Ports is a globally operating marine engineering company specializing in electric propulsion and the electrification and automation of ships and ports. The organization designs, engineers, builds, supplies, and commissions both electrical systems and automation systems to serve an array of customers operating in the marine industry. At the core of the company's product portfolio is the *Azipod® electric propulsion* applicable to various types of marine vessels such as cruise ships, icebreakers, and ferries. The company's products, solutions, and services help enhance its customers' profitability and sustainability by improving the vessels' flexibility, safety, reliability, energy efficiency, and use of space. (ABB Group, 2021a).

ABB Marine & Ports is a *Division* of ABB Group (ABB), which is a multinational corporation providing an extensive array of engineering products and solutions for different types of industrial customers. The Group operates in four *Business Areas* of Electrification, Process Automation, Motion, and Robotics & Discrete Automation, which are all further divided into a number of divisions. The divisions, as remarked by the Chief Financial Officer, are at the highest operational level and are each responsible for their own global operations. The Business Areas, on the other hand, offer strategic and functional support in order for the divisions to be able to manage their operational activities as efficiently as possible.

The division of ABB Marine & Ports belongs to the Process Automation Business Area, and operates in a total of 25 countries, including Finland, Italy, China, and the US. (ABB Group, 2021a). As stated by the HR Senior Vice President, five of these 25 countries are so-called 'execution countries', and in these countries, the respective business units are larger in regard to their scale of operations and conduct projects related to the construction of new vessels. In the remaining 20 countries, the scale of business is smaller and often covers operations of only one business line. However, the Finnish business unit of ABB Marine is by far the largest local unit of the global division, and therefore, both the main office of the Global Division and most of the divisional management is located in Finland.

ABB Group has notoriously gone through numerous organizational changes throughout the years, but today, ABB Group, and hence, ABB Marine & Ports Division, too, operates as a 'business-led organization.' In the past, all of the Group maintained a matrix structure, and in the former matrix, each of the business branches, or divisions, were divided into several country organizations. In the divisions, these country organizations were themselves responsible for the business operations in their own respective country, and the division itself was globally running all international units. However, recently, the country organizations were left out, and a 'business-led structure' was introduced to streamline the management of the global business. Therefore, today, it is now global *business lines* that have the main responsibility for operations and operational decision-making in ABB.

Hence, the division of ABB Marine & Port also consists of four business lines: Marine Systems, Marine Propulsion, Service, and Ports. Each business line is in charge of fulfilling a more specific operational purpose; for example, the business line of *Marine Systems Business Line* drives operations around vessel automation and digital solutions, while *Marine Propulsion* concentrates on matters related to physical Azipod® propulsion. In practice, three of the four business lines – Marine Systems, Marine Propulsion, and Service – operate in Finland.

Hereafter, the local Finnish unit of ABB Marine & Ports, ABB Oy Marine & Ports, will be referred to by using the name 'ABB Marine' or 'ABB Marine Finland.' When implying to the global organization, terms like 'global ABB Marine' and 'ABB Marine & Ports' will be used. In addition, ABB Group may be referred to simply by using the word 'ABB.'

4.1.1. History of innovation at ABB and ABB Marine

In many areas, ABB can be considered a technology frontrunner; the company invests strongly in research and development endeavors, and consequently, has come up with several ground-breaking innovations in the time of its 130 years of operation. In 2020, the Group invested more in R&D than any of its competitors, and by continuously devoting to continuous improvement, ABB has reached market leadership, cost leadership, and technological leadership in many of the industries it operates in. (ABB, 2021a). Not only that, but as a result of Group's technological progression in products, solutions, and services, company's customers, too, can enhance their own productivity, efficiency, and safety as well (ABB Group, 2021b).

The financial statements of ABB Group show that the corporation has uniformly invested 4% of its annual revenues to R&D processes. Unfortunately, the same figure of global ABB Marine could not be acquired, but given ABB Group's aspiration for market leadership, one may expect the individual divisions' investments to follow a similar path to the Group's. Table 2 below demonstrates the annual R&D expenses of ABB in relation to the collected revenues.

Year	Revenues (mUSD)	Non-order related R&D expenses (mUSD)	Portion (%)
2020	26 134	1 127	4,31 %
2019	27 978	1 198	4,28 %
2018	27 662	1 147	4,15 %
2017	25 196	1 013	4,02 %
2016	33 828	1 300	3,84 %
2015	35 481	1 406	3,96 %
2014	39 830	1 499	3,76 %
2013	41 848	1 470	3,51 %
2012	39 336	1 464	3,72 %
2011	37 990	1 371	3,61 %

Change in reporting style

Table 2: ABB Group's annual R&D expenses

As mentioned above, ABB has come up with several ground-breaking innovations in the time of its 130 years of operation. In the 1960s, for example, its ABB Drives Division developed a variable speed drive, which was an entirely pivotal invention at its time and contributed to a dramatic decrease in the power consumption of electric motors. ABB has also introduced various robotic solutions that have subsequently revolutionized the productivity and process quality of industrial manufacturing processes; in 1974, the company launched the world's first commercial, all-electric microprocessor-controlled robot, and later, in 2015, it introduced the first truly collaborative industrial robot, YuMi.

And in the 1980s began the still-ongoing triumphant voyage of ABB Marine's Azipod® electric propulsion system. Azipod® propulsion is a type of azimuth thruster propulsion system posing several advantages over conventional shaftline propulsion systems, such as enhanced vessel maneuverability and electrical efficiency. The invention's developing efforts began when a local Finnish ship operator and shipyard identified the need for a more efficient and maneuverable ice-breaker (Rönnqvist, 2021a).

During the interview, the Quality Manager explained the beginning of the product's story in the following manner:

> *"-- 25 years ago, when we began to innovate the first Azipod, there, in fact, the customer (shipyard) and the customer's customer (ship operator) were very active. --. Back then, the operator developed an interest and pondered if we could make ice-going oil tankers somehow better instead of applying the old-fashioned system. So, -- (the innovation) was sort of derived from that one customer."* (Quality Manager)

4.1.2. Azipod® propulsion system

The benefits of Azipod® propulsion are abundant. To explain the functionalities simply, conventional shaftline propulsion has the main engine and shaft arrangement installed inside the ship hull, and the propellor is driven at the stern end of the vessel. Maneuverability is achieved by using a rudder, which is also positioned at the stern end of the ship. The rudder, then, works with the propellor, allowing the ship to turn. However, when the angle of the rudder is high, vibration is often provoked throughout the ship, causing inconvenience and unnecessary noise. In Azipod® propulsion, in contrast, the steering and propulsion systems are combined together and placed outside the ship hull, and no rudder is required for steering the ship. This eases installation and minimizes the use of space, as well as eliminates the noise-generating factors appearing in conventional propulsion. Also, an Azipod® propulsor "pulls" the vessel instead of "pushing" it and can rotate a full 360 degrees, which increases the maneuverability of the ship. In addition, the water can flow undisturbed in the Azipod® system in contrast to shaftline propulsion (see appendix 7), which may decrease the ship's fuel consumption by up to 20 percent. Finally, the Azipod®'s electric nature enables vessels to use diverse energy sources such as fuel cells or batteries, in contrast to traditional diesel electricity generated onboard. (Rönnqvist, 2021a). The most notable advantages that Azipod® propulsion has over conventional shaftline systems are all embedded in appendix 8 at the end of the paper.

What is more, ice-going ships operating with Azipod® propulsion in frozen waters do not require a separate dedicated icebreaker escort. This is because the Azipod® propellers have been designed for milling the ice ridge underwater, creating a passage through. The propellers also generate a water flow flushing the hull, which minimizes friction and enables the ship to travel through the ice field more

freely. Cruise ships, on the other hand, all have to comply with strict Comfort Class requirements regarding onboard noise and vibration levels, and in contrast to conventional shaftline-rudder propulsion arrangements, Azipod® propulsion meets even the most demanding of these demands.

After extensive developing efforts, the first vessel equipping Azipod® propulsion was finally set for its maiden voyage in 1991 (Rönnqvist, 2021a), and the rest is history; in 2018, ABB Marine received its 100th order for a cruise vessel to equip Azipod® propulsion (ABB Group, 2018), and by 2021, after exactly 30 years since the first voyage, Azipod® propulsion has acquired the position of an industry-standard in the cruise industry, powering the world's largest cruise ships and being applied to vessels of all major cruise lines (ABB Group, 2021c). Today, more than 130 cruise vessels and over 100 ice-going vessels equip Azipod® propulsion, some of which have been operating with the technology for more than 20 years (ABB Group, 2021c; Rönnqvist, 2021a). In addition, over 700 Azipod® units have been sold worldwide (Rönnqvist, 2021a).

In November 2021, Academic Engineers and Architects in Finland (TEK) and Tekniska Föreningen i Finland (TFiF) awarded the Azipod® azimuth thruster system with the Finnish Engineering Award 2021 (Rönnqvist, 2021b). When discussing the award during an interview, the Quality Manager highlighted how the invention of Azipod® propulsion had impacted ABB Marine's business tremendously:

> *"This [award] is a good example of the fact that if we had not started innovating the Azipod® product in the early 1980s, then, in my personal opinion, ABB Marine Finland would not be nearly as strong and big as it is today*." (Quality Manager)

Indeed, Azipod® propulsion is at the heart of ABB Marine's operations. In addition to tangible appliances, ABB Marine also creates, for instance, software solutions that enable ship operators to manage their vessels more efficiently and sustainably.

4.1.3. ABB Marine's competitors

Since the time of Azipod® propulsion's foundation, some similar products and solutions to ABB Marine's offering have found their way to the market. In the beginning, the competition of Azipod® propulsion only incorporated the conventional shaftline propulsion systems, but today, ABB Marine has four main competitors offering similar products and solutions: Wärtsilä Corporation (Finland), Kongs-

berg (Norway), Siemens (Germany), and General Electric (the USA). According to the Head of Large Azipod Sales, the primary segments and vessel types differ slightly from competitor to competitor. Still, in principle, all operators offer solutions to both azimuth thruster propulsion and onboard electricity generation. When asked how ABB Marine's offering differs from those of the competitors, the Head of Large Azipod Sales explained the matter in the following way:

> *"In essence, we share the same principle with all our competitors – we build them (the electric propulsors) the same way; there is an electric motor underwater, and it rotates 360 degrees. So, the basic idea is the same --. But then, the difference comes from the fact that ABB Marine has accumulated millions and millions of driving hours from different types of ships during these 30 years. --. So, we really have a lot of experience, and we have been honing the product to become good and reliable; we have managed to perfect it on the efficiency side --, but we have also learned a lot during these millions and millions of hours of operation, [and] so, we have achieved the product to be reliable as well."* (Head of Large Azipod Sales)

4.1.4. Innovation at ABB Marine

The Azipod® propulsion, like most of ABB Marine's offerings, is the outcome of extensive innovation work at the company. However, the orientation for innovation at ABB Marine does not only manifest itself in physical products but also in the organization's daily practices. Moreover, innovation at the company seems to stem both internally from within ABB Marine as well as externally from exploring the needs in the market.

When considering the external sources of innovation, ABB Marine has developed a habit of organizing group discussions with the end-users of its products (i.e., the ship operators). During these group discussions, the organization may learn what its customers really need and want. Subsequently, it also acquires an opportunity to improve its products more rapidly and efficiently, as well as more in line with the market demand. The Quality Manager explained the benefits of the practice as follows:

> "*When we think of how many owners of Azipod units there are in the world, there are only a few dozen of them. If you compare that to how many people have a phone in use, it is a completely different size range. In other words, we have so few customers that while they are com-*

petitors, they do know each other either way. -- If it turns out that there is a problem in the component of vendor X, the information does transmit pretty fast. -- Therefore, it is much better to invite them around the same table to discuss and think." (Quality Manager)

However, sometimes the need for innovation does not only stem from the customers' needs but rather from the broader external business environment due to, for example, updated legislative requirements:

"*The world is changing in terms of environmental requirements for reasons beyond ABB's and our customers' control when new requirements considering noise, environment, or pollution are put forth. And at these times, we are at the center of supplying more environmentally friendly solutions --. That, of course, incorporates a lot of innovation.*" (Project Manager 1)

Overall, many of the innovation endeavors are conducted with the customer in mind. For example, according to the Head of Large Azipod Sales, work at the Sales Department is largely characterized by value-drivenness and customer-orientation, and sometimes the approach results in new ideas meanwhile fulfilling the customers' needs:

" *-- We do innovate and think outside-of-the-box and consider the customer; it's important that our team listens to the customer and that we listen to the customer. And while doing so, we also think about the solutions and innovate how they can be realized. So, if the customer has a certain need, how can we fulfill that need? And through that emerge the ideas and innovation. -- And here, I have noted that we bring market need into the organization, but we also come up with the idea of what it could be along the way.*" (Head of Large Azipod Sales)

However, while many of the innovation endeavors stem externally from ABB Marine's customers' and other stakeholders' needs, the nature of the industry requires the company to be relatively self-directed to "stay on the wave." In this regard, both Project Manager 1 and Quality Manager voiced that the marine industry is relatively old-fashioned and conservative in some regard, which poses both opportunities and limitations for innovation. For example, the Quality Manager expressed that at times, it comes from within ABB Marine to develop new types of pioneering products, and the Azipod®'s story is a good example of this; while the need for the product was initiated externally from a customer, the ultimate idea of the new type of product and of 'putting electricity underwater' was, according to them, considered strange widely in the industry at the time. On the other hand, Project Manager 1 added that due to the nature of the industry, pursuing innovativeness at all times and situations is not realistic. In

the industry, the safety of people is emphasized in contrast to other lines of business. What is more, they stressed that vessel construction projects are terribly expensive, and that ABB's delivery is central in how things ultimately function at the ship. Because of this, the supplied systems need to be as 'fool-proof as possible,' and therefore, it is sometimes smarter to go with the traditional and familiar solution.

As mentioned by the Quality Manager, sometimes innovation stems from within ABB Marine as well. They said that the business line of Marine Systems, for instance, is continuously working towards bringing new ideas into ship automation – even solutions that the customers do not necessarily expect to need. For example, previously, the business line came up with the idea of collecting earlier voyages' realized data on wind, swell of the sea, fuel expenses, and consumed time. With the data, they generated a software package, with which the end-users could optimize their routes. The Quality Manager noted that the end customers did most likely not know of the possibilities for such a solution before it was finally introduced.

What is more, innovation has manifested itself in ABB Marine's operational development, as well. One example of this, according to the Quality Manager, has been the organization's pursuit of building "digital twins." This practice, in essence, incorporates the creation of demo devices and software to test the functionality of a real-life component *virtually*. The need for the practice was originally derived from the nature and the scale of business and its application has been noted highly beneficial:

> *"So, now we'd need a thing that we don't actually have, but it is different at the ship every time and it costs a lot, so of course, we should not get one. Then, we can program that kind of functionality, and when we plug the two together, it works; they give impulses like a real device. --. -- The more we manage to test the solution, system or product here at our own desktop, the cheaper, faster and more efficient it is in comparison to testing it at the ship."* (Quality Manager)

All in all, orientation for innovation seems to be strongly intertwined in the culture of ABB Marine. As a result, the company also holds several international patents illustrating its extensive innovation endeavors (Justia Patents, 2021). Furthermore, in addition to the above-mentioned larger-scale practices, all employees are enabled and encouraged to introduce product- and process-related improvement suggestions in their daily work through the company's ERP system. If the suggestion is recognized as useful and applicable, it may be monetarily rewarded. This practice, according to Project Manager 2, may

encourage employees to take an innovative stance on their work and apply outside-of-the-box thinking to daily procedures.

4.1.5. A brief look at the marine industry

The marine industry has faced multiple change forces in recent years, which have also impacted the business of ABB Marine. For example, the global cruise ship industry has grown rapidly during the last few decades up until the outbreak of the novel coronavirus. Before the pandemic, the industry was among the fastest-growing segments in the tourism sector, with an annual growth rate of 8.4 %. (Dowling & Weeden, 2017; Godwell, Dube & Chikodzi, 2020). In its peak year, 2019, the global industry transported more than 30 million passengers, provided 1.11 million jobs, and was worth over 134 billion USD (Godwell et al., 2020).

The most recent change force has been the covid-19 pandemic. The pandemic has hit the global cruise ship industry tremendously as all forms of travel have been forced into a near-complete shutdown. Most countries have introduced lockdowns and closed their borders from international travel, terminating opportunities for tourism and complicating cargo transport. In addition, as covid-19 cases surged during a number of tours in the early pandemic, cruise lines received a great deal of bad publicity as well as lawsuits and criminal investigations (Godwell et al., 2020). As a result, the share values of the largest operators in the industry plunged by as much as 80 % by March 2020 (Godwell et al., 2020), while the Finnish cruise lines, too, reported a decrease of 80 % in the number of passengers between 2019 and 2020 (Aholainen, 2021). And as the ship operators have had to stand still, so have the shipyards (i.e., the shipbuilders); most construction projects have been canceled or at least postponed (Lassila, 2021). However, the industry is hopeful to go back to the times of growth, even when the cruise lines have incurred considerable debts while their ships have had to stay put (Godwell et al., 2020).

4.1.6. The implications of covid-19 on ABB Marine Finland

When the covid-19 pandemic hit the country in early 2020, ABB Marine Finland immediately took measures to protect the continuation of its operations and production by directing all office employees

to work remotely from home. According to the directions, even individual visits to the office premises were to be avoided in order to protect the production line workers' health and the continuation of their work. However, as Finland has now recently reached the nationwide vaccination rate of over 80 %, the organization is planning to introduce a hybrid work model in early 2022.

Before, ABB Marine Finland had two office premises in Vuosaari in Eastern Helsinki, one of which served entirely as an office space, while the other, the main building, included space for both production and office work. Prior to the pandemic, the employees would gather daily to the premises, and remote working was relatively uncommon. However, when the pandemic hit, the drastic change created room for rethinking the organizational practices; eventually, a staff survey was conducted to inquire employee preferences, and the results demonstrated how 70 % of the staff aspired to continue working remotely two to four times a week once the organization would return back to work at the premises. As a result, the other office building has now been given up, and the main premises incorporating both production and office space have been renovated to better suit the company's future needs. The renovations included, for instance, removing personal workstations, increasing the number of conference rooms, and expanding the cafeteria space. The changes were established on the expectation that each day, approximately one half of the staff would be physically present while the other would be working remotely or traveling. With the changes, the company is aspiring to create more day-to-day interaction between people representing different business lines and functions.

Overall, ABB Marine Finland responded well to the rapidly shifted circumstances. The production could carry on without interruptions, which enabled the company to further take a customer-oriented stance in the adjustments that followed; according to the Vice President of Finance and Controlling, extensive work was done to review every ongoing project and make the required arrangements with the customers to ensure that their own performance, too, could be secured. As a result, some projects were postponed, but thankfully, none had to be canceled as the parties managed to successfully agree on rescheduling regimes. Unfortunately, the shifted prospects still required some temporary lay-offs to take place in most of the company. However, as all negotiations happened rapidly and secured the continuation of the business, the bigger picture of the upcoming year of 2021, too, became eventually rather clear despite the still ongoing global uncertainty.

As the project timeline – the time between contract signing and hand-over – typically lasts for approximately three to four years depending on the scale of the ship, the pandemic is viewed as a relatively

temporary problem at ABB Marine. Furthermore, even when some of the cruise ship projects have been suspended for the time being, ventures concerning ice-going vessels continue being chief financial support for the company during times of uncertainty. This is because the demand for ice-going ships has not plummeted as significantly as Arctic gas is still being produced to a similar extent as before. However, Project Manager 2 hypothesized that new construction contracts of ice-going vessels would become rarer in the long term, as Arctic gas is perceived as more and more of a risk for the environment. However, today, both cruise ships and ice-going vessels still make up a considerable part of the demand of ABB Marine. In addition, the cruise industry prospects are still considered promising by both ABB Marine and its customers, and new contracts are likely to be signed in the near future.

4.2. Management control at ABB Marine Finland

As the global ABB Marine is a large, multinational organization, it is no surprise that it has a vivid assortment of management control practices. In a nutshell, the practices are largely characterized by an emphasis on strategy, open communication, and customer orientation. In this chapter, we will look more closely into the management controls applied at the Finnish unit of ABB Marine. This will help us explore the tensions their combinations may produce later in the chapter on interpretations and discussion.

4.2.1. Assortment of controls

4.2.1.1. Strategy-based target setting and the incentive system

Two of the most evident management control practices at ABB Marine are the practice of strategy-based target setting and the incentive system built upon it, as these practices were the ones most frequently voiced during the conducted interviews. In essence, strategy-based target setting is a form of annual performance target setting that holds a particular emphasis on the business strategy. It aims to ensure that all of the organizational efforts, even those brought at an individuals' level, are aligned with

and contribute to achieving the common strategic objectives. Subsequently, the company's incentive system, too, is built upon this practice.

ABB Marine's practice of **strategy-based target setting** is established on the efforts of teaching all supervisors how the business strategy can be broken down in a way that the annual corporate performance targets may be allocated first to the business unit and then, the departments, and lastly, the individual employees. The goal behind strategy-based target setting at the company is that all of its staff would have a clear idea of how their own work is linked to the business strategy and how they can personally produce results for the company. It also ensures that the supervisors keep the strategy actively in their minds; unless the strategy is clear to them, they cannot narrate it to their subordinates nor set the targets for them.

The yearly process of strategy-based target setting begins in spring when the local executive committee sets the annual performance targets for the business unit. These targets may incorporate certain focus areas, and the upcoming year of 2022, for example, brings more focus on net working capital and effective and efficient management of organizational resources. After, the set annual performance targets of the business unit are allocated to the departments and their respective supervisors. In this phase, the Sales department, for example, is imposed with targets related to sales levels and margins. After, these more detailed targets advance down in the organization. Before concrete action plans and actions are established, individual teams collectively discuss in Performance and Development Appraisals (PDAs) the possible plans with the lead of their respective supervisor. Once the team-specific action plans are established, the supervisor holds a one-on-one meeting with every team member to discuss the performance targets to be appointed to them personally. These targets are adjusted so that they are related to the person's position to support their own development at work, but also in a way that they promote the performance of the company as a whole. Of these personal targets, the supervisor and employee together choose between one to three targets to be linked with one's own personal yearly bonuses.

The practice of strategy-based target setting is relatively novel at ABB Marine. Its development endeavors were first started by the Finnish business unit back in 2011, and by 2016, the practice was applied to the assortment of management controls of ABB Marine Finland. Today, strategy-based target setting is exercised across all of the global organization.

The development process of the practice first began after the local business unit organized a staff survey. The feedback gathered from the survey demonstrated that the employees did understand the strat-

egy but didn't understand the set performance targets or how they themselves contributed to achieving those targets. As a result, the local HR management began the search for a practice that could align all of the organizational efforts with the long-term business goals. However, as one may expect, the development endeavors took long before the framework's design could be considered sensible. However, over the years, the practice has acquired a form expressing simplicity, clarity, and comprehensibility.

And, as mentioned earlier, the **incentive system** of most global ABB Marine is based upon the practice of strategy-based target setting. In all four business lines, practically all of the global staff – with only few country-specific exceptions – is under the same scorecard. This means that while the base percentage of annual bonuses may vary between employee groups, everyone's work is still evaluated under the same performance metrics to prevent the development of organizational silos and ensure that daily work efforts are made while keeping the bigger picture of business in mind. Out of all the annual performance targets set for the business unit, ABB Marine Finland allocates a total of 25 % of the targets to its personnel.

Once the PDAs are held in spring, and the annual performance targets are set for the upcoming year, each supervisor and employee together choose between one to three personal targets to be linked with the employee's personal annual bonuses. When the realized performance is assessed at the end of the year at ABB Marine, the supervisors are to use an evaluation scale ranging from one to four. The same assessment method is in use in all of global ABB Marine, while the incentive system itself varies to some extent between global business units; a different compensation model has been applied in some countries where labor legislation has disallowed the use of a global scorecard. For example, when comparing the Finnish and Swedish business units, there is a very different form of incentive system in use.

If the employee's performance meets or even exceeds the expectations concerning the targets linked to their own incentive system, they receive a yearly bonus. However, if the expectations are not met at all, the supervisor and HR personnel take corrective action by giving feedback, support, and training. The forms of support always incorporate open dialogue, which may, in itself, already solve the challenges. The most difficult situations, which rarely occur, may incorporate offering a voluntary exit package negotiated together with the employee.

As hinted earlier, all personal targets are not directly linked with one's own yearly bonuses. Also, one's own performance does not fully determine the amount of the personal bonus, but some of them are de-

termined by how well the unit and the global organization as entities perform and achieve their overall financial KPI targets. However, even if personal bonuses related to performance were unattainable, one could acquire a monetary reward by filing an *initiative* – an improvement to the company's current products and procedures. These initiatives will be discussed in more detail later on.

Otherwise, ABB Marine's practices around pay comply with the collective labor agreement of the industry. In addition, salaries are regularly reviewed by the Heads of Business Lines and HR personnel to verify their adequacy.

4.2.1.2. Scheduled meetings and events

As a form of management control, ABB Marine also organizes a variety of different types of scheduled meetings. These meetings include monthly *Town Halls*, quarterly staff meetings, monthly project reviews, more flexibly organized *one-to-ones,* and various other types of gatherings. The meetings are normally organized in person, but over the pandemic, all of them have been held remotely via Microsoft Teams, if at all. Here, we look into some of the most apparent practices and how they take place in times outside corona.

Town Halls are a type of voluntary staff meeting organized monthly to the staff. Different Town Halls are organized for different audiences; one of the monthly gatherings concerns the entire staff of the local ABB Marine, while another is held for each global business line. In the CFO's words, the Town Halls have been applied as a practice to ensure that all of the staff would, in principle, have a good general understanding of the company's status in different areas of business. Therefore, during the meetings, all staff members from different organizational backgrounds and levels gather together, and all things topical are discussed. Subsequently, the Town Halls' agenda varies monthly to some extent; an invariable custom is that the Division President and the Vice President of Finance and Controlling always have a slot in the meeting, but otherwise, it incorporates alternating performers and topics. Subsequently, it was noted during the interviews that one might "accidentally wander" into the meeting to hear a specific performer or a topic. One topic always discoursed during Town Halls is 'key focus areas related to finance' so that the most important focus areas, such as collecting expired receivables and improving profitability, are repeated and maintained fresh in employees' minds. In addition, the meet-

ing may incorporate discussing occurred cases on, for example, cybersecurity, to educate the staff on how to deal with certain types of matters.

Staff meetings, then, are mandatory gatherings organized once in a quartal. First, the company collects the supervisors together to take part in a supervisor meeting, and the following day, a staff meeting with practically the same content is held for the entire staff of the local ABB Marine. The content of the meeting incorporates, similar to the Town Halls, both things topical around the bigger picture of the business but also matters related to day-to-day work. Usually, an overview of the business is discoursed, giving insight into matters related to finances and sales. In addition, other topical things are discussed, and one of the most recent meetings, for example, talked about phishing and information security. Typically, the meeting is concluded in things most topical, such as newly applied IT portals or, for example, like recently, the progress of the renovation work conducted at the Vuosaari office premises. Finally, after the meeting, the topics discussed are also distributed via email.

Performance and Development Appraisals (PDAs) are mandatory meetings to be organized twice a year between supervisors and their team members. First, they are organized at the beginning of the fiscal year (January-February) to discuss and set the upcoming year's targets, and then, another meeting is held at the beginning of the third quartal (September-October) to conduct a mid-term review on progress. During the PDAs, the supervisor and employees together discuss the yearly targets to form an understanding of the department-specific objectives and why the particular objectives have been set. After discussing the targets together as a team, the supervisor holds a meeting with each individual team member to establish the employee's own personal targets and choose those to be linked to the personal yearly bonuses. These PDAs are, therefore, according to the Head of Large Azipod Sales, not dull monologue meetings to merely impose targets to the employees, but instead, they offer a chance to do bilateral sparring and brainstorming on how the supervisor and employees can together make progress.

Additional **one-to-one discussions** are organized between supervisors and employees more regularly, on a monthly or even weekly basis depending on the preferences of the supervisor and subordinate. The practice was developed and applied in ABB Marine Finland around 2017, when the company recognized that it would be important to have supervisors communicate regularly with their employees but that not all of them knew what topics these discussions should cover. Therefore, the HR function decided to build a framework for what the supervisors should discuss with their employees on a regular

basis. The practice is not mandatory to the supervisors, and its realization is not monitored by HR. Still, according to the HR Senior Vice President, all business lines have applied it as the framework has been seen as highly beneficial. These meetings, while scheduled, are of a far less formal manner than other scheduled meetings. They may follow a preset list of questions provided by the HR function, or alternatively, proceed more freely, depending on the preferences of an individual supervisor. For example, both Project Manager 3 and Head of Large Azipod Sales noted how one-to-ones often incorporate discussing one's work, but also more personal matters like feelings. Therefore, the purpose of one-to-ones is to support the PDAs by ensuring that employees' work-related performance can be maintained in line with expectations. Like strategy-based target setting, this practice, too, was first developed in ABB Marine Finland and later applied by the other global units, as well.

Weekly team meetings are also organized by supervisors, and the actualization of this practice is monitored by the Head of the respective business line. In addition, other weekly meetings take place in the company, and the project managers, for example, go through their projects on a weekly basis together with their project manager colleagues to have an overlook on the progress of all projects. In these gatherings, matters related to quality, customers, and other topics are discussed in an informal, relatively spontaneous manner, and subsequently, they often also incorporate brainstorming as well as giving and receiving support from colleagues.

Monthly project reviews are monthly meetings organized to formally review the progress of all ongoing vessel projects. Every project has its own timely slot, and the participants of each slot include the respective Project Manager, most of the local management, the controller of the respective business line, and the Head of the Project Department. During the meeting, the attendees discuss the financial status of the project, matters related to quality, as well as possibly occurred challenges and potential future challenges, thus generating an overall view on whether the project's financial view is up-to-date or whether the budget is to be altered to reflect the reality better.

Project opening and closing ceremonies are sometimes organized by project teams. In these meetings, the people working together on a project gather to discuss the project and spend time with each other. Therefore, these meetings are of a very informal manner and may incorporate casual activities such as having dinner or drinks together outside the office hours.

ABB Marine's meetings incorporate some other informal gatherings, too, such as **corporate well-being events**, **coffee breaks**, and **corporate parties**. For example, Project Manager 1 noted that before

the pandemic, the company would hold a weekly networking event in the Vuosaari office's main lobby every Friday. The entire local staff could partake in this event, and during the gathering, the employees were offered breakfast and an opportunity to sit around tables with new people and get to know one another. The purpose of the event was to learn about the perspectives of others and to make contacts that could aid in doing work in the future. Undoubtedly, as reiterated by Project Manager 1, they also sought to elevate the team spirit among the local staff.

4.2.1.3. Predetermined practices and principles

According to most of the interviews as well as the survey (see appendix 4: 2a), the management control practices at ABB Marine are largely characterized by the extent to which employees' activities are managed by rules, procedures, and principles. The daily tasks incorporate a lot of work-related to tracking, scheduling, and reporting, which often must comply with the given templates and policies to maintain a stable quality of work.

Process descriptions: Most of ABB Marine's employees have to follow *process descriptions* when conducting their work. These descriptions vary between functions. To project managers in certain positions, for example, they describe what documents are a standard requirement in each vessel project, when bids and supplementary bids may be offered to the customer, and when certain verifications and reviews should be conducted.

Finance-to-finance reporting: In all of ABB, every financial employee reports to another financial employee, which is, as a practice, called *finance-to-finance reporting*. This reporting style was initially integrated into organizational management when ABB's matrix structure was taken down a few years ago. Its purpose is to ensure that all information on unit specific-matters reaches the top management as quickly and effectively as possible.

Four-eyes-principle: In addition, there is a type of pre-action review practice at use in ABB Marine called the *four-eyes-principle*. This principle prescribes that all bids, contracts, procurements, and other organizational commitments are always to be approved and signed by two people. Primarily, the principle is used in a formal manner. However, the principle can be seen to have integrated in the informal corporate culture, as well; according to Project Manager 1, the presence of the principle is also detecta-

ble when an employee, for example, alters the design of a product for it to better fit the wishes of a customer. In the process, they may inquire about others' opinions on the new design.

Formats and systems for work: Also, most work must be done according to established formats and systems. For example, Project Manager 3 remarked that the format is to be the same every month for how the progress of projects is tracked and scheduled, and how cash flows, budgeting, and risk management are reported. Also, they mentioned that there are systems and policies to be used regularly, either on a monthly or quarterly basis. For example, when a project manager prepares for their own monthly project reviews, the arrangements incorporate certain predetermined reporting procedures, and ERP system runs.

4.2.1.4. Opportunities for learning and training

According to both the interviews and multiple-choice survey (see appendix 4: 3h), ABB Marine also regularly organizes opportunities for learning and training for all of its employees. Some of the training offered is compulsory, while some is voluntary. The offered training programs are currently related to matters like integrity, code of conduct, equality, and supervision.

First of all, all employees of ABB Marine need to take certain specified pieces of training concerning, for example, integrity when beginning to work at the company. In addition, employees who work at the customer interface must also finish a course related to the Code of Conduct. What is more, it is not only the direct employees of ABB Marine who receive training but also those who are indirectly employed by the company. For example, the staff who work for the shipyards constructing the vessels are also provided with training and introduced to the ethical values of ABB Marine.

The voluntary training programs incorporate learnings supporting performance at work. For example, if a staff member has not reached the annual targets set for them, they may be provided with training that helps them improve their own work. However, in contrast, if a person has the qualification, potential, and desire to move forward in their career, they may participate in training programs established to identify talent and provide mentoring and support to those skilled at their work.

Also, when an employee begins their work as a supervisor, they are to go through a specific training program to become acquainted with the responsibilities of the new position. This training program lasts

for several days and incorporates several modules going through, for example, what personnel management incorporates and how people can be led and managed. In this training, the supervisors are also further familiarized with the corporate values and different management tools. The purpose of the training is to facilitate the future supervisors to take responsibility for their own work and provide them support in the early stages of doing so.

4.2.1.5. Corporate culture

The corporate culture of local ABB Marine can be characterized by various aspects and values demonstrated in the storylines of the interviewees. Aspects that were both directly and indirectly voiced the most had to deal with maintaining open communication, supporting a non-hierarchic culture, encouraging mutual monitoring, valuing staff wellbeing, and communicating corporate values. The employees also have a high sense of responsibility and are culturally ready to observe, monitor, and review things both on-demand and on their own, as well. In addition, a sense of togetherness was also voiced to prevail in the company among colleagues.

Open communication: According to the interviews, open communication seems to occur both vertically and horizontally in ABB Marine. In addition to communication taking place in formal meetings such as performance appraisals and monthly meetings, most supervisors also reputedly facilitate informal discussions among their team members through other forms and forums of communication. The majority of the interviewed supervisors spontaneously remarked that communication occurring twice a year is by no means enough, and that consequently, their task is to facilitate informal, bilateral feedback throughout the year through, for example, one-to-ones and weekly meetings. Both positive and constructive feedback is given openly to ensure that matters are progressing and moving in the right direction. Subsequently, employees are able to keep up the expected pace and achieve the targets set for them by the end of the year. It also ensures that the supervisor may react in time if it seems that the set targets are not going to be met or if any problems arise. The CFO, for example, noted open communication to be of high importance because if problems are not brought into the discussion, they cannot be solved, either. In addition, open communication not only takes place between supervisors and their subordinates but also reputedly between colleagues and people representing different departments. For

example, Project Manager 2 noted that communication between colleagues is rarely formal, and people often spontaneously bring topics into discussion.

The conducted multiple-choice survey produced the same remarks as the interviews. The survey responses showed evidence that the open communication culture has been successfully implemented throughout the organization as the production line workers nearly unanimously perceived that anyone could raise issues and share suggestions for improvement (see appendix 4: 4e).

Non-hierarchic culture: In addition to open communication, nearly all interviewees also emphasized how the culture of ABB Marine is highly non-hierarchic. Even when the daily work at ABB Marine is seemingly largely driven by supervisor-subordinate relationships, the interviews indicated that the staff perceived the company as relatively non-hierarchical. All in all, everyone seems to feel that they can freely approach not only their supervisors but anyone else, too, if needed. The Vice President of Finance and Controlling characterized the culture in the way below.

> "*I see that especially in ABB Marine's business, the bottoms-up approach is listened to a very large extent. In the sense that even when some things and targets may be finalized at the division level, we still do not have much deviation between the bottoms-up approach and the target coming from the division level. If I was to compare [ABB Marine] to the other units I have been in, I see that there we had much more of it that when a target was introduced, it was rather far away from what we may have had ourselves anticipated. So, it has somewhat surprised me positively that – at least during the time that I have been here –, the two have been rather well-aligned, and people at the 'grass roots', who sort of do the job, are listened to fairly well. --.* "*So, I think that we have sort of a non-hierarchical culture – at all levels, really --.* " (Vice President of Finance and Control)

Their view is further supported by the notion that staff surveys seem to be a rather frequent practice at the company (e.g., remote work, strategy-based target setting, etc.).

Mutual monitoring: Mutual monitoring seems to take place, at least at the higher levels of ABB Marine, both vertically and horizontally, but mostly informally through team meetings and casual discussions between colleagues. As mentioned earlier, the project managers, for example, informally monitor one another's progress by partaking in voluntary weekly meetings with their colleagues. In project teams, which incorporate the project manager nominated to run the project, the main designer, and pro-

curement and logistics personnel, mutual monitoring takes place both formally and informally through scheduled meetings and bilateral sparring. Of course, principles like finance-to-finance and four-eyes-principle also impact the amount of both formal and informal monitoring. However, naturally, formal horizontal monitoring also occurs at ABB Marine through PDAs and performance reviews.

Staff wellbeing: ABB Marine and its supervisors also seem to aspire to actively foster the staff's well-being. For example, coffee breaks and company-wide events are organized every now and then to ease coping with work-related matters. In addition, the company takes care of its employees' physical health by offering monetary benefits to support exercising and sport-related hobbies outside office hours. Also, as the most recent addition to the control practices, during the pandemic, the company has launched a 24/7 hotline service, which people can call to discuss fundamentally any matter or problem they may have. Overall, Project Manager 3, for example, remarked that in general, support is very much at hand in the organization whenever needed.

Corporate values: While the value of open communication, for example, already manifested itself in the conducted interviews, the interviewees also voiced other values prevailing in the company. Customer orientation seems to be at the core of operations, and other values of, for example, sustainability, product quality, employee commitment, achievement of goals, trust, and transparency essentially spread around this value. In addition, ABB Marine also has a set of official corporate values imposed by ABB Group, which are courage, care, curiosity, and collaboration. These official values, as iterated by HR Senior Vice President, are considered in conducting all supervisor and staff meetings, and the supervisors are expected to actively ponder on how they manifest themselves in the supervisors' own team and work. For example, courage, as a value, can demonstrate itself when a problem is identified and is immediately brought forth and communicated.

Sense of responsibility: The interviews also indicated that at ABB Marine, the employees have a high sense of responsibility for their work. This sense of responsibility and accountability for results is also encouraged through formal performance reviews. Both the interviewed employees and the surveyed production line workers emphasized the sense of responsibility that conducting their work incorporates (see appendix 4: 2e).

An innovative approach to work: At ABB Marine, it also seems to be a cultural thing to observe, monitor, and review things, and that the staff wants to introduce new ideas and thoughts. This aspect

manifests itself in the use of the different, previously-mentioned tools and systems with which employees can suggest improvements to daily work.

4.2.1.6. Tools for innovation

As a form of management control, ABB Marine has also applied several tools to bring about organizational improvement and innovation, and subsequently, long-term value generation. The company has three tools for improvement in use: a deviation tool, safety tool, and initiative tool. While the use of these tools is not necessarily a direct indication of innovation and innovativeness, they still do demonstrate an innovative working culture – that it is natural for the staff of ABB Marine to observe, monitor, and review things and introduce new ideas and thoughts. Here, we briefly look into these three tools.

The deviation tool is applied in all of global ABB Marine, and it is maintained in the company's ERP system. With this tool, employees can report an occurred defect or divergence in a product or operative process. With the same tool, employees can also give out development proposals, and according to the Quality Manager, quite many of the filed deviations are, in fact, development proposals. The number of filed deviations is monitored by business lines, and some of the local business lines have set targets for them.

The second tool, **the safety tool**, is used in all of ABB Group to report safety observations related to physical settings at the workplace. These observations may incorporate things that have caused an incident to happen or things that could potentially lead to one.

The third tool, **the initiative tool**, as briefly mentioned earlier in the chapter discussing the incentive system, enables employees to suggest ideas related to operational improvement and receive rewards for good suggestions that also meet the pre-defined characteristics of an initiative. The tool is practically used in all of ABB Finland, but all units use it in their own way. ABB Marine Finland, too, has the tool in place, but in practice, the process is still in its infancy and has a very modest position in the organization. Still, all of the staff is reputedly highly encouraged to file initiatives. Even so, there are no target numbers set for the number of yearly suggestions at the company, unlike in some other local divisions.

4.2.2. Origins of ABB Marine's controls

The organization of global ABB Marine, like reiterated briefly earlier, incorporates multiple levels of decision-makers. Therefore, the management controls, too, are posed by different organizational layers. Many of the formalized controls like rules, regulations, and systems are put forth by the management at the very top, which is the ABB Group level. However, some of the controls, like strategy-based target setting, annual performance targets, and one-to-ones, are imposed by the local executive committee of ABB Marine Finland. Also, the Heads of individual departments may have applied further, more specific guidance of their own will. Naturally, the legislative environment of the company also affects how business is conducted.

The basic practices are common to all divisions. All of ABB Group has to comply to, for example, holding the previously-discussed PDAs at the beginning of each fiscal year. In addition, the Group has put forth a desire for conducting mid-term performance appraisals. However, this practice, today, is officially voluntary yet is still conducted in all of ABB Marine. In addition, the corporate values, some training modules, and IT systems, among others, are to be used by all divisions.

However, the division of ABB Marine has had some flexibility and freedom in selecting its own control practices. While there are various managerial controls in place at ABB Marine, the interviews indicated that many of them have not been given from above but applied voluntarily by the members of the organization. For example, the recommendation to hold one-to-one discussions was given above from the executive committee, but in the end, the Heads of Business Lines voluntarily incorporated them into their daily practices as the practice was viewed as potentially beneficial. Moreover, Project Manager 1 remarked that, due to the proportions of the business, ABB Marine had had the power to influence, rationalize, and improve some of the global ABB Group practices.

Last but not least, some of the controls in use are imposed by the external legislative environment posed by the units' geographical location. Overall, according to Project Manager 1, the marine industry is generally rather regulated, and ABB Marine Finland, for example, faces legislation from both Finland and the EU's side. What is more, the customers' location in China and Russia, for example, may also pose certain demands on how the delivery of goods needs to occur and what documentation is required. So, of course, not all organizational demands are brought forth by ABB Marine – or even ABB Group.

4.2.3. The pandemic's implications on ABB Marine's managerial control

Like in the majority of businesses, the covid-19 pandemic's most visible implication on work at ABB Marine has undoubtedly been the shift to remote work. As the continuation of the company's production had to be secured, all work of office employees has now been conducted remotely from home. In addition, all meetings have been organized through Microsoft Teams. Traditional face-to-face interaction occurs very little, if at all.

And of course, as the pandemic shifted office work to remote work, the introduction and familiarization of new personnel have also changed drastically. For example, at the time of the interviews, the Business Line Controller, who began working at ABB Marine in May 2021, remarked that he had not yet had the chance to work at the office premises. He had visited the premises only to retrieve his laptop on the first day of work. Otherwise, all work-related encounters, according to him, have very much been absent as all interaction has had to occur at home through Teams. Subsequently, the Head of Large Azipod Sales noted that supervisors like him have now had to put considerably more effort into the introduction and socialization processes to ensure that new employees get acquainted with people and can grow their network, even when interaction occurs remotely.

As briefly mentioned earlier, before, prior to the pandemic, working from home was not strongly advised for, and subsequently, remote work was not a very common practice. However, today, practically all work is conducted remotely, and consequently, the employees have recognized that the top management's perceptions of remote work is clearly shifting. For example, the application of the hybrid model will most likely maintain remote work as a substantial part of the work culture even when the pandemic is over. However, while some of the employees' work normally incorporates traveling, many hope for this practice to continue – at least to some extent. For example, Project Manager 3 remarked that traveling, for example, to visit the client and attend sea trials, was largely the 'salt' of the job, even when working from home has had great aspects to it, as well. Indeed, most of the interviewees openly voiced to be happy to go back to the office when the opportunity arises.

Overall, the management has noted that the shift has significantly affected employee well-being, and consequently, their work-related performance. The experiences are strongly polarized; on the one hand, most employees – including the interviewees – have experienced the shift very positively as it has provided them with more freedom and flexibility to regulate between work and leisure. For example, the

time usually spent commuting and traffic jams can now be spent more effectively by, for instance, sleeping longer and exercising. On the other hand, some individuals have suffered considerably from the change. In the HR Senior Vice President's words, for those people, going to the workplace in the morning and spending a day there, which then ends, might be an absolute prerequisite for one's own well-being. This polarization has brought forth brand new challenges to human resource management.

Also, the covid-19 pandemic has temporarily increased the amount of work for some staff members. Soon after the covid-19 pandemic hit the marine industry, ABB Marine Finland had to begin co-operation negotiations with its staff members. As a result, as mentioned earlier in the case description, most of the local functions faced lay-offs and temporary lay-offs. Subsequently, the workload of those who got to stay at work was momentarily increased. For example, Project Manager 1 remarked that after the co-operation negotiations and lay-offs, the remaining projects were allocated to the remaining staff. This, in their words, temporarily got the spirits down among those who stayed. Thankfully, the situation has improved since, and the team spirit of the company has not been negatively affected. However, still, the workload has somewhat increased in all of the company; in addition to running the business, an additional effort has now been put into learning new skills and making supplementary analyses and reviews to make the prevailing unpredictable settings as predictable as possible.

Overall, due to the shifted environment, the importance of open communication and other forms of interaction has become even more pronounced, as people's ability to cope with their work has varied to a large extent. As a result, the company recently launched the previously-mentioned 24/7 hotline service to lower the threshold for employees to ask for help and to receive support when they need it. The communication on the launch has reputedly been extensive, and while no experience on the service could be gathered, its application has likely had a positive effect on the staff's well-being.

4.3. Case Summary

In this chapter, we have taken a comprehensive look at the organization of ABB Marine. First, the chapter discussed the foundations of the case company and its overall background, after which it moved on to have a more detailed view of the company's internal context regarding its offering and innovation practices. After, most of the remaining chapter explored the vast array of ABB Marine's management control practices by examining the employed methodologies around strategy, meetings,

culture, and innovation, as well as the origins of these controls. Lastly, we concluded in observing how the covid-19 pandemic has forced ABB Marine to alter and augment its management control practices.

The following fifth chapter, the interpretations and discussion, will dive deeper into the discussed management control practices of ABB Marine, analyzing them in more detail. After a thorough analysis, the chapter explores the tension and dynamic tension originating from the employed control combinations at the case company. Lastly, with the support of the study's findings, the discussion delivers refinement to earlier theory around management control and organizational tension.

5. Interpretations and discussion

In this chapter, we will further analyze the detected management control practices at ABB Marine. First, the chapter will dive deeper into the identified control mechanisms by applying the OOC framework provided by Merchant and Van der Stede (2017) while combining formal and informal control notions to the four control categories, as previously conducted by Fagerlin & Lövstål (2020). After reviewing the detailed features of the individual control elements, we will then examine the narrations of the conducted interviews and multiple-choice survey and how they demonstrate the prevailing control combinations to provoke tension and dynamic tension at ABB Marine. Lastly, the chapter concludes with the findings of the study and the refinement they provide to the existing theory around dynamic tension.

5.1. Management control at ABB Marine

As implied earlier, this thesis will build on the OOC framework of Merchant and Van der Stede (2017) when defining and categorizing the management controls applied at ABB Marine. This approach incorporates exploring the applied controls through the categories of results, action, personnel, and cultural control. Furthermore, the detected control practices will further be divided into formal and informal control based on the notions of Richtnér and Åhlström (2010), as suggested by Fagerlin and Lövstål (2020).

As we have learned in the case chapter, the practices of ABB Marine incorporate various forms of management control ranging from strategy-based practices, meetings, cultural processes, and innovation. While the study's limitations disallow the thesis to observe all management control practices employed at ABB Marine, the majority of them could still be identified and examined through the applied study methods. In the following table, all controls identified are categorized according to Merchant and Van der Stede's (2017) OOC framework by applying the lens of formal and informal control. Following the table, there will be four sections that explain the employed controls and their control categories in a more comprehensive manner.

Control form	Formal control mechanisms	Informal control mechanisms
Results control	Strategy-based target setting; yearly performance targets; personal incentive system; monetary rewards	Informally voiced expectations
		Self-monitoring; social recognition received from suggesting improvements
Action control	Reporting policies, process descriptions, work templates, etc.	One-to-one's, coffee breaks, project manager monthly meetings
	Four-eyes-principle, finance-to-finance-reporting	Four-eyes-principle
	PDAs, performance reviews, staff meetings, weekly team meetings, Town Halls	Town Halls
	Redundancy (e.g., voluntary exit package)	
Personnel Control	Formal training programs on e.g., integrity, code of conduct, equality, supervision, etc.	Informal training programs incorporating identifying talent and mentoring
	Formal provision of resources (e.g., time, information, supplies, training, etc.)	Informal provision of resources (e.g., collegial support, knowledge-sharing, etc.)
Cultural control	Code of conduct, official rules, corporate values	Collective ideologies, norms, beliefs, attitudes, and behavioral manners regarding, e.g., open communication, customer-orientation, employee commitment, transparency, mutual monitoring, etc.
	Incentives based on collective success	Socialization processes
	Town Halls	Corporate well-being events and corporate parties; weekly main lobby gatherings on Fridays

Table 3: Management controls employed at ABB Marine

5.1.1. Results controls at ABB Marine

As the table shows, the study's findings indicate that several *results controls* of both formal and informal nature are employed at ABB Marine. To rehearse, in the literature review, we learned that results control commonly represents managerial control that aims to stimulate good results in an organization

by influencing an employee's behavior prior to any actions they take. Therefore, the focus here is on influencing the *outcome* of the employees' behavior. (Merchant & Van der Stede, 2017).

ABB Marine's *formal results controls* seem to incorporate at least the practices of performing **strategy-based target setting**, imposing **yearly annual targets**, maintaining an **incentive system**, and providing **monetary rewards** in exchange for suggested valuable initiatives. These practices meet the characteristic of formal results control because they can be considered regular and predictable and to incorporate direct information transfer and communication while influencing the outcome of the actions of an employee. (Richtnér & Åhlström, 2010; Merchant & Van der Stede, 2017).

The *informal results controls* in place, then, incorporate at least the **expectations** that are voiced by the supervisor and colleagues of an employee and the practice of **self-monitoring** performed on one's own. In addition, an employee may receive **social recognition**, at least electronically, by, for example, suggesting improvements to the organizational practices by using the various tools provided. These practices represent forms of informal results control, as they are not explicitly planned activities but still determine the outcome of an employee's performance. (Richtnér & Åhlström, 2010; Merchant & Van der Stede, 2017).

5.1.2. Action controls at ABB Marine

The table shows that there are also several formal and informal *action controls* in use at ABB Marine. Earlier, in the literature review, we remarked that action controls typically intend to influence employee behavior by prescribing and monitoring desired ways of acting. In contrast to results controls, which seek to affect the *outcome* of the employees' behavior, action controls aim to influence the *actions* themselves. (Merchant & Van der Stede, 2017).

The study findings indicate that *formal action control* occurs in various forms at ABB Marine: in predetermined practices dealing with **reporting policies**, **process descriptions,** and **work templates**, in methodologies of **four-eyes-principle** and **finance-to-finance-reporting**, in official meetings like **PDAs**, **performance reviews**, **staff meetings**, and **Town Halls,** as well as the more infrequently occurring redundancy and negotiation of **voluntary exit packages**. These practices can all be defined as formal action control. This is because the predetermined practices prescribe desired ways of acting, the methodologies act as pre-action reviews, and the meetings both prescribe and monitor desired behavior.

In addition, all of them take place regularly and in a similar manner time after time, which are further prerequisites to formal action control. (Richtnér & Åhlström, 2010; Merchant & Van der Stede, 2017).

In contrast, ABB Marine's *informal action control* takes the form of practices and processes that are more spontaneous and less explicitly planned. For example, the meetings of **one-to-ones**, **coffee breaks**, and **project manager monthly meetings** fit into the definition of informal action control, as these gatherings rarely follow a structured plan but still have a great impact on the behavior of employees, as indicated by the interviews. In addition, the **four-eyes-principle**, while being a form of formal action control, can also be considered to have some characteristics of informal control; as one of the Project Managers pointed out, the principle is mainly utilized formally when signing contracts, for example, but occasionally, colleagues may also apply it informally when monitoring one another's work. Similarly, the **Town Halls** already interpreted as a form of formal control, also possess characteristics of informal action control; while these meetings are organized monthly and largely in the same format, they also occasionally encompass topics and teachings incorporated into a discussion rather abruptly if an incident of some form and magnitude takes place in the company. On such an occasion, prescription of desired behavior is performed without much explicit planning. (Richtnér & Åhlström, 2010; Merchant & Van der Stede, 2017).

5.1.3. Personnel controls at ABB Marine

There are some personnel controls employed at ABB Marine, as well. These controls, as discussed in the literature review, seek to build employees' 'natural tendencies' to perform satisfactorily on their own as well as to control and motivate themselves without external supervision (Merchant & Van der Stede, 2017). At ABB Marine, the formal and informal personnel controls both relate to the arrangement of training programs and the provision of necessary resources.

Formal personnel controls are detectable in the form of **training programs** organized for subjects concerning integrity, code of conduct, and supervision. These training programs are organized regularly and always incorporate the same content for all participants instructing them on how work is to be performed. Thus, these particular training programs are clear demonstrations of formal personnel control. In addition, formally **provided necessary resources** like time, information, and supplies may also be considered a form of formal personnel control; they are formally provided by the organization's

management and intend to build the employees' capabilities and motivation to perform well. (Richtnér & Åhlström, 2010; Merchant & Van der Stede, 2017).

ABB Marine's informal personnel controls relate largely to the above-mentioned practices. Some **training programs** in place, particularly those focused on identifying talent and presenting mentoring, possess characteristics of informal personnel control. This is because these training programs are naturally more spontaneous in progression and incorporate a lot of implicit information transfer. And similar to training programs, the **provision of necessary resources** takes place informally, as well. While some of the necessary resources are provided formally by the company management, the provision also occurs informally among colleagues and team members when individuals give each other collegial support and share knowledge during, for example, team meetings and weekly project manager meetings. Therefore, at ABB Marine, both the training programs and provision of resources possess characteristics of both formal and informal control depending on the conditions of a given time. (Richtnér & Åhlström, 2010; Merchant & Van der Stede, 2017).

5.1.4. Cultural controls at ABB Marine

The last form of control, cultural control, also has a great role in ABB Marine's management control practices. As discussed in the literature review, cultural controls generally encompass the norms, values, and beliefs shared collectively within an organization. Controls of this type are designed to shape the organizational culture towards a form that encourages employees to perform collective, reciprocal monitoring on one another. (Merchant & Van der Stede, 2017).

At ABB Marine, *formal cultural control* can be detected to take the form of official rules the employees are to live by, like the **code of conduct** and the **corporate values** of courage, care, curiosity, and collaboration. In addition, the characteristics of formal cultural control are further met by the part of the incentive system that rewards the collective success of the employees of a unit, which, subsequently, may create a form of group pressure on individuals to perform well. Also, the **Town Halls** and **staff meetings**, both earlier remarked to fit into the definition of action control, may also be considered a form of formal cultural control as they collect the staff together in a formal manner and thus, encourage mutual monitoring. (Richtnér & Åhlström, 2010; Merchant & Van der Stede, 2017).

The informal cultural controls at pace seem to incorporate a large variety of **collective ideologies** regarding, for example, open communication, customer orientation, employee commitment, transparency, and mutual monitoring. They also embody the **socialization processes** conducted by the supervisors and colleagues when new employees enter the company. And, as remarked in the case description, there seems to prevail a strong team spirit among the organizational members, the production and maintenance of which has likely been supported by the arrangement of events like **corporate wellbeing events**, **corporate parties**, as well as the **main lobby gatherings** previously organized weekly at the Vuosaari premises. While these meetings have to be planned and prepared in advance, their nature is still largely defined by the informal social interaction and implicitly planned activities that occur in them, thus, making them a form of informal cultural control. (Richtnér & Åhlström, 2010; Merchant & Van der Stede, 2017).

By examining the sections discussed above, we can remark that not all employed control is necessarily either formal or informal in nature or possesses characteristics of only one category of control. Instead, depending on the approach and depth of analysis, one may find a control element to possess characteristics of several forms and categories of management control. For example, at ABB Marine, it seems that the four-eyes-principle and Town Halls both fit into the definition of both formal and informal action control. Furthermore, Town Halls seem to be applicable to not only one but *two* control categories of action and cultural control. In addition, the offered training programs and provision of resources cannot directly be counted as a single form of control but have to be examined in more depth in order to categorize them accurately.

With the acquired understanding of ABB Marine's managerial control, we now have the confidence to dive into the concept of dynamic tension at the company. In the following chapter, we shall use our understanding to analyze how the combinations of control elements and their differing qualities provoke tension and dynamic tension at ABB Marine.

5.2. Organizational tension at ABB Marine

The collected understanding of the management control practices in place in ABB Marine enables the thesis to explore the tension and dynamic tension emerging from the use of different control combinations in the selected case company context. In addition, the gathered data also allows to further examine

the characteristics of tension balance, balance tendency, and intensity that the prevailing tensions enunciate (van der Kolk et al., 2020). In this chapter, we discuss and analyze the most pronounced and apparent management control tensions prevailing in the case company of ABB Marine.

According to the descriptions provided by the interviewees, at ABB Marine, there seems to exist several organizational tensions emerging from the employed management control combinations. Some have surfaced due to the management control elements posing complementary aspects, while others have arisen when an applied management control combination generates a push in different directions by incorporating contradictory elements. In addition, the study was also able to identify some tensions possessing both complementarities and contradictions. Thus, dynamic tension prevails in the case company as well.

Similar to the earlier observations on the management controls employed at ABB Marine, the following discussion unlikely incorporates all tensions occurring at the case company. However, it still explores the tensions most apparent and influential in the context of ABB Marine.

5.2.1. Tension: control combinations maintaining a complementarity

Scheduled meetings vs. open communication vs. performance targets

At ABB Marine, there seems to exist a positive tension, or a complementing relationship between the three control elements of 1) scheduled meetings, 2) the collective ideology of open communication culture, and 3) the set yearly performance targets. Most of the interviewees remarked that the combination of scheduled meetings of various forms foster open communication, and subsequently, the achievement of performance targets set in the yearly PDAs, creating a trilaterally supporting relationship between the three management control elements representing formal action control, informal cultural control, and formal results control.

On one hand, meetings like one-to-ones ensure that employees have a clear view on their responsibilities and the expectations set for them. On the other, the open communication culture ensures that any emerging challenges or problems are discussed early on, and subsequently, solved, too. This, then, facilitates performing well at one's work as well as supports meeting the set performance targets. Also,

the one-to-ones offer a forum, in which matters related to work may be discussed in private, consequently fostering employees' well-being which further contributes to good performance.

For example, the Head of Large Azipod Sales remarked that there is a pronounced complementarity between performance measurement and the formal and informal meetings. During these meetings, valuable information is shared, but employees may also voice their concerns which both maintain open communication and facilitate meeting set targets. In addition, the Business Line Controller noted that the arrangement of monthly project reviews, while posing more work on the participants, significantly facilitates achieving the annual performance targets.

Also, Project Manager 2 remarked that the weekly meetings between project managers ensure that everyone concerned is well-informed on both financial matters and component-specific details, which subsequently facilitates achieving project-specific deadlines and unit-wide performance targets. Similarly, Project Manager 3 mentioned that these meetings enhance the performance of individuals, as well; during these gatherings, the project managers can openly discuss project-related matters as well as give and receive support, and thus, contribute to others' personal performance. After all, as the company is providing one product to several customers, matters raised during these weekly meetings regarding quality, for example, may help all projects forward and facilitate achieving set performance targets.

As mentioned above, in this tension, there is a complementing relationship between three control elements representing formal action control, informal cultural control, and formal results control. The formally scheduled meetings, informally maintained open communication culture, and formally set performance targets complement one another both bilaterally and trilaterally, reinforcing each other's importance and continuation in the organization. Therefore, as the earlier literature review suggests, these three complementary control elements produce a 'positive' organizational tension.

Informal provision of resources vs. performance targets

In addition, there seems to be a complementing relationship between the informal provision of resources performed between colleagues and individuals' performance targets. As mentioned above, collegial support, which is one method of informal resource provision, increases the prospects of an employee achieving their own yearly performance targets. However, the interviews also implied that the

correctness and *quality* of one's work may affect another employee's capabilities to perform well. The Business Line Controller, for instance, remarked that, in the end, the financial staff's performance determines how well the project managers, for example, can conduct their work. In the Business Line Controller's words, when the monthly project reviews are arranged, the financial staff's performance determines how well the respective project manager can continue with their work after the meeting:

> "*-- If and when all the processes from our side -- work correctly, good, on time, and so on, then that enables us and the project managers to administer their numerous, approximately fifty projects, in a sensible manner. -- As there really are dozens of projects, if the financial side – about which this all ultimately is – is not in order, then all time is used on cleaning all that mess. --. In the same way, as we are the ones sitting on all the financial data, -- it does show in everyone else's work whether we can produce high-quality information. If that is unclear, then it causes a lot of confusion in the other people's work --.*" (Business Line Controller)

On the other hand, the Business Line Controller also remarked that the arrangement of the monthly project reviews ensures, reciprocally, that the financial employees can conduct their tasks around financial reporting, budgeting, and forecasting with the best knowledge. This is because, during the project reviews, the project managers share their complete knowledge on the projects, including the understanding of their future prospects and risks. With this information, it is easier for the financial staff to maintain the budgets and forecasts in a condition that reflects the prevailing reality as well as possible.

Indeed, in this second positive tension, there is a complementing relationship between two control elements, informal provision of resources and yearly performance targets, which represent informal personnel control and formal results control. Technically, the provision of resources in the context of project reviews also incorporates characteristics of formal personnel control, as these meetings themselves are formally organized and exemplify formal action control. However, collegial support mostly takes place informally in companies' day-to-day practices, and therefore, here, the control element is also regarded as an expression of informal control.

5.2.2. Tension: control combination maintaining a contradiction

Formal provision of resources vs. expectations

According to several interviews, a potential contradiction may occasionally occur between the number of formally provided resources and set expectations. This remark was made not only by the employees at lower levels but also by the HR Senior Vice President and Chief Financial Officer. In addition, the Vice President of Finance and Controlling also remarked that while they themselves had not experienced the contradiction, the tension has still seemingly taken place in the work and perceptions of others.

The HR Senior Vice President pointed out that sometimes the expected quality and available time resources may not be fully aligned. The Chief Financial Officer conformed with this view by saying that often the employees are imposed with a lot of demands while the available time resources of each day do not increase. Then, the Vice President of Finance and Controlling remarked that different people might also experience a high workload very differently:

> "*I have actually been thinking about this [question] lately as I have been recruiting people and as there have been cases of fatigue and so on. --. -- People have 'sticks' of very different lengths. I mean, regarding one's own resilience and what one perceives as hurry and what makes one distressed. Or then [the point] when you feel that you're completely overloaded, that experience differs very a lot. And in that sense, the perception of whether we have enough resources differs terribly a lot.*" (Vice President of Finance and Controlling)

Therefore, this 'negative' tension incorporates a contradicting relationship between two control elements that represent formal personnel control and informal results control. Like in many organizations, the formally provided resource of time and informally expressed expectations may conflict from time to time at ABB Marine, as well. However, this experience highly differs between individuals. As noted by the Vice President of Finance and Controlling, each employee may perceive hurry very individually. As a result, the perception of whether there are enough resources may also vary to a great extent between staff members.

5.2.3. Dynamic tension: control combinations posing both complementarity and contradiction

Predetermined practices vs. performance targets

According to the study's findings, there seems to prevail a dynamic tension between the control elements of predetermined practices and set performance targets as these two individual control practices simultaneously possess both complementary and contradicting aspects. On the one hand, the predetermined practices may be perceived as favorable and even essential for achieving good performance. On the other, these procedures may also be regarded as excessive and something that occasionally hinders the execution of tasks, and thus, performance, too.

Overall, the number of employed controls regulating work seems to be perceived relatively high by many at ABB Marine. When one of the project managers was inquired about whether the employed management control elements, in general, complement one another, they responded in the following manner:

> "*That is a tough question. --. There are a lot of them. --. Maybe, on a general level, I perceive that there are too many of them, so maybe it would be favorable to eliminate a few --. There probably would be a chance to eliminate what really needs to be reported and how.*" (Project Manager X)

Overall, Project Manager X did see that the employed controls serve a purpose yet still remarked that the requirements concerning IT systems and tasks, for example, take time somewhat excessively in daily work, especially in times when the perceived amount of resources is not aligned with the demandingness of expectations. In their view, this was the current situation; during the pandemic, there has reputedly been a high turnover in staff, which has resulted in some employees' workload becoming heightened while the amount of resources has remained invariable.

Another interviewed project manager, on the other hand, similarly pondered that while the prevailing bureaucracy may occasionally hinder daily work, they still saw that the amount of control couldn't necessarily be decreased as they considered many of the predetermined procedures even essential for work. Still, they remarked that control should not be increased, either, at least at the local level:

> "*-- If we think of supplementary sales made during the project -- then it is essential that the four-eyes-principle is in use --. But there also needs to be room, respectively, for working independently in certain positions; if you need to ensure everything from somewhere else, then that is not good. But I do not think that this is excessively the case. I think that maybe that kind of general bureaucracy and increasing the number of processes should always be done while prioritizing the business as it sometimes is a bit theoretical. --. To sum up, there need to be process descriptions, and the processes need to be in action, but they also need to be made agile enough so that they do not hinder the business.*" (Project Manager Y)

The Business Line Controller, in contrast, perceived that control is not employed excessively, while completing tasks may occasionally take time and effort. They thought that, at least in the finance function, the workload is on the right level and the employed processes are appropriate. Still, they remarked that there might be many things ongoing at work concurrently every now and then, and in those times, one may have to be able to tackle multiple tasks simultaneously.

Indeed, according to the data collected in the interviews, the perceptions of the relationship between standardization of work and performance are somewhat polarized at ABB Marine. On the one hand, many consider the predetermined practices to facilitate daily work and subsequently enhance the prospects of achieving both individual and unit-wide performance targets. On the other, some viewed the practices as somewhat laborious and time-consuming, deflecting their ability to perform well in accordance with the expectations set for them.

When considering the latter view, Project Manager X remarked that complying with doing work in a standardized, predetermined manner may occasionally be excessively time-consuming, especially in the case of reporting:

> "*Of course, it is expected that one performs well regarding a project and reports on it, but on the other hand, that reporting takes a lot of time, and occasionally it may feel like that this need to report already defines the work to a quite large extent – and not running the project. Even though of course it (the work) is [running the project].*" (Project Manager X)

Project Manager Z, in contrast, noted that while reporting templates and the standardization of reporting both bring more bureaucracy to work, the standards also streamline processes and facilitate daily work as they enable everyone to perform well at work and report in line with the set principles. In addi-

tion, they noted that the projects of ABB Marine are very large ventures; if the staff's work was not so highly managed, the quality of reporting and even the quality of entire projects could vary to a large extent:

> "*The monthly reporting, too, is very standardized and process-like at our company, and that is actually terribly good; our projects are so big that if it wasn't so strictly guided, then the quality level in reporting and the projects, too, could fluctuate to a large extent. So, in that sense, I think that it supports our work and practices very much.*" (Project Manager Z)

Project Manager Y conformed more with the latter view and additionally remarked that the predetermined practices contribute to delivering value to the customer in the form of quality work and adherence to due dates. The Vice President of Finance and Controlling repeated this comment and said that having clearly defined rules and predetermined practices facilitates reaching the desired results with the customer and reaching project deadlines. What's more, the multiple-choice survey, too, reproduced these positive remarks; its responses demonstrated that while there are several rules and procedures applied at the work of the production line workers (see appendix 4: 2a), the staff majorly perceives them as highly important for the execution of tasks (see appendix 4: 2b).

In this dynamic tension, there is a two-dimensional relationship with both complementing and competing aspects between two control elements representing formal action control and formal results control. While the collected data demonstrates that the relationship is mostly perceived as complementary between the two management control elements of predetermined practices and set performance targets, they also pose challenges to work from time to time. Still, the two control elements are highly interdependent and interrelated and intensify the effects of one another.

Incentive system vs. personal performance

It also seems that there prevails a dynamic tension between the management control elements of the employed incentive system and the set performance targets. While the incentive system in place is to support motivation and performance at work, it seems that the employees' perception of the incentives' alignment with the realized personal performance may possibly vary to some extent. Most interviewees did not voice their personal opinion about the employed system and bonuses, but one of the inter-

viewed project managers remarked that the influence an employee has on the size of their annual bonus is, in their view, relatively small:

> "*-- My own experience is that one has a relatively small influence on how large of a bonus you get. So, there is a personal share, but in practice, it depends on the result of the unit. --. There is a small share that is personal that is evaluated on the basis of the targets set during performance appraisals and how they have been achieved, but the possibility to influence it (bonus) is relatively small when its size comes from above from the result.*" (Project Manager X)

Still, they pondered that in their position, they personally have a relatively large influencing possibility:

> "*-- In my own position, I could still say that there is a relatively large influencing possibility; if I leave something unfinished – if we think this way around – then the risk of a customer leaving invoices unpaid claiming that we have made a mistake or of us getting fined [is much higher]. Then, I have a relatively big influence on how the projects are realized --. But still, in practice, if we think of how the bonus is calculated, there one has little influence.*" (Project Manager X)

A similar remark was made by the Vice President of Finance and Controlling, who noted that they have a very direct influence on the result of the business line they work under:

> "*Some people probably consider it (the incentive system) more distant than others, and I belong to the latter group in the sense that, for example, this year we still have a common scorecard together with another business line, but starting next year, my performance is measured solely on the basis of the figures of my business line. On which I, if anyone, have a very direct influence.*" (Vice President of Finance and Controlling)

When considering the results collected from the multiple-choice survey, on the other hand, the production line workers' perceptions seem to conform with the opinions of the project manager. For the majority of the production line workers, the department-specific performance targets seem to be very clear (see appendix 4: 1a) and most see that they are motivated and able to contribute to achieving the set performance targets (see appendix 4: 1c and 1b). However, still, according to the survey responses, it seems that the majority of the workers also perceive that good performance is quite rarely rewarded (see appendix 4: 1f).

This dynamic tension, then, incorporates a two-dimensional relationship between control elements that both represent formal results control. The tension demonstrates both complementarity and competition

perceived between the employed incentive system and performance targets; on the one hand, the collected data demonstrates that the employed incentive system does motivate the employees of ABB Marine to perform well at their work. However, on the other, some of the staff also perceive that the bonuses are not necessarily aligned with the realized performance. All in all, the two control elements support one another but also occasionally hinder the realization of the other.

According to the study's findings, it tentatively appears that dynamic tension is provoked between management control elements that possess similar formality and may even belong to the same category of control. The positive and negative tension, on the other hand, typically incorporate control elements representing both different categories as well as formalities of control. The table below provides a summary of the remarks produced in this section, restating the detected tensions and the management control elements involved in them:

Detected tension	Control element	Formality	Control category
Positive Tension (A)	Scheduled meetings	Formal	Action control
	Open communication	Informal	Cultural control
	Performance targets	Formal	Results control
Positive Tension (B)	Informal provision of resources	Informal	Personnel control
	Performance targets	Formal	Results control
Negative Tension	Formal provision of resources	Formal	Personnel control
	Informally voiced expectations	Informal	Results control
Dynamic Tension (A)	Predetermined practices	Formal	Action control
	Performance targets	Formal	Results control
Dynamic Tension (B)	Incentive system	Formal	Results control
	Performance targets	Formal	Results control

Table 4: Tensions detected at ABB Marine

5.3. Detected tensions in relation to earlier literature

5.3.1. Predictable goal achievement and creativity

As implied in the literature review, organizational tensions have been argued to arise when there are conflicting yet interrelated goals between predictable goal achievement and creativity (Simons, 1994;

Henri, 2006; see also, e.g., Mundy, 2010; Bedford, 2015). When considering this notion in the context of the case company and its management control practices, it may be noted that the employed control elements mostly facilitate the achievement of either of these goals at ABB Marine. For example, the controls of scheduled meetings, performance targets, predetermined practices, formal provision of resources, and the incentive system may be considered to support predictable goal achievement as they facilitate the communication and attainment of strategic objectives. On the other hand, creativity is fostered by control elements like open communication and informal provision of resources as these practices provide the employees tools for work and the flexibility and the freedom to consider and apply new approaches.

When examining the detected control element combinations and the tensions they provoke in further detail, the relationship of predictable goal achievement and creativity partly exists in ABB Marine's management control practices, too. It appears that the identified positive tensions both incorporate a control element aiming to facilitate predictable goal achievement and a control element fostering creativity; positive tension A, firstly, incorporates scheduled meetings, performance targets, and open communication as its elements, and positive tension B, then, embodies the controls of performance targets and informal provision of resources. Therefore, both of these tensions could be considered to emerge from the two contradicting yet interrelated objectives for predictable goal achievement and creativity.

Despite the positive tensions reproducing the remarks of earlier literature, the negative tension and dynamic tensions detected at ABB Marine, while possessing contradictory yet interrelated goals, cannot be considered to possess these goals between predictable goal achievement and creativity. However, this study and the number of detected tensions do not give sufficient data on whether these remarks and findings are generalizable to all tension research. Still, they enhance our understanding of how tensions indeed emerge and reaffirm that the two contradicting objectives of predictable goal achievement and creativity may indeed, at times, be liable for organizational tensions arising.

5.3.2. Tension characteristics

When considering the earlier literature, the management control tensions detected at ABB may also be further analyzed in accordance with van der Kolk et al.'s (2020) study. As implied earlier, the tensions

prevailing at ABB Marine possess different characteristics concerning the formality and control category of the involved management control elements. Now that the control element combinations provoking tensions in the organization have been detected and further studied, we can examine the characteristics that the emerging tensions themselves enunciate. Therefore, here, we will finally study their characteristics regarding the control elements' balance, balance tendency, and intensity as well as the extent to which the tensions possess complementarity, complexity, and dynamics (van der Kolk et al., 2020).

5.3.2.1. Tension balance, balance tendency, and intensity

Tension balance

Tension balance, as remarked in the literature review, refers to the relative strength that the control elements in tension have over one another. The controls elements in combination may either be equally strong or differ in strength, depending on the extent to which they are given importance in relation to one another in the company's management control practices. (van der Kolk et al., 2020). The data collected with the means of the study suggests that this characteristic is highly observable in the tensions arising at ABB Marine.

When considering the detected positive tensions and the narrations of the interviews, the combined control elements seem to have the same amount of relative strength over one another as none of them appear significantly stronger or weaker in relation to their counterpart(s). For example, concerning Positive Tension A, the importance of scheduled meetings, open communication, and strategy-based performance targets were all equally emphasized by all interviewees. What is more, in Positive Tension B, the informal provision of resources appears well-aligned with the performance targets as the presence of collegial effort and support effectively assists the attainment of performance-related objectives and vice versa. In these two tensions, the balance can, thus, be referred to as 'equal,' as suggested by van der Kolk et al. (2020).

However, in the detected negative tension and two dynamic tensions, the relative strength appears to be slightly inclined towards one of the two control elements involved. For example, the interviews implied that the formal provision of resources, especially the provision of the resource of time, is not always aligned with the informally voiced expectations. Therefore, the Negative Tension may be considered

'biased' towards the control element of informally voiced expectations (van der Kolk et al., 2020). When it comes to the dynamic tensions, on the other hand, Dynamic Tension A appears to demonstrate an irregularity between the predetermined practices and set performance targets; as implied by the interviews, the predetermined practices may occasionally determine work more than the expectations for performance, making this tension biased towards the control element of predetermined practices. Similarly, in Dynamic Tension B, the performance targets are perceived to be somewhat inconsistent with the employed incentive system, resulting in more emphasis being given for the set performance targets in daily work. Furthermore, the incentive system and monetary rewards do not seem to contribute awfully a lot to motivating the employees to perform well at their work. Therefore, this second dynamic tension may be considered biased towards the performance targets rather than the applied incentive system (van der Kolk et al., 2020).

Balance tendency

The notion of balance tendency, then, implies how stable the management control elements' relationship in the tension may be observed to be over time. That is, how the strength and importance of the combined control elements vary in relation to one another over time in the organization's management control practices. (van der Kolk et al., 2020). In contrast to the characteristic of tension balance, balance tendency could be observed slightly more limitedly at ABB Marine with the available means of study. Still, conclusions with relatively strong foundations could be drawn from the collected data.

Some of the interviews noted that the importance laid on predetermined practices has somewhat fluctuated over the years at ABB Marine. Today, as stated earlier, the predetermined practices and set performance targets are not fully aligned in the perceptions of the employees. However, Project Manager Z remarked that during the last four years of work in their current position, they had observed the existing controls becoming much more sensible and rational, and this shift was the most visible concerning tasks, having previously followed a progression resembling a "copy-paste"-process. Eventually, tasks that could have previously been considered nearly pointless have been either removed or made more practical, as implied by Project Manager Z.

Also, the fact that the routines of strategy-based target setting and one-to-ones were only relatively recently incorporated to management control at ABB Marine implies that the practices of performance targets, open communication, informal provision of resources, and informally voiced expectations have

all increased in importance at the company within the last few years. However, despite this inductive reasoning, the alteration of the importance of the mentioned control elements cannot be examined and compared with the elements with which they form an organizational tension. Still, the observation indicates that the balance tendency of the tensions they are involved in is not stable but may change over time.

Indeed, the remarks observed above suggest that the tension balance may oscillate in the detected tensions involving at least one of the control elements of predetermined practices, performance targets, open communication, informal provision of resources, and informally voiced expectations. Therefore, all detected tensions, that is, Positive Tension A, Positive Tension B, Negative Tension, Dynamic Tension A, and Dynamic Tension B, may all be presumed to possess a somewhat unstable relationship between the involved management control elements. This is because the importance of the elements involved in them has either decreased or increased over the years, and the strength of the combinations in which they are involved has, therefore, 'oscillated' to an extent (van der Kolk et al., 2020).

Intensity

Thirdly, as we learned before, the *intensity* of a tension assesses the absolute strength of the management control elements that produce tension. That is, the concept evaluates the control elements' importance in relation to the complete array of management control practices applied at the observed organization. (van der Kolk et al., 2020). This characteristic, again, could be observed somewhat limitedly at ABB Marine; while the applied management control elements of truly high importance were very observable with the means of the study, the control elements that receive less attention in the company may not have been discussed profoundly enough in the conducted interviews. Therefore, the data may have collected an understanding of only the most pronounced management control elements. Still, when considering only the detected tensions, it may be argued that the characteristic could be observed sufficiently.

The conducted interviews and multiple-choice survey responses indicate that strategy-based target setting, and thus, the management control elements of the performance targets and incentive system are both of high importance in general at the company. Therefore, these two have high absolute strength in the vast array of ABB Marine's management control practices. Similarly, scheduled meetings are also organized to a large extent at the company in the form of staff meetings, project reviews, Town Halls,

one-to-ones, et cetera, which indicates that this control element also possesses great importance at ABB Marine. The ideology of open communication, too, fostered through both formal and informal interaction, also appears to receive great attention in day-to-day operations at the organization. Furthermore, the predetermined practices involving process templates and formats have been employed in the work of the entire staff, and therefore, clearly hold significant value to the organization.

These five management control elements involved in the detected tensions can be considered to be the most pronounced in ABB Marine's overall management control practices. As a result, they possess great absolute strength. Moreover, the tensions that are produced by these control elements further demonstrate tension intensity. (van der Kolk et al., 2020).

At the end of the paper, in appendix 9a, the tension characteristics of balance, balance tendency, and intensity analyzed above are summarized and presented more concisely in the form of a table. In the following section, in contrast, we will take a further look at the characteristics of tension complementarity, complexity, and dynamics and how these characteristics are enunciated in the tensions prevailing at ABB Marine. After, the chapter will proceed with a brief review of how the employed management control is, overall, perceived by the staff of ABB Marine. Lastly, the chapter provides a summarization of the main findings of the conducted study.

5.3.2.2. Tension complementarity, complexity, and dynamics

Tension complementarity

A tension demonstrates *complementarity*, as suggested by van der Kolk et al. (2020), when it positively affects organizational performance instead of presenting negative implications. Therefore, it could be proposed that Positive Tension A and Positive Tension B as well as Dynamic Tension A and B, all demonstrate complementarity as they may be perceived to enhance organizational performance to an extent. In the detected positive tensions, for example, the combined management control elements enhance the use of one another, improving the performance of both individuals and larger groups within the organization. In the two dynamic tensions, then, performance is enhanced by similar aspects, while the controls do simultaneously pose some adverse effects. However, the positive implications appear to be stronger than the negative ones.

Similarly, when tension expresses *competition*, it poses negative implications and hinders organizational performance. Such a characteristic is, therefore, noticeable concerning the detected negative tension; the formal provision of resources and informally voiced expectations appear not aligned with one another, which appears to create hindrance to individual employees' performance. And as mentioned above, the two dynamic tensions also possess some competitive aspects, which may occasionally minorly hinder the effects of the control combination's positive effects on organizational performance.

Tension complexity

Tensions may also be *complex* if they simultaneously pose both complementary and competing effects on performance (van der Kolk et al., 2020). Complex tensions are, therefore, the tensions also considered dynamic tensions in this thesis. Therefore, Dynamic Tension A and Dynamic Tension B both incorporate management control elements that, in combination, pose both complementarities and competition on one another. In Dynamic Tension A, the tension is provoked by the predetermined practices and performance systems both complementing each other but also posing competition. In Dynamic Tension B, on the other hand, it is the employed incentive system and the performance targets being in a complex relationship with one another.

Tension dynamics

Finally, tension demonstrates *dynamics* if it may be perceived to change over time (van der Kolk et al., 2020). As mentioned earlier, all of the detected tensions demonstrate that the balance between the control elements involved is not fully stable over time. Therefore, it can be deduced that the tensions themselves also possess dynamics to an extent; as the importance of the management control elements varies over time, the tensions themselves may also fluctuate and become more or less pronounced depending on the prevailing circumstances.

Again, a table summarizing the remarks of tension complementarity, complexity, and dynamics is provided at the end of the thesis, in appendix 9b. When considering the two tables presented in the appendices and the details of control elements, tensions, and tension characteristics discussed above, further findings can be identified. Here, the collected data appears to suggest that when observing organizational tension and the control categories and formalities of the involved control element combination,

the detected features do not insinuate the extent of relative strength, oscillation of strength, or absolute strength of the control elements. Furthermore, there appears to be no detectable correlation between the two control features and the tension characteristics of complementarity, complexity, or dynamics.

Therefore, the findings of the study suggest that any organizational tension, regardless of whether it poses complementarity, competition, or both, may enunciate any of the control characteristics of tension balance, balance tendency, and intensity proposed by van der Kolk et al. (2020). When it comes to tension complementarity, competition, and complexity, on the other hand, naturally, the tensions interpreted as 'positive' pose complementarity, those 'negative' present competition, and 'dynamic' tensions maintain all three, complementarity, competition, and complexity. However, no relationships of correlation or causation could be identified between features of the control element combinations and their tensions' characteristics at ABB Marine. Still, again, due to the scope of the study, further research is needed to verify this finding.

5.4. Overall perception of management control at ABB Marine

When considering the overall perceptions of the participants of the study, the staff seems to be generally very content with how management control is conducted at ABB Marine. Despite some negatively perceived tensions between practices, nearly all interviewed employees spontaneously voiced their satisfaction with their work at ABB Marine. For example, Project Manager 3 remarked how especially the opportunity to travel to see customers and attend sea trials has been highly motivating in their work and has resulted in them not having ever considered a job change. The Head of Large Azipod Sales, too, was clearly very satisfied and content with their post. The Quality Manager, as well, voiced their happiness in the following way:

> "*-- I have been at ABB for 20 years now, so I do think the organization is terribly good. There is always something to improve, and in big companies, there are certain things to which one just has to adapt; things other companies do not have. -- But in my opinion, ABB has insanely many things insanely well, and we have opportunities for many things.*" (Quality Manager).

5.5. Chapter summary

In this chapter, we have dived deeper into the management control practices detected to prevail at ABB Marine. Firstly, the identified control elements were categorized by utilizing the OOC framework provided by Merchant and Van der Stede (2017) while combining the notions of formal and informal control to the four control categories, similar to the study of Fagerlin and Lövstål (2020). Here, we observed ABB Marine to have all objects of control in use; some of the employed control elements demonstrated the category of results control and some action control, while others could be labeled as either personnel or cultural control. After this categorization, the detected practices were further characterized in line with Richtnér and Åhlström's (2010) understanding of formal and informal control. To conclude the observations around management control at ABB Marine, all detected control elements and their features were displayed and summarized in the form of a table.

Secondly, the chapter explored the organizational tensions arising at the case company as a result of the applied control element combinations. In this section, we identified five tensions to emerge from the use of different control combinations at ABB Marine: two tensions demonstrating complementarity, one tension maintaining competition, as well as two tensions displaying both complementarity and competition between the two control elements involved. After, the tensions were further characterized as positive, negative, and dynamic in accordance with the learnings of the study.

Lastly, we conducted a more detailed analysis of the tension characteristics which the prevailing tensions could be identified to enunciate at ABB Marine. Here, we first examined the characteristics of balance, balance tendency, and intensity and discovered that all three are detectable when studying the prevailing tensions at the case company. However, while the extent of tension balance was definable on all detected tensions and their management control elements, the data collected only provided slightly more limited possibilities to observe the characteristics of balance tendency and intensity at ABB Marine. Still, the study could draw conclusions with relatively strong foundations. After exploring these characteristics, the other three notions of tension complementarity, complexity, and dynamics were also examined in the context of the case company. In this section, we noted that all tensions could be defined to pose complementarity, competition, and complexity depending on whether they were identified as a 'positive,' 'negative,' or 'dynamic' tension. Furthermore, similar to balance tendency, all detected tensions could be reasoned to demonstrate dynamics.

Lastly, we conducted a more detailed analysis of how the features of the control element combinations might influence the outcome of the characteristics that the tensions enunciate. Here, we observed the findings of the study to suggest that the control elements' features do not insinuate the extent of relative strength, oscillation of strength, or absolute strength of the control elements in tension. In addition, there appears to be no detectable correlation between the two control features and the tension characteristics of complementarity, complexity, or dynamics.

5.5.1. Findings of the study and contribution to research

The collected data allows us to draw a few findings from the study to extend the current understanding of organizational tension. Firstly, the study's results suggest that both 'positive' and 'negative' tensions – that is, tensions incorporating either a complementary or competing relationship between the control elements combined – are typically produced by control elements representing different categories and formalities of control. In other words, when considering the OOC framework of Merchant and Van der Stede (2017) and the notions of formal and informal control by Richtnér and Åhlström (2010), a control combination maintaining either a complementary or competing relationship typically comprises control elements of different objects of control and opposite formalities, at least in the studied organization.

Secondly, the study also contributed to refining theory around dynamic tension emerging at the intersection of management control and innovation. According to the results, it appears that dynamic tension is provoked in an innovative business context between management control elements possessing identical formality. In addition, it appears that the control elements may even belong to the same category of control. However, similar to the observed positive and negative tensions, the two elements in dynamic tension may represent opposing object-of-control categories, as well.

Thirdly, the means of the study enabled further exploration of the tension characteristics proposed by van der Kolk et al. (2020). All of the six characteristics of balance, balance tendency, intensity, complementarity, complexity, and dynamics were identifiable in the tensions detected at the case company. The results of the study suggest that any organizational tension – regardless of whether it poses complementarity, competition, or both – may enunciate any of the control characteristics of tension balance, balance tendency, and intensity. When it comes to tension complementarity, competition, and complex-

ity, on the other hand, naturally, the tensions interpreted as ‘positive’ pose complementarity or positive effects on organizational performance while those ‘negative’ present competition or negative implications. Dynamic tensions, on the other hand, maintain both complementarity and competition, and therefore, may also be identified to demonstrate complexity.

Fourth and lastly, as implied earlier, the case study appears to demonstrate that the respective object-of-control categories and formalities of the combined control elements do not preliminarily insinuate the tension characteristics of the tension the two elements produce. In other words, one may not predict, for example, the extent of the relative strength, oscillation of strength, or absolute strength that the control elements in tension maintain by first identifying the features of the elements. Furthermore, there appears to be no detectable correlation between control features and tension characteristics of complementarity, complexity, or dynamics. However, as also implied above, further research must be done to verify these findings.

Therefore, the conducted study has contributed to research around organizational tension by extending understanding of 1) how tensions arise from the use of management control combinations, 2) how tensions arising at the intersection of management control and innovation are perceived by organizational members, and 3) how different tensions enunciate the tension characteristics proposed by van der Kolk et al. (2020). In addition, the paper has also provided further, valuable knowledge of dynamic tensions’ origins. However, due to the scope of the study, the findings are to be generalized with caution in future research.

The following and last chapter is the conclusion chapter. There, we will once more look into the stages of the study more thoroughly as well as draw managerial implications and suggestions for future research.

6. Conclusion

This thesis has explored the phenomena of organizational tension emerging from the use of management control combinations in an innovative business context. As recommended and requested by earlier research (Barros & Ferreira, 2019), the study applied a holistic, comprehensive approach to dive into the use of control combinations in an innovative organization. Similar to van der Kolk et al. (2020), the paper observed the prevailing management control practices at ABB Marine by utilizing the OOC framework provided by Merchant and Van der Stede (2017). To further differentiate between controls concisely, the framework was combined with the notion of formal and informal control provided by Richtnér and Åhlström (2010), as previously done by Fagerlin and Lövstål (2020). This approach facilitated examining a wider array of management controls while focusing on a confined set of four control objects, simultaneously responding to the need for comprehensive empirical exploration of management control in the context of innovation (Barros & Ferreira, 2019; Lövstål & Jontoft, 2017) while extending our understanding of organizational tensions emerging from the use of control element combinations (Barros & Ferreira, 2021).

Earlier literature had identified the need to conduct more empirical research for increasing our understanding of how organizational tensions truly come about (van der Kolk et al., 2020) and how tensions arising at the intersection of management control and innovation are perceived by organizational members (Lövstål & Jontoft, 2017). Additionally, it had been suggested that more knowledge was required on how management control element combinations potentially provoke organizational tension and dynamic tension (van der Kolk et al., 2020; Barros & Ferreira). As a result, a research question was proposed at the beginning of the paper:

> "*How do management control element combinations provoke tensions and dynamic tensions in innovative business?*"

Before responding to the question, the thesis dived into the topic by performing a comprehensive literature review. This literature review aimed to provide a sufficient foundation for understanding the study, and did so by exploring the earlier literature and research around management control, organizational

tension, and innovation. Additionally, this chapter looked into the past literature discussing the phenomenon of dynamic tension emerging from the intersection of management control and innovation. After the review, the paper proceeded to present the methodologies applied in the study. Here, we learned that the empirical investigation was conducted with the means of semi-structured interviews and a multiple-choice survey.

Following the methods chapter, in the fourth section of the thesis, the paper presented the prevailing organizational context of the case company ABB Marine. Here, the background, offering, and innovation practices of the company were comprehensively discussed while also profoundly presenting the vast array of management control practices employed at the organization. And, after a thorough overlook, the thesis proceeded to analyze the detected management control practices in more detail. In the fifth chapter, the paper provided a classification of the identified control elements as well as an understanding of the organizational tensions emerging from the combinations of these individual controls. Finally, these tensions were further examined in accordance with the remarks of earlier literature.

With the means of the study, four findings could be drawn from the collected data. Firstly, the study results suggested that both 'positive' and 'negative' tensions are typically produced by control elements representing different formalities and object-of-control categories. Secondly, the data implied that dynamic tension is provoked in an innovative business context when two management control elements possess identical formality. The control category, however, may either be the same or differ between the involved control elements. Thirdly, consistent with van der Kolk et al. (2020), the study found evidence that the tensions prevailing in organizations may enunciate the control characteristics of balance, balance tendency, and intensity, as well as complementarity, complexity, and dynamics. However, fourth and lastly, the findings of the study demonstrated that the object-of-control category and formality of the combined control elements do not insinuate these tension characteristics, but the tension must be analyzed to understand the characteristics it embodies.

With the collected findings, we may respond to the research question. According to the data of the study, it appears that tension and dynamic tension are both provoked differently in innovative business. Firstly, dynamic tension seems to emerge when the two control elements in combination demonstrate the same formality and either the same or different object-of-control category. Other organizational tensions, on the other hand, may be provoked when the involved control elements represent both different formality and control category.

Therefore, the conducted study has contributed to the refinement of theory around organizational tension. First, it extended understanding of how tensions truly come about. Second, it provided findings on how organizational members perceive dynamic tension arising at the intersection of management control and innovation are perceived by organizational members. Third and last, it also brought evidence for how different tensions enunciate the tension characteristics proposed by van der Kolk et al. (2020).

6.1. Managerial implications

As implied in the chapter delivering interpretations and discussion, all managerial control practices employed at ABB Marine appear to serve a purpose. In addition, the company staff is, by and large, fairly satisfied with the applied management controls. However, during the study process, it was remarked that while all employees have the possibility to file *initiatives* at the company, the discussion with one of the interviewed project managers implied that while they were aware of the presence of the tool, they still lacked understanding of the practice. Furthermore, none of the other interviewed employees mentioned the utilization of the practice except for the Quality Manager, who was deliberately contacted to inquire more about the tool and ABB Marine's other innovative endeavors. From the viewpoint of an observer, the lack of expression concerning the initiative tool could demonstrate that employees of the company may not know sufficiently about the opportunity. While open communication appears to be effectively applied throughout the organization, a question arises whether there still is enough communication about the initiative tool.

The tensions detected to prevail at ABB Marine may also require some attention from the organizational management. As implied earlier, the study managed to identify one organizational tension, in particular, that appears to pose negative implications on organizational performance. This tension arises from the use of the two management control elements of formal provision of resources and informally voiced expectations. According to the data collected from the interviews, it appears that the resource of time and expectations directed at employees may not always be aligned, especially recently, during the times of the ongoing pandemic. According to van der Kolk et al. (2020), in the occasion of tensions, organizational management should adhere to a continuous 'balancing act' to ensure that the negative aspects of tension do not outweigh the positive relationship between management control elements involved. As a result, the findings suggest that it may be beneficial to consider the relationship between

the two aspects that currently appear to be in contradiction. However, at the same time, it does not appear that the negative aspects of this particular tension currently outweigh the positive implications of the other prevailing organizational tensions.

Otherwise, it seems that management control is effectively applied at ABB Marine. While a potentially negative organizational tension has arisen within the company in the employees' perceptions, it seems that otherwise, all of the staff is fairly satisfied with the employed practices. The data collected also demonstrates that both the interviewed employees and surveyed production line workers are well aware of the expectations and goals directed at them. Thus, it may be deducted that the newly applied practice of strategy-driven target setting has been successfully implemented throughout the organization. In addition, all interviewees spontaneously stressed how open communication is of high importance at ABB Marine, and the conducted multiple-choice survey reproduced these remarks. Therefore, it seems that the ideology of open communication culture has been successfully implemented throughout the organization as the production line workers nearly unanimously perceived that anyone could raise issues and share suggestions for improvement (see appendix 4: 4e).

6.2. Suggestions for future research

The findings of the study point out new areas of interest for future research. While the thesis did expand understanding on dynamic tension emerging from the use of management control combinations in the context of an innovative organization, there still remains room for further qualitative research in the field. Overall, as implied at the beginning of the thesis, more qualitative research in private sector companies is required for us to sufficiently understand the concept of dynamic tension.

More specifically, it would be interesting to extend research on dynamic tension originating from the use of management control combinations by investigating whether the tensions arising in other innovative, private sector companies possess similar characteristics to those detected at ABB Marine. In addition, it could be a field of interest to explore whether the control elements provoking these tensions demonstrate the same features regarding their respective control categories and formalities as the ones examined in this study. Overall, verifying the plausibility of the findings of this paper would be highly beneficial for the refinement of the theory around organizational tension emerging from the use of management control.

Some possible research questions to explore in future research:

"*How is dynamic tension provoked by management control in innovative business context?*"

"*How does the emergence of dynamic tension affect organizational performance?*"

"*What characteristics do control element combinations feature when provoking organizational tension in an innovative organization?*"

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Appendices

Appendix 1: List of interviews

Number	Interviewee	Date	Duration
1	Project Manager 1	15th August, 2021	44 minutes
2	Project Manager 1	16th August, 2021	51 minutes
3	Project Manager 1	20th August, 2021	59 minutes
4	Chief Financial Officer	21st August, 2021	53 minutes
5	Business Line Controller	28th August, 2021	51 minutes
6	Vice President, Finance and Controlling	7th October, 2021	56 minutes
7	HR Senior Vice President	8th October, 2021	57 minutes
8	Head of Large Azipod Sales	29th October, 2021	58 minutes
9	Quality Manager	1st December, 2021	65 minutes

Appendix 2: Interview questions

Introduction to the interviews:

Before the set of questions, I'd like to introduce and define the topic briefly. The term management control, here, refers to all formal and informal practices that the management uses to direct employee behavior in line with the organization's short- and long-term objectives. Such ways of directing include both the encouraging, enabling, and forcing activities conducted towards the employee.

*Control practices vary largely. Examples of **formal control** could be pay, incentive pay, pay raises, performance appraisals, scheduled monthly meetings, rules, values, norms, team building, pre-action reviews, behavioral constraints, and redundancy (etc.). Examples of **informal** controls consist of coaching, coffee breaks, corporate well-being events, corporate parties, social recognition, unwritten policies, socialization processes, and so on.*

Project Managers 1 & 2:

1. How would you characterize ABB Marine's management's control practices?
2. How does ABB Marine's orientation for innovation manifest itself outside R&D department?
3. How does ABB Marine drive its employees' performance? Do you have any examples to offer for the practices employed?
4. Who sets managerial controls at ABB Marine? Are they imposed by different managerial layers? For example, do you set any controls considering the employees 'below' yourself?
5. How do you personally contribute to directing employee performance at ABB Marine?
6. Do you experience inconsistencies or contradictions in what is expected from you or all employees? Could you provide examples?
    a. **If** there are inconsistencies, how would you describe the two or more contradicting control forces considering their strength to one another? For how long has the contradiction been there? How do you see the contradiction will develop in the future?
7. Do you experience that some of the expectations support or even strengthen one another? Could you provide any examples?
    a. **If** there are mutually supporting control forces, how would you describe them considering their strength to one another? For how long has the relationship been there? How do you see the control forces will develop in the future?

Project Manager 3:

1. How would you characterize ABB Marine's management's control practices?
2. Who establishes the managerial controls and desired practices at ABB Marine? Are they imposed by different managerial layers?
3. What are ABB Marine's values regarding work and performance?
4. How does ABB Marine drive its employees' performance? Do you have any examples to offer for the practices employed?
5. How do you personally contribute to directing employee performance at ABB Marine?
6. Do you experience that the use of some control forces support or even strengthen one another in directing employees? Could you provide any examples?
    b. **If** yes, for how long have the two (or more) control forces been in use? How do you see they will develop in the future?
8. Do you see that there are or have been inconsistencies or contradictions in what is expected from employees? Could you provide examples?
    a. **If** yes, is one of the contradicting forces stronger or more important than the other? For how long has the contradiction been there? How do you see the contradiction will develop in the future?
    b. **If** yes, have actions been taken to minimize the contradiction?

Business Line Controller:

1. How would you characterize ABB Marine's management's control practices?
2. Who establishes the managerial controls and desired practices at ABB Marine? Are they imposed by different managerial layers?
3. What are ABB Marine's values regarding work and performance?
4. How does ABB Marine drive its employees' performance? Do you have any examples to offer for the practices employed? For example:
5. How do you personally contribute to directing employee performance at ABB Marine (both vertically and horizontally)?
6. Do you experience that the use of some control forces support or even strengthen one another? Could you provide any examples?
    a. **If** yes, for how long have the two (or more) control forces been in use? How do you see they will develop in the future?
7. Do you experience inconsistencies or contradictions in what is expected from you or all employees? Could you provide examples?
    a. **If** yes, is one of the contradicting forces stronger or more important than the other? For how long has the contradiction been there? How do you see the contradiction will develop in the future?
    b. Have actions been taken to minimize the contradiction?

Chief Financial Officer:

1. How would you characterize ABB Marine's management's control practices?
2. Who establishes the managerial controls and desired practices at ABB Marine? Are they imposed by different managerial layers?
3. What are ABB Marine's values regarding work and performance?
4. How does ABB Marine drive its employees' performance? Do you have any examples to offer for the practices employed?
5. How do you personally contribute to directing employee performance at ABB Marine (both vertically and horizontally)?
6. Are employees from different hierarchical levels regularly or occasionally in contact with each other at ABB Marine?
7. Do you experience that the use of some control forces support or even strengthen one another in directing employees? Could you provide any examples?
    a. **If** yes, for how long have the two (or more) control forces been in use? How do you see they will develop in the future?
8. Do you see that there are or have been inconsistencies or contradictions in what is expected from employees? Could you provide any examples?
    a. **If** yes, is one of the contradicting forces stronger or more important than the other? For how long has the contradiction been there? How do you see the contradiction will develop in the future?
    b. Have actions been taken to minimize the contradiction?

Finance and Controlling Vice President:

1. How would you characterize ABB Marine's management's control practices?
2. Who establishes the managerial controls and desired practices at ABB Marine? Are they imposed by different managerial layers?
3. What are ABB Marine's values regarding work and performance?
4. How does ABB Marine drive its employees' performance? Do you have any examples to offer for the practices employed?
5. How do you personally contribute to directing employee performance at ABB Marine (both vertically and horizontally)?
6. Are employees from different hierarchical levels and operational backgrounds regularly or occasionally in contact with each other at ABB Marine?
7. Do you experience that the use of some control forces support or even strengthen one another? Could you provide any examples?
    a. **If** yes, for how long have the two (or more) control forces been in use? How do you see they will develop in the future?
8. Do you experience inconsistencies or contradictions in what is expected from you or all employees? Could you provide examples?

a. **If** yes, is one of the contradicting forces stronger or more important than the other? For how long has the contradiction been there? How do you see the contradiction will develop in the future?
b. Have actions been taken to minimize the contradiction?

HR Senior Vice President:

1. How would you characterize ABB Marine's management's control practices?
2. Who establishes the managerial controls and desired practices at ABB Marine? Are they imposed by different managerial layers?
3. What are ABB Marine's values regarding work and performance?
4. How does ABB Marine drive its employees' performance? Do you have any examples to offer for the practices employed?
    a. Does the division or its departments organize scheduled meetings? Are they formal or informal in character? Is participation mandatory or voluntary?
    b. Are employees from different hierarchical levels in contact with one another regularly or occasionally (pre-covid vs. during covid)?
    c. Is employee monitoring conducted top-down or mutually among employees, or both?
    d. Are there any programs in place that aim to direct or enhance employee performance?
    e. Are employees offered training programs, coaching opportunities, or such?
    f. Is the recruiting process standardized or informal in character?
5. How do you personally contribute to directing employee performance?
6. Do you experience that the use of some control forces support or even strengthen one another in directing employees? Could you provide any examples?
    a. **If** yes, for how long have the two (or more) control forces been in use? How do you see they will develop in the future?
7. Do you see that there are or have been inconsistencies or contradictions in what is expected from employees? Could you provide examples?
    a. **If** yes, is one of the contradicting forces stronger or more important than the other? For how long has the contradiction been there? How do you see the contradiction will develop in the future?
    b. **If** yes, have actions been taken to minimize the contradiction?
8. Have the covid times influenced employee performance in some way?

Head of Large Azipod Sales:

Sales at ABB Marine:

1. How many sailing vessels approximately equip Azipod® propulsion today worldwide (Ice-going vessels, cruise ships, etc.)?
2. Do ABB Marine's products and solutions have any considerable competitors?
3. How does ABB Marine's orientation to innovation manifest itself at the sales department?

Management control practices:

4. How would you characterize ABB Marine's management's control practices?
5. Who establishes the managerial controls and desired practices at ABB Marine? Are they imposed by different managerial layers?
6. What are ABB Marine's values regarding work and performance?
7. How does ABB Marine drive its employees' performance at your department? Do you have any examples to offer for the practices employed?
8. How do you personally contribute to directing employee performance at ABB Marine?
9. Do you experience that the use of some control forces support or even strengthen one another? Could you provide any examples?
    a. **If** yes, for how long have the two (or more) control forces been in use? How do you see they will develop in the future?
10. Do you experience inconsistencies or contradictions in what is expected from you or all employees? Could you provide examples?
    a. **If** yes, is one of the contradicting forces stronger or more important than the other? For how long has the contradiction been there? How do you see the contradiction will develop in the future?
    a. Have actions been taken to minimize the contradiction?

Quality Manager:

1. Describe freely: what does innovation mean at ABB Marine?
2. How does ABB Marine's orientation for innovation manifest itself throughout the organization? What about in your job?
    a. Are there practices or customs in place in the organization, with which the company pursues to encourage innovation and creativity?
3. Would you consider ABB Marine as 'innovative' when it comes to developing daily work and operations?
4. Does innovation at ABB Marine stem internally from within the organization or externally from the customers' needs?

Appendix 3: Survey items for production line workers

Please rate the extent to which you agree or disagree with each of the statements by using the scale of 1 to 5 (1 = strongly disagree; 2 = somewhat disagree; 3 = neither agree nor disagree; 4 = somewhat agree; 5 = strongly agree).

Driving results (i.e., results controls)

(a) I know the performance targets of my department.
(b) I can contribute to achieving the set performance targets.
(c) I am motivated to perform according to the set targets.
(d) The achieved results are always communicated to the employees of the department.
(e) My performance is evaluated regularly.
(f) If I perform well, I can get rewarded for good results.
(g) If I don't perform well, my actions may have implications.
(h) Individual performance is regularly discussed with the employees.

Directing behavior (i.e., action controls)

(a) There are rules and procedures in place at my department.
(b) The rules and procedures are important for the execution of my work tasks.
(c) I know what kind of behavior is expected from me at work.
(d) My work activities are observed or monitored.
(e) I am being held responsible for the tasks I have carried out.
(f) I can influence the planning process of my workdays.

Employee development (i.e., personnel controls)

(a) All new recruits have the required skillset for the job.

(b) New employees are trained to do the job thoroughly and adequately.

(c) Every employee has the same opportunities for development.

(d) All employees know with clarity what their tasks are.

(e) I am motivated to perform well at my job.

(f) Other employees are motivated to perform well at their job.

(g) I am capable of performing well at my job.

(h) My department regularly offers opportunities for training and learning.

(j) Taking the initiative is considered a virtue at my department.

(i) Self-drivenness is valued at my department.

(k) Every employee at the department has the same opportunities for career development.

Corporate culture (i.e., cultural controls)

(a) I know what the corporate values and norms are.

(b) Coworkers are expected to provide each other with feedback.

(c) Coworkers provide each other with spontaneous feedback.

(d) Coworkers are expected to monitor each other's activities.

(e) Employees can freely communicate about any ideas for improvement.

Appendix 4: Survey results

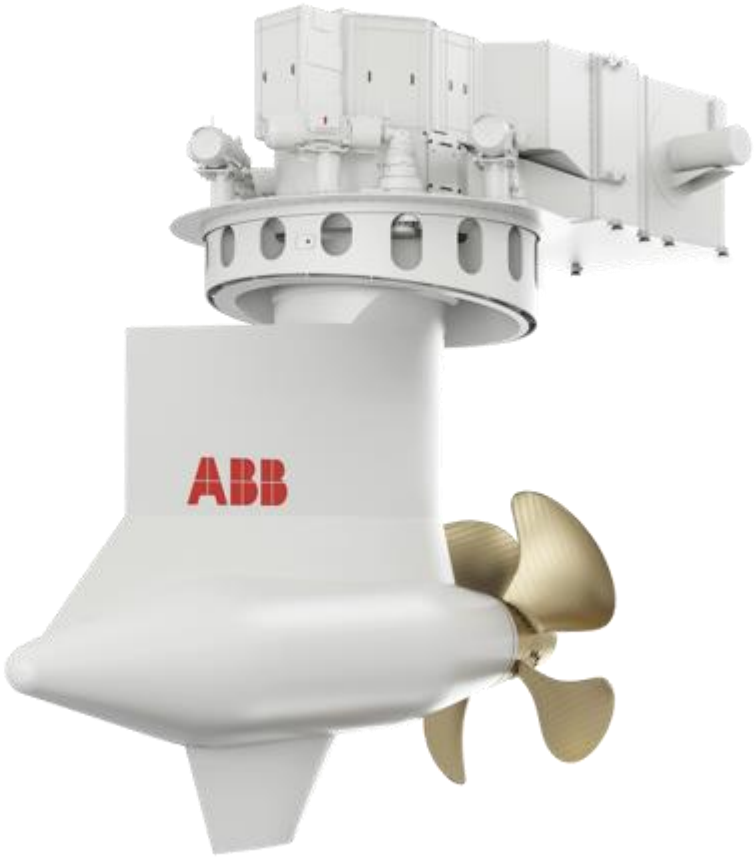
1. Driving results (i.e., results controls)	Mean	Median	St. Dev.
(a) I know the performance targets of my department.	4,12	4,00	0,78
(b) I can contribute to achieving the set performance targets.	3,82	4,00	1,07
(c) I am motivated to perform according to the set targets.	3,65	4,00	1,06
(d) The achieved results are always communicated to the employees of the department.	3,06	3,00	0,97
(e) My performance is evaluated regularly.	3,24	3,00	1,09
(f) If I perform well, I can get rewarded for good results.	2,12	2,00	1,17
(g) If I don't perform well, my actions may have implications.	2,29	2,00	1,26
(h) Individual performance is regularly discussed with the employees.	2,71	3,00	0,99

2. Directing behavior (i.e., action controls)	Mean	Median	St. Dev.
(a) There are rules and procedures in place at my department.	4,76	5,00	0,56
(b) The rules and procedures are important for the execution of my work tasks.	4,24	4,00	0,83
(c) I know what kind of behavior is expected from me at work.	4,18	4,00	0,95
(d) My work activities are observed or monitored.	3,71	4,00	0,85
(e) I am being held responsible for the tasks I have carried out.	4,29	4,00	0,69
(f) I can influence the planning process of my workdays.	3,35	4,00	1,37

3. Employee development (i.e., personnel controls)	Mean	Median	St. Dev.
(a) All new recruits have the required skillset for the job.	2,47	2,00	0,87
(b) New employees are trained to do the job thoroughly and adequately.	3,82	4,00	0,88
(c) Every employee has the same opportunities for development.	3,24	3,00	1,30
(d) All employees know with clarity what their tasks are.	3,47	4,00	0,80
(e) I am motivated to perform well at my job.	3,88	4,00	1,11
(f) Other employees are motivated to perform well at their job.	3,24	3,00	0,90
(g) I am capable of performing well at my job.	2,65	3,00	1,22
(h) My department regularly offers opportunities for training and learning.	4,24	4,00	0,66
(j) Taking the initiative is considered a virtue at my department.	2,88	3,00	1,36
(i) Self-drivenness is valued at my department.	3,18	3,00	1,33
(k) All employees in the department have the same opportunities for career development.	2,82	3,00	1,24

4. Corporate culture (i.e., cultural controls)	Mean	Median	St. Dev.
(a) I know what the corporate values and norms are.	4,29	4,00	0,77
(b) Coworkers are expected to provide each other with feedback.	2,41	3,00	1,12
(c) Coworkers provide each other with spontaneous feedback.	3,18	3,00	1,38
(d) Coworkers are expected to monitor each other's activities.	2,88	3,00	1,32
(e) Employees can freely communicate about any ideas for improvement.	4,24	5,00	0,97

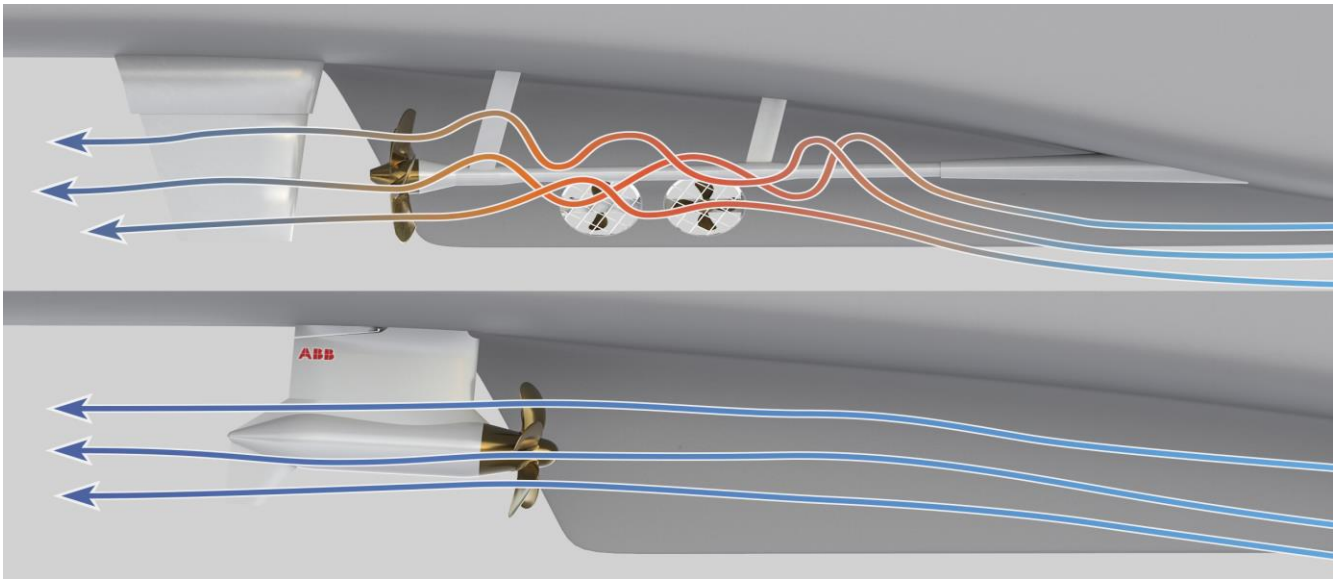
Appendix 5: Azipod® XO



Appendix 6: Azipod® product family

Open water				Ice-going	
					
	Azipod® D	Azipod® M	Azipod® XO	Azipod® ICE	Azipod® VI
Power (MW)	1 – 7.5	7 – 15	14 – 22	2 – 5	6 – 17
Cooling	Air + Sea	Air + Sea	Air	Sea	Air
Motor type	PM or induction	PM	Synchronous	PM	Synchronous
Max ice class	PC 5	1AS, PC 6	PC 5	PC 3	PC2
Propeller	Monoblock or Built-up	Monoblock or Built-up	Built-up	Built-up	Built-up

Appendix 7: Propulsor functionality: conventional shaftline vs. Azipod® propulsion



Appendix 8: The ten key advantages of Azipod® propulsion

1. Enhances maneuverability, waterflow, and hull structure, and subsequently, reduces the consumption of fuel by up to 20 % in comparison to conventional shaftline propulsion systems.
2. Improves on-board safety and redundancy.
3. Reduces vessel lifecycle costs through enhancing reliability, safety, flexibility, and operational efficiency.
4. Permits integrating multiple energy sources as the system is compatible with several types of power sources.
5. Enables seamless integration with equipment on board and energy systems.
6. Minimizes engine noise and vibration, as well as limits mechanical issues due to the system's gearless nature.
7. Saves space on board.
8. Incorporates a straightforward and fast installation.
9. Provides the possibility to use a native digital platform of ABB Ability™ Collaborative Operations infrastructure as it comes equipped with sensors, which can be connected to a remote digital monitoring and prediction system.
10. Is possible to be installed relatively easily on an existing vessel to replace a previously-employed shaftline propulsion system.

Appendix 9a: Tension characteristics: balance, balance tendency, and intensity

F= formal

I = informal

RC = results control

AC = action control

PC = personnel control

CC = cultural control

Detected tension	Control element	F/I	OOC	Balance	Balance tendency	Intensity
Positive Tension (A)	Scheduled meetings	F	AC	=	N/A	+
	Open communication	I	CC	=	+	+
	Performance targets	F	RC	=	+	+
Positive Tension (B)	Informal provision of resources	I	PC	=	+	N/A
	Performance targets	F	RC	=	+	+
Negative Tension	Formal provision of resources	F	PC	-	N/A	N/A
	Informally voiced expectations	I	RC	+	+	N/A
Dynamic Tension (A)	Predetermined practices	F	AC	+	-	+
	Performance targets	F	RC	-	+	+
Dynamic Tension (B)	Incentive system	F	RC	-	N/A	+
	Performance targets	F	RC	+	+	+

Appendix 9b: Tension characteristics: complementarity, complexity, and dynamics

F = formal

I = informal

RC = results control

AC = action control

PC = personnel control

CC = cultural control

Detected tension	Control elements	F/I	OOC	Complementarity	Competition	Complexity	Dynamics
Positive tension (A)	Scheduled meetings	F	AC	X			X
	Open communication	I	CC				
	Performance targets	F	RC				
Positive tension (B)	Informal provision of resources	I	PC	X			X
	Performance targets	F	RC				
Negative tension	Formal provision of resources	F	PC		X		X
	Informally voiced expectations	I	RC				
Dynamic tension (A)	Predetermined practices	F	AC	X	X	X	X
	Performance targets	F	RC				
Dynamic tension (B)	Incentive system	F	RC	X	X	X	X
	Performance targets	F	RC				