

Circumventing The Bias

A case study of a company's capital budgeting process and its link to achieving organizational ambidexterity

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Abstract

This study utilizes in-depth interviews to examine the capital budgeting process of a multinational company, in order to understand its approach to organizational ambidexterity. When faced with a harsh economic environment and tougher financial demands, it is crucial for firms to exploit profitable capabilities in the short-run, but also to explore future highly uncertain opportunities. A problem that firms face is the fact that capital budgeting, the main tool for choosing which investments to undertake, is biased towards short-term investments, theoretically making it hard to accept explorative investments. This single-case study reveals a prevalent short-term financial bias in the company's capital budgeting practice, aligning with existing literature. However, applying the Exploration-Exploitation framework by Lavie et al. (2010), the company is believed to mitigate this bias through two modes of balance; organizational separation and contextual ambidexterity, pushing explorative investments towards acceptance. This study contributes to the capital budgeting literature, which is predominantly quantitative, by highlighting the interplay between capital budgeting and organizational ambidexterity qualitatively, a topic largely unexplored by previous literature.

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Keywords: Capital budgeting, Organizational Ambidexterity, Exploitation, Exploration

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1. Introduction

1.1 Background

We live in a highly dynamic world and the business landscape is changing faster than ever. For companies to cope with this changing environment it is crucial to exploit existing capabilities, to capitalize to the fullest extent on existing market opportunities and company resources, while at the same time investing in long-term exploration of new business opportunities (Andriopoulos & Lewis, 2009; Tushman and O'Reilly, 1996). Organizational ambidexterity is the ability for an organization to simultaneously succeed in exploitative and explorative investments (Tushman and O'Reilly, 1996). These two types of investments are seen as being fundamentally different, two opposing forces. Exploitative investments are expected to yield greater short-term returns, are relatively certain, and are closely related to existing knowledge and expertise. Explorative investments are those that are expected to yield higher returns further in the future, are more uncertain, and may entail more indirect effects and less quantifiable outcomes (March, 1991). Therefore, a company has to decide, based on their capital allocation process, how much weight they want to put on exploitative and explorative investments respectively.

Capital budgeting is a tool, where investments or expenditures get evaluated based on expected strategic viability, profitability, and risk (Sureka et al., 2022). The goal is to allocate a company's resources in a way that will maximize return on investment, and subsequently the overall value of the company. The capital budgeting process within a company is a core capability to its potential success, as effective and prudent practices will ensure that a company makes adequate investment decisions (Sureka et al., 2022). This prompts a keen interest in unraveling its fundamental mechanisms. Failure to appraise new potential investments effectively can trump a company's competitiveness and long-term survival in the market (Bennouna et al., 2010).

1.2 Problematization

Prior studies on how companies apply capital budgeting have mainly been quantitative (Graham & Harvey, 2002; Ryan and Ryan, 2002; Sandahl & Sjögren, 2003). However, when it comes to qualitative research on the practical application of capital budgeting techniques,

there is a significant gap in the accounting literature. (Miller & O'Leary, 2007). Bower (1972) advocated that accounting research has to further investigate factors that influence the investment process, rather than solely looking at identifying projects with the theoretically highest NPV. Similarly, King (1975) calls for researchers to apply a holistic view when investigating the capital budgeting process in companies, and take into account organizational structure, decision-making procedures, and biases.

Within management and innovation literature, there are numerous studies examining instances where companies lost their dominant market position, due to their inability to effectively balance investments in exploitation and exploration (Heracleous et al., 2017; Lamberg et al., 2021; Lunce et al., 2006). However, there is very little knowledge within accounting literature when it comes to how companies actually structure their capital budgeting processes to work towards organizational ambidexterity in practice.

Prior accounting research shows that traditional financial capital budgeting methods, such as Discounted Cash Flow (DCF) and Payback Period, have a bias towards short-term exploitative investments (Alkaraan & Northcott, 2006; Christensen et al., 2008; Kaplan, 1986; Shank, 1996). This bias hampers a company's inclination to invest to the appropriate extent in long-term explorative investments, hindering the pursuit of long-term sustained success. We see a gap here as well, where there is very little research regarding how companies structure their capital budgeting processes to circumvent this short-term bias. In today's rapidly changing environment, achieving ambidexterity as a firm is increasingly challenging. Thus, it is more important than ever to understand the connections between capital budgeting and organizational ambidexterity. These connections become crucial for attaining optimal performance in both the short- and long-term.

1.3 Research Question

Recognizing the existing gap in the literature, this single case study aims to understand the approach and reasoning behind capital budgeting in an innovative manufacturing company. It focuses on exploring this topic from the unique perspective of an ambidextrous firm. Thus, the research question is formulated as:

How can a firm circumvent the bias towards exploitative investments in its capital budgeting process, and achieve organizational ambidexterity?

1.4 NovaLink

NovaLink (Pseudonym) is a suitable subject of study for our research question, due to their extended track record of being a successful innovative company for over a century. They have grown into a global company, with a workforce of almost 100 000 employees. NovaLink is currently managing a product portfolio of over 60 000 products, within four highly distinct business groups. Over 100 000 active registered patents are owned globally, and for the past five years NovaLink has averaged 3500 new patents yearly. All these accomplishments signal that there is a high focus on being explorative, while simultaneously satisfying the short-term requirements from shareholders. Moreover, NovaLink is often publicly elevated as a firm which is organizationally ambidextrous. Therefore, it is of high interest to study how their capital budgeting process allows them to come out with numerous new innovative products. It is also of great interest to look at how they work in their capital budgeting process to circumvent the bias towards short-term exploitative investments.

1.5 Study Contributions

This study makes three significant contributions to the field of accounting and the domain of capital budgeting. Firstly, it addresses a notable gap in accounting literature by providing insights into how companies implement capital budgeting methods in practice, moving beyond the predominant quantitative approaches of prior studies (Graham & Harvey, 2002; Ryan & Ryan, 2002; Sandahl & Sjögren, 2003). Our study delves into the intricacies of capital budgeting processes at NovaLink, shedding light on the practical application of capital allocation in balancing exploitative and explorative investments. Secondly, we extend the discussion on the inherent short-term bias in traditional capital budgeting approaches. By examining NovaLink's approach to capital budgeting, our study reveals how such biases manifest in real-world scenarios and affect investment decisions. This investigation not only augments our understanding of capital budgeting practices but also provides actionable insights for firms striving to maintain competitiveness through balanced investment strategies. Thirdly, our research uncovers a scarcely explored intersection between capital budgeting and organizational ambidexterity. While the concept of ambidexterity has been extensively studied within the realms of strategy and innovation, its relation to capital

budgeting remains under-researched. Our findings from NovaLink offer a perspective on how capital budgeting practices can function in an ambidextrous organization, simultaneously supporting short-term operational efficiencies and long-term innovative growth. This contribution not only fills a significant gap in the existing literature but also opens new avenues for future research in these critical business domains.

2. Theoretical Development

This section contains a review of two areas of literature relevant to the present study. Section 2.1 goes through previous literature on capital budgeting, providing a broad understanding of the topic. Section 2.2 addresses prior research on organizational ambidexterity. 2.3 brings up the bias in capital budgeting, towards exploitative investments. Lastly, in section 2.4, the theoretical framework for this study will be addressed.

2.1 Understanding Capital Budgeting

Given the constraints of limited resources, companies often grapple with the necessity of prioritizing investments, a challenge commonly addressed by employing diverse capital budgeting methods (Harris & Raviv, 1996). The Payback method is the most frequently employed method in practice, and assesses the time required for a project to recoup its costs solely from its generated cash flows (Mota & Moreira, 2023; Sandahl & Sjögren, 2003). However, this method has faced criticism within academic circles due to its omission of the time value of money, and its failure to consider cash flows extending beyond the payback period. Despite the mentioned limitations, the Payback method retains its widespread practical utility, thanks to its simplicity (Sandahl & Sjögren, 2003). Theorists widely endorse Discounted Cash Flow (DCF) methods as the optimal means for making sound investment decisions (Sureka et al., 2022). These methods incorporate considerations of both the timing of cash flows and the associated investment risks, enabling a comprehensive evaluation of a project's present monetary value. Notable DCF methods in practice include Net Present Value (NPV) and Internal Rate of Return (IRR). Most companies use a combination of several different evaluation methods when performing capital budgeting (Sandahl & Sjögren, 2003).

Prior research within capital budgeting has established two main categories of motives for undertaking capital investments; financial rationales and strategic rationales (Alkaraan & Northcott, 2006; Carr et al. 2010; Shank, 1996). Financial rationales involve evaluating capital investment decisions based on measures, such as NPV, Return on investment (ROI), and other financial returns, thus focusing primarily on metrics that are quantifiable (Shank, 1996). In contrast, strategic rationales can complement financial rationales by encompassing broader business strategy aspects that are challenging to quantify accurately. These include quality enhancement, customer satisfaction, manufacturing flexibility (Abdel-Kader & Dugdale, 1998). Combining financial and strategic rationales ensures that well rounded investment decisions are made, by aligning both short-term financial goals and long-term business strategies (Shank, 1996).

For highly complex and uncertain investments, where qualitative considerations also have to be taken into account, managers' intuition and expertise play a crucial role in the capital budgeting decision making (Alkaraan & Northcott, 2006; Grant & Nilsson, 2020). Alkaraan & Northcott (2006) find that financial analyses dominate in practice, but do not suffice to give a fair evaluation of long-term strategic investments. Therefore, managers have to use their own past experiences and expertise to connect what they see as strategic aspects of an investment with the forecasted financial outcomes, and make a holistic evaluation which they base their investment decision on.

After examining how companies choose where to allocate their capital, a dilemma is identified, as companies have to take into account both financial factors and broader strategic goals when choosing between short and long-term investments (Shank, 1996). A scenario that exemplifies this is the cannibalization component, which refers to the scenario where the launch of a new product leads to a decrease in the market share of an existing product. This necessitates a decision on whether to accept the new product from a long-term perspective or abandon it to protect short-term profits (McColl et al., 2020). This dilemma between financial rationales and broader strategic arguments lays the groundwork for understanding the challenges companies face within the capital budgeting process. Beyond focusing solely on short-term financial gains, companies must find a balance between leveraging their established strengths and exploring new opportunities. A concept that captures this intricate balance is organizational ambidexterity.

2.2 Understanding Organizational Ambidexterity

Organizational ambidexterity has been described by Tushman and O'Reilly (1996) as an organization's ability to simultaneously explore new opportunities and technologies, while also exploiting existing capabilities and resources. In essence, it's about balancing the need to innovate and adapt to changing circumstances, with the need to maintain and optimize current operations.

Exploitative investments concentrate on optimizing current resources, competencies, and capabilities (Benner and Tushman, 2003; Tushman and O'Reilly, 1996; March, 1991). By increasing the effectiveness of the organization's current operations, the goal is to better meet customer demands and take advantage of current market opportunities. In order to assure short-term gains to margins, cash flows, and financial returns, exploitative investments frequently involve cost-cutting initiatives and enhancements of current offerings.

Explorative investments can be defined as investments made in radical innovation with the intention of exploring and developing new capabilities and market opportunities (Benner and Tushman, 2003; Tushman and O'Reilly, 1996). The aim is to foster new product development and business concepts that meet emergent consumer needs, which will ensure long-term competitiveness and sustainability for the organization. Engaging in experimentation and exploring is more time consuming, entails highly uncertain outcomes and requires a longer time horizon than improving on current processes and competencies (March, 1991).

The practical importance of achieving organizational ambidexterity is exemplified in the case of Nokia (Lamberg et al., 2021). Nokia was a market leading company when it came to early innovation in mobile technology, and had developed great exploitative capabilities to capitalize on their innovation. However, Nokia failed to recognize a shift in the mobile phone market and invested insufficiently in exploration. Since they had been an early innovator in mobile technology, they had developed a significant amount of sunk costs, which put them on path dependency when it came to further development within the phone market. Nokia's failure to achieve a proper balance between exploitation and exploration resulted in its dethronement as a market leader. This case underscores the challenges companies can face in reaching organizational ambidexterity, particularly in rapidly evolving markets.

Explorative and exploitative investments are perceived as being fundamentally different (March, 1991). Given that organizations operate with limited resources, and because investments in both exploitation and exploration can be viewed as conflicting objectives, a tension emerges when these two processes compete for resources within the organization.

2.3 The Bias In Capital Budgeting Towards Exploitative Investments

For a company to be able to reach organizational ambidexterity, they need to have an adequate capital budgeting process that enables them to balance capital allocations towards exploitative and explorative investments (March, 1991). However, the issue is that capital budgeting in itself is biased towards short-term exploitative types of investments (Kaplan 1986; Christensen et al. 2008; Alkaraan & Northcott, 2006; Shank, 1996). Within DCF analysis, companies tend to use high discount rates that diminish the value of cash flows that are far in the future (Kaplan, 1986; Christensen et al., 2008). This leads to an exaggerated negative impact on the value of explorative investments. Moreover, the challenge of quantifying the more strategic benefits from explorative investments often leads to them getting undervalued (Baldwin and Clark, 1994; Shank, 1996). Overemphasizing earnings per share (EPS) by managers may lead to a reluctance to invest in innovation that does not yield immediate returns (Christensen et al., 2008). Since EPS is an important factor for increases in share price, managers are biased against explorative investments that can compromise near-term EPS growth. Instead of investing excess cash in explorative investments within the company, strong shareholder forces can compel the company to distribute this excess cash back to shareholders.

2.4 Theoretical Framework: Exploration-Exploitation

The Exploration-Exploitation framework by Lavie et al. (2010), which is heavily based on findings of March (1991), Gibson & Birkinshaw (2004) and Tushman & O'Reilly (1996), will be the theoretical lens through which the empirical findings will be analyzed (See Figure 1).

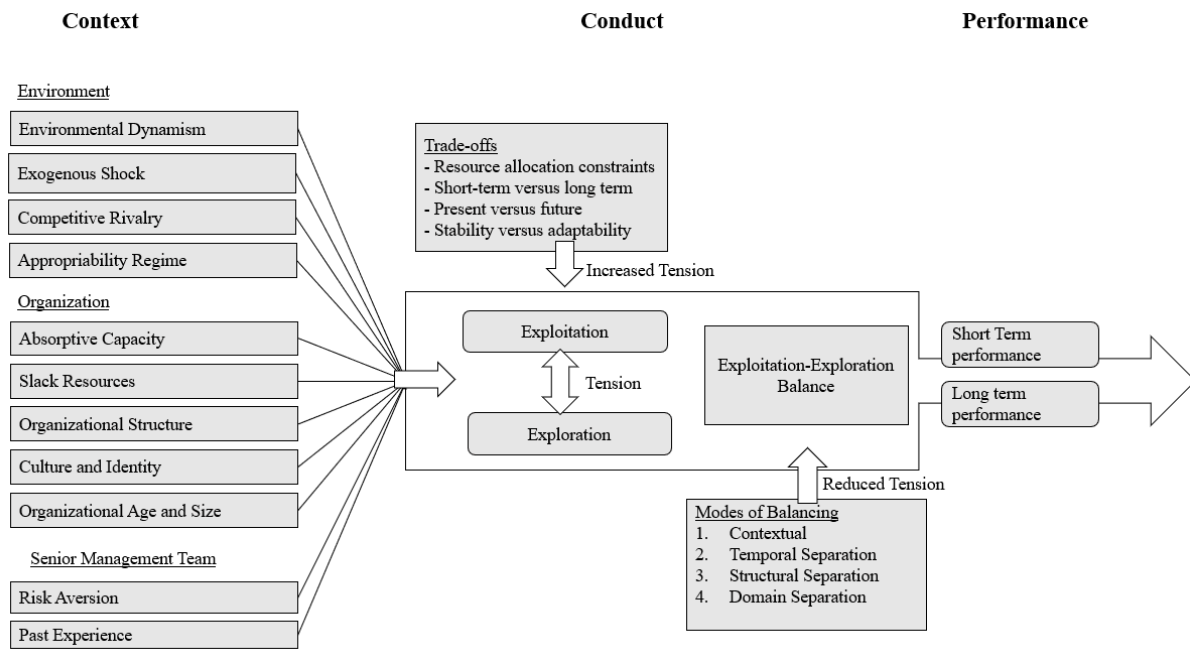


Figure 1. Exploration-Exploitation framework by Lavie et al. (2010)

2.4.1 Context

As previously described, the balance between exploitation and exploration in organizations is a complex and multifaceted issue (March, 1991). Different organizations may emphasize one over the other based on a variety of influencing factors. The key to understanding this balance within a firm lies in examining the various contexts that drive these tendencies (Lavie et al., 2010).

Environment

Environmental Dynamism: Rapid changes in a company's environment, such as shifts in customer preferences or technology advancements push companies towards exploration to adapt and innovate. Conversely, in more stable environments, the focus shifts to refining and improving existing products and services (Jansen et al., 2005).

Exogenous Shocks: Unpredictable, significant changes outside a company's control, like legislative changes or technological breakthroughs necessitate quick adaptation. These shocks often render existing technologies or skills obsolete (Romanelli & Tushman, 1994).

Competitive Intensity: The level of competition also influences organizational focus. High competition requires continuous improvement or new strategies to maintain a competitive edge (Lavie et al., 2010).

Appropriability Regime: How well a company can safeguard and capitalize on its innovations affects its strategic direction. In scenarios where protection of innovations is weak, organizations might lean more towards refining existing offerings (Teece, 1986; Lavie et al., 2010).

Organization

Absorptive Capacity: A company's ability to assimilate and utilize external knowledge is crucial. High absorptive capacity enables better exploration of new technologies and market opportunities (Cohen & Levinthal, 1990).

Slack Resources: The presence of additional resources beyond the basic operational needs can provide the necessary buffer for a company to pursue new ventures or refine existing operations (Nohria & Gulati, 1996).

Organizational Structure: The setup of an organization can predispose it towards certain activities. Structures that are more flexible and less rigid tend to support exploration, whereas more mechanistic structures favor exploitation (Jansen et al., 2005).

Organizational Culture and Identity: The prevailing values, beliefs, and behaviors within a company influence its strategic direction. A culture that values innovation may drive exploration, while a more conservative culture might focus on exploiting existing capabilities (Lavie et al., 2010).

Organizational Age and Size: Younger companies often explore more to establish their market presence, while older, larger organizations may exploit their established knowledge and resources (Lavie et al., 2010).

Senior Management Team

Managers' Risk Attitudes: The inclination towards risk-taking or aversion among senior managers affects the strategic focus. Risk-averse managers typically favor exploitation for its

immediate and certain benefits, whereas risk-taking managers may pursue exploration (Lavie et al., 2010).

Learning from Experience: Management teams' previous experiences in either exploration or exploitation can create a tendency to continue in the same vein, leading to path dependency. For example, firms tend to search for solutions in the vicinity of their current competencies. Firms become locked in their existing capabilities (Levinthal & March, 1993).

2.4.2 Conduct

There is consensus about the merits of balancing exploration and exploitation, yet little agreement on the means by which organizations achieve such balance (Adler et al., 2009). Prior research has identified four fundamental modes for coping with the conflicting demands of exploration and exploitation (March 1991; Gibson & Birkinshaw, 2004; Lavie et al., 2010).

Contextual Ambidexterity

Organizations can manage both exploitative and explorative investments effectively by recognizing that the balance between them might vary depending on the specific business environment, industry dynamics, and external factors (Gibson & Birkinshaw, 2004). This involves fostering a culture and system where members of the organization are motivated by common goals and a sense of shared identity. By developing well-thought-out systems, cultures, and processes, an organization can achieve both alignment with its current standards and adaptability to new changes and ideas.

Organizational Separation

One widely discussed approach for balancing exploration and exploitation is organizational separation (Tushman & O'Reilly, 1996; March, 1991). This involves physically dividing an organization into distinct units, each focusing on either exploration or exploitation. Such separation allows for two different types of changes: continuous, incremental change in units focusing on exploitation and more radical, proactive change in units dedicated to exploration (Tushman & O'Reilly, 1996). The strategy involves significant trade-offs, as each unit maintains its coherent operations, but the responsibility for coordination and reconciliation of conflicting pressures falls on the senior management team (Smith & Tushman, 2005).

Temporal Separation

Temporal separation suggests that organizations should alternate between periods of exploration and exploitation (Leitner & Liu, 2012). An organization can be viewed as evolving through cycles of change, adapting to technological advancements and market shifts. In this approach, an organization would focus on exploration for a while, then swiftly shift to exploitation, and continue this cycle. For an organization to successfully implement temporal separation, it needs to be agile and adept at managing these transitions between contradictory activities (Lavie et al., 2010).

Domain Separation

Domain separation refers to the extent to which a firm's exploration and exploitation alliances are formed in different domains, such as different technologies, products, or markets (Lavie et al., 2010). Domain separation allows a firm to achieve an overall balance across domains by pursuing exploration in some domains and exploitation in others. This approach stands out for its ability to avoid the trade-offs typically encountered when trying to balance exploration and exploitation within the same domain. Additionally, it simplifies the management of resource allocation.

2.4.3 Performance

In the context of organizational ambidexterity, March (1991) and Tushman & O'Reilly (1996) suggested that companies engaging simultaneously in both explorative and exploitative activities have the potential to outperform those that focus solely on one of these aspects to the detriment of the other. This balance between exploration and exploitation is considered critical for achieving superior organizational performance. The effectiveness with which organizational actors manage the balance between exploitative and explorative activities is directly linked to higher firm performance outcomes (He & Wong, 2004; Zhang et al., 2016)

3. Methodology

This segment outlines the design and execution of the study. Section 3.1 introduces the selected research approach and the rationale for the chosen methodology, alongside the selection of the case organization and the justification for its suitability. Following this,

section 3.2 delves into the data collection. Lastly, the analysis processes is touched upon in section 3.3.

3.1 Research Design

Research on organizational ambidexterity and its effect on capital budgeting remains uncharted. Hence, an in-depth single case-study design employing an abductive approach was selected, as it helps to encapsulate the intricate mechanics at play. Case studies are particularly appropriate when the goal of the research endeavor is to delve into complex dynamics within a defined context (Yin, 2009). Context and experience are vital for acquiring a more profound understanding and expertise in any domain (Dyer & Wilkins, 1991). To comprehend the empirical data, there is a reciprocal movement between the data and literature, enabling the interpretation of empirical findings and addressing the research question. This adoption of the abductive approach stems from the scarce qualitative research previously conducted in the capital budgeting domain.

The research setting is the capital budgeting process in a large international manufacturing company. Large manufacturing firms with vast capital budgeting experience are presumably equipped with well-developed structures and processes for capital budgeting (Maccarone, 1996). Additionally, this company is recognized as one of the most innovative in its sectors, rendering it a compelling case for examining its capital budgeting concerning exploitative and explorative investments, as investigating firms at the frontier of evolving structures and processes is anticipated to yield new theoretical and practical insights (Kaplan, 2011).

3.2 Data Collection

Data has been collected from multiple sources; qualitative data collected from interviews with decision-makers and practitioners engaged in the capital budgeting process. Subsequent emails, phone calls and documents generated by the firm were also utilized for the empirical analysis.

Initially, eight interviews were carried out over a span of three months with individuals on multiple geographical levels, such as the Global level, the EMEA level (Europe, Middle East and Africa), and the plant level in Sweden. Our primary contacts, CFO EMEA Region and

Engineering Manager Nordics, provided us with the opportunities to connect with individuals of varied backgrounds related to capital budgeting, hence laying a foundation for the study. The main areas of interest for this study were the production plants and the R&D units within Sweden, as well as managers that are part of the centralized structure of the capital budgeting process, which affects these plants and R&D units. We entered into a non-disclosure agreement to ensure the anonymity of both the organization and the interviewees. This arrangement fostered open communication as the employees could express themselves freely.

The interviews were formulated employing a semi-structured approach. Before the interviews, an interview guide was created (See Appendix 1), which was continuously revised throughout the study as new findings emerged. This proved advantageous as it enabled us to delve into topics we might not have been aware of previously (Ryan et al. 2002). In every interview apart from one, two interviewers were in attendance. This let one interviewer concentrate on the pre-scripted questions, while the other could listen more carefully and formulate relevant follow-up questions. All interviews except one were conducted in Swedish, which was then translated into English. There is a chance of translation errors with this method. However, we propose that asking the participants in their mother tongue allows them to respond with greater accuracy and nuance. The interviews proceeded until saturation was reached. They lasted between 30 and 60 minutes. All interviews were recorded and transcribed. The interviewees were prompted to describe their role in the capital budgeting process, the roles of other participants, and the activities undertaken during the investment process. Similar questions were posed regarding capital budgeting investments in a broader sense.

Appendix 2 presents a summary of the interviews conducted, categorized based on role, arranged by the interview date. The initial interview was conducted with our primary contacts, who provided feedback on our preliminary concept, and described the context relevant to our research question. This coupled with further research after the interview, led to a deeper understanding before further interviews were conducted, thus enhancing the communication with interviewees. This style of interview, grounded on interactional expertise by the interviewer, is recommended for obtaining high-quality data (Langley et al., 2013).

3.3 Data Analysis

The data was analyzed in parallel to the interviews being held, since the interviews were spread out during a period of three months. Following every interview, a preliminary analysis was conducted and any prospective novel findings were documented. Every interview, digital and in-person, was transcribed and recorded. Initially, the data was coded into five categories: 1. Background & structure, 2. Capital budgeting process, 3. Exploitation, 4. Exploration and 5. Tension in regards to the short-term bias. The transcripts were then analyzed and relevant quotations were picked out and sorted under each category.

As the interviews went along, and with the use of the theoretical framework, a new set of themes were identified. This is the result of the abductive research approach, where we continuously used the theoretical framework to make sense of the empirical data (Dubois & Gadde 2002). The new themes identified were: 1. Short-term bias towards exploitative investments, 2. Organizational separation, 3. Culture and corporate strategy as ways of circumventing the bias and 4. Challenges for NovaLink today. This iterative and in-depth analysis of the data, informed by both the empirical evidence and theoretical framework, was instrumental in refining the research question, specifically focusing on the distinct roles of exploitation and exploration in capital budgeting processes. The emergent themes, particularly the organizational separation and contextual ambidexterity, were pivotal in shaping the study's findings. Ultimately, the conclusions drawn from this research reflect a nuanced understanding of how capital budgeting interacts with the dual goal of short-term profitability and long-term competitiveness.

4. Empirical Findings

The following section presents the empirical findings from the interviews, investigating how the capital budgeting process at the firm encompasses the goal of being an ambidextrous organization. Firstly, section 4.1 describes the capital allocation process at the firm. Section 4.2 delves deeper into the exploitative and explorative processes within NovaLink. Section 4.3 brings up discoveries regarding factors that influence the explorative investments.

4.1 The Structure of NovaLink's Capital Allocation Process

The budget allocation process is steered by NovaLink's Chief Executive Officer (CEO) and Chief Financial Officer (CFO). A comprehensive global budget is set each year by the corporate operations committee. Representatives from NovaLink's different operational units, such as manufacturing, R&D, and others, participate in an annual budgetary meeting where the respective operational units present their capital requirements for the upcoming year. During this annual session, participants must substantiate their funding requests by demonstrating how the proposed investments and expenditures will contribute to the company's growth and enhancements. Post-deliberation, the corporate operating committee divides the global budget and distributes it to the operational units based on efficacy and potential ROI.

4.1.1 Production Plants

Focusing on the plant operations, this top-down allocation funnels down to the plant operation leaders (POL), which serves as the budget owners for all manufacturing plants within their geographical area. The geographical area which Sweden is part of is the EMEA region. The plant manager for each production plant seeks funding from the POL through NovaLink's internally generated system, where each plant creates a list of the investments that they want to undertake the most. This list is alive and re-prioritization takes place on a monthly basis. The process of distributing funds by the POL to individual production plants is complex. There are many sites, wishlists and large amounts of capital which has to be taken into consideration when prioritization is done. Meetings between the POL and respective plant manager are carried out on a monthly basis, where funds are dispersed amongst the plants projects within the geographical area. There is a clear path forward regarding the size of the investment. For smaller investments the plant manager has autonomy to make final investment decisions, through the plants operations budget, which mostly goes towards urgent purchases for the operations. Medium sized investments have to undergo one review stage, while larger investments require multiple review stages, necessitating approval higher up in the hierarchy. The aim is to make it easier and faster to push through smaller investments, while keeping large investments decisions centralized. The plant manager described how the operation budget under her control, has decreased substantially from historical levels:

“Well, as I said, it is down from around 5 million to 1.7, and we believe that we will end up there for 2024 as well. It is a very small amount compared to what we have had before, but these are tough times. So our budget has been drastically reduced.”

- Plant Manager

The reduction in allocated funds relates to the fact that the company is currently experiencing a harsher environment, due to tougher economic times:

“Partly, I think it's due to the global situation. We are in a completely different situation now in terms of what things cost. NovaLink is a stock-owned company, and we have our investors who look at how the stock price is doing. We want to save money, and they want to get more money out, possibly as a result of the stock price. But take a look at it, and you will see why we have cutbacks.”

- Plant Manager

“When the budget tightens, unfortunately, one doesn't think long-term, instead the investments become more short-term. There is an example here, we have a fully automatic press line. That was an investment made maybe 20 years ago. I think it cost 50 million. We would never get such an investment through today. That is something we would absolutely like to have, but it's not even on the world map at the moment. So now we are looking more at what we need to manage to get through the next few years. One, two years ahead. That's where we are.”

- Plant Manager

From this discussion the plant manager stresses that NovaLink currently faces challenging global economic conditions and high shareholder expectations. This in turn places them in a dilemma regarding how to invest in both short-term and long-term investments.

It is evident from numerous interviews that NovaLink exercises significant top-down control in its decision-making processes regarding the investments undertaken. However, it is noteworthy that they are actively working to bring about a change in this approach:

“We are trying to move down control over investment decisions more to the plant managers themselves, because that is where the bulk of knowledge is about what is needed, and hopefully get better decisions that way. In the past it has been difficult for plants to justify their projects because they must justify them to someone that is not in the plant every day.”

- Global Engineering Director.

4.1.2 R&D Units

From NovaLink's 2022 annual report, it is evident that the board of directors has made a long-term corporate strategic decision to annually invest around 6% of sales back into R&D. The funds funnel down the organization to portfolio owners within the different divisions. The R&D units are part of an independent structure which reports in a R&D tube. This structure is supposed to foster autonomy within the R&D units to look into whatever they seem fitting. When a new product development is initiated in the R&D unit, funding is sought through the presentation of a business case in a stakeholder meeting. A portfolio owner, the Global R&D Leader, and Global Production Director are present and decide if the new product should receive funding. If yes, the R&D unit will sell the project to the division, and the Global Production Director will give the relevant production plants the task of producing the product after launch.

4.2 The Ambidextrous Firm

4.2.1 Investment Classification

NovaLink has divided projects into 5 investment classes (Table 1). There is a clear trend here, where the scale goes from investments that are highly exploitative (Class 1), to highly explorative (Class 5). Class 1 and 2 are exploitative types of investments, while class 3 to 5 are explorative types of investments. The aim of this classification system is to make it easier for top-management to see if there is a balance between exploitative and explorative investments. At the same time it becomes clear for the production plants and R&D units what type of activities they should focus on, with production plants focusing on exploitative investments (Class 1 and 2), and the R&D units focusing on explorative investments (Class 3, 4 and 5). The individual processes will be addressed in turn in the following sections.

Table 1. Summary of NovaLink's investment classes

Class	Description
1	Streamlining production processes through cost-cutting measures and efficiency improvements in production. This class emphasizes optimizing resource utilization, reducing expenses, and enhancing overall operational efficiency.
2	Focusing on product care, ensuring the maintenance and enhancement of existing products to meet consumer needs and maintain a strong brand image.
3	Implementing strategies and products that solidify the company's position within an existing market segment. This involves creating improved versions of existing products, addressing customer pain points, and advancing market presence.
4	Initiating new projects within existing segments, introducing innovations that set the company apart. While the product may share similarities with existing ones, it incorporates high differentiable technology and may be a first in the market.
5	Undertaking completely new projects that are not similar to anything the company has done prior, often involving entry into entirely new markets. Projects in this class are rare and involve significant long-term investments with large risks.

4.2.2 The Exploitative Investment Process

The exploitative investment process begins at the plant level, with the conception of a project that the plant manager wishes to undertake. Subsequently, the plant requests an examination of this project by the company's engineering division. The engineering manager, together with the plant manager, is responsible for gathering relevant data and creating the investment case which is later presented, in conjunction with a capital request, to the POL. It is then up to the POL to either allocate money from the budget to the project, or deny the request. Going from investment idea to project acceptance can be seen as a long and controlled process, with tight deadlines:

“I would not say that the investment process is easy and smooth. There is no free access to cash, there are always more investment propositions than available money to undertake the investments. We therefore have to uphold this strict process of where the company allocates its money”

- Engineering Manager Nordics

In the formulation of the investment case, financial and strategic rationales are presented that work as the basis in the arguments for why the investment should be undertaken. Costs and positive cash flows from the investment are forecasted for the month that they will incur. In cost-reduction investments they do, for example, look at savings in energy and employee costs. The cash flow forecasts are later used in performing payback, NPV and IRR analysis. In the payback method, investments in Class 1 and Class 2 projects are assessed as great if their payback period is less than two years, good if it falls between two to three years, and not great if it exceeds three years. We can see that the main focus in the investment case for exploitative investments is on the financial rationales, as one interviewee states:

“All presentations are as fact based as possible, and the financial calculations have to make sense for the investment to go through.”

- Engineering Manager Nordics

In the case of renewal investments, such as upgrading and replacing equipment as well as conducting facility maintenance, the need to minimize business risk works as a strategic rationale. These types of investments might not yield a sufficiently high NPV, or short enough payback period. However, if an old machine breaks down which would lead to disruptions in the production, it would result in detrimental effects for the company's sales, brand image and supplier relationships.

4.2.3 The Explorative Investment Process

When the question was raised how the firm initiates and executes product innovation, the New Product Introduction (NPI) process was in focus. To develop an understanding of how the firm works with explorative investments, interviewees were asked to delve deeper into the NPI process, and questions were focused on the financial and strategic rationales that were formed during this process. Deriving from this discussion we focus on identifying the conductive behaviors in NovaLink's capital budgeting process for explorative investments, that are unique for that process, and are working against the short-term bias. Hence, an understanding of the NPI process (Figure 2) is needed and will be covered next.

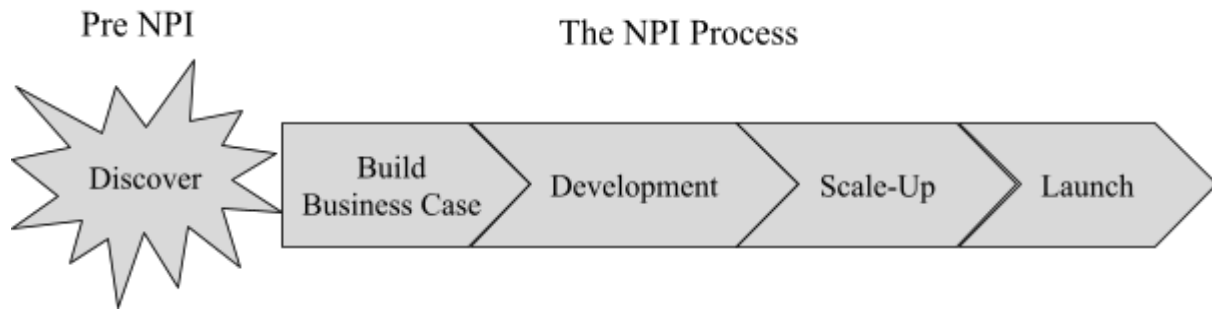


Figure 2. The explorative investment process from idea to launch

Discover: Research and development towards investment projects in Class 3, Class 4, and Class 5. In this phase, the firm actively develops new technologies and materials and can thus be described as a pure R&D phase, where resources are spent without need of returning any monetary value. It is thus highly explorative and steered by strategic rationales.

Build Business Case Stage: All potential NPI's undergo a rigorous business justification process. A detailed market analysis to evaluate potential demand, competitive landscape, and pricing strategies has to be presented. The decision to invest and thus start a new NPI hinges on robust financial projections and calculations. The exploratory discoveries hence have to make sense as financial rationales in order to pass through the gate to the next stage.

Development Stage: Theoretical ideas begin to take tangible form. In this stage, capital expenditure (CAPEX) to develop the actual product has to be argued for. To navigate through this gate, questions such as what technology is needed, how production will take place, and what quality is required must be addressed. The developed product has to prove that it works and delivers value in practice.

Scale-Up Stage: A clear description has to be provided, of how the production of the product will take place to not exceed the budgeted costs, as well as how the unit costs will be held to the expected level when production commences. The scale-up stage is thus also highly reliant on financial rationales.

Launch Stage: The final stage, where decision-makers can choose to move forward with the project or discontinue it. The focus here is more market-based. Based on all the information, a final decision on whether to launch the NPI is taken, primarily on financial rationales. If the

numerical projections are still favorable through metrics such as Payback, NPV, and IRR, the project is launched. However, it is the portfolio owner and higher operations who have the final say and it is perceived that strategic portfolio considerations also affect the final decision.

4.3 Factors Influencing Exploration at NovaLink

4.3.1 Innovation Strategy, and Risk

The Firm has a history of being innovative and there was a strong conviction among interviewees that innovation is a key to the firm's past and future success:

“Looking at sales, it has previously been that 30% of our sales consist of products that have come to market in the last five years. And 30% is quite a lot. Unfortunately, it has gone down a bit now, but that is where we should be, at 30%, and that means that we need to launch new products all the time.”

- CFO EMEA
Region

In a dynamic market, sustaining constant profit margins with a consistent product portfolio is deemed challenging due to the inevitable emergence of competitors. These competitors often necessitate a reduction in profit margins for the incumbent firm to maintain market competitiveness. In the conversations it became clear that introducing innovative products allows NovaLink to keep high profit margins. Particularly when these products are of superior quality and at the forefront of market trends. This approach capitalizes on the competitive advantage conferred by product innovation.

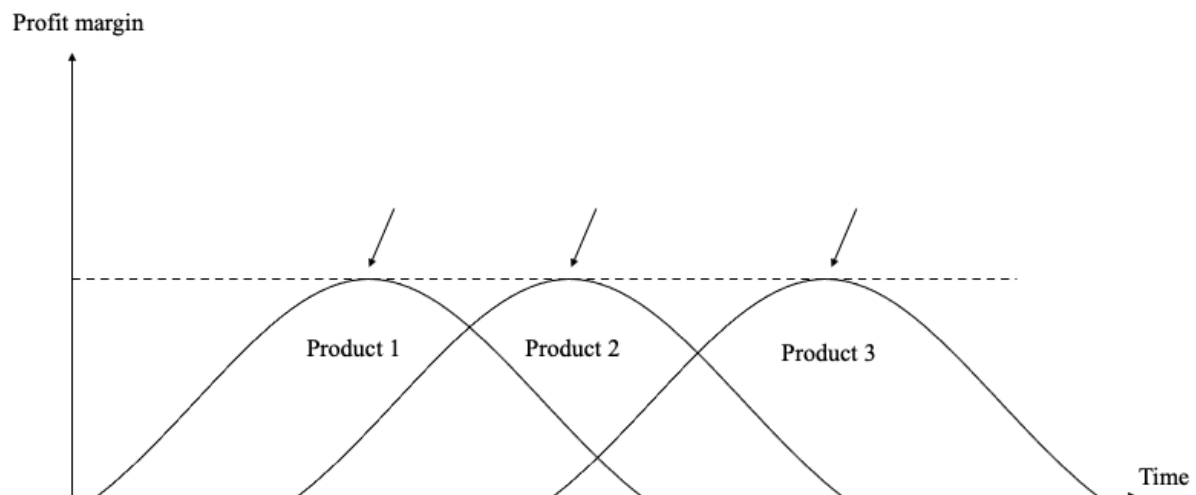


Figure 3. Product lifecycle chart showing how individual products' profit margins vary over time.

Fast pace of innovation and NPI's enables NovaLink to launch product 2 in a timely manner as product 1 has passed the peak of its life-cycle, and profit margin starts to decline (Figure 3). This is part of the company's strategy to sustain high margins and operate in the high end of the market, which is highlighted in the quotes below:

“We aim to be at the forefront and progressive. We want new products that lead the way. They should be high-end products that enhance both in terms of environmental impact and experience.”

- CFO EMEA Region

“So, we are actively working with patents and intellectual property as a part to also cement our position and secure our margins then.”

- Engineering Manager Nordics

There was consensus amongst interviewees that innovation, taking place in the discovery phase, should not be over-managed. Costs incurred in this phase was mostly seen as a “burn rate” or a cost of being an innovative firm:

“NovaLink spends X percent on innovation every single year without any guarantee of return on that investment. You just don't know, right? But it's

kind of like saving for college. We're going to put it away every month anyway, right? Not knowing whether or not we're going to go to college.”

- Global Engineering Director

The reasoning is that without investment capital, there will not be innovation or success in it. The firm has adopted an aggressive strategy by allocating a significant percentage of its revenue towards innovation. This aggressive strategy includes high risk appetite, where failure is allowed. Failure can be viewed as the cost of being an innovative company and it was clear that NovaLink has had its fair share of failures:

“When it comes to the manufacturing of this new product, the company failed to maintain unit cost and the margins became too poor, leading to a situation where we had to shut down the project after 12-24 months and write off all the equipment purchased for production, because we couldn't produce at the cost we had planned. This is an example where the project should have been terminated at a much earlier stage.”

- Business Director Division

4.3.2 Structural Challenges, and the Role of Expertise, Intuition, and Strategic Rationales

As a multinational company of such a large size and extensive product portfolio, they have developed a complex structure of the administrative and decision making process around the NPI process.

“NovaLink has probably made it a bit complicated. They have tried to sub-optimize various processes. We usually don't see the whole picture. And it's quite difficult to have a good overview of what you are. If we are to approve an item, there are probably 15-20 different functions that need to approve it. From master data, to regulatory, to legal, to value stream, and so on and so forth.”

- Global Business Director Division

At times the atmosphere in the interviews mirrors a frustration over how the cumbersome sub-processes impact the speed needed to keep up with the fast changing demands in the market. The issue of “missing the market” due to lack of agility is stressed:

“The NPI process, if we just look at it on paper, seems quite okay. But if we are to implement a program that is so diversified, it's the process, all the administrative processes that make us not agile enough and prevent us from launching enough new products right now, at least.”

- Global Business Director Division

There appears to be a tension between the production plant and R&D units when it comes to the alignment between them. The R&D units might consider that they come up with highly innovative products. However, when it becomes the production plant's responsibility to integrate these new products into the production line, at the plant level a frustration can emerge. The plant might not be able to produce this new product at an appropriate cost level. This is a tension related to the intricacies of commercialization:

“However, it might turn out that it's too expensive to manufacture, or more accurately, the price point is too high for us to make a profit. Then we decide not to launch it anymore, as it won't be financially viable for us. We could sell it, but we won't make money on it. This is something we bring to the attention of the global leadership team. It's a common dilemma in commercialization. Often, great products are developed, say by technicians from KTH, but without considering how to commercialize them effectively.”

- CFO EMEA Region

As previously discussed, the decision making process is heavily focused on financial calculations. However financials is not the only factor:

“I mean, again, we always like to have investments make sense from a dollars and cents standpoint. So just like you said, the NPV and the IRR and the payback all look really good. But we do, and I think we have to make investments based on business intuition, right? I mean, that's why we have leaders that are experts in their space, right? And if they really want to make

an investment, they have to kind of put their reputation out there to make it happen. But we will do that.”

- Global Engineering Director

This business intuition is reflected in the interview with the business director. When asked to clarify whether he mostly focused on financial metrics to make decisions, strategic rationales came into focus:

“We are looking somewhere between 3 to 5 years into the future at how we must maintain, improve, and renew our portfolio. So, there is a certain flow to it. When we sit down and look today, we are looking at what we will launch in 2025, 2026, and beyond. So, it's not so much about being very short-term, but rather we are looking more long-term to build our portfolio so that it remains competitive in 3, 5, 7 years.”

- Business Director Division

The business director has to envision his portfolio in the future and base his decisions on what products to have on this scenario. It becomes clear that his expertise plays a large role in driving towards this scenario. His division has worked on their niche products for over 70 years. He believes they know the area quite well and have a quite large knowledge base of what works and what does not.

4.3.3 Components in Financial Calculation

We have identified three financial components that are unique for the capital budgeting within explorative investments. These components are used to give a more accurate evaluation of explorative investments in relation to exploitative investments, with the intention to move towards organizational ambidexterity.

The final gate of the NPI process is the launch gate, where the focus is market-based. How will the expected demand be sufficed? How will sales take place and in what quantities? If the product passes this last gate, it will be launched, and evaluated for a five year period with a grace period of two years, where financial requirements are more lenient than for exploitative investments:

“A two year grace period allowed us to keep introductory prices a bit lower than what we actually would have had, had we had a normal rate of return”

- Global Product R&D Leader

The cannibalization component in turn builds on a newly launched product being similar to other products within a product portfolio, thus taking market share of an existing product, instead of catering to a different segment of the market. The cannibalization component is accounted for at NovaLink, and is further elaborated on below:

“Sometimes, there can be a risk of cannibalization. We introduce a product that we think is excellent, but it's quite similar to another one we have, which has high margins and continues to sell well. The new product is also good, but not as profitable in terms of margins. This situation creates a conflict. So, we might decide not to launch it for this reason.”

- CFO EMEA Region

The global product R&D leader further explained how cannibalization is implemented in the financial calculations. The introduction of a product with a perceived high risk of cannibalizing the sales of another product, may lead to a reduction in total sales for the company as a whole.

“We account for cannibalization in our calculations. For a class 3 project, usually a renewal of an existing product with improvements, it's expected that it will eventually replace another product. Our business case calculations show the expected growth for the new product, but also the negative impact on the old product due to cannibalization. This results in a delta affecting growth.”

- Global Product R&D Leader

Another strategic factor which is turned into a financial variable in the calculations is the implementation of a “margin loss component”. This margin loss component is used to show what will happen if NovaLink does not launch new innovative products. The component

entails that in the case where a new product is not launched, there will still be a reduction in margins of existing products:

“In scenarios, there's often an element of decline if nothing is done. A product far into its life cycle will likely dip anyway, losing competitiveness. The calculation is such that if we invest, the scenario looks a certain way, considering these factors.”

- Global Product R&D Leader

4.3.4 Gaming as a Part of the Culture

A problematization that became evident in the interviews is the limitation of viewing a NPI in isolation by budget owners when evaluating the value of the NPI:

“Many times, a project produces a product that is part of a product family, and we should perhaps focus more on how to maintain a product family as a whole. This would be a more strategic approach, aiming to benefit the entire product group, but often we are only able to consider one project at a time.”

- Senior Manager Global Product R&D

A more strategic perspective would entail managing and developing the product family as an integrated entity. This approach aims at enhancing the overall value and performance of the product group. Despite this recognition by the Senior Manager Global Product R&D, the prevalent practice often involves assessing projects in isolation, which may overlook the cumulative impact on the product family. This dichotomy between individual project assessment and holistic product family strategy, presents a complex scenario in NPI management. As it is easier for upper management to look at individual products and their more certain financial outcomes, than to take more strategic considerations into the calculations, such as synergies within the existing portfolio, or the follow-up products that can be built on this new platform that has been developed.

Evaluating projects more in isolation fosters aspects of gaming in the investment case for NPIs. This practice leads us into a discussion around overly optimistic evaluations in the

capital budgeting process, as part of Novalink's corporate culture, and its impact on explorative investments:

“The estimates of future cash flows and costs have not been accurate unfortunately, it is often the case that we, I think consciously or unconsciously, I can not really say. I think we underestimate project costs and we many times overestimate how quickly we should come up in volume with things. But it is also a bit our own leadership that drives it I think, and with ours I mean not just mine but maybe the whole organization, because if you are going to get attention then you must strike big, you must be offensive. I know that if I'm not so optimistic, there is someone else who is, and they will get the opportunity.”

- Senior Manager Global Product R&D

“Usually, when you make your business case, you tend to be a bit too optimistic about the time frame for scaling up and selling products in the volumes you have envisioned. That's one aspect. The other is likely underestimating the real cost of production. Often, there's an attempt to achieve the best possible ROI because you want your project to be approved, and there's a tendency to be overly optimistic about how quickly sales can ramp up to the projected volumes.”

- Global Business Director Division

NovaLink has innovative risk-taking behavior embedded in its culture, this manifests in an optimism that is conveyed in the phenomenon described in above quotes, leading to the gaming of the numbers.

5. Discussion

Section 5.1 analyzes the findings in regard to the bias towards exploitative investments. The following two sections show how this bias is circumvented. Lastly, in section 5.4, challenges for NovaLink today are brought up.

5.1 The Bias Towards Exploitative Investments at NovaLink

Answering King's (1975) call for researchers to delve deeper into the capital budgeting process in practice, we find evidence that the capital budgeting process at NovaLink has aspects that are biased towards exploitative types of investments. This finding supports previous literature (Kaplan 1986, Christensen et al., 2008; Alkaraan & Northcott, 2006; Shank, 1996), who have argued similarly.

5.1.1 Emphasis on Short Return on Investment

From the interviews we repeatedly see that the financial rationales are the core of both exploitative and explorative types of investment decisions. According to the literature (Kaplan 1986, Christensen et al., 2008; Alkaraan & Northcott, 2006), this leads to a bias towards exploitative investments, since explorative types of investments are more uncertain, harder to quantify and cash flows incur far in the future, which leads to them getting overly discounted. Additionally, a payback period of over 3 years is seen as unfavorable in NovaLink. This very short payback period for exploitative investments indicates that there is a large emphasis on short-term profitability.

5.1.2 Cannibalization Component

Within the NPI process, the cannibalization component works as a deterring factor against innovation (McColl et al., 2020). Our findings suggest that NovaLink's use of this component, in their capital budgeting process, makes it even tougher for explorative investments to get accepted. This was mentioned in the interview with the CFO EMEA, where he mentioned that the cannibalization of existing products was a main reason for not launching a new product, even though the new product was deemed good. The existence of the cannibalization component leads to conservative decision making, as top management seem more focused on keeping margins high in the short run, and thus have an inclination to focus on already existing products.

5.1.3 Lack of Holistic View

There is a perceived challenge for the R&D managers at NovaLink, as NPI's are evaluated too much in isolation. Senior Manager Global Product R&D voiced his concern that this turns into a systemic undervaluation of potential synergy effects, as new products can develop into a product platform, which facilitates further development of subsequent new products in a

cost efficient manner. This is a strategic rationale, and the omission of this synergy effect in the financial calculations of individual new products, leads to the undervaluation of the NPI. In turn, this creates a bias against explorative activities, as well as the rejection of projects that would potentially reach the NPV threshold if evaluated from a more holistic approach. The omission of this effect is most certainly due to the fact that it is hard to quantify strategic rationales (Alkaraan & Northcott, 2006).

5.1.4- Organizational Structure, Age and Size and their Impacts

As we see in the Explore-Exploit framework (Lavie et al., 2010); Organizational structures that are more centralized, mechanistic, and top-down controlled often favor exploitative investments (Jansen et al., 2005). NovaLink's complex hierarchical structure and processes create a challenge. We see that there is a long distance between R&D, where the product idea is born and further developed, to where the bulk of the decisions are made by the global production director. In addition, the budget process for the plants is described as a centrally controlled process. In accordance with the framework this entails that an organization like NovaLink tilts towards emphasizing exploitative investments over explorative investments. Going back to this framework, organizational age and size are also seen as factors influencing NovaLink's ability to move towards organizational ambidexterity (Lavie et al., 2010). Given NovaLink's extensive history and size as a multinational organization, they possess a comprehensive accumulated knowledge and resource base, which puts them at a higher risk of developing path dependency. Tushman and O'Reilly (1996) address the risk associated with inertia in the context of striving towards organizational ambidexterity. The burden of complex sub-processes derived from the size and age of NovaLink, are highlighted in the interview with the Global Business Director. We see in our analysis that it is difficult for employees to obtain a good overview of everyday operations, as well as a slow cumbersome web of processes interconnected in numerous layers. Our conclusion here is that this works as a bias towards exploitation.

5.2 Circumventing the Bias Through Structural Intervention

While certain aspects in NovaLink's capital budgeting process exhibit bias towards exploitative investments, the firm is still a prime example of an organizationally ambidextrous firm. They manage to put out new innovative products consistently, create thousands of patents each year, and be profitable in the short-term. This indicates that

NovaLink manages to circumvent the bias within their capital budgeting process. In this section, we will explore aspects in the data, examine the root causes, and address them in relation to the framework.

5.2.1 Structural Separation

Applying the Exploration-Exploitation framework, one mode of balancing exploitation and exploration that NovaLink applies is organizational separation (Tushman & O'Reilly, 1996). The company has divided the plant and R&D activities into two separate units. Production plants undertake exploitative activities (Class 1 and 2), while R&D units perform explorative activities (Class 3, 4 and 5). This class system of investments is a tool that supports the separation. Classifying investments according to Table 1, facilitates the division of investments into exploitative or explorative endeavors. By separating the responsibility of the different investment classes into two structures, NovaLink manages to ensure that both exploitative and explorative types of investments are pursued simultaneously (March, 1991).

Separate structures enable two different levels of centralization in two units within the same company. In NovaLink this enables R&D units to be more autonomous, where there is a need to be agile, in order to promote innovation. Here, expertise and intuition come into play. The Business Director stresses that expertise plays a significant role in the development of his future portfolio, and making capital budgeting decisions. Closeness to the market needs and a long accumulated knowledge base are crucial in the decision making process for R&D activities. These are driving factors for pushing down the capital budgeting decision making process to the people that are closest to the knowledge. To decentralize units promotes exploration (Lavie et al., 2010), and thus is a form of striving towards circumventing the bias.

5.2.2 Separation of Budgets Between Exploitative and Explorative Investments

In line with organizational separation, NovaLink has made the strategic decision to keep exploitative and explorative budgets separate. By applying a separate budget principle, NovaLink ensures that both units get a pre-decided share of the total investment budget.

This principle becomes a safeguarding mechanism to make sure that exploration is pursued and does not get deprioritized. The tension between exploitative and explorative investments weakens, since they do not compete against each other for the same resource pool. Instead explorative investments compete against other explorative investments for the funds in the

R&D budget, and thus do not compete with the remaining investment funds in the company. NovaLink's board of directors have made a long-term strategic decision to allocate 6% of annual sales towards the R&D budget. This percentage, both as a part of sales and in actual numbers, is substantial. By maintaining this large fixed allocation towards explorative activities, it enables the company to consistently invest in innovation. We see this as a main contributing factor to how NovaLink is able to circumvent the bias towards exploitative investments, as well as fundamental to their historical capability of building a legacy as an innovative company.

5.2.3 Unique Tools Used in Financial Calculations for Explorative Investments

Establishing a differentiation in the evaluation metrics between exploitative and explorative investments, is a viable way of working towards minimizing the bias within traditional capital budgeting methods towards exploitative investments. Overall the evaluation metrics are fairly similar between the two processes, as mentioned earlier, with a heavy focus on financial metrics. However, by granting NPI investments a grace period of up to two years, where the required return is lowered, it enables innovative new investments that yield low returns in the initial years, but have potential large returns in subsequent years, to pass through the NPI process. In our interviews with the Global Product R&D Leader it becomes evident that NovaLink applies this grace period with the intention to push through more innovative projects that might need a long time to reach its full potential.

The Global Product R&D Leader in turn, mentions that NovaLink uses a margin loss component in the financial calculations for NPI's. Essentially, this approach aids the explorative investments in the financial evaluation by including the losses of not launching innovative products. Thus, this is a tool for circumventing the bias towards exploitative investments. The margin loss component used by NovaLink equals the Innovation killer component brought forward by Christensen et al. (2008) as a tool to circumvent the bias. Arguing that an existing product that is far into its lifecycle, will lose competitiveness and experience margin pressure. There is a realization that if new innovative products are not launched, there is a risk of losing margins on existing products as competitors gain more market share.

5.3 Circumventing the Bias Through Culture and Corporate Strategy

5.3.1 NovaLink, the Innovative Firm

It is historically embedded in NovaLink's corporate culture to be an innovative company. It permeates the interviews, where employees are proud of the company's legacy within innovation. This in turn fuels the mindset in everyday operations to keep on being innovative, corresponding with the Explore-Exploit framework's reasoning around the topic, organizational culture and identity (Lavie et al., 2010). At NovaLink, the reputation of being an innovative company leads to a positive spiral where it remains innovative as they can attract innovative employees, stay on the same historical path and promote risk taking. This cultural element manifests into a strategic rationale for investing such a large percentage of 6% of sales in R&D activities. When it comes to risk-taking and its correlation with the pursuit of innovation, the Explore-exploit framework pairs risk aversion with exploitation, and risk-taking with exploration. NovaLink with its highly innovative culture has fostered a risk-taking mindset in the senior management team, that funnels down into the everyday operations. In the quote by the Business Director it is clear that managers are not afraid of pushing through high risk NPI's. He describes potential failure as a risk of being an innovative company. We see a risk-taking culture here, as a factor circumventing the bias towards exploitative investments.

Targeting the high-end market with distinct products to maintain high margins, is part of NovaLink's corporate strategy, as discussed by the CFO EMEA Region. Sustaining this approach requires NovaLink to come up with new innovative products continuously. High margins lead to excess free cash flow, which can be reinvested into R&D activities for the development of new premium innovations. This becomes a positive spiral whereby achieving optimal product life-cycle management, NovaLink is able to keep margins at the top of the curves (see Figure 3). This spiral of innovation has historically made exploration a core element of the company's corporate strategy, at the same time as it mitigates the bias within capital budgeting towards exploitative investments.

5.3.2 Gaming the Capital Budgeting Process

A highly interesting finding is how, what we refer to as gaming in the capital budgeting process, works towards circumventing the bias that is created by overemphasizing financial rationales in the capital budgeting process. We see a tendency where R&D managers underestimate costs and overestimate positive cash flows. From the data it is inferred that a

shortage of capital and stiff internal competition are the main contributing factors to this behavior. Managers are aware that in order to get attention and capital, they need to be offensive, or else someone else will get the opportunity. These overestimations make the NPI appear to be more favorable from a financial standpoint, than it actually is. Managers know that it is the financial rationales that weigh the strongest when it comes to NPI approvals, thus they can not solely rely on complementing with strategic rationales. At NovaLink, the culture itself circumvents the bias, by allowing an over-valuation of the NPI through gaming. It can be argued whether this is good or bad for the firm in the long run. However, this mindset among R&D managers drives innovation and circumvents the bias towards exploitative investments.

5.4 The Challenges for the Ambidextrous Firm Today

In recent years there has been significant budget reductions at NovaLink's production plants. As the plant manager states, this obstructs the undertaking of larger long-term investments. From the Explore-Exploit framework, we infer that large unpredictable changes, exogenous shocks, pushes companies towards being explorative, or else they will face adverse consequences (Romanelli & Tushman, 1994). The input cost shock that NovaLink is currently facing, combined with the macroeconomic downturn, has created a challenge for the whole company, where substantial increases in costs affect the company's ability to generate excess cash. This directly impacts the size of investable capital within the company, resulting in budget reductions. Since NovaLink has a large shareholder focus, and the stock price has experienced significant downwards pressure, impatient investors demand NovaLink to deliver in the very short-term. This short-termism amongst shareholders hampers the ability for the company to invest excess cash in explorative investments.

Within the Explore-Exploit framework, slack resources equals that a company has excess resources to continue in exploitative activities, as well as endeavor in explorative activities (Nohria & Gulati, 1996). The opposite to slack resources would mean that a company experiences resource constraints. Inferred from the framework, resource constraints should lead to explorative investments getting sacrificed in favor of exploitation. However, in these difficult times we see that the production plants experience significant budget reductions, while the R&D units still share the 6% of sales budget. This is counterintuitive to what the framework says, and we attribute this to the strategic decision to remain innovative.

To remain competitive in a challenging new environment, we see NovaLink focusing on agility by applying the contextual ambidexterity mode of balancing exploitation and exploration (Gibson & Birkinshaw, 2004). Focusing on the capital budgeting process, differentiated strategies are developed depending on the task at hand. When the task is optimizing short-term profitability in the production plant operations, a centralized budget process is implemented. However, when the task is to utilize expertise and intuition in the decision-making process and be more explorative, a decentralized approach is undertaken, for example in the autonomous R&D units. We see a tension emerging from the structural separation between the plant and R&D operations in the commercialization phase. This tension needs to be approached with agility. It becomes increasingly important for senior managers to be flexible when managing the coordination of the two units that have been structurally separated, in order to accomplish successful commercialization for innovative products (Smith & Tushman 2005). Moving forward NovaLink leverages on their innovative culture, in combination with being agile, adapting financial management to optimize capital-related outcomes in the short and long-term moving towards organizational ambidexterity.

6. Conclusions and Summary

This section summarizes the current study's findings and discusses the conclusions drawn, followed by future research suggestions in section 6.1.

A tough economic environment has put pressure on public firms, with shareholders requiring higher profitability and reduced costs. Companies see capital budgeting as an important tool for addressing these issues, as it helps to evaluate and select investment projects that will enhance the firm's value and competitive advantage (Mota & Moreira, 2023). Yet little is known about the capital budgeting process in practice (Miller & O'Leary, 2007), especially in regards to the short-term bias that literature suggests hinders companies from executing projects that are important for long-term success (Kaplan 1986, Christensen et al., 2008; Alkaraan & Northcott, 2005). The aim of this study was thus, to qualitatively examine how a company's capital budgeting process works, and if there is any evidence suggesting that the process is biased towards short-term investments in practice, in order to contribute to the

under researched domain of capital budgeting within accounting literature (Miller & O’Leary, 2007).

The case proved to be compelling, as NovaLink is known to be a prime example of an organizationally ambidextrous firm. In management and strategy literature, organizational ambidexterity is viewed as the optimal way for a firm to balance both exploitative and explorative investments (He & Wong, 2004; Zhang et al., 2016). Yet, once again, little is known about how organizational ambidexterity relates to capital budgeting in practice. Against this backdrop, we set out to study:

How can a firm circumvent the bias towards exploitative investments in its capital budgeting process, and achieve organizational ambidexterity?

In order to answer this question, a qualitative study of NovaLink was carried out. Our findings suggest that the capital budgeting process, within NovaLink, is in practice heavily focused on short-term financial rationales, which supports previous literature that views this as a problem for exploration to take place (Kaplan, 1986, Christensen et al., 2008; Alkaraan & Northcott, 2005). This is evident in NovaLink’s preference for investments with quick payback periods, favoring projects with immediate financial returns. Additionally, recent budget reductions have necessitated a shift towards more cost-effective, short-term projects. Decision-making heavily relies on traditional financial metrics such as NPV and IRR, which tend to prioritize short-term financial gains. The cannibalization component within their NPI process further reinforces this trend, as it often discourages investments in innovative riskier projects in favor of existing profitable products. Lastly, the tendency to evaluate new projects in isolation, without considering their long-term strategic impact, underscores a prevailing bias towards short-term financial outcomes over explorative investments.

This study had a unique opportunity to investigate the capital budgeting process within an organizationally ambidextrous firm. This opportunity turned out to be interesting. If the results would indicate that NovaLink’s capital budgeting process was in fact biased towards exploitative investments, there must be other factors at play, circumventing this bias and allowing for explorative investments to be pursued.

Indeed, through the Exploration-Exploitation framework, two modes for balancing exploitation and exploration were identified in the firm which we believe aids in circumventing the bias; organizational separation and contextual ambidexterity.

The primary discovery of this research is the organizational separation in NovaLink's approach to exploitative and explorative investments, where production plants have responsibility for the exploitative investments and the R&D units for the explorative investments. This separation is not just organizational but also extends to budget allocation, responsibility, and decision-making processes. NovaLink has instituted a system that effectively categorizes investments across a spectrum from highly exploitative to highly explorative, facilitating a balanced focus on both immediate operational efficiencies and long-term innovative endeavors. This structural division is complemented by a clear financial delineation, with separate budgets for exploitative and explorative activities, thereby ensuring that the pursuit of innovation does not compromise immediate operational needs.

Furthermore, the study sheds light on the specific evaluation metrics and financial components NovaLink employs in assessing its investments. By allowing a grace period for explorative investments and incorporating the margin loss component in financial calculations, NovaLink demonstrates a willingness to confront the challenges inherent in balancing exploration and exploitation. These practices enable the firm to navigate the bias towards short-term investments typical in traditional capital budgeting methods.

Significantly, the cultural context within NovaLink emerges as a critical factor in supporting its ambidextrous nature. The firm's history of innovation has fostered a culture that values and encourages continuous innovation and risk taking. This cultural aspect, intertwined with a corporate strategy that emphasizes high-end, differentiated products, creates a conducive environment for balancing exploitative efficiency with explorative innovation.

The concept of gaming within the capital budgeting process also emerged as a notable finding. The tendency among R&D managers to overestimate benefits and underestimate costs reflects a strategic response to the internal competition for funds. This practice, while risky, is indicative of the aggressive pursuit of innovation within NovaLink, much in thanks to the culture itself.

6.1 Future Research

Future research could further explore the link between capital budgeting and organizational ambidexterity, an area that is severely under-researched. Understanding how capital budgeting influences a firm's ability to balance exploitative and explorative investments can provide insights for both theoretical understanding and practical application. For example, a multiple-case study could try to identify exploit-heavy, explore-heavy and ambidextrous firms and investigate if their capital budgeting processes are in any way different.

Additionally, for firms who heavily emphasize exploitation, examining the limitations of their capital budgeting processes and how they might impede explorative activities could be insightful. Moreover, a longitudinal study approach, offering perspectives on the evolution and long-term effects of a firm, based on its capital budgeting process, can contribute with a time-variable which was not a part of this study. Research here could guide firms to evolve towards more effective ambidextrous strategies by circumventing the capital budgeting bias. Comparative studies involving small and medium-sized enterprises (SME), could enrich current findings. SMEs operating under different constraints, for example even less capital and personnel, might exhibit unique dynamics in balancing exploitation and exploration.

7. References

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8. Appendix

Appendix 1: Interview Guide Extract

Formalities

Reminding of GDPR form.

The aim of this study.

Asking for permission to record/ tape the conversation.

Background

Respondents were asked for how long they have worked with NovaLink and what their role entails.

The capital budgeting process

How does the decision making process in regards to capital budgeting look like and how are you a part of it?

Is there any tension between different levels during the decision making process?

Do you encounter any problem with cash flow estimation due to uncertainty and do you compliment it in any way?

Innovation in CB

Do you believe capital budgeting plays a part in the firm's innovation success?

How does NovaLink make sure that innovative investments are pursued when, for example, there might be more profitable short-term incremental investments?

Are innovation investments handled separately, with its own budget?

What's your view of the new product introduction process?

Financials vs strategic vs expertise

Would you say that financial arguments drive project acceptance rates? If/ if not so in what way?

Would you say that strategic arguments drive project acceptance rates? If not, how so?

How much does intuition / expertise come into play during investment decision making?

The Interview End

Are there any other people that might be interesting for us to speak to based on what we have spoken about here today?

Are there any additional issues or aspects you want to mention that we have not yet discussed?

Appendix 2: Review of Interviewees

Table 2. Review of interviewees including position in company, time, and date of interview

Position in company	Time of interview (minutes)	Interview date
1. CFO EMEA Region and Engineering Manager Nordics	30	2023-09-28
2. CFO EMEA Region	60	2023-10-06
3. Engineering Manager Nordics	60	2023-10-06
4. Senior Manager Global Product R&D	60	2023-10-25
5. Global Product R&D leader	60	2023-10-31
6. Global Engineering Director	30	2023-11-01
7. Business Director Division	60	2023-11-16
8. Plant Manager	60	2023-11-21