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Balancing exploitation and exploration in growth SMEs

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Abstract

The challenge of balancing short-term revenue with long-term growth is a well-known problem in business, literature, and research. When large companies are disrupted, it naturally spurs interest into how this can happen. This has led to many studies being conducted in this area.

One of the classic theories in this field is organizational ambidexterity. The term was first introduced by Duncan (1996) and further developed by March (1991), where he refers to organizational learning and a company's ability to do *exploitation* to secure short-term revenue and at the same time perform *exploration* to ensure future survival and growth.

James March (1991) stated, "The basic problem confronting an organization is to engage in sufficient exploitation to ensure its current viability and, at the same time, devote enough energy to exploration to ensure its future viability." As a comment to this statement, Michael Tushman and Charles O'Reilly (2013) stated: "The difficulty in achieving this balance is that there is a bias in favor of exploitation with its greater certainty of short-term success."

March (1991) summarized the problem as confronting the organization to engage in sufficient exploitation and enough energy to explore. While Tushman and O'Reilly (2013) claim a natural bias towards exploitation, Utterback and Abernathy (1975) indicated an evolutionary pattern related to productivity over time.

With this study, we want to explore how valid the comment made by Tushman and O'Reilly is for growth SMEs that have to dedicate time to explore activities to capture market positions and ensure future success.

Our investigation is an exploratory qualitative study of five companies pursuing growth. We will get a deeper insight into each of our five subject Small- and Medium-sized Enterprises (SMEs), through semi-structured interviews to understand how they prioritize exploitation and exploration, what influences their decision, and how they balance exploitation and exploration.

Our findings show that all our sample companies face challenges when balancing exploration and exploitation. In addition, our analysis of the companies' growth- and innovation strategy has identified how their current market position influences their decisions.

Through our research, we have identified there is a difference between SMEs' capabilities to actually balance exploitation and exploration, and their desired balance. There is a clear indication of prioritizing product exploration in a growth phase, contradicting Tushman and O'Reilly's statement of an explicit bias towards exploitation for short-term success. However, their choice of prioritizing product exploration confirms the model of Utterback and Abernathy.

Through our sample companies analysis, we better understand how these companies prioritize between exploitation and exploration to capture and maintain their market position and competitive advantage over time.

Preface

This Master Thesis concludes the two-year executive master's degree program *Master of Technology Management* (MTM) at Norwegian University of Science and Technology (NTNU) in cooperation with the Norwegian School of Economics (NHH), under the supervision of Erik Andreas Sæther.

In our professional careers, we have been hands-on in a struggle that many companies experience. The challenge is that the company needs to expand their product or service further to make sure they reach its full potential while making sure that you maximize profits on the way. It is a classic challenge, and many researchers have devoted considerable attention to this. Our approach spurs from our own experiences from working in and with growth companies and the tension that exists when you know what you need to do for future success, but at the same time, must deliver short-term results.

We would like to sincerely thank all five case-study companies for their openness and willingness to share. Each interview was very insightful, and we learned a lot from each of you. Thank you for setting aside time in your busy schedules to talk to us.

We want to thank our fellow MTM students and faculty for all the discussions and insight over these two years.

In addition, we especially would like to thank Erik Sæther for his excellent guidance through this last semester. Our meetings and your insights and input have been highly valuable when researching this field.

Espen Trengereid and Erik Åsberg

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1 Introduction

*Our industry does not respect tradition – it only respects innovation
(Satya Nadella, Microsoft CEO, 2014)*

1.1 Relevance

Updated numbers from Statistics Norway reveal that only 27.6% of companies established in Norway survive their fifth year (SSB, 2021)¹. The low number indicates that starting a new business is challenging. It is about the challenge of reaching short-term goals, managing resources, building capabilities, and maximizing existing business profit. Simultaneously, for long-term survival, the companies must build future capabilities, knowledge, and resources to capture the market, ensure a long-term competitive advantage and stay ahead of future competition.

This is certainly not specific for young companies in the growth phase but a continuous challenge for all businesses. The need for always looking ahead and staying innovative is critical, and we all know the stories about Blockbuster, Kodak, and Nokia.

Lack of innovation leads to what Derek van Bever and Matthews S. Olson (2012) refer to as stall points. Their research on Fortune 100 companies shows that most companies will experience revenue stalls where 87% are within management control, 70% are strategic factors, and 46% can be associated with innovation strategy.

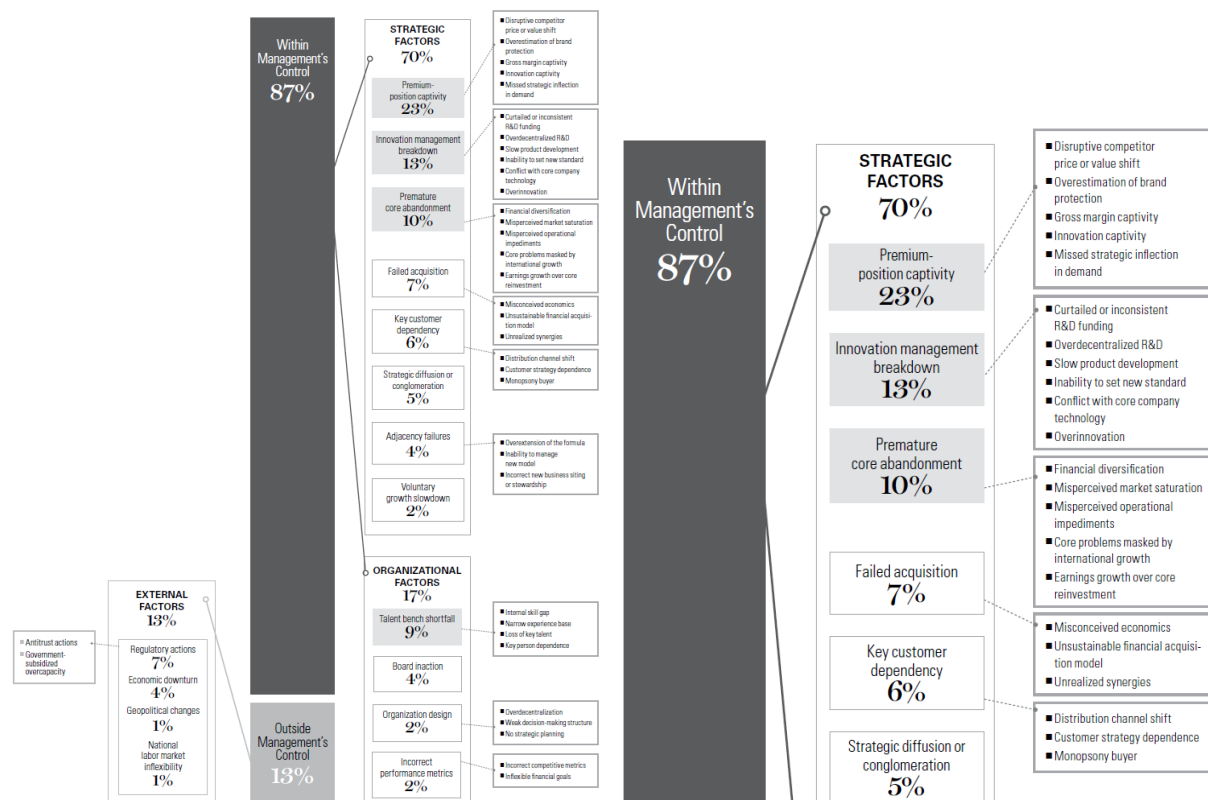


Figure 1 Factors for growth stalls

¹ <https://www.ssb.no/en/virksomheter-foretak-og-regnskap/virksomheter-og-foretak/statistikk/nyetablerte-foretaks-overlevelse-og-vekst>

Reinvention and continuous innovation are costly and require significant financing to have the necessary resources. The challenge of balancing short-term revenue with long-term growth is a well-known problem in business, literature, and research. When large companies are disrupted, it naturally spurs interest into how this can happen. This has led to many studies being conducted in this area. However, most directed towards incumbents, who are in constant danger of being disrupted by smaller, faster-moving businesses. The incumbents need to focus on innovation to stay ahead of the competition.

One of the classic theories in this field is organizational ambidexterity. The term was first introduced by Duncan (1996) and further developed by March (1991), where he refers to organizational learning and a company's ability to do *exploitation* to secure short-term revenue and at the same time perform *exploration* to ensure future survival and growth. Ambidexterity theory investigates how companies and corporations can organize themselves to achieve the goal of managing both exploitation and exploration.

Exploration refers to discovering new products, resources, knowledge, and opportunities, and it is associated with radical changes and learning through experimentation. Exploitation refers to the refinement of existing products, resources, knowledge, and competencies and is associated with incremental changes and learning through local search (Benner & Tushman, 2003; March 1991). The unknown needs to be discovered or explored, and the known needs to be exploited to generate more revenues for the organization.

Most ambidexterity theory is directed towards incumbent corporations that need to increase their focus on innovation. However, the same problem is also valid for Small and Medium-sized Enterprises (SMEs). With higher constraints on resources, whether to perform exploitation or exploration or preferably both becomes a difficult strategic decision. Especially for SMEs with growth ambitions, typically mature start-ups or so-called scale-ups, there is an absolute need to perform both exploitation and exploration, but without the resources of a large corporation.

1.2 Problem statement

James March (1991) stated, "The basic problem confronting an organization is to engage in sufficient exploitation to ensure its current viability and, at the same time, devote enough energy to exploration to ensure its future viability."

As a comment to this statement, two of the leading researchers in ambidexterity, Michael Tushman and Charles O'Reilly (2013), stated: "The difficulty in achieving this balance is that there is a bias in favor of exploitation with its greater certainty of short-term success."

With this study, we want to explore how valid the statement made by Tushman and O'Reilly is for growth SMEs. We will use our five subject SMEs to investigate how they prioritize and balance between exploitation and exploration by analyzing their growth strategy, innovation strategy, and how they organize for innovation.

1.3 Structure

We have structured the paper in eight main chapters: Introduction, Literature, Research question, Method, Data, Analysis, Discussion and future research, and Conclusion. The first section presents a background to the research question, and with our experience,

why we think the topic is relevant. Next, we will present relevant definitions and research within growth, innovation strategy, and organizing for innovation through the literature section. Then, we will present our research question and the method for our study. Next, we will objectively present the information collected through interviews in the Data section. Then, in the Analysis chapter, to make it possible to compare and look for similarities or differences between our sample selection, we use the framework presented in the literature to summarize the findings and establish comparable values for the sample selection. We will then further discuss our results and suggest areas for further research, and finally, we will present a conclusion for our study.



Figure 2 Thesis structure

2 Literature

Our focus is on the challenge of managing exploitation and exploration in growth SMEs and understanding if there is a bias towards exploitation. To understand this, we want to go deeper into the environment of each sample company and understand where they are in terms of development, growth, innovation strategy, and organization. All elements are essential for understanding the context when the company makes decisions when managing and balancing exploitation and exploration.

Literature has been collected mainly through active searches on Google Scholar and ResearchGate. As a result, we have seen increased research on the challenge of exploration vs. exploitation for SMEs. Moreover, more scientific articles have been written in the last three years, building a solid foundation for our research.

Explore vs. exploit in growth SMEs has become a more popular topic in recent years, but O'Reilly and Tushman's statement remains unmet for growth SMEs. Apart from the newer scientific articles, the classic theory of exploration and exploitation is naturally essential.

O'Reilly and Tushman's research paper "Organization Ambidexterity: Past, Present, and Future" (2013) has been a necessary background for this paper. Their meta-research on the state of ambidexterity – the organizational way to manage exploration and exploitation, is the central theoretical background on which we build our qualitative approach.

2.1 Growth Strategy

"Broaden your vision, and maintain stability while advancing"

Li Ka Shing

Growth can be defined as the process of developing or of increasing in size². Within a business, growth is often classified as an increase in the ability of an economy or company to produce goods or services and the increase in value of an investment over a longer period.

There are endless ways for companies to grow; diversify, raise capital, accelerate the rate of innovation in R&D, grow from the existing cores business, expand into new markets, globalize, and expand the organization.

Determining how, when, and if a company should grow is complicated for most companies. Many small companies are content with organic growth through increased market and profits, while others pursue a more rapid approach by seeking funding from external investors. Both strategies are dependent on a sound and balanced approach to income and expenditure, ensuring that the capital required to finance the increasing costs is met either by profits from the core or venture capital.

We want to focus on four core areas of growth opportunities:

- exploitation of current products and services
- exploration of new products and services
- exploitation of current markets
- exploration of new markets

² "Grow." Merriam-Webster.com Dictionary, Merriam-Webster, <https://www.merriam-webster.com/dictionary/grow>. Accessed 22 Jan. 2022.

Within these four areas, we want to understand how SMEs' choices of balancing exploitation and exploration influence the firm's ability to improve performance on revenue and growth. When the firm's market grows, the organization must evolve too, and scaling the business means managing people, systems, and processes and acquiring the required competency and leadership skills. In the beginning, the firm is dependent on a small set of people, managing all aspects of the organization with little practice and processes. Sooner or later, the company moves into different stages of growth where practices become routines.

2.1.1 Stages of development

Utterback and Abernathy (1975) presented a model of process and product innovation resulting from empirical tests between patterns of innovation with the stage of development exhibited by the firm's strategy for competition and growth. It implies a strong relationship between the capability of a firm to innovate and its strategy for competition and growth. The basic idea is that an evolutionary pattern related to productivity over time gains results from concurrent and often incremental changes. Stages of development can be identified by similar characteristics of the productivity factors of various processes. As a process develops, organizational structure and technology base changes may also occur. Product innovation and the introduction of new or improved technologies to meet a user and market need, develop over time through phases of product performance, product variety, product standardization, and reduction of costs. They describe three stages of development, uncoordinated, segmental, and systemic.

2.1.1.1 *Uncoordinated (Emergence and growth)*

During this phase, technological development results from frequent competitive improvements, and rates of changes are high with a wide diversity in products among competitors. Typically, with unstandardized products, processes, and operations. There is a high level of opportunity for improvements. Focus on *performance-maximizing* strategy with rapid changes to create a unique offering for value creation. There is a high degree of uncertainty, and the industry typically consists of relatively few firms. The market is ill-defined, and products are nonstandard.

2.1.1.2 *Segmental (Maturity)*

The industry becomes more mature and standardized during this phase in a price-competitive market. There is a high focus during this phase to capture sufficient sales volume and stable income. The *sales-maximizing* strategy can be adopted because there is less uncertainty in the market and more visible customer requirements. More fundamental changes might occur with the intent to replace existing offerings. As improvements are introduced, it becomes increasingly difficult to introduce improvements.

2.1.1.3 *Systemic (Decline)*

Technology is highly developed and integrated, and investments in selective improvements become increasingly challenging to capture benefits. Changes are costly because processes and operations are highly efficient. Changes are spurred by the development of new technology or a sudden shift in the market's requirements. It's a *cost-minimizing* phase as competition increases, and margins are reduced. Efficiency and economies of scale are emphasized in operations, and changes are more systemic and costly.

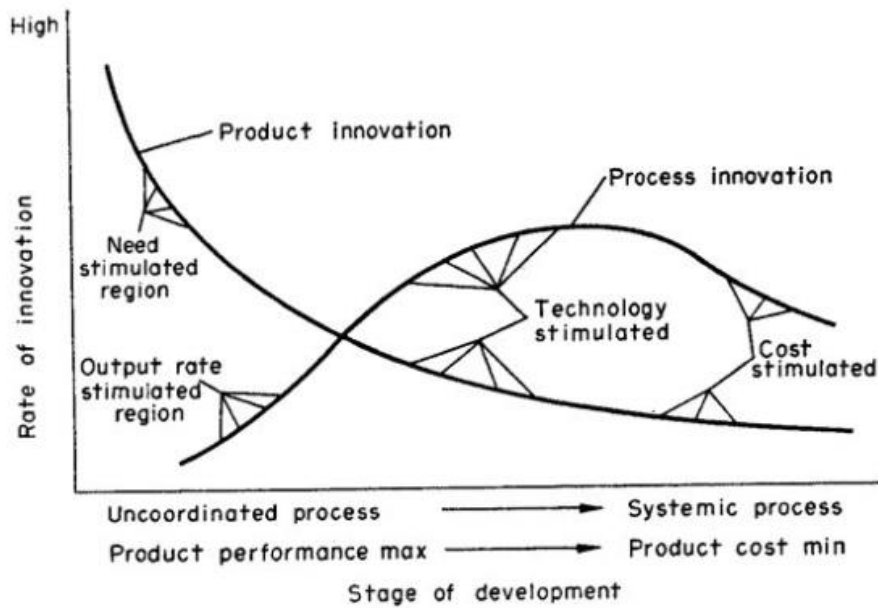


Figure 3 Product and process innovation

Figure 3 illustrates and summarizes the model by Utterback and Abernathy. On the vertical axis, the rate of innovation is shown related to the product and process development stage on the horizontal axis. The model suggests an innovation strategy changing from product innovation to process innovation as the firm's competitive environment changes from uncoordinated to systemic process, from product performance maximization to product cost minimization.

Sood and Tellis (2005) had a hypothesis about technological improvements, where new technology begins with inferior performance but eventually intersects with the old technology and surpasses. The old technology begins to flatten and reaches its natural limits, while the new technology continues its technological performance levels.

The technological evolution can be illustrated in an S-curved-shaped figure on market size and market sales characteristics. Describing how technology matures over its lifespan in a market. How technology also reaches a performance limitation and the increased effort needed to improve performance towards the end of the life cycle.

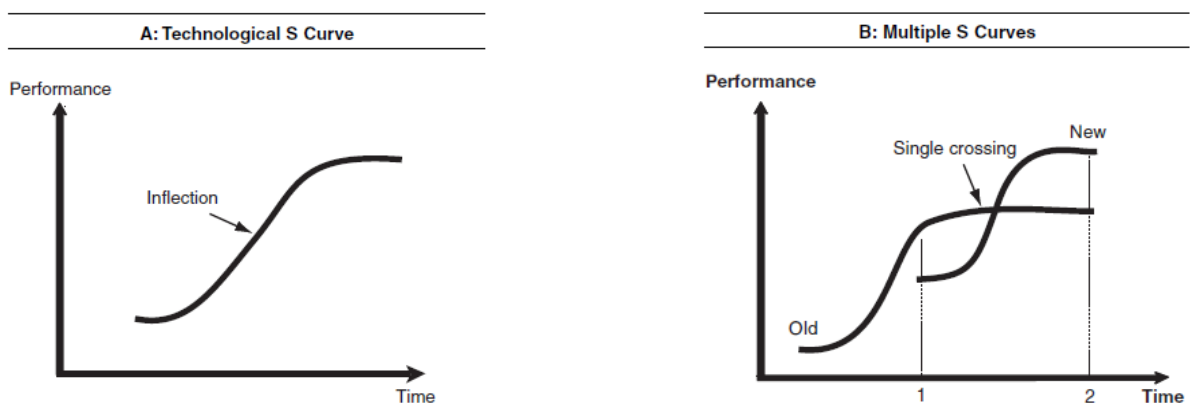


Figure 4 Technological evolution

Schilling and Esmundo (2009) argue the lower performance of new technology can make firms reluctant to invest in the latest technology and choose to switch once the technology has reached a more significant potential. However, in other cases, it has been argued that the new technology doesn't start with inferior performance and has already surpassed the incumbent technology. The paradox is when the income/profit is at its highest and is also "most likely" when you need to invest in new opportunities. This is also when investing in the core has the most negligible effect on improvements.

Firms face the difficult choice of extending the life of their current technology or switching to the new technology. As a result, we see diminishing opportunities for increased performance, and the curve flattens towards the later stage. Therefore, resources spent are targeted activities with the most significant potential for improvement. There is a continuous need to innovate to have a long-term competitive advantage to keep your market share.

2.2 Innovation Strategy

*"Innovate or die."
(Damon Darlin/ CEO EdTech)*

Every company experience the need to have a strategy for constant innovation and an effective product portfolio. So, how do you manage, and what signals do you look for to make the best decisions? In the following section, we will investigate the technological aspect of development. What are the patterns of innovation? How does technology mature, and are the indications guiding strategic choices for continuous growth?

The word innovation comes from the Latin verb *innovare*, which means renew. Merriam-Webster³ defines innovation as (1) a new idea, device, or method (2) the active process of introducing new ideas, devices, or methods. Innovation is one of the most critical drivers for competitive success for an organization. Understanding the market and the company's position becomes essential while investing in and choosing the right business opportunities. The increasing importance of innovation driven by the globalization of markets and advanced technologies creates more rapid development and increased competition. Competitors can quickly copy and take market share/position making market positions temporary.

Innovation requires combining a creative idea with the resources and capabilities, from implementing those ideas to commercializing them. Technology-based innovation changes industries and markets. Understanding the ability to critically assess concepts for innovation, leadership, planning, evaluating, and implementing different product innovation and technology strategies for the company.

Levinthal and March (1993) defined exploration as "the pursuit of new knowledge, of things that might come to be known," and exploitation as "the use and development of things already known."

³"Innovation." Merriam-Webster.com Dictionary, Merriam-Webster, <https://www.merriam-webster.com/dictionary/innovation>. Accessed 16 Jan. 2022.

Both exploration and exploitation can include elements of innovation. Henderson and Clark (1990) defined four types of invention:

- Incremental innovation: improvement of an existing product, e.g., an improved engine
- Modular innovation: new modules added to a current product, e.g., auto gearbox
- Architectural innovation: coming up with something never thought of within the same space, e.g., rear-wheel drive
- Radical innovation: Overturning the core concepts, e.g., electric car

2.2.1 Understanding the dynamics of innovation

Innovation begins with the introduction of something new. The ability to generate these valuable ideas is creativity and the ability to produce work (products, services, and processes) that is useful and novel (Schilling 2020 p. 20). Firms’ ability to facilitate research and development is a primary driver for innovation. This refers to the activities that extend from early exploration to specific commercial implementations. *A firm’s R&D intensity (percentage of its revenue) has a strong correlation with its sales growth rate, sales from new products, and profitability* (E. Roberts Benchmarking global strategic management of technology p 25-36) Schilling (2020 p. 28).

2.2.1.1 Elements of innovation:

In understanding innovation, Kahn (2018) defines three different dimensions of innovation, an outcome, a process, or a mindset.

Element	Strategic focus	Strategic question	Consideration
Innovation is an outcome	Ends	What do you want to happen?	<ul style="list-style-type: none"> – Product innovation – Process innovation – Marketing innovation – Business model innovation – Supply chain innovation – Organizational innovation
Innovation is a process	Ways and Means	How will you make it happen?	<ul style="list-style-type: none"> – Innovation process – Product development process
Innovation is a mindset	State	What should be instilled and ingrained to prepare for the what and the how?	<ul style="list-style-type: none"> – Individual mindset – Organization culture

Figure 5 Understanding innovation

Innovation as an outcome (Product Innovation) can result in lower cost and product improvement to replace old products, product improvements on an existing product, new markets, new customers, new categories for the business (but not necessarily new to the market), and new products produced for the market. Product innovation with new technology chooses a "Product development strategy" where they want to increase sales by developing the existing product technology to offer more products to the customer group to increase earnings.

Innovation as a process focuses on organized invention, where three different phases are defined.

- Explore / discover: the organization explores the landscape for different possibilities and delimits these possibilities.

- Development phase: one looks at different technical specifications and designs to meet needs.
- Delivery phase: the product is introduced entirely, which can be sold to the market.

Performance improvements in the early stage are limited because of the lack of knowledge and understanding of the required investment. At this stage, efforts are used to explore the opportunities and different potential paths for improvement or replacement. As the firms gain more knowledge and a deeper understanding of the technology and market potential, investments and efforts accelerate.

Innovation as a mindset is innovation that helps to drive new perspectives and methods. One manages to link different questions, issues, and ideas. Experimentation is essential in this phase to gain increased insight, ideas, and perspectives.

2.2.2 Ambition Matrix

Sørheim and Ansteensen (2012) describe innovation as opportunities by being aware of the market, following trends, and solving specific problems. By looking at trends, entrepreneurs will usually identify instrumental forces that can create business opportunities; economic, social, technological, and political parties.

By having a clear strategy, a company will be more strongly positioned to understand why (purpose), how (input factors), and what (product/service/value creation) one must do to create and maintain its market position and competitive advantage over time. A well-formulated strategy will enable an organization to follow an established set of guidelines for carrying out activities with given input factors towards a defined purpose. According to Rumelt (2011), the strategy is its roadmap for how and why an organization should compete to achieve success.

How the search for business opportunities takes place is generally divided into two categories

1. Technology push describes a business opportunity that results from typically research-heavy projects that provide practical application of technology.
2. Market pull describes a business opportunity where a specific problem without an obvious solution generates a business opportunity.

In addition to the approach via push and pull business opportunities, there are several well-established models for deciding which projects to invest in, including the traditional financial investment calculations as the present value of the project. But other factors should also be considered when looking at which projects one should invest in.

Another relevant theory is Nagjis and Tuff's (2012) Innovation Ambition Matrix, a tool that can ensure good investment portfolios.

Core projects describe investments based on the existing product. Transformational investments will hit completely new markets and new customer needs. Finally, adjacent investments are based on the company's strengths and move on to an adjoining area. This tool helps to provide an overview of categories where a company should evaluate investments in the various regions. It can contribute to a good discussion about the company's investment portfolio profile and finding the right balance in their portfolio.

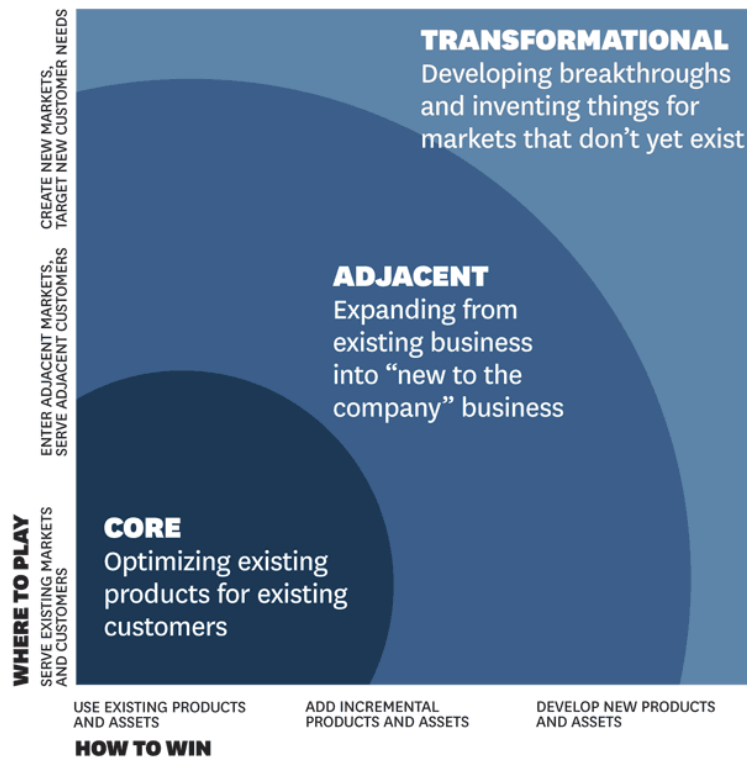


Figure 6 Innovation ambition matrix

2.2.3 Innovation portfolio

“Here is the prime condition of success, the great secret: concentrate your energy, thought, and capital exclusively upon the business in which you are engaged. The concerns that fail are those who have scattered their capital, which means they have also scattered their brains. They have investments in this, or the other, here and everywhere. “Don’t put all your eggs in one basket” is wrong. I tell you, “put all your eggs in one basket, and then watch that basket... It is easy to watch and carry the one basket. It is trying to carry too many baskets that break most eggs.”

(Andrew Carnegie, Curry Commercial College 1885)⁴

The success of a small firm is often linked to the success of one idea or place. But what happens if that market changes, and how should they position themselves for those changes? Competitive advantage ensures companies get a good/unique position in the market. To ensure that they have this advantage in the future, the company must have an innovation portfolio. How should companies choose which innovation projects or investment projects to invest in in the future? What tools can they use to make such evaluations?

⁴ Zook, Chris. Beyond the Core (p. 188). Harvard Business Review Press. Kindle Edition.

McGrath and MacMillan (2009) look at tools to align the organization for growth with a portfolio that supports the long-term strategy. It looks at various initiatives against the company's uncertainty in multiple projects.

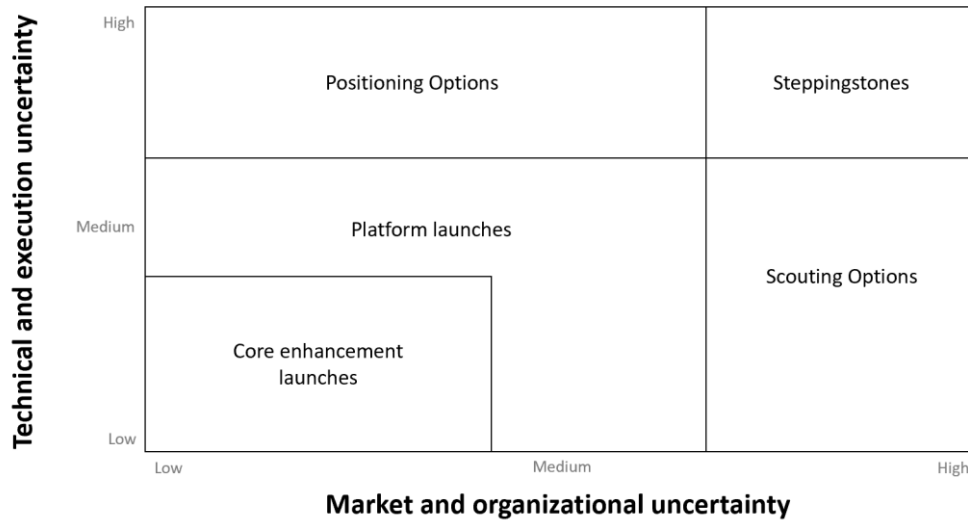


Figure 7 The opportunity portfolio

The horizontal axis is based on the market's uncertainty and the organization. If the uncertainty is high, it can be challenging to know who the customers are, what price they can charge, which distribution to use, or the sales triggers. Is the uncertainty low having a pretty good insight into all these factors? The vertical axis is based on the uncertainty surrounding technology and its capabilities. If the uncertainty is high and you do not know the technological standard, it can be met with the correct cost, which properties and competence are essential, and we have good enough access to that competence. Based on these categories, one can get a picture of the investment portfolio and how the firm has positioned itself from an innovation perspective.

1. Core-enhancement launches - are projects that build growth and future earnings around the current operational core of the company. These projects are built around the business areas that are already good for today - which is essential for maintaining the competitive advantage. Such investments also focus on expanding the market, gaining closer customer loyalty, or expanding branding to other areas.
2. Platform Launches - projects that focus on achieving further growth and financial results on existing platforms. Such projects simultaneously develop new markets and new technological properties and involve more risk than core projects.
3. Positioning option - these are investments where the company is reasonably sure they will be in for the long run but unsure how the market needs will be covered. In such investments, it is vital to support the employees to learn the possibilities of the new technology without pressure to deliver fast deliveries to the business. It is also important to separate such investments from operations to creating more acceptance for failure, as it is more seen as an experiment.

4. Scouting Options are investments based on a set of values for the customer but with uncertainty, where the project needs to gain insight into what the customer wants.
5. Steppingstone option - are the projects with the most uncertainty. Companies invest in such projects as they believe the technology or market need will be critical in the future, and they fear that they will fall behind if they do not invest.

The organization needs to ensure a good balance in the investment portfolio. One has a balance between investing in the core business and investing in more risky projects in relation to market needs and technology. In this way, there is a greater chance of ensuring that one also in the future positions oneself on economic growth and competitive advantage.

Nagji and Tuff (2012) have done research where they look at how the company allocates its resources on various investment projects, which they categorize as core, adjacent and transformational. Core projects are based on existing products, and transformation investments are new markets and new customer needs. Finally, adjacent investments are based on the company's strengths where you do well but move on to a slightly new area.

What they see in their analyzes is that a company typically invests 70% of its capital in typical "core" projects, 20% of the capital goes to "adjacent" investments, and 10% of the capital goes to "transformational" investments. But if they look at where the future earnings come from, they see that 70% of the future earnings come from the "transformational" investments that consist of 10% of the capital investment. In addition, they see that 10% of future earnings come from "core" projects that account for 70% of the capital investment.

This analysis shows that it is essential for future earnings to place the investments concerning the investment portfolio. If they invest more in transformational investments, this has excellent earning potential in the future. "Transformational" investments often require a more significant investment than the others. This is of great importance here for how the company's financial structure supports financing against "transformational" investment projects that often carry greater risk. Another essential element is that the company has an organization and presence to capture the good ideas, and management can communicate clearly and distinctly about the innovation goals and process that supports this.

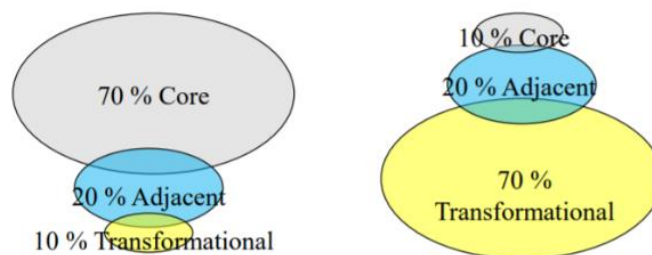


Figure 8 Investment balance

Having the right balance and understanding how the market will respond is a complex strategic decision, and you can never be confident about when to choose the right move. However, having insight into where to focus efforts and investments will help reduce risk and threats from competition.

Most growth companies' startup- and go-to-market state are based on a Minimum Viable Product (MVP). However, to reach the more significant part of the market, the company must move towards what Theodore Levitt in his Marketing Imagination (1986) refers to as "the whole product." In Crossing the Chasm (1991), Geoffrey Moore included the whole product and made it a prerequisite to reaching the majority of the market.

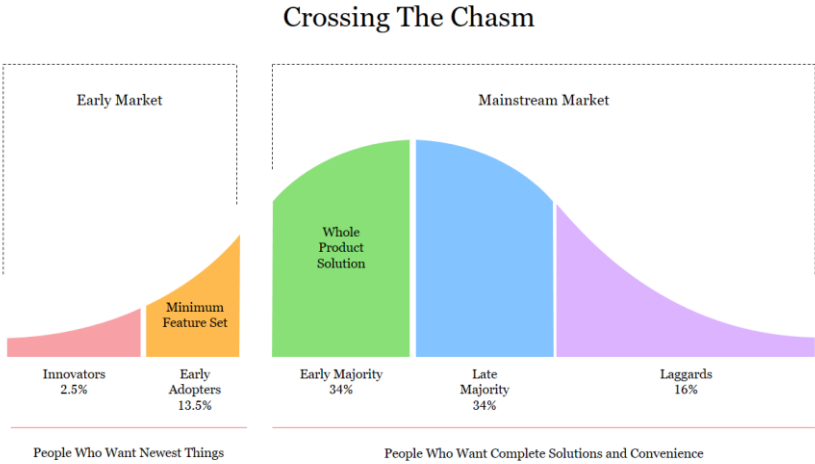


Figure 9 Crossing the chasm

Once the company has reached the first phase and has its MVP, they need to involve exploratory activities to expand their offering and move towards what Figure 10 describes as Version 2.0. The Whole Product could include additional services, extensions, 3rd party plugins, etc. All components that support and complement the core product make it easier for the customers to capture the core product's value and help the customer gain further traction in the market. It might take exploration to identify and develop all components in a Whole Product. This can be classified as exploring a product to exploit current customers by providing increased value. There is also a potential to experience increased market demand when providing a more holistic product, targeting the late majority in the market, and achieving market exploitation.

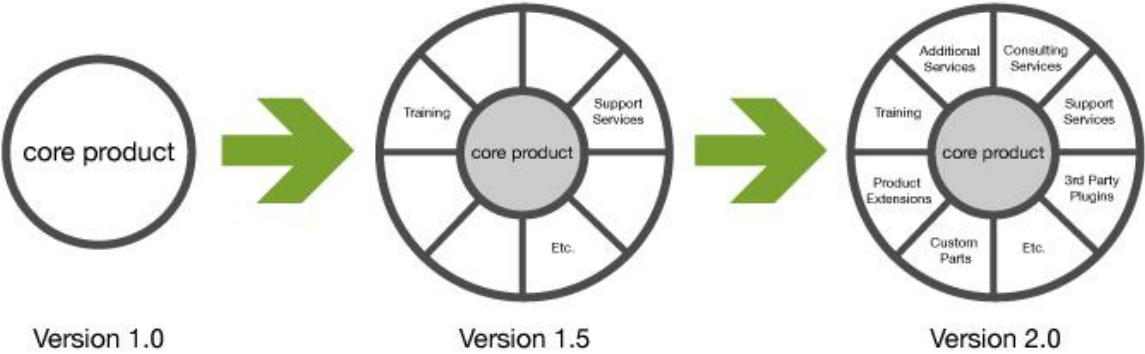


Figure 10 The whole product (from ignitionframework.com)

What is interesting with the whole product seen from a growth company is that it forces the company to be innovative to deliver the whole product, far more the MVP starting point—using our definition of exploring forces the company to spend time exploring. This affects the innovation portfolio, product extensions, additional services, etc. Anything that will enhance the product experience and bring the product towards the Potential

Product will have to be explored simultaneously. In addition, the company needs to exploit the core product to get cash flow and survive. Unlike an incumbent company, which already has an established whole product and the cash cow that allows for exploration activities, this puts extra weight on a growth company's shoulders as it forces innovation and exploration simultaneously as exploitation is needed.

2.3 Organizing for innovation

In the previous sections, we have presented theories for growth and innovation strategy and what might influence their decision on why and where a company should target business opportunities. This can also shed light on the tension March refers to in managing the short-term profits and survival of the firm. In the coming section, we want to address implementation and organizing for innovation. In addition, we will better understand how SMEs manage some of the challenges they face with their limited capabilities and resources. Finally, the section focuses on exploration, exploitation, and balancing to achieve sustainable competitive advantage.

Much research has been done for larger corporations, exploration, and ambidexterity. A simple Google Scholar search on Ambidexterity returns about 33.000 results and more than 4000 articles in 2021. The research has mainly focused on how larger corporations should manage ambidexterity to avoid disruption from newcomers. Still, lately, more research has also been done on how SMEs can benefit from ambidexterity (Wencke, Zapkau & Schwens, 2021; Koryak, Lockett, Hayton, Nicolau & Mole, 2018; Colclough, Moen, Hovd & Chan, 2019; Majid, Yasir, Yasir, et al., 2021; Silva, González-Loureiro & Braga, 2021; Tian, Dogbe, Pomegbe, Sarsah, Otoo, 2021; Iborra, Safón, Dolz, 2020). SMEs are different with more constraints towards resources and capabilities but can often be more agile. Voss and Voss (2013) argue that much of the literature focuses on how firms can overcome challenges of balancing exploitation and exploration by implementing ambidexterity. However, their research shows that smaller and younger firms lack the resources and capabilities to establish and manage the ambidexterity challenge.

2.3.1 Ambidextrous organizations

Exploration involves activities such as search, variation, risk-taking, experimentation, discovery, and innovation. Exploitation involves activities such as refinement, efficiency, selection, implementation, and execution (March 1991).

Whether a large corporation or an SME, the need to manage both exploitation and exploration is required to optimize existing business and stay relevant in the future. Setting aside enough resources to continuously innovate for the future and risk the necessary focus to exploit and maximize current business.

Maximizing the potential of existing products and at the same time being able to identify the future developments and innovations that will continue to grow the company in the future is what researchers refer to as Ambidexterity (Tushman & O'Reilly, 1996)

Exploration involves activities such as search, variation, risk-taking, experimentation, discovery, and innovation. Exploitation involves activities such as refinement, efficiency, selection, implementation, and execution (March 1991)

The challenge of exploring and exploiting also challenges the organization as the company seeks to exploit the existing offering and secure future growth through exploring activities. This is a balance most companies struggle with, especially SMEs, where resources are constrained, and you need a strict disposition of time to make sure you do the right thing. On the other hand, too much focus on exploitation can expose the company to future risk from competition and market changes. Too much focus on exploration can prevent the company from reaching maximum potential with existing offerings and put short-term revenues at risk.

“The basic problem confronting an organization is to engage in sufficient exploitation to ensure its current viability and, at the same time, devote enough energy to exploration to ensure its future viability” (March 1991).

Organizational ambidexterity refers to the ability of an organization to both explore and exploit – to compete in mature technologies and markets where efficiency, control, and incremental improvement are prized and to also compete in new technologies and markets where flexibility, autonomy, and experimentation are needed (Tushman, O’Reilly, 2013).

In the first use of the term “ambidextrous,” Robert Duncan (1976) argued that firms needed to shift structures to initiate and, in turn, execute innovation. After reviewing how some firms managed to survive and change over decades, Tushman and O’Reilly (1996) proposed that organizations need to explore and exploit simultaneously to be ambidextrous.

A vast number of empirical studies explore whether ambidexterity is, as the theory suggests, associated with organizational performance and survival, whether ambidexterity is, as initially proposed, accomplished through architecturally separate units or via other means, under what conditions ambidexterity seems most useful.

In a study by Tushman and O’Reilly, 2013, they found that organizational ambidexterity appears to be positively associated with increased firm sales growth, innovation, better financial performance, market valuation, and higher survival rates in uncertain environments. The difficulty in achieving this balance is a bias favoring exploitation with its greater certainty of short-term success. Exploration, by its nature, is inefficient and is associated with an unavoidable increase in the number of bad ideas. Yet, without some effort toward exploration, firms are likely to fail in the face of change.

Over the years, the concept of ambidexterity has evolved. Three variants are considered the main ones:

Sequential Ambidexterity

Sequential Ambidexterity is described in many different nuances. Chandler (1977), Tushman and Romanelli (1985), Brown and Eisenhardt (1997), Nickerson and Zenger (2012) all describe how companies can manage exploration and exploitation by focusing on one at a time then switching to the opposite. How and how often the switching takes place differs in the different nuances. Still, the definition is more or less the same – focus on exploration, then switch to exploitation, then back in a sequential fashion. Tushman

and O'Reilly (2013) suggest that sequential ambidexterity might be helpful for smaller firms that lack the resources to pursue simultaneous ambidexterity.

Simultaneous or Structural Ambidexterity

Tushman and O'Reilly (1996) argued that in the face of rapid change, sequential ambidexterity might be ineffective, and organizations needed to explore and exploit simultaneously. They suggested that this could be accomplished by establishing autonomous explore and exploitation subunits that were structurally separated, each with its alignment of people, structure, processes, and cultures.

There has been a lot of research performed in the field of simultaneous ambidexterity in Tushman and O'Reilly's meta-research, they have found that there seems to be a perception that ambidexterity "consists of autonomous structural units for exploration and exploitation, targeted integration to leverage assets, an overarching vision to legitimate the need for exploration and exploitation, and leadership that is capable of managing the tensions associated with multiple organizational alignments (e.g., Burgers et al., 2009; Jansen et al., 2009; Burton et al., 2012; Hill & Birkinshaw, 2010; Jansen et al., 2009; Lai & Weng, 2010; Lubatkin et al., 2006; Martin & Eisenhardt, 2010; O'Reilly & Tushman, 2011; O'Reilly et al., 2009; Schulze et al., 2008; Smith & Tushman, 2005)."

Contextual Ambidexterity

Gibson and Birkinshaw (2004) argued that organizations could be ambidextrous by designing ambidexterity features to permit individuals to decide how to divide their time between alignment (exploratory) and adaptability (exploitative) activities. In this view, contextual ambidexterity was achieved by "building a set of processes or systems that enable and encourage individuals to make their judgments about how to divide their time between conflicting demands for alignment and adaptability."

As Tushman and O'Reilly (2013) point out, contextual ambidexterity differs because the focus is not on the entire organization but teams and even individuals. This is a substantial difference from sequential and simultaneous and will require strict alignment with overall organizational goals and strategy. In addition, as Kauppila (2010) points out, radical forms of exploration or exploitation are more challenging to achieve in contextual ambidexterity, but within a business unit or project, contextual ambidexterity might permit limited exploration and exploitation.

The latter is interesting to view in combination with modern organization, especially in software where autonomous teams are more or less becoming the norm of team organization.

2.3.2 Managing technological innovation and organizational growth

Excel the present and at the same time secure the future. Managing exploitation and exploration are balancing, especially for smaller and younger businesses without steady revenue streams from established products. This duality is a challenge as often the needs of both these activities are contradictory (Sinah, 2015). With technology evolving faster than ever before, balancing this duality is essential to secure a relevant and future-proof business.

In a large, multi-division company, ambidexterity and management of exploration and exploitation may take the form of structural separation. Each subunit focuses on either exploration or exploitation and, thus, at the corporate level, the firm achieves ambidexterity because it involves both exploration and exploitation simultaneously.

Consequently, large corporations can be ambidextrous by maintaining structurally independent units, focusing on either exploration or exploitation (Tran, 2015).

However, O'Reilly and Tushman (2008) argue that ambidexterity should not be simply a matter of organizational structure. An SME will, by nature, not have the possibility to organize ambidexterity the same way.

The challenge of managing exploration and exploitation can be approached in alternative ways. Focusing on one can be a successful strategy at times. Sequential switching between exploitation and exploration can be a viable alternative (Parida, Lahti, and Wincent, 2016), and ambidexterity is a third option. In their meta-analysis Wenke, Zapkay, and Schwens (2021) look at different strategies for SMEs compared with SME performance. Their findings indicate that (i) results from research on larger firms do not necessarily apply to SMEs and that (ii) ambidexterity for SMEs is less beneficial than focusing on exploration or exploitation.

In their article Voss and Voss (2013) discuss the challenge of balancing exploration and exploitation, which is particularly difficult in smaller organizations with limited resources and capabilities to implement ambidexterity. Their research has examined the strategic combinations of exploration and exploitation in product and market domains. Considering combinations of pure exploitation, pure exploration, and cross-functional ambidexterity on revenue performance. They conceptualized their data using the model presented in Figure 11 towards revenue performance.

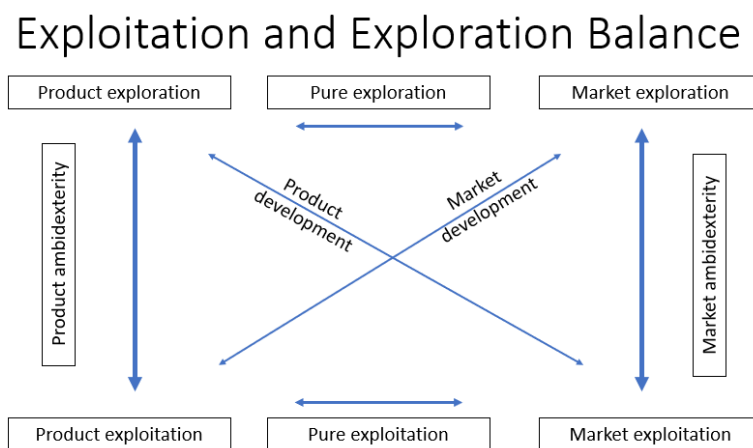


Figure 11 Product and market exploitation and exploration balance

The model defines pure exploration strategy to explore new product capabilities and new customer markets, and pure exploitation strategy as exploitation of current product capabilities and current customer markets. Ambidexterity can be achieved by combining exploration and exploitation across or within functional domains. The cross-functional combinations exhibit ambidexterity across product and market domains, either through exploiting current product capabilities and expanding into new customer markets or exploring new product capabilities that target existing customers. Ambidexterity within functional domains (market or product) simultaneously explores new product capabilities. It exploits current product capabilities, and for the market, ambidexterity simultaneously explores new customer markets and exploits current customers.

3 Research question

Through experience and our literature review, we see different possibilities for Small and Medium-sized Enterprises to pursue growth. With limited resources, it is a battle to secure short-term revenues, perform cash management on one side and pursue opportunities and future growth on the other side. It is easy to become opportunistic and spread resources too thin.

"The basic problem confronting an organization is to engage in sufficient exploitation to ensure its current viability and, at the same time, devote enough energy to exploration to ensure its future viability" (March 1991).

Through the literature review, we have focused on three main areas for understanding what influences growth SMEs':

- Growth Strategy
- Innovation Strategy
- Organizing for innovation

Utterback and Abernathy (1975) have presented a process and product innovation model with a firm's strategy for competition and growth. They have indicated a strong relationship between the capability of a firm to innovate and the evolutionary pattern related to productivity over time. Therefore, through the different stages of development, a firm should pursue other product and process innovation strategies.

In their article "Organizational Ambidexterity: Past, Present, and Future" (2013), O'Reilly and Tushman comment on March's statement by claiming "the difficulty in achieving this balance is that there is a bias in favor of exploitation with its greater certainty of short-term success."

From the literature review, we get an indication that the topic of innovation and growth and the balance of exploration and exploitation is complicated. With this study, we want to explore how valid the statement made by Tushman and O'Reilly is for growth SMEs. We will use our five subject SMEs to investigate how they prioritize and balance between exploitation and exploration by analyzing their growth strategy, innovation strategy, and how they organize for innovation. Specifically, we ask the following research questions:

Research question 1 – Growth Strategy

"How do growth SMEs prioritize between exploitation and exploration?"

Research question 2 – Innovation strategy

"What influences their decision?"

Research question 3 – Organizing for innovation

"How do they balance exploitation and exploration?"

4 Method

We have chosen to perform an exploratory qualitative study of five SMEs pursuing growth to analyze our research question. The analysis is performed as a multiple case study where we go deeper into the companies to identify their challenges in exploring and exploiting.

By choosing a qualitative method, we can understand how the companies operate in their “real-world” setting (Yin, 2016). The study uses the contextual environment to focus on why and what our interviewees think about the topic. By looking at small sample size, we can do in-depth research, look for similarities across the sample selection, and discuss their experience of balancing exploration and exploitation in the pursuit of growth. By performing this research, we want to contribute insights into real-world contextual conditions to understand how valid Tushman and O’Reilly’s statement is for SMEs in a growth phase.

We decided to have semi-structured interviews, focusing on what the interviewee wanted to share. The interview follows a conversational mode that allows two-way interactions where both the researcher and participant can converse about broader topics. For example, we discuss strategic importance for every company. By using interviews, we want to get a closer, deeper dialogue that allows us to ask follow-up questions to the interviewee to make sure we get to the core of the challenge – that might be slightly different from company to company. As an interview is done in person, we can adjust questions to get closer to each company's core challenges. In addition, we collect literature and background information about each company.

The interviews were conducted partly in person and partly through web meetings, and the interviews were with the founders or CEOs, and both authors of the paper conducted the interview

In our research, we investigate how SMEs manage the challenge of exploration and exploitation. We repeat the same approach and manuscript for all interviews, as it is essential in our research to capture the different nuances between the other companies, to capture similarities and differences.

Before all the interviews, the interview guide was issued to provide context and guidance for the conversation. The interview guide included background and topic for our research, interview subject, preliminary questions about the history and background about the firm, and innovation and growth. The questions were based on our literature review and research question. See appendix 1 for the interview guide.

4.1 Sample criteria and selection

The selected companies are all software companies. Software was chosen because the industry is innovative, and the innovation pace puts extra pressure on the exploration vs. exploitation issue.

We had the following base criteria for our companies:

1. **Survived the first five years**

As earlier mentioned, the number of companies that survive their first five years is less than 30%. Our choice of more mature SMEs is likely to have seen the need for further exploration. Their first business idea has gotten them so far, and while still ambitious, they are likely to, at some points, have seen the need for further innovation and exploration.

For our assessment, we focus on established SMEs, companies that have existed for more than five years. Younger companies usually have a narrow focus and a mission to survive. We want to focus on the mature SMEs that have managed to survive and now are seeing the need for further innovation to either keep or expand their business. They are still likely to be very resource-constrained, and the tension between exploration and exploitation is presumable more visible in ambitious smaller companies that work in a field that requires a high pace of innovation.

2. Ambitious

We needed our companies to have ambitions for their business still. Without dreams, the need for exploration might not be the same as if the company has high aspirations. Companies with low ambitions might be happy with the current state and more relaxed towards exploration, with a pure exploitation focus. However, our selected companies must still feel the burning need for exploration and exploitation to meet their growth targets.

3. Size

The structure and size of an organization and its use of formalized procedures and controls can significantly influence how effective companies innovate and grow (Schilling 2020, p.227). Small, flexible organizations with few rules and procedures are often presented as creative and innovative but struggle with fewer resources and capabilities. In contrast, larger organizations have well-developed procedures and standards to make better development decisions and have more access to resources and higher capabilities. We focus on SMEs, identifying how their capabilities influence their choices and opportunities.

4. Technology-focused

We focus on technology-based companies because technology is ever-evolving, and few technologies last forever. With the pace of technology today, the companies are likely to have encountered updating their products during the five years.

5. Diversified growth strategies

In our selection of companies, we are combining different strategies for growth. Some have geared heavily with a high level of external funding like venture capital. Others have a slower and more organic growth. This could potentially be a differentiator for the companies and our research and understanding of how the growth strategies might affect the challenge of balancing exploration vs. exploitation.

4.2 Selected companies

The companies have been selected based on a targeted approach based on interest and visibility on the scale-up scene. eSmart Systems and Nebb Engineering are chosen because they are easily available (the authors of this thesis are employees) and because of inside knowledge that this is a true challenge for both companies. Logiq, Spond, and EdTech are targeted because of their criteria fit.

eSmart Systems

is a software company developing AI-based software for the inspection of power lines. The company was founded in 2013 and has geared heavily through investors like Equinor, Kongsberg Digital, E.ON, Energy Impact Partners, and Nysnø. Over the years, they have received 400+ MNOK in funding.

Founded: 2012

Employees: 55

Turnover 2020: 55.6 MNOK

Operating profit 2020: -66.2 MNOK

EdTech

is a company founded in the late twenty-tens. The founders have more than 25 years of experience in educational development and technology. With EdTech, teachers and other educators can create sessions with varied interactive tasks, visualize content and engage participants through their digital devices.

The actual company behind EdTech has reserved the right to be anonymous. Therefore, EdTech is a fictitious name. However, the information given through the interviews and used in this thesis is factual.

Founded: 20XX

Employees: XX

Turnover 2020: XX MNOK

Operating profit 2020: XX MNOK

Spond

is a free platform designed to schedule events, check attendees, organize transport, and manage money. Spond streamlines and simplifies everything in one app so that volunteering doesn't mean signing your life away. Spond was established in 2012, and the app was launched in 2016.

Founded: 2012

Employees: 17

Turnover 2020: 22.6 MNOK

Operating profit: 2020: -23 MNOK

Logiq

The company was established in August 1999 and has been cash positive since 2004. Logiq provides a cloud-based platform handling business-critical data between customers and their value chain. Logiq exchanges electronic invoices, orders, order confirmations, and catalog information within a global network of more than 100 000 companies. The company currently has more than 3 500 customers.

Founded: 1999

Employees: 67

Turnover 2021: 112 MNOK

Operating profit 2020: 22.8 MNOK

Nebb Engineering

is a family-owned engineering company that develops solutions mainly for the oil and gas industry. The company has existed since 1997 and traces its roots from the industry and offshore division of Norsk Elektrisk & Brown Boveri (NEBB). Their growth has been slow and steady, with a positive bottom line. The main area of expertise is system integration of control and safety systems, communication solutions, information management, and information security.

Founded: 1997

Employees: 18 (+30 in daughter company)

Turnover 2020: 39.9 MNOK

Operating Profit 2020: 10 MNOK (adjusted for group 1 MNOK)

4.3 Reliability and validity of the findings

With a limited selection, it is always a risk that the challenge is not elucidated well enough. There is a risk that we, in selecting companies, are so focused on this challenge that we can become biased and have focused too narrowly. On the other hand, we are after the management of exploration and exploitation. We need to dive deeper into how this is strategically managed in the different companies for our research.

By having a semi-structured interview form, the sessions sometimes took different paths based on what the interviewee wanted to talk about. This provided some challenges for having a strict form of comparison and analysis, but this also gave us a broader approach to potential tension points for SMEs in their environment.

To strengthen the credibility of our data collection, we have allowed the participants to review the presentation of the data, and we have accurately documented their answers and views. In addition, by both authors participating in all interviews, we have also strengthened our ability to capture the responses through investigator triangulation.

In our study, we go deeper into the context for each of our subject companies. This is important because of the research question and the transferability of our research. In addition, the interviewees were all founders and CEOs of their company, all being with their company since inception or at least for the last ten years, which guarantees the authenticity of the data.

Each author had personal relations with one of the selected companies, which could lead to unwanted bias in understanding and analyzing them (eSmart Systems and Nebb). Throughout the research, we often discussed topics based on our experience from these companies, potentially affecting the collected data and point of view. We acknowledge that there could be an unwanted bias in the data, but we have tried to present the companies objectively.

With the limited scope of our research and the subject of this paper, there is an already selected bias on what we have presented in the literature review section of the paper. By issuing the interview guide and informing about the background for the interview, we can also potentially influence the sample selection in their answers. With a semi-structured interview, the authors also influence the direction of the interview and the details of the replies. Therefore, we focus more on the topics already identified as relevant through the literature review.

There could be difficulties regarding the relevance and nature of generalization by performing qualitative research, and the authors could influence our analysis to wish to find a generic relevance. But, on the other hand, our study potentially could provide more insight and usefulness for each of the selected companies and an external perspective on their specific situation and challenge.

4.4 Interpreting the data

Analyzing the data, we will use the “Five phases analytic cycle” as presented by Yin (2016 p. 220). This model will help us compile and sort the data we have collected, structure the data to make it easier to look for similarities and differences, and finally interpret and conclude our qualitative research from the data.

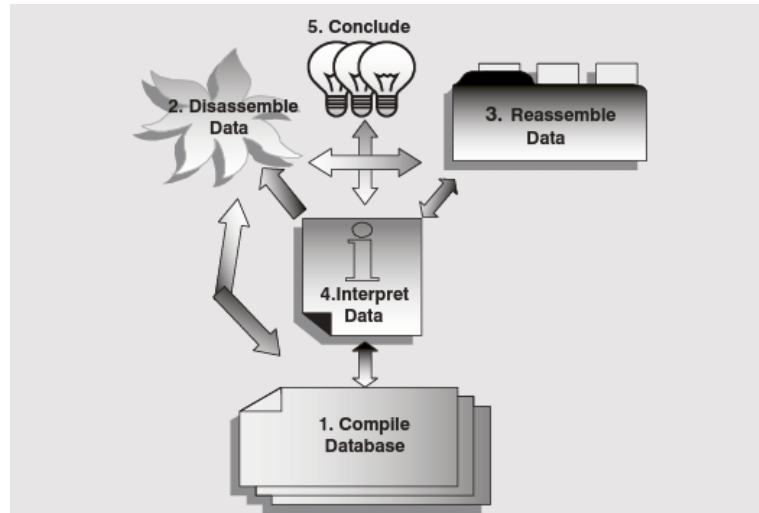


Figure 12 Five phases analytic cycle

Step one is to compile the database and record data from the interviews in our sample selection. In the second step, we disassemble the data into smaller fragments, and we review our recording to break it into comparable pieces. In the third step, we reassemble the data into different groups to summarize each selected company's contextual situation. We objectively present our data collection in a useful order at this stage. We have organized the data in the following sections: Background, Growth strategy, Technology (maturity), and Innovation strategy. The fourth step involves using the arranged material to interpret the information. This section applies the presented theories to categorize the sample selection towards our research question. To make it possible to compare and look for similarities or differences, we use the framework presented in the literature to summarize the findings and establish comparable values for the sample selection data in figures. In the fifth and final step of the analytic cycle, we discuss and conclude the implications of our findings.

5 Data

This section will categorize the interview data into different groups to summarize each selected company's contextual situation. We objectively present our data collection in a helpful order at this stage. We have organized the data in the following sections: Background, Technology, Growth Strategy, and Innovation.

5.1 eSmart Systems

5.1.1.1 Background

eSmart Systems was founded by Knut Johansen, a serial entrepreneur with several startups and exits behind him. After over two decades working with software for the energy industry, he saw that new technology like cloud computing and AI aligns well with the energy transition that started to take shape.

After starting several companies, Knut Johansen and the team that began eSmart Systems had what he described as "innovation confidence." They had very good knowledge about both the industry and the technology and were confident that the new company, eSmart Systems, would become a serious player in the market. The vision for eSmart was to create a global leader within AI and Energy. The company was founded in late 2012 and started operations in early 2013.

The breakthrough for eSmart was a NOK 50m contract with three Norwegian utilities and an R&D contract supported by Innovation Norway. The initial focus for the company was the use of smart meter data to support the operation of distribution (low voltage) power grids.

With their "innovation confidence," the company ventured into several adjacent products before they three years ago started to focus on their product Grid Vision, a product using AI to automate virtual inspections of power lines.

The company relies heavily on research work and participates in several innovation projects funded by the Norwegian Research Council, EU2020, and Innovation Norway. The company initially developed a Smart Grid platform to support operations of distribution grids by utilizing smart meters. The company also has a solution for predicting and optimizing distributed energy resources (DER). Still, the last two years focused mainly on power line inspections with their "collaborative AI" approach. Artificial Intelligence aids the Utility's subject matter experts to their inspection quicker and higher accuracy. The company has customers all over Europe and the US but knows that to keep the position as the innovative newcomer, they will have to continue to innovate. At the same time, their existing product, Grid Vision, still needs functions that are not innovative but are required to reach their full potential and exploitation.

5.1.1.2 Technology:

The company now has a pure focus on Grid Vision, a product that uses deep learning in the form of computer vision to aid the engineers who perform virtual visual inspections of power lines. In addition, through the acquisition of Verico, the product now also supports substations.

Images are captured using drones or helicopters, and engineers then review the images to update inventory and identify defects. In addition, the product aids the engineer using AI to automatically identify components and defects, enabling the engineer to work faster and with higher precision.

5.1.1.3 Growth strategy:

The company has grown through innovation projects, spinning off products and product features. Their innovations have attracted investors, and they have successfully raised \$50m to increase the speed to market. The funding is actively used to build the product to meet the market and cross Geoffrey Moore's famous chasm.

The innovation projects have often had soft funding from research grants, which also puts requirements in terms of results. It has been a challenge to align these results with the company strategy. The company has, like many startups, been opportunistic in dealing with opportunities that have arisen during their journey, leading to a too broad portfolio before now being laser-focused on Grid Vision. The increasing focus has lately been the most important measure for increasing growth.

The company has also focused only on the EU and US in the markets, again to focus its resources. As a result, sales have also been strengthened, and the MEDDIC sales methodology has proven to be helpful in sales.

5.1.1.4 Innovation:

The company is what they define as an "innovation-driven company" and still runs large innovation projects where the purpose is to use them to fund product development. This has been the innovation strategy since the beginning. They have also worked a lot to refine business models and pricing that meet the market requirements but still provide profit for the company.

The acquisition of Verico was also partly to increase the industry knowledge in the company. Verico was known for their industry expertise as they also have engineers that perform virtual inspections in-house. This knowledge is crucial in developing the product and communicating with customers.

eSmart Systems is still challenged to venture into more verticals than power lines. Still, the need to focus and use its resources wisely, maybe learning from the previous over-eagerness, has led to this type of venture being put on hold.

Maintaining existing customers and, at the same time, mostly doing product development is one of the core challenges in the company. The solution for the company has been to build a specialized customer success department to prevent swapping for other more technical resources. However, the company still needs to maintain some legacy systems and resources for innovation projects, and this balancing act has been a challenge. To help with this challenge, the company has just started using OKR (Object and Key Results) as a tool to make sure they use their time in alignment with the strategy.

The company has been very aware of the need to offer a complete service to their customers, the whole product. For this, further modules in the product have been developed and partnerships that can deliver services outside the scope of eSmart's software.

5.2 EdTech

5.2.1.1 Background:

This is the third company the founder has started, and the latest is after selling the second company. It builds on a similar concept, using the learnings from the previous companies to have a more targeted approach.

The vision (for all the companies) has been to create a scalable ecosystem for learning, using data collection and data analytics as a foundation. The data is the basis of feedback-specific learning that triggers improved, continuous, and more efficient learning for each student.

The starting point was the collective learning arenas and collecting data from those sessions to enable better learning. Next, they created a single platform that would aggregate data from all other production platforms used in a learning situation. However, they quickly learned that the production platforms were expensive, and it wasn't easy to access and aggregate the data. Therefore, their strategy needed to change, and they started to create their production platforms. The goal became to create a complete ecosystem replacing all other production platforms with a single sign own.

EdTech also offers licensed and quality-assured content for education and assessment data. Part of the long-term vision for the company is to create a good alternative for assessment in school. They believe this is possible by collecting data from the knowledge created along the way instead of standardized tests at the end of the semester. In addition, the organization aims to establish a group with global education systems that promote the values of equity, well-being, inclusion, democracy, and human rights for all students. The EdTech team consists of committed individuals with different expertise who all work towards the common goal of creating the world's best learning tool for deeper learning.

5.2.1.2 Technology:

The second company was based on business intelligence for students and used aggregated data to dashboards and analytics for development. They learned it was complicated to achieve integrated solutions and share data. Therefore, the learning platforms often became isolated in silos, and there were few benefits across platforms. EdTech has focused on creating its applications to enable integration and scalability. They used all the data created within their ecosystem and integrated it with solutions like Microsoft and Google to create a complete ecosystem for learning.

5.2.1.3 Growth strategy:

The goal is to create applications ready for scaling and an integrated ecosystem for learning. They are targeting low-hanging fruits to solve the current needs for the schools. In addition, they focus on incremental growth to better position themselves for venture capital financing in the current phase.

Edtech has taken a commercial market position and closely cooperates with its early adopters to continuously grow and validate their strategic path. They will focus on organic growth until they have proven the learning ecosystem before considering external investors.

5.2.1.4 Innovation:

"We will never finish, and our perspective is: innovate or die." As a result, edTech is continuously improving its applications, optimizing current users' experience, and reducing technical debt.

They use the collected data to evaluate the users' experience on what to focus on next. They also close contact with the early adopters and collect information from a user-forums with key customers several times per year. This information is used during the leadership team's strategic meetings for evaluation, and decisions are based on what they think will provide the most value for their customer's needs. In addition, they

discuss what they believe must be in place for the client to decide that the EdTech ecosystem solves their needs.

EdTech is also active in forums where they get access to what is happening in the market and what their competitors are doing.

They have dedicated teams to develop each application—one team working on solutions and one team working on improvements. Edtech is currently in a phase where they must update some of the current applications, and at the same time, develop new or missing production platforms to provide the required functionality for the users. (i.e., working on the whole product). It is painful to decide what to prioritize because they have limited capacity. To determine what to prioritize, they analyzed the technical and market sides to understand what will create the most value for the user first. The business aspect and return on development are also a vital part of the decision process. Where upgrades of the existing platform do not create more income but adding new functionality does. In the long run, the entire ecosystem user experience has continuously focused.

For innovation and growth, the biggest challenge is capital. Having enough resources for needed development and growth without losing ownership and control of the company. As a result, it is challenging to decide the smartest thing to do next, balancing the market's need and "quick" wins that can increase sales.

With limited funding and focusing on improving the current solution and required new functionality, EdTech is completing its ecosystem. When this is in place, they want to transition into a phase where they can focus more on optimizing the user experience. They are first movers in a market of aggregating data from production platforms, creating an ecosystem with a single sign-on for learning.

5.3 Spond

5.3.1.1 Background

The entrepreneur started the company because he wanted to do something new, especially from business to consumer, and use the company as a learning experience. He had personal experience wasting time organizing sports activities for children and thought he could create something/an app that could solve this problem.

He started the company without a business model, and with a focus on an idea and value creation, he began to onboard co-founders, resources, and investors.

The team started to create an accessible platform designed to schedule events and check attendees. Spond streamlines and simplifies everything in one app so that volunteering doesn't mean signing your life away. It saves organizers hours every week and ensures attendances

They continued their development and now manage communications and collect money—smooth and secure communication between team leaders, coaches, members, and guardians on one platform. In addition, Spond is free to use and not share your private information with anyone.

After launching and operating the app, they were often challenged about how to make money from the platform with continuous iterations of improvements. They were confident that they would solve this at the right time, but the focus was first to have enough users with a high level of reoccurring users and a low churn rate.

They started their work towards creating an income with a cash-back solution. The established agreement with businesses, and when a member buys from one of their

partners, the group receives a percentage of the purchase price. The group can use the money to purchase new equipment, finance trips, or anything else the group needs.

The newest addition to monetizing is digital fundraising for groups. The only cost is a transaction fee if you collect money for the group.

Other features added are securing communication between organizers and children. Where guardians can reply on behalf of the child, both the event organizer, the player, and other guardians will be notified if one of the guardians responds to an event invitation. You can easily share posts or create group conversations with both children and guardians in children's groups

The company's first idea has changed from where it started to where it is today. Still, after trying multiple paths, they are back at the core value creation of organizing activities in a secure non-time-consuming method.

5.3.1.2 Technology:

Spond has created a free platform app designed to schedule events, check attendees, organize transport, communication, and manage money for any organization.

5.3.1.3 Growth strategy:

Their first investors were onboarded because of network and previous success, did not have everything in place.

Even though a very systematic approach to the problem also Spond ended up following a broader path than planned. The CEO says this was a mistake because of arrogance and lack of humility to the task they were set to solve by seeing more significant opportunities and wanting to take a bigger bite. However, Spond quickly found back to their roots, solving the original problem they had set to do, narrowing the focus, and starting early with a strategic approach for growth.

5.3.1.4 Innovation:

Spond started with a clear idea to solve this problem and had a systematic approach to innovation and mapping jobs, with interviews and several prototypes before landing the final product. It started narrow, then went too wide and wanted to "solve everything," and then narrowed the focus to the original problem for the organizer spending too much time. After the second focus, the first real growth started.

The methodological approach has been refined and used when working on innovations. User feedback is collected and systemized, interviews are conducted, and prototypes developed. All in a very structured, user-driven process to validate and lower risk where data is the basis for decisions.

Spond rates the importance of innovation as 10/10, and they still have a high pace of innovation but have also become more risk-aware. Their willingness to take a risk on core business is lower now than earlier, but the innovation and risk for adjacent and new functionality are as high as before.

The founder of Spond has taken several actions to ensure innovation and pace when starting the company. He deliberately hired people 20 years younger than himself to ensure the company captured the latest trends for mobile applications. They have structurally organized their workforce where parts of the company work on innovation and development of new functionality and new business opportunities. At the same time, the other part continues to operate and improve on the core functionality.

5.4 Logiq

5.4.1.1 Background

Logiq was founded in 2001, and the original idea was to create a B2C e-commerce platform for retail construction stores. After discussions with potential customers, they developed a B2B platform and later expanded to handle electronic transactions based on EDI (Electronic Document Interchange). Logic's mission is to digitize and streamline the construction industry, a mission they have been faithful to since.

The company distributes invoices for more than NOK 500 billion NOK annually. Logiq has also made several acquisitions to gain their market position: EE Nett AS, a provider of master data management (2006), Finfo Information AB, today Logiq Sweden AB, a company that provides the largest industry product catalog in Sweden, Finfo (2009), Relenda, now Logiq Pay, a company that delivers flexible invoice financing (2017). Logiq has offices in Halden, Oslo, and Stockholm. Sixty-five employees and a 2020 revenue of NOK 112m. Logiq has, over the years, had solid organic growth with an annual transaction increase of more than 30%%.

5.4.1.2 Technology:

Logiq offers its service to more than 3500 customers within the construction industry in the Nordics. Their central position in handling financial transactions gives them enormous insight into how the construction industry acts. The focus has always been to automate and digitize the transactions, their core business. They are very technology aware as a company and always make sure to let maintenance and technology shifts get priority in the development and not only external needs from customers. Their services are offered as a SaaS and have been so since day 1.

The company has built services on top of their domain insight, and the factoring service Logiq Pay results from what they are capable of with their insight.

5.4.1.3 Growth strategy:

The company has deliberately grown through existing owners. Since the third year, the company has made money and focused on the business's core services. All new employees start the first three months in customer service to learn their business from the customers' side.

The company has grown through strategic acquisitions in 2006, 2009, and 2017. Through these acquisitions, they have gained market access and put Logiq in a strategic position in the Nordics by owning the construction products catalog.

The primary growth strategy is expanding to new markets, often influenced by national regulations.

5.4.1.4 Innovation:

Logiq is customer-focused and "...is only as good as the last transaction handled." Customer experience is also a priority when it comes to innovations. Incremental innovation that continuously improves their services and consolidates their market position is critical. The company has set aside a percentage of its time for innovative project work, but customer needs always have priority. The company is lucky to have a set of trusted customers to work with to validate innovation efforts, and most innovative projects are done in close cooperation with selected customers. They follow a strict decision regime to qualify in or out innovation projects.

Lately, their focus has been turned against improving internal processes. Instead, making sure everything runs as smoothly as possible and optimizing their operations has become one of their innovation focuses. This will again enhance customer satisfaction and increase the barrier of entry for their competition.

The company is fully aware of its position in domain insight through the number of transactions processed through its system. The factoring service Logiq Pay was the first innovation where they directly utilized this insight. They are now evaluating several projects to capitalize on this insight; one of them could be an open innovation process in which 3rd parties innovate on top of their data.

They are very attentive to technical debt and always try to use innovation to decrease this. Almost every employee in Logiq has a programmer background, and the whole company is technology savvy. With this as a foundation for their domain knowledge, they are very aligned with both market needs and technology needs that arise from internal organizations. This is then weighed in when they go through their decision process. Technology is their DNA.

5.5 Nebb

5.5.1.1 Background

Nebb Engineering was established 25 years ago when the company took over the Norwegian industry giant Kværner's automation department at Tranby. At that time, mainly PLC programming of control systems. The original vision was to become a trusted partner in engineering services with cutting-edge expertise in automation. They quickly attracted prominent industrial players in the oil and gas vertical. They developed a control system for paper mills that they sold together with Kværner. The company has always been good at keeping up with technology, and now the focus has shifted more towards critical systems and software development. They have established a large software development department in Skopje, Macedonia. The core business is still development projects and selling knowledge and expertise.

Nebb's engineering division delivers complete control systems, both subsea and topside, including communication, information management, software development, and electrical. The product division develops subsea products, like control modules, soft starters, variable speed drives, subsea pods, etc. Nebb reinvests a significant portion of its revenue in R&D. Labs and testing facilities at Nebb are optimized for development, testing, and simulating control systems and instrumentation.

It is essential for the company to be a driving force in advancing the areas in which they operate and seeing this as a competitive advantage. Therefore, Nebb participates in joint industry projects to develop new products and solutions in addition to internal innovation projects. Most development projects are also partly funded by the Norwegian Research Council and Innovation Norway.

5.5.1.2 Technology:

Nebb Engineering has always been a tech-savvy company adapted from PLC programming to modern Industrial IoT software solutions. Over the years in project delivery, Nebb Engineering has also managed to get ownership of several of the innovative results developed. In addition to the mentioned control system for paper mills, they also own a system for oxyfuel combustion where they have established a biotech marine cluster. They have also secured the ownership of the current development of advanced offshore VSDs.

The company early became aware of the importance of software. Their software development department in Skopje, Macedonia, develops software for internal project use and offers sourcing teams and resources to other companies that save costs using the Nebb Engineering teams in Skopje. The software department delivers high-quality software development services and is highly engaged with its clients.

5.5.1.3 Growth strategy:

Organic growth through profitable projects has been the recipe for success so far. Their early vision of being a trusted partner in engineering services is the same as then, although they have started to look at repetitiveness in their project deliveries. However, the core has always been automation, and the Macedonian software development team can be seen as a further evolution of this.

The software development team also delivers services internally and provides end-to-end software development for other clients. This has turned out to be very successful, and the team software department is pt. Larger than the engineering department and looking to grow the engineering department as they currently have more work than hands.

The robust software department is starting to move towards industrial IoT and monitoring than control systems. The synergies of excellent knowledge from engineering and software seek to capitalize on moving forward.

With a strong engineering background, they have now started to look for repetition in the project deliveries where they repeat the same delivery in several projects.

5.5.1.4 Innovation:

Nebb Engineering has been smart and secured IP to several of the projects they have delivered and owns a base of innovative solutions that can be further developed. The challenge has always been profitability. Being a company that provides expertise and hours, the need for a customer willing to fund the projects has been vital. The current strategy depends on current income, and projects always contribute with new knowledge.

The company owns the IP from the carbon-free gas power plant that they have further developed and holds the IP rights to subsea VSDs. It has been part of the strategy to get ownership to innovative results from projects they deliver.

Nebb Engineering has always been at the forefront of technology and has transformed from manual PLC programming to software programming. Because of their substantial expertise, they are often involved in innovative projects, and the company has a strong culture for an innovative solution, though in project deliveries.

The innovation strategy for the company has always been to involve paying customers in the projects both to validate the innovation but also to ensure income on their scarce experts.

Establishing a separate software department in Skopje is an innovative move that has proven to be valuable both for deliveries internally and not at least as a unit with its customers. In addition, with the lower cost of labor in Macedonia, the company can also allow for a slightly higher risk profile for the software teams.

6 Analysis

We completed phases one, two, and three of the analytic cycle in the previous chapter. The following section applies the presented theories to the arranged material to compare and analyze the sample selection.

We start by identifying how they prioritize between exploitation and exploration, by evaluating their strategy for growth and innovation, and placing the companies and their offering in a market- and technological maturity position. After that, we want to understand what influences their decisions when pursuing business opportunities by mapping each company's current and future ambitions for development and their opportunity portfolio. Finally, we evaluate how they have organized for innovation and balance between exploitation and exploration for product and market development.

6.1 How do growth SMEs prioritize between exploitation and exploration?

We have differed in two innovation strategies; technological push- and market pull strategy. eSmart Systems and EdTech have pursued a technological push strategy in our sample selection. Both companies have developed software that strategically uses data and data analysis for value creation for their customers, and their innovation process can be classified as an outcome. They operate in a market with little information about the technological possibilities of the offerings, and innovation is a result of research-heavy projects to identify the need and value creation for their customers. The innovation often replaces existing ways of doing things at a lower cost and more efficient method. It is a capital-intensive phase and requires high levels of exploration both on product and market development. They are very dependent on market innovators and early adopters to test and validate the business opportunity. These customers appreciate the benefits of new technology and are willing to try the potential benefits. They are also willing to give feedback to the companies and are less dependent on references before making buying decisions.

Both companies define themselves as first movers and have managed to attract innovators and early adopters to take an unserved market position within an uncoordinated market. They are in a phase of high technological development, and there are few competitors. Because the preferred technical solution is still uncertain and in development, there are still high opportunities for improvements and new solutions. There is a need for both eSmart systems and EdTech to continuously evaluate what to prioritize to capture the most value for their customers. Both companies have opportunities for product exploitation and exploration within their current market and trying to capture new markets and the early majority. On a technological maturity, the eSmart Systems' product offering is at a segmental phase where the foundation of the technology is well known. Still, it requires industry and problem-specific configuration to create a unique business opportunity. The client will experience increased efficiency and value creation through continuous development, but improvements to existing products are costly because processes and operations are already highly efficient. For EdTech, the technological solution is in a segmental phase. EdTech target a business opportunity by creating an ecosystem for learning, aggregating, and sharing data between production platforms. By creating this ecosystem, and instead of using existing production platforms by developing their own, EdTech disrupts the current production solution providers.

The three remaining companies in the sample selection, Spond, Logiq, and Nebb, have all pursued a market pull strategy. Logiq and Spond have followed a business opportunity focusing on solving a specific problem for their customers. During the innovation phase, both companies pursued an explorative path to identify how to solve the customer

problem by developing a software platform. The business opportunity was not evident initially, but the companies have captured a market position by connecting with customers. Spond explored adjacent and even new opportunities outside of their core value creation during the innovation phase but learned this was moving them in the wrong direction. As a result, they had to reorganize and focus on their core offering. Spond is currently in a segmental stage of development, with a high focus on capturing and retaining a sufficient size of the market. A fragmented market is taking shape and increasing the possibilities for Spond to validate customer requirements and implement improvements. Their product offering is maturing, and there is less uncertainty in what the customers prefer. Spond's platform's technological maturity level is in a systemic phase, where the solution is highly developed, and changes to existing products are costly because processes and operations are highly efficient. The technology is easily accessible, and new requirements in the market spur changes.

While Spond is still in an early market phase, Logiq is in a mature and segmental market phase. They have gone through steady growth and gained enormous insight into the industry to give them a competitive advantage. The technology is highly developed and standardized in a price-competitive market. However, investments in selective improvements have increasing difficulties in capturing benefits. Logiq has a product exploitation strategy, continuously making improvements and adding client-specific functions on their core product to provide better services to their existing customers. They focus on innovation as a process increasing efficiency through incremental launches. Their strategy is to improve their core offering, customer service, and brand awareness, create higher entry barriers for competitors, and ensure long-term sustainable competitive advantage. The technology is highly developed and standardized in a price-competitive market.

Nebb has also pursued a market pull-oriented product innovation strategy, developing client-specific offerings to create business opportunities. The technological development is based on their core offering and competency, focusing on business opportunities to replace existing products in current markets. They also try to have innovation as a mindset with the ambition to find new perspectives and methods to link questions and ideas. At Nebb, there have been several attempts to exploit some of the innovations they have done over the years, but the lack of funding for investment in exploitation, and the need for a steady income, have led them back to projects. Nebb has grown organically since the start and has experienced peaks and downturns because of changes in market conditions. The company is currently in a mature and declining market. There are many competitors, highly developed technology, and visible customer requirements. Engineering services are often evaluated based on price, and it isn't easy to compete on quality and strategic knowledge without long-lasting relationships. With their experience from market downturns and limited exposure to one market, Nebb continuously looks for opportunities in adjacent markets based on their core competency. Therefore, Nebb's strategy is ambidextrous on the market side, with sales activities simultaneously focusing on current customers and potential new markets.

We summarize the sample selection market position and technological maturity in Figures 13 and 14.

Market development / position

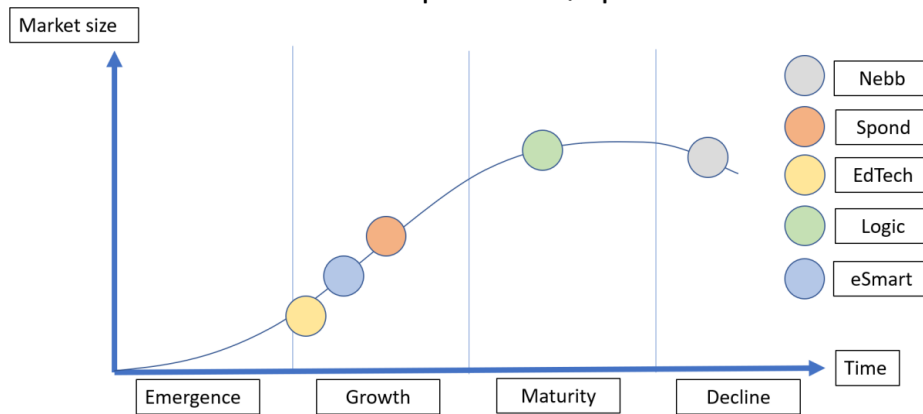


Figure 13 Our sample selection's market positions

Technological development / maturity

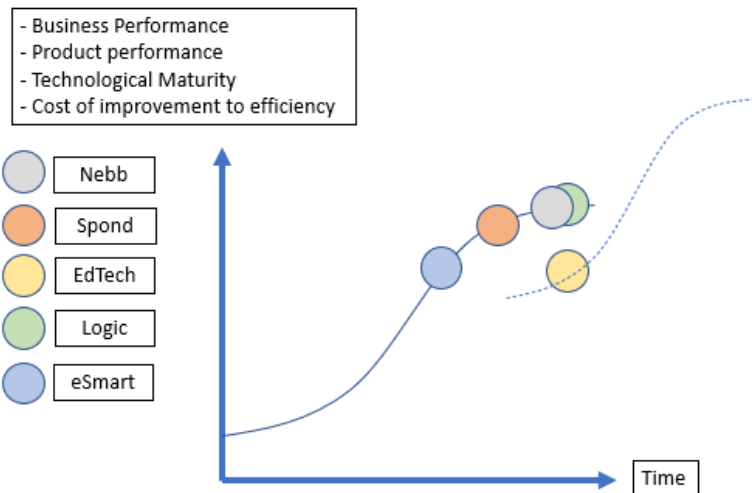


Figure 14 Our sample selection's technological maturity

6.2 What influences their decision?

Understanding where a company is positioned makes it easier to understand what is required for the company to pursue a future or desired position. Articulating its strategic intent enables the company to focus its development efforts and choices to identify and close the resources and capability gap (Schilling 2020, p 137). In the next section of the analysis, we will address our sample selection's ambition matrix and opportunity portfolio. The Ambition matrix will describe where the companies want to target their market strategy and how their product development will help them capture this position. The opportunity portfolio helps the companies identify technological and execution uncertainty related to market and organizational uncertainty. Combining the two models will help find the right balance, evaluating properties and capabilities essential to reduce uncertainty to access the business opportunities.

Our sample companies are still working on their core offerings by optimizing their existing products. Some are in the emergence and early growth phase, while others are in a more mature and declining market. In pursuing new possibilities, either by

expanding the market or building new capabilities, the companies have different strategies within the ambition matrix.

EdTech is positioned earliest in a market maturity phase, and their focus is to create and complete their entire product (ecosystem) for an optimal customer experience. They have defined several applications that serve the required need of their customers. Once this is established, they will transition into a more exploitation mode to improve the user experience and make the core even more efficient. EdTech's long-term strategy is to expand into adjacent and new markets/regions and establish sales-maximizing activity. They continuously expand from the core with adjacent capabilities to develop the whole product in their current phase. To achieve this, EdTech must follow its product strategy to unlock a higher return from its existing customers.

eSmart Systems are well established within the growth phase and strategically focus on optimizing their core product and capturing larger market shares by expanding from existing business. With less information about the technological possibilities and customer requirements in the early stage, they were forced to an explorative product development strategy. They had less commercial success with these project deliveries because they were too client-specific and less scalable. However, eSmart systems gained a lot of knowledge about what would unlock future business opportunities. They are transitioning into a more segmental phase, where the foundation of the technology is well known and "only" requires industry and problem-specific configuration. By continuous development, the client will experience increased efficiency and value creation. Their strategy is to use existing markets and customers to expand into adjacent markets with a more mature technological solution by adding incremental products and assets, building the whole product. They also see potential to move into new markets, solving new customer needs based on their existing products and assets.

Spond is positioned in a similar growth stage and focuses mainly on core-enhancement launches by improving or replacing existing functionality to solve the organizers' problem. With this strategy, they pursue growth by improving current business areas and improving efficiency to gain customer loyalty. Spond's product development is expanding from the existing business into adjacent markets for their future market position by developing incremental products and pursuing adjacent customers. By establishing the monetizing functionality with digital fundraising, they have implemented fundamental changes that will replace less efficient income solutions. Spond is launching small incremental changes based on collected user data for incremental core changes. They have progressed from a simple platform to organize events application towards a more integrated solution, also safeguarding communication and the new way of creating income from groups and building a whole product for their customers to take and retain a competitive market position

Logiq has pursued an organic growth strategy providing the best customer experience in the pursuit of market expansion. Their core product is financing this, and they have made some strategic acquisitions to gain access to new markets. Through the ambition matrix, they focus on using existing markets and customers for growth, with a slight market exploration strategy of pursuing new customers in adjacent markets, serving the same type of customers. They use their existing products and assets to attract these new customers, focusing on steady growth without negatively impacting their current customers with worsened customer service. They see a continuous need for process innovation, optimizing the core, improvements essential for maintaining their competitive advantage, gaining closer customer loyalty, and expanding their brand to adjacent opportunities. Improvements to existing products are costly because processes and operations are already highly efficient. Logiq has recognized the value of the accumulated transaction data from their customers. Currently, they have not internally pursued this

opportunity for product exploration development. Their long-term strategy is to “be better and provide the best customer service.”

Nebb’s innovation ambition matrix focuses on using its core competency and offerings to capture desired market positions within existing and new markets. Their strategy is to use existing markets and customer experience to expand into adjacent markets. Investments focus on expanding in current markets with research-heavy projects to learn about new technology and markets possibilities. The innovation portfolio is internally financed through paying customers and partly joint industry projects and soft funding. Their opportunity portfolio sees the most significant opportunity for success through core enhancement launches and scouting options (including platform launches), and projects and innovation strategies are built around these areas.

Figures 15 and 16 have positioned the sample selection within the Ambition matrix and Opportunity portfolio. In our model, we have identified the current position of the companies with a small circle and the desired future position with a larger circle. From the figures, we see all companies have a strategy pursuing growth through market expanding into adjacent markets based on existing products and assets. With this strategy, we see from the opportunity portfolio less technical uncertainty, and the risk is more related to the market and organization.

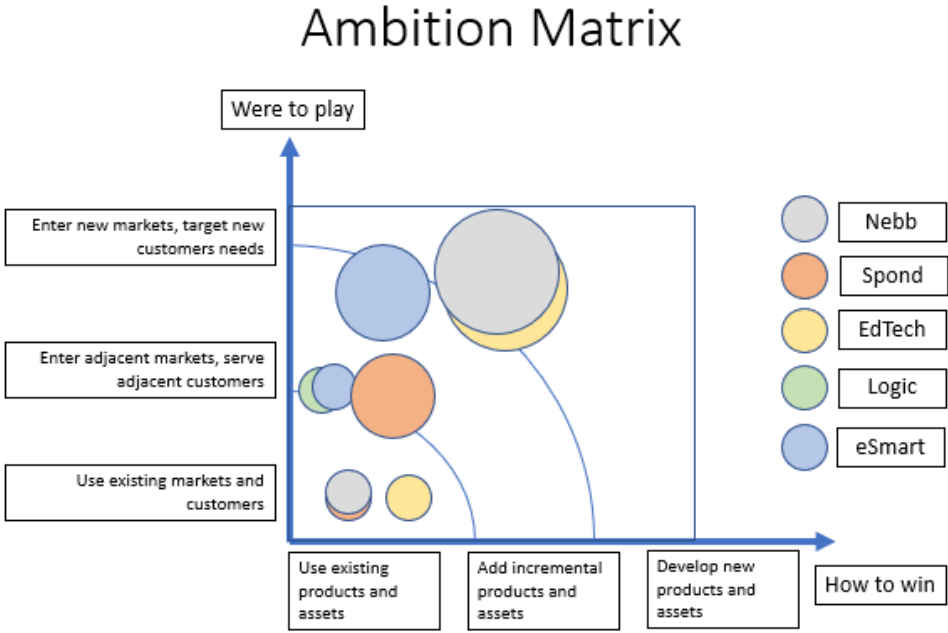


Figure 15 Our sample selection's ambition matrix

Opportunity Portfolio

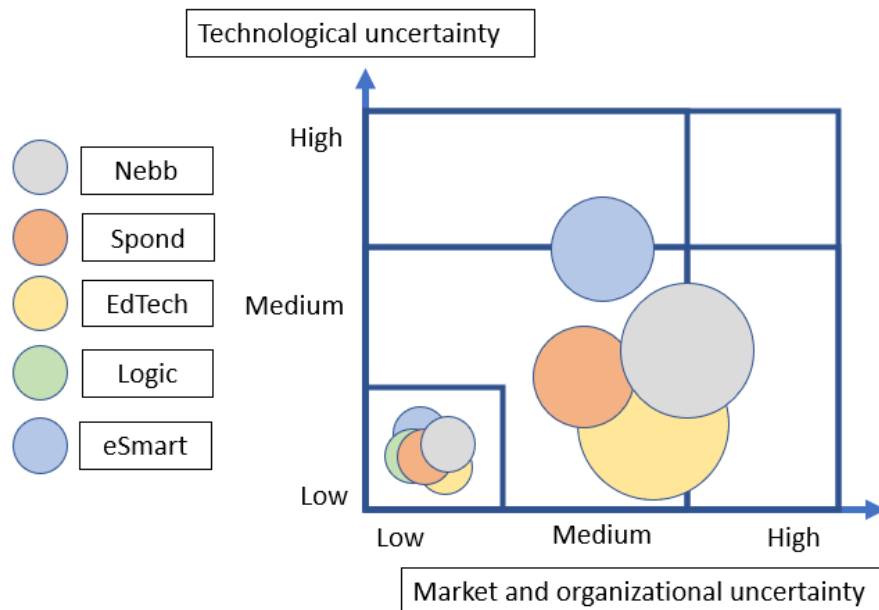


Figure 16 Our sample selection's opportunity portfolio

6.3 How do they balance exploitation and exploration?

All five of our subject companies are very familiar with the battle of exploration and exploitation, and the companies are at different stages in their growth curve. Still, the challenge of managing incremental improvement in existing products for short-term gains, alongside significant innovations for future enhancements with higher uncertainty, is something all the companies are working on daily.

For growth SMEs, deciding how to spend their scarce resources have a high impact, and as identified by Tushman and O'Reilly, the bias often could tilt towards exploitation, as that affects the short-term results. However, short-term economy and cash management are essential daily operations for most growing SMEs, and the exploitation bias is very understandable.

We have populated the sample selection's Exploitation and Exploration Balance in Figure 17, and we see that four companies are still noticeably above a pure exploit for product ambidexterity. In connection to the ambition matrix and opportunity portfolio, four companies still have ambitions to actively pursue new opportunities and maintain daily operations. All companies have multi-million NOK revenues. As they all have expressed, they are well aware of the challenge and tension between managing both exploitation and exploration.

Exploitation and Exploration Balance

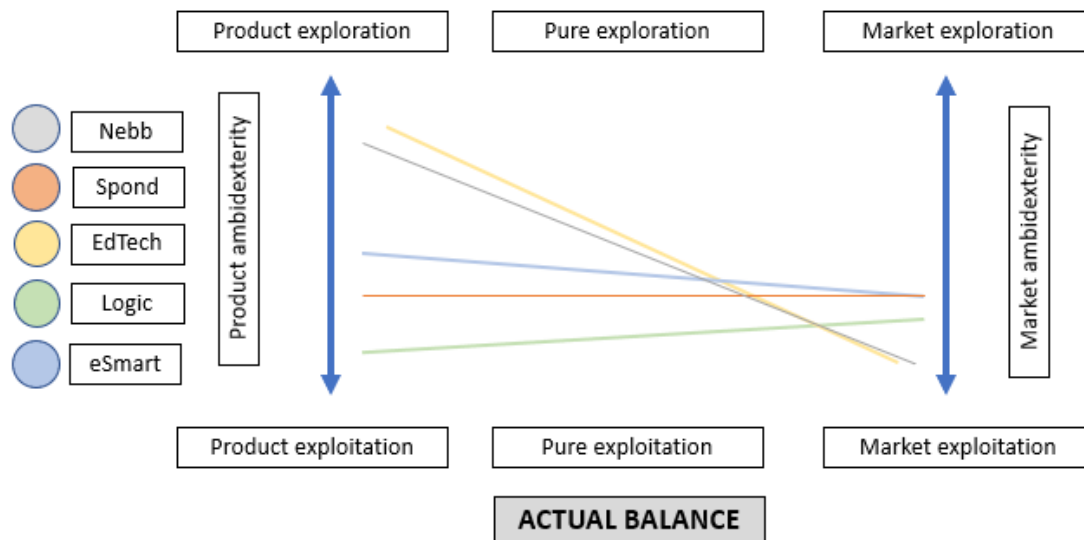


Figure 17 Our sample selection's actual exploitation and exploration balance

Our interviews reveal significant differences in how this ambidexterity is managed. Several of the companies are or have been in a sequential shifting mode where the company focuses entirely on exploration before switching to exploitation and back again. EdTech is the prime example of being torn between the exploratory activities that will lift the product and exploitive activities like updating user interfaces and general maintenance and minor improvements, which also require time from their resources. Currently, this is managed through an obvious sequential strategy where all exploitive efforts are stopped to do more significant exploratory activities before switching back to the more exploratory new development efforts.

For eSmart Systems, with its history of opportunistic growth and ventures into several adjacent opportunities, it has been a challenge to balance all initiatives. It often leads to sequential shifting between explorative work in research projects to meet deadlines and more exploitive activities to finish the different products. The company has now focused on its solution for power line inspections, winding down efforts on other initiatives. The company is now organized towards their focused product, but with a simultaneous ambidextrous version where they have separate teams and individuals dedicated to managing their innovation portfolio.

Spond is the company with the most apparent strategy of the subject companies and does not mention the tension in ambidexterity as much as the others. Spond has a simultaneous approach to ambidexterity. Part of the company works on exploratory, and the other focuses on exploitive activities. They strategically focus on the ambidexterity challenge to lower risk on both exploitation and explorational activities and switch between the two.

Nebb Engineering is different from the other subject companies. Originally a consultancy company, they are still very project-focused. Interestingly they still work a lot with innovation in their customer-driven projects and have secured results and IP from several. At Nebb, there have been several attempts to exploit some of the inventions they have done over the years, but the lack of funding for investment in exploitation, and the need for a steady income, have led them back to projects. One might think that Nebb is a typical exploitive organization, seeing itself as exploitive. However, we claim that Nebb, on the product side, is very exploratory-focused and is organized after that. Their

work in the projects they are hired to be nearly purely explorative. With Nebb's project-team-based approach, one could argue that if there is ambidexterity management in Nebb, it would be in terms of Contextual Ambidexterity. As Gibson and Birkinshaw (2004) described, it is up to the team to best use their time, including switching between exploitation and exploration.

As a software company, eSmart Systems are also striving to empower their different teams in the product organization, which can be interpreted as a move towards contextual ambidexterity. eSmart Systems seem to go through all three different approaches to manage ambidexterity described by Tushman and O'Reilly (2013) as the company has matured and grown.

Logiq has built a massive database of transactional data from the market they operate in, which is now seen as their greatest asset. Based on that, Logiq did run an exploratory exercise together with a few key customers that ended up with a new product Logiq Pay. However, the process was run in a typical simultaneous fashion where a separate team was set aside to work on Logiq Pay. Logiq has a stated strategy that a small part of the company is to work on exploratory efforts, but if conflicting with customer needs, the explorative efforts are delayed. They have the most apparent exploit profile among our companies, with their enormous dataset, has also started to explore the possibility of Open Innovation. By letting other third-party companies bring value on top of their data, one can view this as almost as outsourcing of exploration, allowing themselves to focus even harder on exploitation and cementing their position in the market. With their market position, this is an exciting way of managing ambidexterity.

7 Discussion and future research

We started this paper focusing on the challenges for growth Small and Medium-sized Enterprises to prioritize between innovation and development to exploit existing offerings or explore adjacent and new opportunities. Our experience shows us that with scarce resources and limited capabilities, there is often tension in the organization trying to achieve short-term profits and long-term growth.

Our research on the topic led us to a broad set of literature and how to understand strategy and growth, how companies establish an innovation strategy, and how they organize for innovation. To evaluate the challenge as described, we focus on three different empirical studies, March (1991), Tushman and O'Reilly (2013), and Utterback and Abernathy (1975), and their perspective on how to understand and manage the challenge to prioritize. Specifically, to understand how growth SMEs prioritize and balance between exploitation and exploration and what influences their decision.

March (1991) summarized the problem as confronting the organization to engage in sufficient exploitation and enough energy to explore. While Tushman and O'Reilly (2013) claim a natural bias towards exploitation, Utterback and Abernathy (1975) indicated an evolutionary pattern related to productivity over time.

We started by exploring the statement from Tushman and O'Reilly, and our interviews reveal significant differences in the companies' actual ability to pursue the exploitation of product innovation and the desired balance of exploitation and exploration. In addition, their market position and resource capabilities create a more complex picture and variation in how exploration and exploitation are managed. In Figure 18, we have illustrated the desired balance of exploitation and exploration for the sample selection.

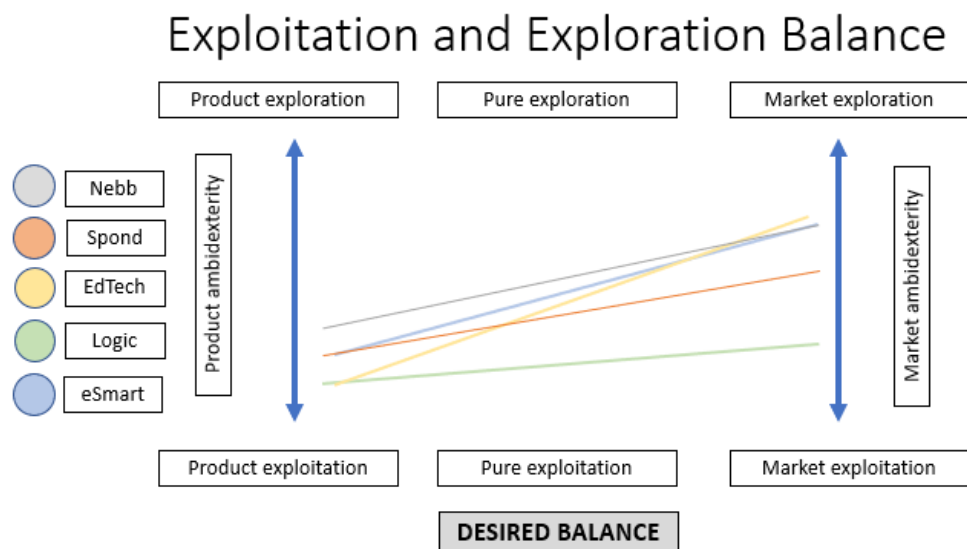


Figure 18 Our sample selection's desired exploitation and exploration balance

Especially for most growing SMEs, until the company has established a stable, high income, short-term economy and cash management are essential. Increasing short-term revenues and income is often expected and needed, and the exploitation bias is expected. Through the interviews of our sample selection, the *desired* product development strategy confirms Tushman and O'Reilly's bias towards exploitation. All

companies want to pursue product development based on core enhancement launches to improve business opportunities and growth.

We see all companies pursuing product and market strategies targeting adjacent opportunities. However, as Nagji and Tuff argued, companies need to find *the right balance between* the core and adjacent investment. Not limited to how they execute and organize, but also in the level of investment, as Alexander Osterwalder states in the Shifter podcast of October 6, 2021⁵ that every company needs to spend at least 1% of their time on innovation. Supporting the theory presented by March (1991) to have a sufficient exploit- and enough explore activities within the organization and development portfolio.

The theory indicates that managing ambidexterity is well connected to the company's performance, and well-managed ambidexterity can lead to better performance. It is about acknowledging the market position, strategy, and ambition, combined with available resources and capabilities for our companies.

Pure economic performance might be subordinate for growth SMEs, as companies like these are often valued on potential future value, indicating why an explorative strategy is essential for ambitious growth SMEs.

Explorative activities are seldom connected to short-term results. They often require investment, either through a cash position good enough for the SME to take on the investment by itself, or funding from customers, government-supported research programs, existing owners, or other funds like loans, share issues, etc. Either way, for a growth SME with limited resources, the impact of exploration activities is high because they always must weigh in the opportunity cost for their resources. As the CEO of EdTech expressed, he would have done pure product-side exploration if they had the financial possibility to do so. However, the CEO has a clear path forward where performance indicators are set for scaling in revenue, markets, and application before turning to the venture market for funding. They are evident that sequential switching is the way forward with their current product and resource base. Also, future company valuation is a parameter in prioritizing between explore and exploit for founders.

⁵ <https://shifter.no/podcast/alexander-osterwalder-how-even-small-businesses-can-create-invincible-companies/223483>

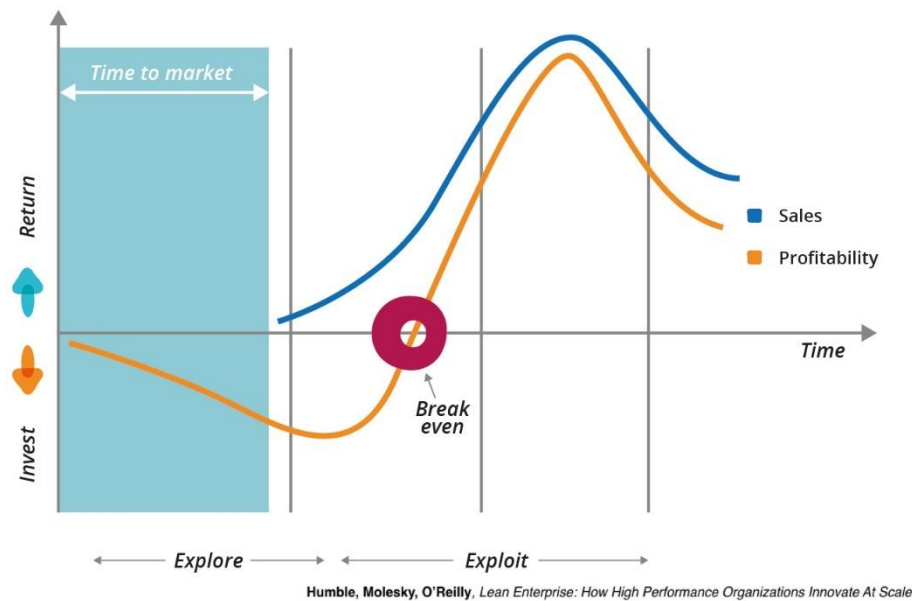


Figure 19 Profitability to sales ratio

Our small selection of companies has different funding models; eSmart Systems is heavily funded by industrial and financial venture companies. Nebb is family-owned. Logiq is financed locally. Spond has recently raised capital in the venture market. The founders primarily own EdTech. Although the CEO of EdTech implies that higher funding would allow them to do more exploration, there is little evidence in our analysis that suggests a connection between the company's funding and if it will lead to higher prioritization of exploration. This could be a fascinating topic for future research.

Looking at our companies' founder profiles, we see that three of our companies were started by serial entrepreneurs. Given the high number of companies that do not survive their fifth year, we are not surprised that our companies include serial founders. Knut Johansen, the founder of eSmart Systems, expressed what he referred to as "innovation confidence," meaning they had great confidence in their exploratory activities and the innovations they set to achieve. Similar was the case with Spond. They knew that once we got the product up and running and had a solid userbase, they were confident that they would also be innovative on the business model. For Spond, the exploratory work on the business model was done together with his management group, and they ended up with the current business model. Of course, starting a business with high uncertainty might benefit from earlier experience, but our research has not evaluated this further.

When pursuing an explorative strategy, companies target a long-term competitive advantage. With this strategy, companies expose themselves to higher uncertainty and risks. Spond has a clear strategy when it comes to risk-taking. With an already impressive number of active users, they take a low risk on the existing functionality and exploitive activities. Instead, they allow themselves more significant risks and more testing on their exploratory side. They have built a system for receiving feedback from users for exploitive improvements and experimental testing of new functionality. To further increase the chance for success on the innovation and exploration, the CEO deliberately hired younger employees without fixed mindsets that had grown up with a mobile phone in their hands, the platform the company targets. We have not focused on lowering experimental uncertainty in our research. Still, in addition to ambidextrous strategy, this uncertainty could potentially impact the choices and prioritizations made by each company when deciding how to pursue exploration.

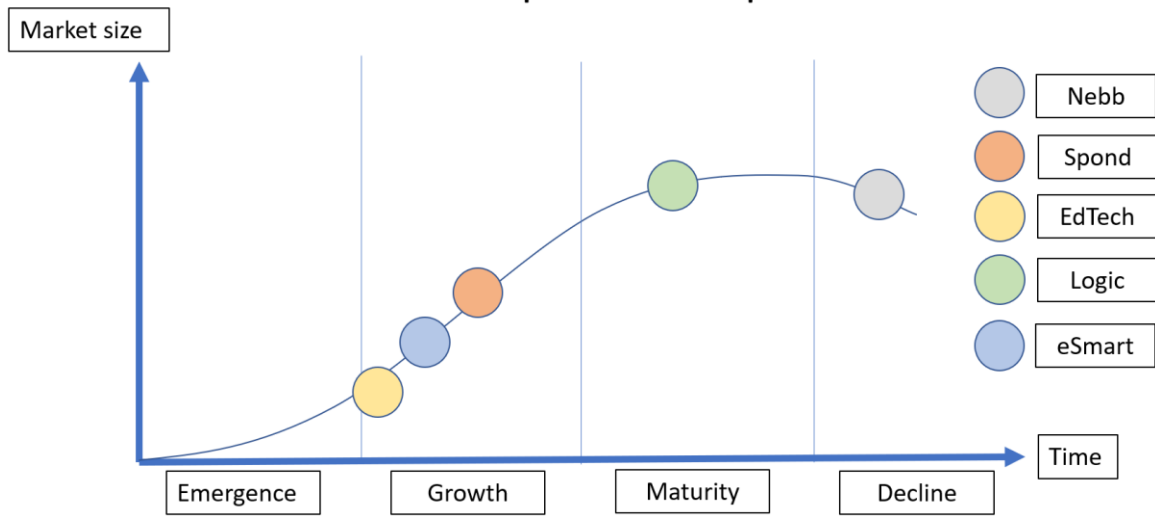
Exploring and exploiting also challenges the organization as the company seeks to exploit the existing offering and secure future growth through exploring activities. This is a continuous struggle for most companies, especially growth SMEs where resources are constrained, and you need a strict disposition of time to make sure you do the right thing. Our companies have different ways of managing this ambidexterity, but they are managing it. It does not seem different ways of managing ambidexterity influence prioritization towards exploitation. Although closely linked to company performance, ambidexterity management addresses both exploration and exploitation. It has little focus on the level of ambidexterity or the company's stage in market development.

Prioritization of exploration in this phase can be seen as natural as they are still approaching the market, trying to capture the early majority. From G.A. Moore and his "*Crossing the Chasm*" (1991), we know that the whole product will increase the probability of reaching the early majority. Therefore, exploring core and adjacent product capabilities would be natural and, in many cases, necessary in a growth phase within an uncoordinated market, as described by Utterback and Abernathy (1975), to increase the chances for success when crossing the chasm. Therefore, it supports our research identifies a bias towards exploration for SMEs in the growth phase and not a bias towards exploitation like one could expect.

Our research indicates an interesting correlation between the market phase and product ambidexterity, where all three companies defined in the growth phase also are high on product exploration. In an unmaturing market with higher uncertainty about customer requirements, companies need to explore business opportunities both on product and market strategy. This uncertainty seems to influence the companies' ability to pursue the desired exploitation strategy. This supports Utterback and Abernathy's model, where there is an evolutionary pattern related to productivity over time. Especially in the early growth phase, the focus should be a high rate of product innovation.

In contradiction to Tushman and O'Reilly's statement of an explicit bias towards exploitation, we see a pattern correlating with the firm's market position and not always prioritizing exploitation.

Market development / position



Exploitation and Exploration Balance

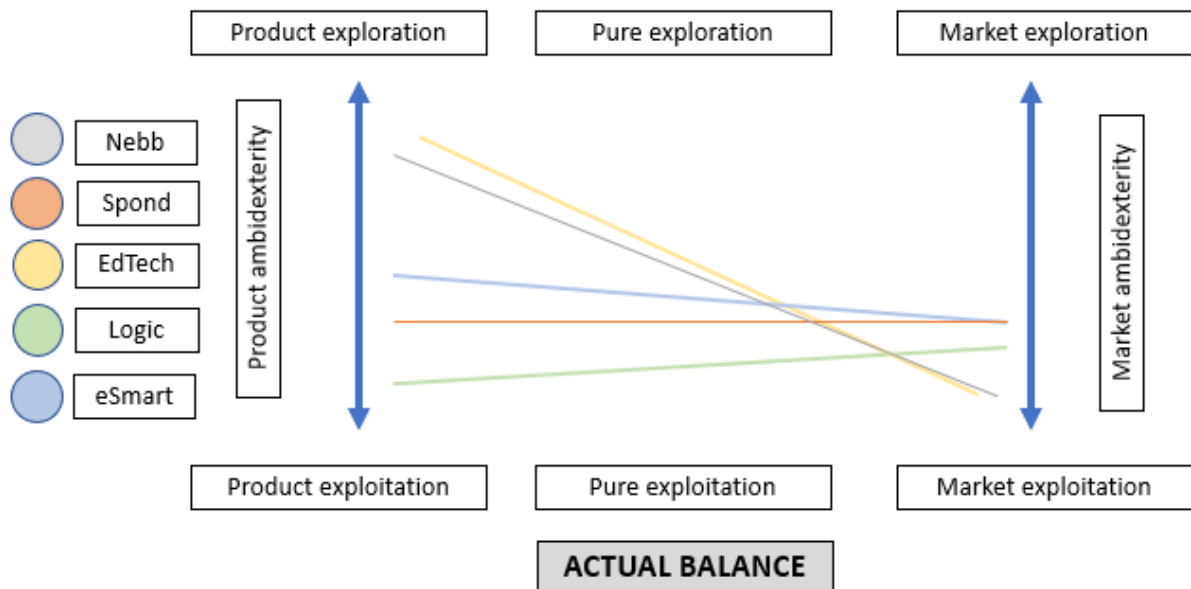


Figure 20 Comparing market position and ambidexterity

Our sample selection finds three companies in an early growth phase. They have focused their strategy on developing the core offering and limiting the adjacent opportunities to improve the core. This is also correlated with the market development phase, where they are still trying to attract the early majority and future earnings. Nebb is in a declining phase and targets a more explorative approach to find adjacent opportunities and capture future business opportunities. Finally, Logic has a different position within a mature market and pursuing a pure exploitation strategy both on the product and market sides. On the market side, all companies are executing a market exploitation strategy, with a small indication of ambidexterity for the companies in a more secure market position. However, their actual balance reveals that they have yet to start the exploration strategy they are pursuing on the market side.

7.1 Future research

Our research does not go further into the topic. Still, it would be interesting to validate our findings towards a larger sample selection and do a quantitative study to see if this is a true pattern. We have identified some elements that could be subject to further research through our research.

The difference between venture-funded vs. organic-funded growth SMEs. Will the injected funding move the balance between exploration and exploitation? One might assume it does, but our case study, with a small sample, does not indicate a direct link between funding and balance.

The differences in managing exploration and exploitation between experienced entrepreneurs and first-time entrepreneurs is also a topic that deserves more research.

The link to strategy is a third topic we see as interesting to explore further. For example, how does a more opportunistic approach affect the explore and exploit balance compared to a very disciplined and strict strategy?

8 Conclusion

Our research has explored how valid the statement made by Tushman and O'Reilly is for growth SMEs when trying to balance explorative and exploitive activities. Is there a bias toward exploit because of its greater certainty of short-term success? We focused on how they prioritize between exploitation and exploration, what influences their decision, and how they organize to balance exploitation and exploration. We have used growth-, innovation- and organizational frameworks to understand and analyze how companies manage a short- and long-term strategy.

Our findings show that all our sample companies face challenges when balancing exploration and exploitation. However, in their pursuit of capturing a sustainable market position and long-term growth, either through a market pull- or technological push strategy, they all prioritize what will first capture the most value for their existing customers.

Our analysis of the companies' growth- and innovation strategy has identified how their current market position influences their decisions. Companies have different strategies in pursuing new business opportunities, either by entering adjacent or new market positions or building adjacent or new capabilities. Our discussion shows how their ambition matrix and opportunity portfolio influence the SMEs' prioritization and how they choose to organize and balance for exploitation and exploration.

Through our research, we have identified a key finding:

There is a difference between SMEs' capabilities to actually balance exploitation and exploration, and their desired balance.

There is a clear indication of prioritizing product exploration in a growth phase, contradicting Tushman and O'Reilly's statement of an explicit bias towards exploitation for short-term success.

However, their choice of prioritizing product exploration confirms the model of Utterback and Abernathy. While still in a growing phase and positioned in an unmaturing market, with higher uncertainty about customer requirements, companies need to explore business opportunities both on product and market strategy. Our analysis identifies a correlation between market maturity and the company's position with their *actual* prioritization of balancing exploitation and exploration.

The companies *desired* balance between prioritizing exploitation on the product side while ambidextrous (more explorative) on the market side, confirming Tushman and O'Reilly's theory of a bias towards exploitation for short-term success.

Through our sample selection analysis, we better understand how these companies prioritize between exploitation and exploration to capture and maintain their market position and competitive advantage over time. The maturity of the market position influences their innovation strategy and how the company pursues its short- and long-term strategy for innovation, and with their resources and capabilities, balance exploitation and exploration.

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Appendix 1: Interview guide

Background:

As part of an executive master's at NTNU and MIT, Erik Åsberg and I are writing a master's thesis on continuous innovation in growth SMEs that also have captured a commercial position. In the thesis, we do a qualitative study to understand how the company handles the battle between driving innovation (exploration) and at the same time improving/developing an existing product (exploitation). As you probably know, many studies have been done on this, but most of them are about innovation in larger companies to prevent disruption. On the other hand, our focus is growth SMEs that also have to handle this to ensure stable growth over time.

Theme

How does the company work with continuous improvement of existing products to create a stronger competitive position (short-term focus), at the same time as there is a need to strengthen the long-term position by scaling, as well as introducing new products and services?

Preliminary questions

Introduction and background

Can you tell us a little about the background of the company?

- What was the original goal and vision?
- How have you organized to achieve the goals, and how has this developed over time?
- How has the vision and goal developed from its origins to today, and where do you see the development going forward?

Innovation and growth

How would you describe the innovation and strategy process in the company? How important is it for the company to work with innovation?

- Who is involved in the process, and how do you work to communicate the strategy and direction of the organization?
- How do you identify the needs for innovation/development, and what is the process for determining the organization's direction?
- What are the biggest challenges for innovation?
- How would you say resources affect the choices that are made?
- How do you organize for innovation?
- How do you balance improvements and new opportunities?
- How important do you want to say innovation (new opportunities) is for the company? Can you elaborate?
- What is the most important thing needed for you to succeed in achieving the goals? (growth / innovation)
- Can you share how much (approximately) of the resources are spent on R&D? Preferably % of turnover or share of budget?