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Investing in strategic development: Management control of business model and managerial innovations

Abstract

Purpose

The study explores management control in the strategic development of business model and managerial innovations. The issue is approached from the perspective of managerial work, aiming to outline what managers consider as essential elements of management control in these often iterative and learning-intensive developmental activities.

Design

The study is based on the views of 20 managers engaged in strategic development and its control in various organisations. The interview data consist of the respondents' experiences and project cases involving non-technological innovations. Qualitative content analysis (QCA) is used to identify three key concepts of management control of business model and managerial innovations.

Findings

The findings suggest that, with managerial and business model innovation, appropriate management control could be established by: (1) aligning the innovation being developed with the strategic story of the organisation, (2) leveraging co-creational projects, and (3) experimentation with close customer contact.

Research limitations/implications

The focus of this qualitative research is on building an initial framework. Future research could expand our understanding of managerial work and accounting by examining this study's outcomes in more practical detail in various contexts.

Practical implications

The findings of this study lead managers and researchers to consider management control of non-technological innovations as an enabling system supporting successful innovations.

Originality/value

This study adds a unique perspective to the literature by conceptualizing and offering managerial implications for management control in the context of strategic development of non-technological innovations.

Keywords: Management control, innovations, managerial work, business model innovation, managerial innovation, non-technological innovation, strategic development

Article Type: Research paper

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1 Introduction

This study explores management control in the strategic development of business model and managerial innovations. Interplay of management accounting and innovation, has been identified as being insufficiently understood by various researchers (Chenhall and Moers 2015, Moll 2015, Nixon 1998, Bisbe and Otley 2004, Davila and Foster 2009). Previous research has pointed to the importance of management control systems in organisations' innovation activities (Davila et al. 2009, Simons 1995, Simons 2000, Chenhall and Moers 2015) and how they generate dynamic tensions, often between different types of innovations (Bedford 2015, Henri 2006, Curtis and Sweeney 2017). The initial phase where innovative ideas are generated and argued for has received a considerable amount of attention in previous research (Heidmann et al. 2008, Lechner and Floyd 2011, Birkinshaw 1997, Dutton et al. 2001, Whittle and Muller 2010). The strategic alignment of development with corporate strategy has also been examined (Akroyd et al. 2016, Slagmulder 1997). However, there is still a lack of knowledge about innovation as managed and controlled processes related to company practices (Fried et al. 2017, Pesämaa 2017). This research addresses a perspective that often goes unnoticed: management control in the strategic development of business model and managerial innovations.

Prior research on innovations and management control has mainly concentrated on new product development (e.g. Duhamel et al. 2014; Taipaleenmäki 2014; Jorgensen and Messner 2010; Davila 2000; Nixon 1998). There remains both a conceptual and empirical deficit in the study of management and management control of other types of innovations. This research takes strategic development processes as a level of analysis (as suggested by e.g. Davila et al. 2009, Chenhall and Moers 2015) and responds to requests to study subjective mechanisms and informal systems of control (Jansen et al. 2006, Reimer et al. 2016, Tervala et al. 2017, Martyn et al. 2016) and to further our knowledge of innovation processes (Fried et al. 2017, Pesämaa 2017) beyond technological ones (Damanpour and Aravind 2011).

The generation and implementation of non-technological innovations is not as structured as technological innovations, and their value is hard to evaluate even after they have been adopted (Birkinshaw and Moll 2006, Teece 2010). Yet this is exactly why further understanding about the management control of such innovations and their development is needed. In their review

of management accounting and management control innovations Zawawi and Hoque (2010) conclude that existing research has focused mainly on design and implementation of management concepts such as balanced scorecard (Johansson et al 2006) and activity-based costing (Innes et al 2009). Typically, the focus in such projects is on implementing operating models with largely predefined features. This study, in turn, presents a unique case by exploring management control in the strategic development of non-technological innovations. These are innovative initiatives with a business focus aiming to add customer value, where the outcome is developed in a creative process. The focus of this research is on the strategic development of innovations, and the management control of such creative strategic work. The research question of this study is as follows: What do experienced managers consider essential elements of management control in the strategic development of non-technological innovations?

In this study, non-technological innovations consist of managerial innovation (Birkinshaw et al. 2008, Birkinshaw and Moll 2009, Damanpour and Aravind 2011) and business model innovation (Chesbrough 2007, Teece 2010, Markides 2005, Zott and Amit 2010, Zott et al. 2011). The issue is approached from a managerial work perspective, building on the experiences of 20 managers who have designed and implemented non-technological innovations in various organisations. Based on their views, a more profound understanding is developed on the control of development of the organisation's operating and business models.

The results of this paper illuminate the dynamic and interactive nature of the ongoing strategic development of non-technological innovations. The results are conceptualised by utilising, and therefore contributing to, Simons' (1995) levels of control framework and Mouritsen and Kreiner's (2016) promissory economy concepts of accounting and control. The management control of non-technological innovations is found to involve various ways of learning, interaction and control of projects in the making. A three-fold framework with practical relevance and theoretical contributions for management control of non-technological innovations is inductively formed through qualitative content analysis of the data.

The paper has the following structure: Section 2 reviews the relevant literature related to the paper. Section 3 describes the empirical setting and methodological choices of the study. Section 4 reports the results. Section 5 elaborates on the study's theoretical contribution and managerial implications as well as addresses its limitations.

2 Literature review

2.1 Strategic development and innovations

This study adopts a broad overall definition of innovation from Davila et al. (2009), seeing it as a pursuit of opportunities for significant new value creation. Strategic development is defined in this study as processes and tasks aiming at strategically developing an organisation, as well as its products and activities. These definitions of strategic development and innovation bring them close to each other as somewhat parallel concepts. However, the term *strategic development* gives appropriate emphasis to the chosen management-driven focus area of this study: the deliberate development work needed to generate and implement innovations. The aim is to explore management control in these often iterative and learning-intensive developmental activities. The following three elements, which build on Bonn's (2005) definition, outline what the characteristics of *strategic* are in this study and how they are used as a framework for data selection. First, a holistic understanding of the organisational context (Bonn 2001, 2005) is emphasised to highlight a systems perspective, a mental model of 'how the world works' (Liedtka 1998). Second, a visionary, proactive and ambitious perspective (Bonn 2001, 2005) is included, suggesting that strategic thinking is fundamentally about developing new ideas (Stacey 1992). Third, an innovative, business-focused approach to adding customer value (Bonn 2001) is included. The market orientation is also highlighted by Moon (2013) and Abraham (2005), who describe strategic thinking as finding alternative strategies and business models to create customer value.

Whereas the definition and characteristics of *strategic* are essential in defining strategic development, they do not say enough about the *development* emphasis in the concept. The multidimensionality of this developmental aspect is defined extensively and aptly in innovation research. Characterisations of innovations are used to define specific forms of strategic development examined in this study. First, regarding strategic development, innovations have been framed according to their level of radicalness. Various researchers (e.g. Jansen et al. 2006, March 1991) have categorised innovations as being either explorative or exploitative by nature. Explorative innovation typically pursues new knowledge, products and services for new customers; that is, it consists of exploring new possibilities. Exploitative innovation, in turn,

concentrates on developing and extending an existing business, that is to say, exploiting existing continuities. The criterion of the degree of newness can also be referred to as incremental or radical.

Besides being incremental or radical, innovations have been categorised on the basis of their technological emphasis and target. Product innovation is considered to be market driven and to include innovation of new products, whereas process innovation introduces new elements to production and operations, often with an efficiency-driven internal focus (Damanpour and Gopalakrishnan 2001). In addition to technologically focused product and process innovation, OECD (2005) has, for research purposes, also defined marketing innovation and organisational innovation as innovation categories. Innovation has often been approached as introduction of new goods or new methods of production and innovation research has largely focused on these technological types of innovation in the manufacturing sector.

Both product and process innovations are often technical in nature, whereas organisational innovation deals with people, re-shaping a firm's procedures and managerial activities (Lopez-Valeiras et al. 2016, Camison and Villar-Lopez 2014). Birkinshaw and Mol (2009) define management innovation as the introduction of management practices that are new to the firm and intended to enhance firm performance. Common to various definitions of managerial innovation in the existing literature is that they focus on an organisation's management processes and structures, constituting the rules and routines by which work is done in organisations. Damanpour and Aravind (2011) have reviewed definitions of administrative, organisational and management innovations, and they conclude that the areas overlap significantly. They view managerial innovation holistically, combining managerial, organizational and administrative aspects under the term.

Non-technological innovation can also assume other forms. The need to describe the problematics and the design of a business and its architecture is continually increasing. Business model innovation has been seen to be especially valuable as the business environment grows more complex and simple models of producing goods and selling them become insufficient. Business model innovation is considered essential in describing how companies create, deliver and capture value from their product innovations (Chesbrough 2010). Yet it can also be seen as a subject of innovation in itself (Zott et al. 2011). A successful business model has to be more innovative and unique than merely a logical way of doing business (Teece

2010). In its radical form, business model innovation can be as disruptive as innovative technologies and transform the existing market. However, it can also proceed more subtly, in an incremental way, when a company strategically hones its operations and ways of doing business. Typically, a business model concept explores what a company does as well also how it does it.

In sum, key concepts defined in this section form a theoretical frame for empirical data gathering and analysis in this research aiming is to explore management control in strategic development of non-technological innovations. Bonn's (2005) three-fold definition of *strategic* (holistic, visionary, and innovative) is used in this research as a lens for data selection, offering the opportunity to examine business-focused strategic development activities and their management control. The data are analysed in terms of non-technological innovations, utilizing managerial innovation and business model innovation as key concepts. Within the previously defined scope of strategic, this study adopts Damanpour and Aravind's (2011) definition of *managerial innovation*, which combines managerial, organisational and administrative aspects. They define managerial innovation as new approaches to knowledge for performing the work of management and new processes that produce changes in an organisation's strategy, structure, administrative procedures and systems. In this research, the term *business model innovation* is defined in terms of non-technological innovation that alters the way an organisation creates and captures value (Chesbrough 2007, Teece 2010, Markides 2005, Zott and Amit 2010, Zott et al. 2011). Managerial and business model innovation are partially parallel concepts in a sense that both are introduced to improve organizational performance. However, the distinction of the concepts is that whereas managerial innovation focuses on the work of management, the concept of business model innovation concentrates on the business activities of an organisation. Building on these definitions, the following section addresses the existing literature on management control in the context of innovations.

2.2 Management control of innovations

Anthony defines management control (1965, cited in Langfield-Smith 1997) as 'the process of assuring that resources are obtained and used effectively and efficiently in the accomplishment of the organisation's objectives'. The traditional view of management control has seen it as a tool for the implementation and control of pre-assigned goals in order to reduce variation.

Simons' (1995, 2000) levers of control provided a new perspective, which introduced four key constructs (belief systems, boundary systems, interactive control systems, diagnostic control systems) for management control. According to Simons (1995), the use of each construct (i.e. each lever) has different implications. Belief systems that communicate the mission, vision and values of a business are aimed to inspire and direct towards new opportunities. Boundary systems represent a statement of what the company is not going to do, therefore setting limits on innovation activities and opportunity seeking. Diagnostic control systems monitor performance against set targets and focus on feedback control. In Simons' (1995) model, the interactive use of controls was aimed at stimulating learning and exploring the strategic uncertainties needed for innovation.

Davila, Foster and Oyon (2009) have reviewed the development of research on levers of control with an emphasis on the positive role of accounting and control in innovation. They concluded that the research field has inherited the whole organisation as the unit of analysis from the traditional literature on control. They consider this to be an overly aggregate level that provides only limited understanding, and they call for more research on the level of strategic development processes. Because Simons' (1995, 2000) control framework focuses on formal controls, calls for more research into the subjective mechanisms and informal systems of control have been made by various researchers (Jansen et al. 2006, Reimer et al. 2016, Martyn et al. 2016). Furthermore, Chenhall and Moers (2015) note that the existing research has concentrated mainly on the technological procedures and administrative structures related to innovation on an organisational level.

Davila and Foster (2009) have outlined management control and innovations, favouring the innovation process as the appropriate unit of analysis. They formed four quadrants of innovation based on the type and source of innovation, categorising innovations according to their impact on strategy (incremental/radical) and the source of innovation (top management/rest of the organisation). The current study focuses on management-driven innovations. In that respect, Davila et al. (2009) outline two categories of innovation and control types that are typical in these settings. Incremental innovation from top management is seen to foster efficient execution at the expense of experimentation. In this setting, control is characterised as a diagnostic system. Radical innovation by top management, in turn, is seen as strategic innovation, where Davila et al. (2009) suggest interactive systems for reviewing the existing business model. However, this general approach does not provide much guidance

into how to control the often iterative and experimental ongoing development work of non-technological innovation.

Management models of development work are undergoing a paradigm change. Strategic development is characterised by more multidimensional developmental activities than simply comparing results against originally set objectives. The well-established stage-gate model (Cooper 1990) widely used in product innovation projects divides the development process into predetermined stages with specified deliverables. Instead of clear quality control gates following each work stage, more flexible management control has been suggested. Stage-gate controls have been criticised for restricting learning and reducing project flexibility (Sethi and Iqbal 2008). The value of traditional management control and making detailed plans when everybody knows they will be revised anyway has been questioned (Anthony et al. 2014). It has been suggested that firms should pursue a balance between ‘firmness and flexibility’ (Tatikonda and Rosenthal 2000). Gaining impetus from the criticism of the stage-gate model, agile methodologies fostering flexibility, collaboration and customer focus have increased in popularity. Agile development has spread from software development to potentially transforming all developmental and innovation activities (Beck et al. 2001, Denning 2016, Rigby et al. 2016). Agile development is a parallel trend with open innovation (Gassmann et al. 2010) in fostering more interactive development processes. Open innovation highlights the idea that the business model of an organization should be based on harnessing collective creativity as well as on leveraging stakeholders and networks outside of the organization (Chesbrough 2006, Chesbrough and Appleyard 2007).

Some work on management control in the development of innovations does exist. Rezania et al. (2016) validated the existence of levers of control and the interrelatedness of different lever frameworks in general through a survey of project managers. Chiesa et al. (2009) studied product innovation projects and observed that the radicalness of the innovation project drives the diversity of its management control systems due to increased uncertainty, especially in the early stage of the process. In addition, Ylinen and Gullkvist (2012, 2014) studied a variety of innovation projects, stating that combined use of controls enhances the performance of innovation projects. Lopez-Valeiras et al. (2016) studied management control systems in process and organisational innovation, exploring the interactive use of cost accounting, balanced scorecard and budget systems. As Tervala et al. (2017) state, previous research has mainly focused on exploring control issues within formal project models. Less is known about

the requirements for control outside of the formal innovation models. The aim of this study is to approach this from the managerial perspective on the ongoing strategic development work level.

This study adopts Simons' (1995, 2000) levers of control framework for building its contribution and theorizing the qualitative data. Despite the findings in previous research that critique Simons' framework for taking the whole organization as a unit of analysis (Davila et al. 2009) and for focusing on formal project models (e.g. Rezaia et al. 2016, Chiesa et al. 2009), the framework does offer potential for theorizing management control in the context of strategic development of non-technological innovation. It presents a comprehensive framework for exploring how different management control concepts could work in combination in formulation of emergent strategic innovations. In these future-oriented developmental initiatives, the outcomes are created in a creative process and the characteristics of the final outcome are initially unknown. Therefore, this research utilizes a broader theoretical approach by supplementing Simons' (1995, 2000) view by Mouritsen and Kreiner's (2016) considerations of 'promissory economy', which outlines control and the role of accounting in future-oriented development setting in an essential way. Mouritsen and Kreiner (2016) see accounting not only as a process leading to a decision, but also in relation to the effects of decisions. They approach decisions as promises that produce new problems and decisions. This perspective shifts attention from what happens before decisions to what happens after decisions are made and development work is in progress. In this 'promissory economy' described by Mouritsen and Kreiner (2016), the role of accounting (and management control) is to enable promising. As things progress and the world changes, this requires forgetting (to enable learning) and forgiving (allowing one to review commitments). From the point of view of strategic development of innovations, Mouritsen and Kreiner's perspective on accounting and control is pivotal in adding this temporal dimension to decision-making. Yet it is partly incomplete because it does not say much about the ways in which managers engage with the unfolding world. This paper seeks to explore this 'mechanism of getting forward', as suggested by Mouritsen and Kreiner (2016), by theorizing the experiences of managers from various organizations in the light of Simon's (1995, 2000) levers of control framework. To the best of the author's knowledge, this present study is unique in its aim to explore management control in the strategic development of non-technological innovations.

3 Methodology and empirical setting

The aim of this interpretative qualitative research was to explore what experienced managers consider essential elements of management control in the strategic development of non-technological innovations. This chosen perspective was pursued by examining the experiences of managers from a variety of organizations through semi-structured interviews. Although interviewing, for example, accounting professionals would have provided a more specialized view on control concepts and their use in organizations, it was the practising managers' perspective that this research was after rather than that of accounting professionals. In addition, whereas collecting data from different actors in addition to managers around management control would offer more in-depth organizational understanding, this study aimed for managerial perspective. The goal was to outline the issue providing more comprehensive and versatile views than a single case study setting and in turn, a more profound and interactive data gathering process than, for example, surveys. Therefore, the main data were collected by interviewing managers with extensive experience in designing and carrying out strategic development in their work and therefore the ability to contribute to the set research question.

Access to this kind of original data was enabled through an executive MBA programme, whose graduates proved able to share their experiences and views openly and extensively. The main data consist of interviews with 20 managers, all graduates from the executive MBA programme. Because the aim was to explore management control in the strategic development of innovations, the respondents were selected from among all graduates using the three-fold lens derived from the theory (see section 2.1). This ensured respondents had familiarity and real-life experience with the goal of the study and could contribute to conceptualizing management control of strategic development.

The respondents were selected from among a total of 108 EMBA graduates between March 2011 and March 2014. The interviews aimed to gain insight from individuals whose current managerial role included strategic development and who in addition had several years of experience to reflect upon the development of non-technological innovations in their current organisation. On the basis of preconditions for choosing the respondents, all the graduates and their final thesis projects were first examined. Following is a list of the criteria for choosing the respondents for this study and their rationale from the perspective of the research question:

1. Their EMBA thesis had to address the topic of strategic development. More specifically, the thesis had to comply with the following perspectives, in accordance with the general characteristics of strategic thinking: (a) a holistic understanding of the organisational context (Bonn 2001, 2005, Liedtka 1998); (b) a visionary, proactive and ambitious perspective (Bonn 2001, 2005, Stacey 1992); and (c) an innovative, business-focused approach to adding customer value (Bonn 2001, Moon 2013, Abraham 2005). These criteria enabled the respondents to evaluate the effectiveness of their EMBA thesis project as a case example of the strategic development of non-technological innovations.
2. Their current managerial work had to be related to strategic issues and business development in order to provide a topical and comprehensive personal professional view of the issues related to the research.
3. They had to be employed by the same organisation as at the time of their graduation. This criterion ensured that they would have sufficient experience with managerial positions in their current organisation to be able to reflect upon the effectiveness and control issues in business development.

The EMBA programme in question is internationally accredited and general by nature without focusing on any particular field of industry or emphasizing any business discipline specifically in its curriculum. The participants are experienced executives and they are advised to choose the topic of their final thesis project based on their personal learning goals and their organization's business interests. The total amount of people meeting the first criterion regarding the topic was 26 out of 108. The second criterion excluded two respondents and the third criteria three more. In addition to these five, one respondent was unavailable for an interview for practical reasons at the time of data collection. The final number of interviewees was 20. When they were contacted by the researcher, all were willing to participate. The interviews, conducted in person during spring 2015, were recorded and transcribed. Anonymity was guaranteed to the respondents before they participated in the interviews. The interviews lasted, on average, for 1 hour and 16 minutes (shortest: 41 minutes; longest: 1 hour and 46 minutes). Appendix 1 provides further descriptive details about the respondents.

Because the specialisation of their EMBA final thesis project on strategic issues formed the primary lens for choosing these managers as respondents, the nature of these projects was

analysed as a starting point before the interviews. The average length of the reports was 66 pages. They were categorised using the theoretical concepts and definitions of innovation presented in Section 2.1. All the reports could be considered as addressing non-technological innovations as opposed to technological ones. Some of their more specific characteristics enabled them to be further categorised into four sub-types (Figure 1). They all included a holistic understanding of organisational context, were proactive and visionary and had an innovative business-focused approach, yet their approaches to strategic development differed. All the respondents had a clear chief managerial role in their particular project.

Table 1. Categorisation of examined innovation projects

	Incremental innovation	Radical innovation
Business model innovation	<i>Incremental business model innovation</i> (6 reports)	<i>Radical business model innovation</i> (6 reports)
Managerial innovation	<i>Incremental managerial innovation</i> (4 reports)	<i>Radical managerial innovation</i> (4 reports)

Even though these kinds of theoretical categorisations can be ambiguous and there is inevitable overlap in defined categories, the projects featured a range of emphases. Half were incremental in nature, and the other half represented approaches that were more radical. There were also differences in the means through which strategic development was approached. Twelve concentrated on business model innovation. Some of these projects approached the strategic setting of the organisation and its business model innovation holistically and as exceeding organisational boundaries, whereas others chose to develop specific aspects of how the company runs its business. Eight projects presented strategic improvements in an organisation's activities and management practices and can be labelled as managerial innovations. *Incremental business model innovation* projects based their contribution on an existing product-market position (e.g. developing the perceived customer experience of the organization). *Radical business model innovation* suggested entering new domains of businesses and pursuing new customers and markets (e.g. building a network-based operating model for new value creation). In *incremental managerial innovation*, practices were improved in a minor and often cumulative way, and the outcome was recognisable improvement built on

previously existing organisational and managerial activities (e.g. improving the account management models of the organization). In *radical managerial innovation*, the targeted changes were bigger and the practices developed differed remarkably from the previous ways of working (e.g. establishing an innovation management process in the organization). A full list of the titles of the examined projects is offered in Appendix 2.

The aim was to gather data about the role that management control can play at the level of development processes of innovation (as suggested by Davila et al. 2009, Chenhall and Moers 2015, Revellino and Mouritsen 2009). The next steps consisted of interviews in which the aim was to explore the managers' understandings of the issue. Topics and questions of the semi-structured interviews were designed to provide a managerial view of the issue from the data. The questions (presented in Appendix 3) approached the issue not too directly, but elicited credible evidence and clues for the qualitative interpretation. Open-ended questions avoided imposing predetermined views on the interviewees. For example, instead of asking directly about management control and development procedures that the organizations are employing, respondents were asked, for example, 'How can one know if some new idea or a plan might turn out to be strategically significant?' and 'How do you define goals for strategic development?' The questions facilitated respondents to share practices they use as well as experiences they have had with exceeding the officially set procedures in their organizations. The order of the topics discussed in interviews also supported this aim of gaining their personal managerial view of the issue. The interviews started with more general questions about the respondents' work and progressed in stages into accounting, control and strategic issues.

Though the main emphasis of the interviews was to explore their views about the topics more generally, the respondents' experiences of the strategic project they had implemented as their EMBA final theses were also discussed. Information about the EMBA projects was covered in the end, so that experiences and characteristics from that specific case would not direct the whole course of the interview. The average time of three years since they had completed their studies provided a suitable timespan for the valuation of the project. The period was short enough that essential elements of the project could be accurately remembered. On the other hand, that much time made it possible for them to gain enough distance from the project to be able to evaluate its effectiveness. Considering the evident bias in evaluating one's own managerial efforts, the timespan also made it more feasible to examine the organisational implementation, management control and outcomes of those projects.

The first interview analysis of the EMBA project cases (section 4.1) was rather straightforward, analysing and reporting the experiences and success of those projects. Findings from these led to the next stage, where a thorough examination of the data with qualitative content analysis (QCA) produced the themes characterising the control of development of non-technological innovations.

As a method, content analysis classifies data into fewer categories, providing a meaningful interpretation of the topic (Weber 1990, Patton 2002). Qualitative content analysis (QCA) is systematic (Schreier 2014), but it also makes it possible to leverage conceptual and analytical flexibility (Douriau et al. 2007). In qualitative content analysis, the coding frame is at the heart of the method. The essential themes of the management control of non-technological innovation were created in a data-driven way. The coding frame was created using a procedure of subsumption (Schreier 2012) by adding data-driven subcategories and subsuming those new subcategories into already existing subcategories when they failed to add anything new. All meanings in the material that were of interest to the research question (i.e. What do experienced managers consider essential elements of management control in the strategic development of non-technological innovations?) were translated into the categories of a coding frame. This process of coding frame development was carried out with all the data regarding all interview questions, after which the frame was revised and the overlapping subcategories collapsed. Because no shortcomings of the frame were found in the trial coding, the main analysis was then made without modifying the frame further. The results outlined three key themes – telling a strategic story, engaging in co-creative projects and validating experimentation – through which dynamic and adaptive management control of non-technological innovations could be constructed. These themes of management control were formed respecting the qualitative content analysis principle of reliability through consistency (Schreier 2012, 2014). In the main analysis, this data-driven derived coding frame was saturated by definition, meaning that each formed concept of management control was pronounced in multiple interviews (strategic story in 9, co-creative projects in 12, validating experimentation in 15). No additional evident themes were found in the data.

4 Results

4.1 Project cases of non-technological innovations

The interviews explored how managers had experienced management control of innovation activities and how they more generally understood that strategic development of innovations should be controlled. Their views included ideas, aspirations and experiences of controlling the development that went beyond the officially set practices and control systems in their organisations. Respondents reflected upon strategy, accounting and innovations on three levels: each respondent's EMBA thesis as a single case illustrating the issue, their current managerial area of responsibility in the company, and experiences from their previous professional positions.

Examination of the interview data revealed an interesting finding regarding the non-technological innovation projects carried out in the EMBA theses. Half (10) of the respondents considered their undertaking as unambiguously successful, reaching the goals that were set for them. The other half (10) reported that the projects did not go as originally planned and failed to meet the set objectives. This shows the inevitable element of surprise in non-technological innovation work. The inability to reach the set goals was particularly emphasised in business model innovations, of which only four were unequivocally considered a success. At first glance, this observation is striking. These experienced managers carefully defined their focus on strategic development, invited various people in their organisation to be involved and invested a considerable amount of effort (an average of six months) in these projects. Yet half failed to meet the expected outcomes set for the project in the planning phase. When examining the interview data more thoroughly, the reasons for this intriguingly large failure rate began to emerge.

In two cases, the development of the innovation as such was successful, but business outcomes were still waiting to be fulfilled. Waiting for the business side to take off is time-consuming, if it happens at all. These findings correspond with those of Teece (2010), who stated that it may take time to get a business model right and innovators are often forced to only make educated guesses as to what customers want and what they will pay for. Birkinshaw and Moll (2006) observed that managerial innovations can also take several years before one can say whether innovation really took place and provided value. This risk of customer perception, however, only explained two out of the ten so-called failures. The remaining eight offered interesting

insights about the problematics of management control of non-technological innovations. The common denominator in those cases was that the suggested improvement, whether related to managerial practices or business models, was not implemented as planned. In some cases, this was due to organisational changes where the developmental project was adjusted and changed to meet the updated organisational context. In other cases, the projects were simply not implemented on the originally desired scale by the manager primarily responsible for promoting the improvement. Furthermore, the so-called successful projects had iterative elements in their development and implementation, but the other half had been redirected to such an extent that the respondents concluded that the original goals had not been reached.

Interestingly, the failed projects were still considered valuable by the respondents. All saw the projects to have been valuable in some way for the organisation. Albeit the expected limitations of evaluating one's own managerial work, this is to be explained by the nature of non-technological innovations. The failure of the projects did not make the projects worthless; instead, they were failures only to the extent that the originally set goals were not reached. This offers an inspiring starting point for exploring this issue more thoroughly, exceeding the scope of these specific projects. The following section presents the results from the qualitative content analysis of the respondents' views and working life experiences on management control of the development of non-technological innovations.

4.2 Management control of non-technological innovations

A *strategic story* was considered an essential element in the management control of non-technological innovations. It directed the developmental process even to the extent that many respondents regarded the story as being more important than financial numbers. This was the case especially in the early stages of the innovation process, whereas the role of financial controls and analysis was emphasised more during the latter stages. Chiesa et al. (2009) have also pointed this out in research on management control in innovation projects. One director approached the issue in the context of business model innovation in the following way:

If it has a good story and you can also find other companies interested in being partners in the concept, then it is worth it to take it forward, even if it does not

look that profitable at that point. Because it is possible that in the later stages more ideas are generated that could improve the profitability of the innovation.

Financials were seen, however, as an essential element in securing the resources for the development and implementation of the innovation, but not so much in justifying its relevance. This concern regarding necessary resources corresponds with Lechner and Floyd (2012), who found in particular that exploratory strategic initiatives – i.e. undertakings with goals that are inconsistent with an organisation's current competencies – were less likely to be successful in the resource allocation process. Many respondents considered that even exceeding developmental budgets could be acceptable if the strategic story supporting the non-technological innovation was strong enough. The following quote regarding managerial innovation illustrates the point:

When the story has been bought and the potential benefits of the improvement have been described and management believes in them, then it is not easily discontinued along the way. You continue the story and keep carrying it forward, even if it requires more resources along the way.

In terms of management control, the theme of strategic story can be characterised in terms of what Simons (1995) calls a belief system, which is used to inspire and direct the search for new opportunities. But innovative ideas and projects also have to fit into the scope of the shared purpose and strategy of the firm. A strategic story operated as a guideline, as a narrative contextualising innovation and as a way of making it appear legitimate (Garud et al. 2014, Bartel and Garud 2009). The theme of strategic story as a control creates a frame for freedom to innovate by assuring that individuals are working towards the predefined strategic direction of the company. This reminds us of boundary systems control in Simons' (1995) framework. One respondent expressed it in the following way:

We have to be aware of the big strategic goals of the company, towards which we are striving. But within that frame, you have a rather free field to play on.

Co-creative projects formed another distinctive theme in the management control of innovations. The iterative, process-like nature of strategic development involving various people from the organisation was emphasised. Continuous evaluation, control and redirecting

the development of innovations were seen as essential for two reasons. First, it was considered valuable as a response to the competence demands of such work. This emphasises the learning aspect, which has been found to be essential in previous research, especially with exploratory strategic initiatives (Lechner and Floyd 2007). One respondent described innovation work in a development team with colleagues as continuous interaction:

It is typical in these times that nobody is able to develop these innovations alone. No individual is so multi-talented that you could even do the preparations for something big by yourself. You can see the rough outline of the innovation, but it is together that these things must be developed. The competence demand (for major business innovations) is so complex that it would not even cross my mind to start doing something on my own.

Another perspective on the issue regarding co-creative projects was related to change management. Continuous co-creation and interaction with various people were seen to increase commitment inside the organisation. This was especially emphasised in managerial innovation where, instead of making accurate calculations, changing people's mindsets and behaviour was essential. One respondent states the importance of this co-creational movement of thought in the following way:

If we could see right from the beginning what things are strategically important, then we would make decisions about them. But since we can't know in advance, I think it's all about building an attitude towards the future. If we think we know for certain in advance and demand such unambiguous information, it is only implementing something already planned, not true renewal and innovation.

Project-based working was seen to be instrumental in the development of innovations. Projects were considered as a form of control in a way that, through them, the financial issues could be taken under continuous evaluation. Financial issues and the costs of the innovation development can be compartmentalised through a project, interviewees suggested. However, perhaps more interestingly, managing non-technological innovations as projects was seen as a strategic investment for the success that one should constantly have in a developmental portfolio. One respondent described it thus:

You should see it as an investment. In some organisations and contexts you perform traditional investment calculations. In our context of knowledge work and organisational change, we should see these innovation initiatives as project-based investments for the future, with strategic aims and allocated financial resources.

In terms of change and renewal, concerns were also raised regarding the use of traditional diagnostic control, which compares set targets and potential outcomes. Some essential changes along the way can be overlooked, but this can have severe consequences, as one respondent reported:

It is risky to go 120km/h as planned if the road starts to look like it has 90-degree turns on it.

In terms of management control, the theme of co-creative projects can be considered to be what Simons (1995) calls an interactive control. By stimulating searching and facilitating learning, co-creative projects form an essential means for continually debating and redirecting the action plans in the development of new ideas. Continuing co-creation around the adjustments that need to be made brings forward the agile nature of the development of non-technological innovations. This temporal dimension of decision-making and management control also reminds of what Mouritsen and Kreiner (2016) call a 'promissory economy', emphasising the managerial commitment to the ongoing development.

Validating experimentation was the third essential theme describing management control. Investing in success through non-technological innovations was often carried out via smaller experiments. Respondents described developments more often as experiments than as pilot projects. Where pilot projects typically seek to succeed and represent the final testing before a large-scale launch, experimentation was described as something different. Instead of acquiring final proof of the potential of the innovation, as is the case in piloting, experimentation aimed at gaining valuable information. Experiments with non-technological innovations were also allowed to fail. The best experiments were described as the ones where through spending the least amount of resources, you learn the most and can direct your developmental efforts. This required new ways of evaluating the effectiveness of strategic development, emphasising the spirit of 'probe and learn' (Lynn et al. 1996) and going forward. The difference in management

control between technological and non-technological innovations was aptly described by one director:

If we are talking about product development, we follow accurate calculations and stage-gate models in innovations, and constantly analyse the costs and business potential. But in my area of managerial responsibility, where we don't develop products but instead business and managerial models, it is not that black-and-white. In new product development, you make go/no-go decisions. In our operational strategic innovations, we can start gradual experiments to see if the innovations fly or not.

Especially in business model innovation, the role of the customer was considered to be instrumental. Directing the development work based on experiments with customers was seen as essential for increasing the quality of the innovation work, as well as for reducing the risks associated with it. This accords with previous studies which have highlighted customer focus and market knowledge in innovation development (Burgers et al. 2008, Berthon et al. 2004) and which have, in addition, stated that customer focus provides the greatest insight into why an agile organisation operates the way it does (Denning 2016). One respondent describes the pitfall of doing development work that relies only on an inside perspective:

What I call *framework design* sometimes goes too far. You hone all the details inside the company in your innovation process and then when you tell the story to customers they don't understand anything. My mindset is that in the earliest possible stage, you have to test your assumptions with chosen customers and make small experiments.

Examined in the light of Simons' (1995) levers of control framework, *validating experimentation* can also be considered as an interactive control. Along with *co-creative projects*, it describes how instead of causal mechanisms, non-technological innovations are developed with solution options changing and adjusting along the way, as emphasised in agile development methods (Rigby et al. 2016).

5 Discussion and conclusion

Theoretical contribution

This research on management control of innovations responds to a call to provide practice-focused research on managers and accounting (e.g. Jönsson 1998, Malmi 2005, Hopwood 2007, Hall 2010, Chua 2007). Previous research has built up an understanding of the adoption and use of different management control systems on a company level (Bisbe and Otley 2004, Bisbe and Malagueño 2009, Ditillo 2012, Mouritsen et al. 2009). Extensive research contributions have also been made in the area of innovation and new product development (e.g. Duhamel et al. 2014; Taipaleenmäki 2014; Jørgensen and Messner 2010; Davila 2000; Nixon 1998). This current study draws on that prior research and extends those by adding a unique perspective to this field of literature by conceptualizing management control of strategic development of non-technological innovations. The previous section presented individual themes and their characteristics. The following section theorizes the themes as management control concepts, in terms of Simons' (1995) levers of control framework and related to the promissory economy approach by Mouritsen and Kreiner (2016). Figure 1 presents this overall theorisation of the results.

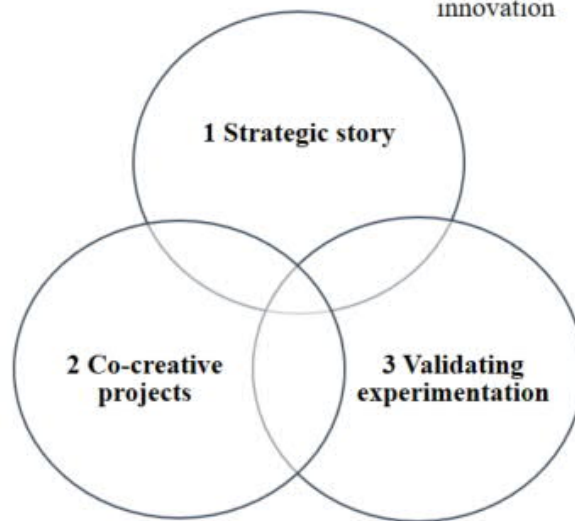
Figure 1: Elements of management control of non-technological innovations

Boundary system control (Simons 1995)

- Ensuring fit to the organization's strategy

Belief system control (Simons 1995)

- Inspiring and motivating innovation



Interactive system controls (Simons 1995)

- Focusing on changing information
- Enabling forgiving and forgetting in progression (Mouritsen and Kreiner 2016)

A strategic story was described as a motivational frame, a positive and inspirational force, aligned with the strategic narrative and mission of the whole organisation. When examined against Simons' (1995) levers of control framework, the theme of a strategic story had elements from both belief system and boundary system controls. Inspirational belief allowed innovation, but within clearly defined limits, representing both belief and boundary controls. The two other themes, co-creative projects and validating experimentation, can be regarded as interactive controls in Simons' (1995) framework. They focused on strategic uncertainties, changes in significant information and learning during the development work. They described management control fostering face-to-face interaction, discussing and debating about the underlying assumptions, and the current situation of the development work. Validating experimentation emphasised interactive control through investing time and attention, reviewing newly produced information, and stimulating searching and learning. In validating experimentation, customer collaboration and responsiveness to change are crucial. Co-creative projects highlighted the need for continuous interaction and discussions that aim to direct the development work. They also emphasized responding to changes rather than following predefined plans.

The previous classification of the control themes in the light of Simons' (1995) framework offers interesting observations when strategic development is examined in the pursuit of financial success. The process of developing and implementing new ideas is a profoundly economic process (Fried 2017). In co-creative projects, financial aspects were highlighted in order to monitor costs and continually estimate the necessary investments for the development work. However, this was not seen as being done in the manner of tracking progress against predetermined standards, as in diagnostic control systems (Simons 1995). Formulating innovation development as projects was seen to be instrumental in ensuring the resources and signalling what is important. Financial reporting also produced information as the development proceeded. It was suggested that non-technological innovations should be approached as investments in success and as attempts to enhance an organisation's long-term financial performance. The lack of diagnostic control found in this study is consistent with Revellino and Mouritsen's (2009) finding that having an initial strong strategic outlook is futile, and it is more realistic to consider original visions as soft design and to think about control as an adaptive system along the way. The strategic development of non-technological innovations is an imprecise and creative process. Even in the context of incremental innovation driven by top management, control cannot be characterized dominantly as diagnostic control, as suggested by Davila et al. (2009) in their general innovation control framework. Therefore, the strategic story was instrumental in obtaining legitimacy and direction for the development, in other words, for aligning the development with corporate strategy (Akroyd et al. 2016, Slagmulder 1997). This observation further develops the notion that the meaningfulness of innovation efforts over a longer timespan requires subjective measures (Chenhall and Moers 2015, Davila 2000). These conclusions are also in line with Weick's assertion (1995) that in the context of sensemaking in organisations, people favour plausibility.

The theorization of the results presented in Figure 1 also expands on a recently published work of Mouritsen and Kreiner (2016), who have suggested that a decision is not just the end of the decision-making process, but that decisions are also promises which open new beginnings. According to this view, decisions set things in motion. A promise is a commitment to invest and to continually adjust the development work. Strategic development has no straightforward means–end relationship. Based on the findings of this study, this is especially emphasised in the context of developing non-technological innovations. This study enhances the work of Mouritsen and Kreiner (2016) by specifically explaining the mechanisms through which the unfolding world is addressed by managers. The themes of co-creative projects and validating

experimentation are forms of control which make Mouritsen and Kreiner's (2016) 'forgetting and forgiving' possible by facilitating action around the adjustments that have to be continually made. This finding corresponds with the following observation from Davila et al. (2009): 'Entrepreneurship and innovation are about taking advantage of exceptions; experimenting, failing and succeeding; uncertainty and volatility; inefficiencies; adapting to unforeseen opportunities; and foremost creativity.' Previous literature (e.g. Davila et al. 2009, Chenhall and Moers 2015, Davila 2000, Revellino and Mouritsen 2009) has suggested that management control of innovations requires an adaptive system emphasizing subjective measures instead of diagnostic control. Building a theory of management control in these uncertain environments is something that needs to be done (Fried 2017). The finding that non-technological innovations cannot be easily evaluated emphasises the importance of management control *during* their development. Yet little is known about this aspect of management control. This research provides a unique contribution by conceptualizing managers' understanding of the essential elements through which the management control of creative development work of non-technological innovations could be outlined.

Managerial implications

This study offers several managerial implications. The results indicate that the development of managerial and business model innovations are typically less structurally managed and less often governed by formal management control systems than technological innovations are. This is consistent with Birkinshaw et al. (2008), who noted that the expertise and competencies needed for non-technological innovation are often less well established in organisations than they are for technological innovations. Technological innovation is by definition technical, and thus more codified. New product development and processes are typically run and developed by designated and sufficiently educated professionals. In this study, management innovation – and even business model development – were often found to be carried out alongside other managerial responsibilities. These non-technological innovations tend to emerge through necessity as a response to a problem facing the organisation.

The ever-changing business environment and increasing emphasis on non-tangible resources make it harder and harder to define investments beforehand and then monitor their progress along a preset path. In this context, upper management can even overcontrol development projects and negatively affect their performance (Bonner et al. 2003). Due to their

characteristics, the development of non-technological innovations cannot be controlled and their progress cannot be validated with ease. This aspect of the strategic development work of non-technological innovations is intertwined with the way it needs to be controlled. The findings of this research extend the suggestions that the development of innovations should involve a combination of different control principles and approaches. This echoes the studies on innovation projects by Ylinen and Gullkvist (2012, 2014), which find that a combined use of controls (mechanistic and organic controls in their classification) enhances the performance of innovation projects. This present study offers a theorization of control concepts, which can be used to design management control of innovations not in an ad hoc manner, but as a planned and managed process that still recognizes the iterative and collaborative nature of the development work.

In addition to designing the management control, this study provides further managerial implications regarding the methods of innovation development work. Whereas the stage-gate models and mechanistic management control emphasise high standards of execution, the agile approaches prioritise quality in learning, customer focus and experimentation. This dynamic way of working can reach its full potential in situations where close cooperation and feedback from end-users is essential. The findings of this study resonate with Rigby et al. (2016), who state that executive action in strategy development, the cultivation of breakthrough innovation and the improvement of organisational collaboration can benefit from the application of agile development work methods. This study expands the recent suggestions in the literature for integrating the agile and stage-gate development approaches in product development settings (Cooper 2014, Cooper and Sommer 2016, Sommer et al. 2015) into the context of non-technological innovations. The development of managerial and business model innovation was found to possess favourable conditions where interactive and experimental approaches are beneficial. Instead of gatekeepers predefining inputs and scrutinising deliverables, the desired solution is often initially unknown and the requirements will most likely change along the way.

Even though the results of this study emphasize the interactive and experimental nature of strategic development work, they also highlight more traditional approaches of managing innovation work. Predefining development initiatives as projects was seen as essential in securing resources as well as in monitoring financial aspects as the development work proceeds. Non-technological innovations were described as investments, where certain

expenditures are required in the present in order to generate revenues in the future. Controlling the development work in a project-based way refers to the approach in Anthony et al. (2014), which addresses the control, especially the *feeling of control*, in development work. In traditional development methods, one has a plan that covers the project from beginning to end, whereas in more agile development one does not know what is going to happen next. As Anthony et al. (2014) also argue, managers should not underestimate the value of the feeling of control, which stems from knowing what is going to happen next, even if plans are revised along the way.

The collaborative nature of strategic development work and the control of non-technological innovations was also highlighted from a change management perspective. Instead of developing technological innovations, which 'sell themselves' when they are ready, the success of managerial and business model innovations requires many people to be involved in the development process. The implementation of non-technological innovation postulates a change of mindset and behaviour, something that personal involvement in the process enhances. The more an organisation has people thinking strategically, the more readily it can respond to changes in the business environment (Tavakoli and Lawton 2005). Non-technological innovations by definition do not concentrate on technology, but on people.

Limitations and suggestions for further research

This study has several limitations. The conclusions are built on the overall understanding and experiences of respondents coming from various organisations. Therefore, it is obvious that this research distances itself from building an in-depth understanding of any specific organisational setting. The control themes formed through the interview data were also observable in the examined EMBA final project cases, but the data are limited in, for example, promptly comparing the application of the suggested themes of control during the process and the success of these specific projects. This research used the context of the EMBA theses as a starting point, but for its main contribution deliberately built on the experiences and views of the interviewed respondents; this was also done to minimise the bias of respondents evaluating their own thesis projects. This study is also limited by its selected focus on experienced managers instead of, for example, accounting professionals. However, by drawing on the experiences of multiple experts representing various organizations, the developed control themes offer potential for transferability to similar managerial contexts within the scope of

managers' understanding of the issue. This study invites managers to make connections between the outlined control elements and their own experience. In addition, the present study is, to the best of the author's knowledge, unique in exploring management control in the strategic development of non-technological innovations, so a number of suggestions for future studies emerge. Future research could examine the developed framework of control themes and apply it in various specific organisational settings where more case-specific data are available during the development of innovations. The understanding of actors other than experienced managers could also be examined.

The findings of this study lead us to consider approaches in the management control of non-technological innovation development that go beyond simply comparing outcomes in different phases against originally set goals. With business model and managerial innovations, an appropriate framework of management control could be built on aligning the innovation under development with the strategic story of the organisation, leveraging co-creation in the projects and proceeding through experimentation with close customer contact. Constructing management control with these elements could result in a formal system that does not enforce reluctant compliance but which, instead, acts as an enabling system (Adler and Borys 1996) that facilitates responses to business development challenges. This type of management control would operate as a learning machine (Burchell et al. 1980) supporting successful innovations.

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Appendix 1. Descriptive details of interviewees

Job title	Company size*		Field of industry	Age	Gender
	SME	Large			
1 Production director		x	Manufacturing	45	M
2 Business director		x	Education services	46	M
3 Account director	x		Professional services	49	F
4 Senior project manager	x		Education services	46	M
5 Manager of product management	x		Technical wholesale	41	M
6 Development director		x	Media	54	M
7 Finance manager		x	Energy	47	M
8 Production unit director	x		Food Industry	55	M
9 Executive director	x		Professional services	50	F
10 Director	x		Social services	54	F
11 Sales manager		x	Food Industry	44	F
12 Director of administration		x	Public sector	53	F
13 Category manager		x	Retail	45	M
14 Account director		x	Real estate services	49	M
15 CEO	x		Travel	48	F
16 Development director		x	Finance	57	F
17 Director		x	Energy	46	F
18 Director		x	Software	46	M
19 CIO		x	Healthcare	49	M
20 Channel development manager		x	Food Industry	56	M

* Small and medium-size enterprise (SME) definition according to European Union recommendation 2003/361, meaning organisations with less than 250 employees.

Appendix 2. EMBA final theses topics

1. Local food as a competitive advantage for company X
2. Renewed business and contracting model securing the future of company X
3. Strategic knowledge-base of managing a municipal enterprise group
4. Account management in a small design-company. -"Most wanted partner in visual communications"
5. Research on the success factors of a new product in bank Group X
6. Differentiating solutions value on customer relationship with the help of customer insight
7. Overwhelming customer experience. -Concept manual for the business of the future in company X
8. Developing marketing and services to Russian customers in company X
9. Building an education value network in industry X
10. Pricing as a competitive advantage in retail. Effect of impression about the price in choosing where to buy
11. With innovations to a sustainable tomorrow. -Innovation process as part of sustainable business
12. Life Cycle planning and roadmaps for existing customers in company X
13. ICT-governance and organizational architecture in organization X
14. The triple helix institute of higher education on entrepreneurship -continuous renewal and management challenges
15. From cooperation to partnership -development of suppliers relationships in company X
16. Strategy work of multi-actor organization -case organization X
17. Customer service improvement in business area X
18. Learning story about building an innovation system into enterprise X
19. Perspectives into the future of field of industry X
20. Account management in municipalities
21. Customer as a developer of products and services
22. Success factors of the future in the field of industry X
23. Hurricane -Business of a company X
24. Competitive strategy of goods trade in Company X and send-offs for successful strategy implementation
25. Local supplier of the future in company X
26. Growth strategy of sales in company X

Appendix 3. Interview Questions: areas of inquiry

Current work

- Describe your work and area of managerial responsibility.
- How do you know you have done a good job?
- How are accounting and financial issues related to your work?
- What accounting practices do you find useful / not useful in your work?

Strategic thinking

- How do you plan ahead and practise strategic foresight in your work?
- How can one know if some new idea or a plan might turn out to be strategically significant?
- When was the last time you practised strategic thinking?
- How do you define goals for strategic development?
- What is your personal view on the strategic development of your business based on?
- How are strategic ideas and initiatives sold and operationalised in an organisation?
- Do you see any dangers and challenges related to strategic thinking?

Strategy and accounting issues

- What is the role of financial information in strategic thinking?
- When creating and envisioning something new, what accounting frameworks and practices do you consider useful / not useful?
- Do you produce calculations yourself in your work?
- Do you utilise calculations made by others?
- Do you see any challenges or dangers when using accounting in strategy work?
- Is there something else you would like to say about strategic thinking and accounting related to your work and experience?

Strategic thinking case: EMBA final thesis project

- How would you describe your EMBA final thesis as a project (time span, who was involved, etc.)?
- How would you evaluate it now as a strategic project?
- How would you estimate the financial impact of the project?
- How would you describe accounting thinking and financial quantifications as part of the project?