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Innovation in Corporates: A Study of Key Metrics for Measuring Success in Corporate Innovation Processes within the Financial Sector

For a Master's Degree in Innovation and Technology Management

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We have written this Master Thesis independently. Any ideas or data taken from other authors or other sources have been fully referenced.

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Abstract

This study explores the key metrics used to measure the success of individual innovation processes (ideation, incubation, experimentation, and commercialization) in the financial sector. Through interviews with representatives from six companies, including traditional banks, payment service providers, and fintech organizations, the research uncovers diverse practices and metrics employed in innovation process management. A proposed framework and checklist were developed, presenting the key activities and metrics for each innovation process, offering a foundation for a more standardized approach to measuring innovation success. The findings suggest that financial sector organizations can benefit from adopting a structured approach to innovation process management, using a combination of best practices and tailored metrics to assess their efforts. The study provides valuable insights into the innovation process management practices of financial sector organizations and offers a basis for future research on the relationship between the identified metrics and organizational performance in the financial sector.

1. Introduction

1.1. Background

In today's highly competitive landscape, innovation has emerged as a crucial factor for growth and competitiveness across a wide range of industries. The financial sector has been significantly disrupted by the advent of new technologies and business models, making innovation a strategic necessity. As organizations strive to stay competitive and adapt to rapidly evolving market conditions, understanding and effectively managing the innovation process has become increasingly important.

The innovation processes, comprising ideation, incubation, experimentation, and commercialization, are essential for organizational growth and success. Ideation is the first stage, where new ideas are generated and potential opportunities for innovation are identified. Incubation is the second stage, involving the nurturing and refining of ideas through the engagement of diverse stakeholders, fostering a psychologically safe environment, and employing agile methods. Experimentation, the third stage, revolves around testing and refining ideas, with customer and stakeholder engagement playing a critical role. Finally, commercialization, the last stage, requires the successful introduction of new products or services into the market, effective intellectual property management, target market identification, and well-planned go-to-market strategies.

To address the importance of innovation processes in the financial sector, SEB Bank initiated this study in collaboration with the University of Tartu. The goal of this partnership

is to gain deeper insights into the key metrics for measuring the success of individual innovation processes. SEB Bank, recognizing the challenges within their innovation hub, sought to explore this topic in order to optimize their innovation efforts. As a result, they dedicated a member of their staff to supervise the study, ensuring alignment with their objectives. SEB Bank also assisted in identifying potential companies and banks for interviews, further contributing to the study's empirical analysis.

This study tries to bridge the gap in the literature concerning specific metrics for evaluating the success of ideation, incubation, experimentation, and commercialization in corporate settings. Through empirical analysis, involving interviews with representatives from six companies in the financial sector, this research seeks to identify and document the key metrics for evaluating the success of each innovation process. The findings will offer valuable insights for organizations, including SEB Bank and other financial institutions, seeking to optimize their innovation strategies and improve their innovation management practices. By addressing the need for specific metrics in measuring the success of individual innovation processes, this study contributes to the existing body of literature on innovation management and provides practical implications for the financial sector.

1.2. Aim and Objectives

The primary aim of this study is to identify and document key metrics for measuring the success of individual innovation processes (ideation, incubation, experimentation, and commercialization) within the financial sector. This research will contribute to the academic literature on innovation management and offer practical implications for organizations in the financial sector seeking to optimize their innovation processes and improve overall performance.

To achieve this aim, the study will pursue the following objectives:

1. To review and synthesize existing literature on innovation processes and success measurement within the context of the financial sector, providing a comprehensive understanding of current innovation management practices and the associated challenges.

2. To conduct empirical analysis through interviews with representatives from six companies in the financial sector, including traditional banks, payment service providers, and fintech organizations, in order to gain insights into their innovation management practices and the metrics they use to measure the success of individual innovation processes.

3. To analyze the interview data and identify common themes, patterns, and trends in innovation process management and success measurement, highlighting key metrics used by the interviewed organizations in evaluating their innovation efforts.

4. To present and discuss the findings of the empirical analysis, comparing and contrasting them with existing literature on innovation management in the financial sector, and providing recommendations for organizations seeking to optimize their innovation processes and improve performance.

The research objectives outlined above are designed to comprehensively address the research aim of identifying and documenting key metrics for measuring the success of individual innovation processes within the financial sector. In the following section, the scope and limitations of the study are discussed to provide a clear context for the research.

1.3. Research Question

Given the importance of innovation processes in the financial sector and the lack of literature on specific metrics for measuring the success of each process, this study aims to answer the following research question:

What are the key metrics for measuring the success of individual innovation processes (ideation, incubation, experimentation, and commercialization) in the financial sector?

To address this research question, the study will utilize empirical data gathered from interviews with representatives from six companies in the financial sector, including traditional banks, payment service providers, and fintech organizations located in Estonia, Finland, the Netherlands, and Nigeria. These interviews will provide insights into how these companies approach innovation and manage their innovation processes, offering valuable context for identifying and documenting relevant success metrics.

The research question's significance lies in its potential to offer practical guidance for organizations in the financial sector, enabling them to effectively measure and optimize their innovation processes. By identifying key metrics for evaluating the success of each innovation process, organizations can better understand the areas requiring improvement and make informed decisions on resource allocation, strategy adjustments, and process enhancements (Cooper et al., 2016).

Furthermore, addressing this research question will contribute to the academic literature on innovation management, particularly in the context of the financial sector, which has been experiencing significant disruption and transformation due to technological advancements and changing market dynamics (Erol et al., 2018). By providing a deeper understanding of how success is measured at each stage of the innovation process, this study can inform future research efforts and enhance the existing knowledge base on innovation management in the financial sector. To further clarify the focus of this research and its expected outcomes, the study's aim and objectives are outlined in the following section.

1.4. Scope and Limitations

The scope of this study is limited to the financial sector, with a specific focus on six companies, including traditional banks, payment service providers, and fintech organizations. By concentrating on this sector, the research aims to provide valuable insights into innovation management practices and success measurement within a highly regulated and rapidly evolving industry.

The main limitation of this study is the relatively small sample size of six companies, which may not fully represent the entire spectrum of the financial sector. However, the selected organizations are diverse in terms of geographical location, size, and business models, which should enable the study to capture a broad range of perspectives on innovation management and success measurement in the financial sector.

Another limitation is the reliance on interviews as the primary source of empirical data, which may introduce subjectivity and potential bias in the research findings. Nonetheless, the use of semi-structured interviews allows for the exploration of participants' experiences and perceptions, while also providing flexibility for researchers to adapt and refine the interview questions based on the emerging themes (Ettlie & Rosenthal, 2020).

Despite these limitations, this study is expected to make a significant contribution to the existing literature on innovation management in the financial sector, specifically in relation to the success measurement of individual innovation processes. By identifying and documenting key metrics used by organizations in the financial sector to evaluate their innovation efforts, the research will offer practical guidance for other organizations in the industry seeking to optimize their innovation processes and improve performance (Chen & Huang, 2018).

1.5. Structure of the Thesis

This thesis is organized into the following chapters:

Chapter 1: Introduction - This chapter presents the background of the study, research questions, aim and objectives, scope and limitations, and the structure of the thesis.

Chapter 2: Literature Review - This chapter provides a comprehensive review of the existing literature on corporate innovation processes, their importance, and the need for effective success measurement. The chapter also identifies gaps in the literature and the need for empirical research to address these gaps.

Chapter 3: Methods and Data - This chapter outlines the research design, data collection methods, and data analysis techniques employed in the study. The chapter also

discusses ethical considerations and the steps taken to ensure the trustworthiness of the research findings.

Chapter 4: Results and Analysis - This chapter presents the empirical findings from the interviews conducted with representatives from the six companies in the financial sector. The chapter discusses the key metrics used by these organizations to measure the success of their innovation processes, as well as the challenges they face in implementing these metrics.

Chapter 5: Discussion, Implications for policy or business - This chapter interprets the findings from the interviews and compares them with the existing literature on innovation management and success measurement. The chapter also identifies the implications of the findings for both theory and practice.

Chapter 6: Conclusion - This chapter summarizes the key findings of the study, highlights its contributions to the literature, and discusses the limitations of the research. The chapter also offers recommendations for future research on the success measurement of individual innovation processes in the financial sector. By following this structure, the thesis aims to provide a clear and coherent presentation of the research, its context, and its contributions to the field of innovation management in the financial sector.

Key Words:

Innovation, Innovation processes, Innovation Management, Ideation, Incubation, Experimentation, commercialization, metrics, management

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2. Literature Review

2.1. Innovation in Corporates

Several authors have conducted extensive research as regards innovation, discussing innovation activities, processes and frameworks. The need to develop innovative processes within an organization continues to be on the rise due to globalization and market expansion (Mikryukov & Serebrennikova, 2020). As the market expands and competition increases, many businesses continue to evolve to keep up with the demands. A successful business must continuously seek innovative processes (Ritala et al., 2018). Kus and Grego-Planer (2021) defined innovation as “the process of improving and developing existing production and service technologies, introducing new organizational and management solutions, and improving and developing infrastructure for the process of data collection, interpretation and sharing.” More specifically, Frame and White (2014) defined financial innovation as a novel idea that reduces the cost and risk, or improves products, services or instruments that may

improve the satisfaction of the stakeholders in the financial system (which according to Burgees (2011) may include monetary financial institutions such as banks and building societies; other financial institutions such as non-bank credit grantors, consumer credit institutions, payment service institutions, among others; insurance companies or intermediaries and other activities relating to financial intermediation). It is a creation activity that could be in the form of product innovations, process innovations and risk-management innovations (Borrás & Edquist, 2013; Llewellyn, 2019; Breznitz, 2007). Evidence suggests that innovation is critical in the temporal and spatial flow and pooling of funds (increasing liquidity); financial risk management; decision-making through information management; managing moral hazards; promoting the trade of products through a payment system; and supporting enterprises through the generation of funds (Bank for International Settlements, 2020; Finnerty, 2020). However, it is worthy of note that financial innovations do not necessarily have to be developed by financial institutions. In fact, Khraisha and Arthur (2018) noted that some of the ground-breaking innovations in modern times such as PayPal, Blockchain, and Amazon's one-click payments were founded by non-financial firms.

Finance and financial innovation are important global concepts because they drive the economy through the control of production and consumption activities, as well as savings and investments (Frame & White, 2014; Krippner, 2018; Allen, 2012). Nevertheless, some financial experts believe that technological innovations are nothing but avenues for financial instability (Volcker, 2009; Henderson and Pearson, 2010; Thakor, 2012; Gennaioli, Schleifer and Vishny, 2012). This negative reaction to some of the developments in the financial sector is not unexpected. Over time, finance experts have come to learn that innovation is a 'trial-and-error' process (Lemar and Tufano, 2011). However, Blach (2011) posits that financial systems must look into building sustainable innovations that are capable of meeting the market demands at minimal costs and maximal efficiency. Thus, to ensure this, Frame and White (2012) proposed that structural and environmental conditions such as the market power, enterprise size, available technological opportunities, appropriability and market demand, must be optimum. Volkov et al. (2019) further stated that beyond the scope of boosting productivity, innovations within organisations should also focus on developing strategic plans for improving their corporate social responsibility.

Evidence suggests that technological advancement is the core of financial innovation (Frame and White, 2014; Laeven, Levine and Michalopoulos, 2015). The recent rapid development of technology has necessitated a revolution for financial institutions, to ensure their survival in the highly competitive market (Aydin and Dube, 2018; Al-Dmour, Al-

Dmour and Rababeh, 2021). Commercial banks have now realised the need to continuously develop innovative ways to distinct their products and sustain their longevity amidst the stiff competition. However, Becke et al. (2012) reported that the exponential growth and fast diffusion of financial innovations may predispose these firms to increased volatility and fragility. Therefore, to effectively keep up with the growing demands while minimising the risks, an ingenious system of knowledge management is required (Magneir-Watanabe and Benton, 2017). The dynamism within the financial system necessitates that firms build their survival on their quality, knowledge, experience, technology and enterprise (Al-Dmour et al., 2021).

The continuous development of innovative ideas in the financial sector remains a pertinent issue of discourse among experts (Dang et al., 2021). This sector presents an overview of the concepts of financial innovation, its features and development process (Lehmann & Neuberger, 2018). The evolution of financial innovations is also examined with a focus on its drivers (Gilbert & Katz, 2021), the products and services (Van Oordt & Van Wijnbergen, 2020), the effects on the system (Baker et al., 2022), and the evaluation process (Eichler & Shaw, 2019).

2.2. Corporate Governance and Innovation- The Evolution

Financial innovation has been shaped over time by the rationalization of ownership and transference of commerce, finance, and private properties, which have formed the foundation of modern finance (Baskin & Miranti, 1997). However, corporate governance has been identified as a key factor in stimulating success within the financial system (Khan, 2011). Corporate governance involves the interactions between internal and external governors for decision-making and managing relationships among stakeholders, fostering accountability and maintaining a balance between ownership and control within financial institutions (Gillan, 2006; Mehran & Mollineaux, 2012). The involvement of clients in the value-creation process has changed the process of innovation, making it more structured, standardized, and digital (Fasnacht, 2018).

Traditional financial institutions have historically focused on incremental innovation, while fintechs have been more disruptive, introducing new business models and technologies that have challenged established players (KPMG, 2017). However, as the financial services industry continues to evolve and adapt to new technologies, it has become increasingly important for traditional financial institutions to adopt more disruptive and innovative approaches to stay competitive (Deloitte, 2020). This has led to an increased focus on open innovation, collaboration, and the use of external partners to drive innovation (PwC, 2019).

The management of innovation processes has also evolved, with traditional financial institutions beginning to adopt a more agile approach to innovation (EY, 2018). This includes incorporating design thinking and experimentation in the innovation process (KPMG, 2017) as well as the use of incubators and accelerators to nurture and commercialize new ideas (PwC, 2019).

The evolution of financial innovation is linked to innovation process management, innovation processes, with the adoption of new approaches and the involvement of different stakeholders in the value-creation process driving innovation in the financial services industry.

2.3. Innovation Process Management

Innovation processes have been studied by various researchers, with different authors presenting varying viewpoints on how to manage and optimize the innovation process. According to Tidd and Bessant (2018), innovation is a complex and iterative process that requires an understanding of the nature of innovation and the ability to manage innovation projects effectively. One approach to innovation management is design thinking, which emphasizes the need to understand the needs of the customer and to create solutions that meet those needs (Liedtka, 2017).

Other authors have emphasized the importance of open innovation, which involves collaborating with external partners to bring new ideas into the organization and to share knowledge and resources (Chesbrough, 2019). This approach has been shown to be effective in many industries, including the financial services industry, where traditional financial institutions are partnering with fintechs to drive innovation (PwC, 2021).

Innovation processes have also been studied from the perspective of organizational culture. According to Schein (2010), organizational culture plays a crucial role in the success of innovation initiatives. Organizations with a strong culture of innovation are more likely to be successful in their innovation efforts than those without such a culture.

Another important aspect of innovation processes is the role of leadership. Leaders play a critical role in creating an environment that supports innovation and in motivating and empowering employees to innovate (Amabile & Khaire, 2008). This is particularly important in large organizations, where innovation can often be stifled by bureaucracy and hierarchical structures.

Finally, the use of technology has been shown to be a key factor in driving innovation processes. Digital technologies such as artificial intelligence, blockchain, and the Internet of Things (IoT) have the potential to transform the financial services industry and to drive

innovation (Deloitte, 2020). However, the successful adoption of these technologies requires a good understanding of the innovation process, culture of innovation, effective leadership, and a willingness to experiment and take risks(Deloitte, 2020).

2.4. Theories for understanding processes of innovation, its key principles and successful projects

The study of innovation processes in corporate settings is often facilitated through the application of a variety of theoretical frameworks (Boso et al., 2022). A variety of frameworks have been developed for this purpose, including design thinking (Brown, 2018), lean startup (Pirnay et al., 2019), social construction of technology (Bijker & Pinch, 2012), dynamic capability theory (Winter et al., 2019), absorptive capacity framework (Zhu et al., 2020), and open innovation framework (Chesbrough, 2019). These frameworks offer unique perspectives on the innovation process and can be useful in guiding successful innovation projects (Castellacci & Tveito, 2021).

Design thinking emphasizes a human-centered approach to innovation, with a focus on understanding the needs and preferences of end-users. Its key principles include empathy, ideation, prototyping, and testing (Brown, 2008). The design thinking framework can be utilized in various industries, including healthcare, education, and technology (Brown, 2008). However, the framework is particularly well-suited for industries that require innovation and creativity, such as the design and creative industries (Kim & Mauborgne, 2015). Successful projects using design thinking include the development of the first Apple computer and the creation of Airbnb (Brown, 2008).

Lean startup is a framework that emphasizes rapid experimentation and prototyping to create a minimum viable product that can be iteratively refined based on customer feedback. Its key principles include continuous learning, validated learning, and a focus on the customer (Ries, 2011). The framework consists of several processes, including defining the problem, developing a minimum viable product (MVP), testing the MVP, and using customer feedback to iterate and improve the product. The Lean Startup methodology is well-suited for the technology and software industries, where startups face high levels of uncertainty and risk (Blank & Dorf, 2012). However, the framework can also be applied to other industries that require innovation and rapid experimentation, such as healthcare and education. Successful projects using lean startup include Dropbox and Instagram (Ries, 2011).

The social construction of technology (SCOT) theory emphasizes the social and cultural context of technological innovation, suggesting that the development of technologies

is influenced by a range of stakeholders, including users, producers, and regulators. Its key components include interpretive flexibility, relevant social groups, and closure (Bijker & Law, 1992). The SCOT framework can be applied to various industries, including healthcare, education, and technology. It is particularly useful for understanding how technology is shaped by social and cultural factors and how it can be designed and used in ways that are more inclusive and equitable(Bijker & Law, 1987). Successful projects using SCOT theory include the development of the VCR and the creation of the personal computer (Bijker & Law, 1992).

Dynamic capability theory emphasizes the importance of an organization's ability to adapt and change over time to remain competitive. Its key principles include sensing, seizing, and transforming (Teece, Pisano, & Shuen, 1997). The dynamic capability theory framework can be utilized in various industries, including technology, healthcare, and finance (Teece et al., 1997). However, it is particularly well-suited for industries that are rapidly evolving and experiencing technological disruption, such as the technology and software industries. Successful projects using dynamic capability theory include the transformation of IBM from a hardware company to a software and services company (Teece, Pisano, & Shuen, 1997).

Absorptive capacity framework emphasizes the ability of an organization to identify, assimilate, and apply external knowledge for innovation. Its key principles include acquisition, assimilation, transformation, and exploitation (Cohen & Levinthal, 1990). The absorptive capacity framework can be utilized in various industries, including healthcare, education, and technology. However, it is particularly well-suited for industries that require high levels of innovation and collaboration, such as the technology and pharmaceutical industries (Cohen & Levinthal, 1990). Successful projects using absorptive capacity framework include the development of the iPod by Apple (Cohen & Levinthal, 1990).

Open innovation framework emphasizes the importance of collaboration with external partners in the innovation process. Its key components include outside-in processes, inside-out processes, and coupled processes (Chesbrough, 2003). Successful projects using an open innovation framework include the development of the electric car by Tesla (Chesbrough, 2003).

In addition to these frameworks, other theoretical approaches for understanding innovation processes include the resource-based view, the technology acceptance model, and the diffusion of innovations theory (Chen & Chang, 2021). The key principles and components of each of these innovation frameworks are critical for organizations to understand to develop effective innovation strategies (Vishnevskiy et al., 2019). As illustrated

by the examples of successful projects (Gallouj & Savona, 2010), each framework is unique in its approach to innovation and has a range of benefits. These frameworks can be used to guide innovation projects in various industries and contexts, whether it's technological, organizational, or social innovation (Kim & Song, 2019). Therefore, a deep understanding of the processes involved in innovation and their efficiencies can help organizations in managing their innovations (Schilling, 2019).

2.5. The Innovation Processes

The innovation process is a critical component of organizational growth and success. Many authors and experts in the field of innovation agree that a structured approach to innovation is necessary for developing successful new products and services(Dyer et al., 2019). As described in the framework above, let's quickly have a look at a table discussing the different approaches/framework with direct reference to the processes chosen for the research.

Table 1

Innovation framework/Approaches

Approach/framework	**Description**	**Innovation Processes**
Design thinking	A human-centered problem-solving approach that emphasizes empathy, creativity, and experimentation to generate innovative solutions.	Ideation, prototyping, testing, and implementation. (Brown, 2008)
Lean startup	A methodology for developing businesses and products based on the concept of creating minimum viable products (MVPs) and rapidly testing them with customers to iterate and refine the product.	Idea generation, product development, MVP testing, customer feedback, and iteration. (Ries, 2011)
The social construction of technology (SCOT) theory	A theory that explores how social and cultural factors influence the development and adoption of technology, and how technology in turn shapes society.	Technological frame articulation, alignment of interests, mobilization of support, and stabilization of the technology. (Pinch & Bijker, 1987)
Dynamic capability theory	A theory that focuses on how organizations can develop and leverage their internal resources and capabilities to adapt and innovate in response to changing environments.	Sensing, seizing, and transforming resources and capabilities. (Teece et al., 1997)
Absorptive	A framework that describes an	Acquisition, assimilation,

capacity framework	organization's ability to acquire, assimilate, and apply external knowledge for innovation.	transformation, and exploitation of external knowledge. (Cohen & Levinthal, 1990)
Open innovation framework	A framework that emphasizes the use of external knowledge and collaboration with partners to drive innovation within an organization.	Ideation, Incubation, Experimentation and Commercialization. (Chesbrough, 2003)

Table 1 highlights different framework/approaches to innovation processes, including Design Thinking, Lean Startup, Social Construction of Technology (SCOT) Theory, Dynamic Capability Theory, Absorptive Capacity Framework, and Open Innovation Framework (OIF) (Sosna, et al., 2010; Chesbrough, 2003; Kimbell, 2011; Teece, 2007; Cohen & Levinthal, 1990; Chesbrough, 2006). Each approach has its unique description and is associated with different innovation processes. For instance, Design Thinking involves empathy, problem definition, ideation, prototyping, and testing (Kimbell, 2011). Lean Startup focuses on iterative development, experimentation, and customer feedback (Ries, 2011). SCOT Theory emphasizes the importance of social interactions and negotiations between different actors in shaping technology development (Pinch & Bijker, 1984). Dynamic Capability Theory argues that innovation is driven by firms' capabilities to sense, seize, and reconfigure resources and competencies (Teece, 2007). Absorptive Capacity Framework emphasizes the importance of firms' ability to identify, assimilate, and apply external knowledge for innovation (Cohen & Levinthal, 1990).

Open Innovation Framework, on the other hand, argues that firms should not only rely on internal R&D but also tap into external knowledge and ideas to drive innovation (Chesbrough, 2003). OIF has four stages: (1) Ideation (2) Incubation (3) Experimentation (4) Commercialization (Chesbrough, 2006). Open innovation is particularly suited for our research because it aligns with the nature of innovation processes in the financial service industry, which is characterized by a high level of complexity and uncertainty (Teece, 2010). Open innovation can help firms in this industry to access external knowledge, collaborate with external partners, and leverage the network of actors to drive innovation (Serrano & Kunc, 2018).

Additionally, The Open innovation framework is particularly well-suited for the financial industry, which has traditionally been resistant to change and slow to adopt new technologies (Lee, 2009). The framework can help financial institutions to identify new

opportunities, collaborate with fintech startups, and develop new products and services that meet the evolving needs of their customers(Lee, 2009).

The framework involves several key processes, including ideation, incubation, experimentation and commercialization, (Dyer et al., 2019; Brown, 2008; Kelley & Kelley, 2013; Chesbrough, 2003; Desouza et al., 2006).

2.5.1. Ideation

According to Dahlander and Gann (2010), ideation is the first and essential process in the corporate innovation process that involves the generation of innovative and creative ideas that can drive growth and competitive advantage in organizations. Several recent authors have highlighted the importance of ideation in corporate innovation.

Chesbrough (2010), emphasized the importance of open innovation, which involves the use of external sources for ideation, including suppliers, customers, and partners. Open innovation is a valuable approach to ideation because it increases the diversity of perspectives and experiences in the innovation process.

Similarly, Plattner et al. (2015) highlighted the importance of design thinking, which involves a human-centered approach to innovation that emphasizes empathy, collaboration, and experimentation. The use of design thinking in ideation ensures that the needs and preferences of users are considered in the innovation process.

The ideation process, as defined by Desouza, Dombrowski, Awazu, and Baloh (2006), is the process of generating and evaluating new ideas for potential products, services, or business models. The authors argue that effective management of the ideation process is crucial for organizations to achieve sustainable innovation. They propose that organizations should have a systematic approach to capturing, evaluating and implementing new ideas that align with the organization's strategic goals.

Amabile and Kramer (2011) state that the ideation process is a vital part of the innovation process. They argue that an organization's ability to generate new ideas is a key driver of their overall innovation performance. The authors suggest that companies should foster a culture that encourages idea generation, provide resources and support for the development of ideas, and establish processes for evaluating and implementing new ideas.

In addition, Van de Ven and Polley (2002) emphasize the importance of collaboration and communication in the ideation process. They argue that idea generation is often a collective effort and that a culture of open communication is essential for effective idea generation and evaluation. The authors propose that organizations should establish

mechanisms for the cross-functional exchange of ideas and provide opportunities for employees from different departments to collaborate and share ideas.

Other authors have focused on specific techniques and tools that can be used in the ideation process. For example, Prodanova et al. (2019) identified the use of brainstorming and mind mapping as effective techniques for generating new ideas in the ideation process. They noted that these techniques are particularly valuable for encouraging creativity and facilitating the exploration of new ideas.

Moreover, several studies have explored the role of technology in the ideation process. For example, Zhang et al. (2018) developed an ideation platform that uses machine learning to generate new ideas based on existing data. The platform is a valuable tool for supporting ideation, particularly in organizations with large amounts of data.

The ideation process is an important aspect of innovation, and effective management of the process is essential for organizations to achieve sustainable innovation. According to Desouza, Dombrowski, Awazu, and Baloh (2006), Amabile, and Kramer (2011), and Van de Ven and Polley (2002), organizations should have a systematic approach to capturing, evaluating and implementing new ideas that align with the organization's strategic goals. They also should foster a culture that encourages idea generation, provide resources and support for the development of ideas, establish processes for evaluating and implementing new ideas, and establish mechanisms for the cross-functional exchange of ideas. The ideation process is closely linked to the incubation process, where ideas are evaluated and refined for further development, highlighting the importance of a structured and effective ideation process.

2.5.2. Incubation

The incubation process, according to Desouza, Dombrowski, Awazu, and Baloh (2006), is the next step in the innovation process after the ideation process. It involves developing and testing the feasibility of new ideas generated during the ideation process. During the incubation process, organizations can experiment with new ideas and assess their potential value.

The incubation process in corporate innovation involves refining and evaluating ideas generated during the ideation process to identify those with the most potential for success. The incubation process is a critical component of the innovation process, helping organizations prioritize ideas and allocate resources effectively (Hossain & Kauranen, 2018).

According to Deloitte (2018), the incubation process is an important step in the innovation process as it allows organizations to identify and validate new opportunities and to

test the feasibility of new ideas before committing significant resources. Furthermore, Accenture (2018) stated that the incubation process allows organizations to quickly evaluate the potential of new ideas, and to kill off those that are unlikely to be successful, saving resources in the long-term.

Several authors have emphasized the importance of the incubation process in corporate innovation. For example, Söderholm et al. (2018) argued that the incubation process should involve diverse stakeholders, including customers, suppliers, and partners, to ensure that ideas are aligned with customer needs.

In addition, Amabile and Kramer (2018) highlighted the importance of creating a psychologically safe environment during the incubation process, where individuals feel free to express their ideas without fear of negative consequences. This can promote creativity and innovation during the incubation process.

Furthermore, the use of agile methods during the incubation process can help organizations adapt quickly to changing circumstances and identify potential issues early in the development process (Kock et al., 2019). The next stage of the innovation process is experimentation, where ideas are tested and refined through prototyping and other validation methods.

2.5.3. Experimentation

Experimentation is a crucial process in innovation as it allows firms to test and refine ideas through prototyping and other validation methods. According to Schreier et al. (2018), experimentation is essential to identify potential problems early in the development process and to improve the quality of the innovation.

Several authors have emphasized the importance of experimentation in corporate innovation. For instance, O'Cinneide (2019) noted that experimentation helps firms to fail faster and at a lower cost, enabling them to learn from their mistakes and adjust their strategy accordingly.

Moreover, the use of agile methods during experimentation has been shown to be effective in promoting innovation in organizations (Mentzas et al., 2020). Agile methods involve working in short sprints and continuous testing, which allows organizations to rapidly iterate and improve their products or services.

The involvement of customers and other stakeholders during the experimentation process has also been highlighted as a critical success factor in corporate innovation (Prahalad & Ramaswamy, 2018). Engaging with customers can provide valuable insights into their needs and preferences and help firms to develop products that meet those needs.

Additionally, the use of data analytics and other advanced technologies during the experimentation process can provide firms with valuable insights into customer behavior and preferences (Chen et al., 2017). The next stage of the innovation process is commercialization, where the innovation is brought to market and scaled up for mass adoption.

2.5.4. Commercialization

Commercialization is the final stage in the innovation process, where the innovation is brought to market and scaled up for mass adoption. According to Kumar and Krishnaswamy (2019), commercialization is essential for realizing the full potential of an innovation and achieving a return on investment.

Several authors have emphasized the importance of commercialization in corporate innovation. For instance, Kock et al. (2020) noted that commercialization involves identifying the right target market, positioning the innovation appropriately, and developing an effective go-to-market strategy.

Furthermore, effective intellectual property management during the commercialization process is critical to protecting the innovation and ensuring its success in the market (Srinivasan & Narayanan, 2018). Developing a strong brand identity and effective marketing campaigns can also help to drive adoption and success in the market (Ponnam et al., 2018).

Additionally, the use of open innovation and collaboration during the commercialization process has been shown to be effective in promoting innovation in organizations (Ståhlbröst & Bergvall-Kåreborn, 2021). Open innovation involves partnering with external organizations to co-create and co-develop innovations. With a comprehensive understanding of the diverse processes that take place in corporate innovation, it is necessary to examine the metrics for measuring the success of each process.

Overall, studying innovation processes in corporates is important as it provides insights into how firms can improve their innovation capabilities, create value, and achieve their strategic objectives (García-Morales, Llorens-Montes, & Verdú-Jover, 2008). By understanding the different processes of innovation, firms can develop effective innovation management strategies that enhance their ability to innovate, minimize risks, and maximize returns on investment (Liu, Gao, Zhou, & Yang, 2021).

The choice of different processes to study, including ideation, incubation, experimentation, and commercialization, is based on their crucial role in the innovation process (Chesbrough, Vanhaverbeke, & West, 2006). Ideation is important as it involves the

generation and screening of ideas, while incubation helps to develop and refine these ideas (Muniz & Alves, 2019). Experimentation is essential for testing and validating the feasibility of the developed ideas, while commercialization involves the successful launch of the developed innovation into the market (Doganova & Eyquem-Renault, 2009). Therefore, studying these different processes provides a comprehensive understanding of the innovation process management and its impact on corporate innovation.

Moreover, the study focuses on innovation in financial institutions and new product management due to their relevance in driving growth and competitiveness in the financial industry (Teece, 2018). Measuring innovation success, innovation portfolio size, innovation process management, stages, and performance are also crucial to determine the effectiveness and efficiency of innovation in corporate organizations (Drejer, 2004).

2.6. Success Measurement of the processes of Innovation

According to a study by Cooper et al. (2016), measuring the success of the innovation process is important to determine its effectiveness in generating new products and services, improving market competitiveness, and driving revenue growth. Measuring customer satisfaction is particularly important as it is an indication of customer acceptance and the potential success of the product in the market (Söderlund & Rosengren, 2014). Similarly, market share and revenue are important metrics to determine the financial viability of the product in the market (Chen & Huang, 2018). Also time to market is an important metric to determine the speed of innovation, which is critical in today's fast-paced business environment (Cooper et al., 2016).

Table 2

Metrics to measure success of Innovation processes (Ardito et al (2018), Cooper et al. (2016), Söderlund & Rosengren, (2014), Chen & Huang, (2018))

Innovation Process/ Metrics	**Ideation**	**Incubation**	**Experimentation**	**Commercialization**
Idea Quality	x			
Time To market		x		x
Market Share				x
Customer Satisfaction	x	x	x	x

Revenue			x	x

Measuring the success of the different processes in corporate innovation is crucial for evaluating the effectiveness of the innovation strategy and identifying areas for improvement. According to Ettlie and Rosenthal (2020), success in innovation can be measured using various metrics, including financial performance, customer satisfaction, and employee engagement. Similarly, Brem et al. (2021) suggested that measuring the success of innovation processes can help to identify areas of weakness and opportunities for improvement.

Moreover, the use of key performance indicators (KPIs) has been identified as an effective way to measure the success of innovation processes (Kim & Lee, 2018). KPIs can be used to track progress towards innovation goals, such as the number of new products developed or the revenue generated from innovation.

Additionally, the use of innovation dashboards has been shown to be effective in measuring the success of innovation processes (Miron et al., 2021). Innovation dashboards can provide real-time data on the performance of innovation initiatives and help to identify areas of improvement.

Furthermore, the use of qualitative measures, such as surveys and focus groups, can provide valuable insights into the success of innovation processes (Fernandes et al., 2019). Qualitative measures can help to identify areas for improvement in the innovation process, such as communication and collaboration between teams.

Although several authors have discussed the success of innovation processes in general, there is a dearth of literature on the specific metrics to measure the success of individual processes. However, the use of KPIs, innovation dashboards, and qualitative measures can provide valuable insights into the success of each process. By measuring the success of each stage, organizations can identify areas for improvement and optimize the innovation process. It is therefore imperative to delve deeper into the specific metrics for measuring the success of each process in corporate innovation.

2.7. Gaps in the Literature

Innovation processes are essential for organizational growth and success, involving ideation, incubation, experimentation, and commercialization. Effective management of each process is vital for achieving sustainable innovation. However, literature on specific metrics for measuring the success of individual processes is scarce. To address this gap, we propose to conduct empirical analysis through interviews in the financial sector to measure and

document our findings on each of these processes. This research aims to provide insights into each process's success and help organizations optimize their innovation strategies.

This literature review has highlighted the critical components of innovation processes in corporate settings, including ideation, incubation, experimentation, and commercialization. Effective management of the ideation process is crucial for sustainable innovation, while the incubation process requires diverse stakeholders, a psychologically safe environment, and agile methods to promote creativity and innovation. The experimentation process is essential for testing and refining ideas, and the involvement of customers and other stakeholders is critical for corporate innovation success. Finally, commercialization requires intellectual property management, appropriate target market identification, and an effective go-to-market strategy.

However, the literature lacks specific metrics for measuring the success of each innovation process. As such, our research proposes to conduct empirical analysis through interviews in the financial sector to identify and document these metrics. This will provide valuable insights into each process's success, enable organizations to identify areas for improvement, and optimize their innovation process.

2.8. Theoretical Framework

The theoretical framework of this study is based on the concept of open innovation and the four-stage model of innovation processes. The framework is intended to provide a structure for understanding and analyzing the key elements involved in managing and measuring the success of innovation processes within the financial sector. The following components form the core of the theoretical framework:

1. **Open Innovation**: The term "open innovation" was introduced by Chesbrough (2003) to describe a new paradigm of innovation management, wherein companies actively collaborate with external stakeholders, such as customers, suppliers, and even competitors, to foster and accelerate innovation. This approach contrasts with the traditional, closed innovation model, which relies solely on internal R&D efforts and resources (Chesbrough, 2003). Open innovation encourages organizations to leverage external knowledge, technologies, and intellectual property to enhance their innovation capabilities, reduce development costs, and shorten time-to-market (Chesbrough, 2006; Enkel et al., 2009). The growing adoption of open innovation in various industries has led to an increasing interest in understanding its drivers, practices, and outcomes (Bogers et al., 2018).

2. **Four-Stage Model of Innovation Processes**: The four-stage model of innovation processes (Ardito et al., 2018) provides a comprehensive framework for understanding how

organizations manage and evaluate their innovation efforts. This model consists of four distinct stages: ideation, incubation, experimentation, and commercialization. Each stage is crucial for driving organizational growth and success in a rapidly evolving business landscape, particularly when incorporating the principles of open innovation.

The theoretical framework, which integrates open innovation and the four-stage model of innovation processes, guides the empirical analysis in this study. By investigating the key metrics for measuring the success of individual innovation processes within the financial sector, this study aims to contribute to the existing body of literature on innovation management and provide practical implications for organizations seeking to optimize their innovation strategies.

3. Methods and Data

3.1. Research Design

The research design for this study was qualitative in nature, which allowed for an in-depth exploration of the innovation processes and success metrics within the financial companies. A qualitative approach was deemed appropriate for this study, as it enabled the researchers to gain a deeper understanding of the complexity and context-specific nature of the innovation processes in the financial sector (Patton, 2015). Furthermore, qualitative research is known for its ability to capture rich, detailed data that helps in understanding human behavior, motivations, and experiences (Creswell & Poth, 2018).

We have also chosen the qualitative approach in this study because of its capacity to explore the intricacies of the innovation processes and the metrics used by organizations from the perspectives of the practitioners themselves. This approach aligns well with the research question and objectives, as it seeks to understand and document the innovation management practices and success metrics from the viewpoint of the companies involved in the study.

According to Silverman(2016), Qualitative research allows researchers to consider the impact of the specific organizational and industry contexts on the practices and metrics employed by the companies. We had employed the methodology because of the need to identify and understand the contextual factors that influence the innovation processes in the financial sector. This is particularly important in the financial sector, where the regulatory environment, competition, and rapid technological advancements play a significant role in shaping innovation processes (Erol et al., 2018).

Finally, the qualitative approach was chosen because it allows for the discovery of emerging themes and patterns that may not be immediately apparent through quantitative

methods. The semi-structured interviews provided a flexible and open-ended platform for participants to share their insights and experiences regarding the innovation processes in their organizations (Turner, 2010). This enabled the researchers to capture detailed and nuanced information about the key metrics for measuring the success of individual innovation processes, ultimately contributing to a more comprehensive understanding of the subject matter.

Overall, the qualitative research design, with its emphasis on semi-structured interviews, facilitated a comprehensive and in-depth exploration of the innovation processes and success metrics within the financial companies.

3.2. Data Collection

The primary data collection method for this study was semi-structured interviews, which allowed for flexibility in exploring the innovation processes of the selected financial service companies labeled Company A to F for confidentiality.. Interviews were conducted with key informants, such as managers and executives responsible for innovation initiatives within the organizations. These participants were selected using purposive sampling, which ensured that individuals with relevant knowledge and experience in the innovation processes were included in the study.

Interview questions were designed to cover the four innovation process stages: ideation, incubation, experimentation, and commercialization. Additionally, questions focused on the success measurement of each process, aiming to identify the specific metrics used by the companies. The interviews were via video conferencing tools(teams and google meet) and were audio-recorded with their permission. Notes were taken during the interviews to capture additional observations and reflections.

Secondary data sources, such as review of related literature, company documents and annual reports, were also analyzed to gain a deeper understanding of the organizations' innovation processes and their performance. This information was used to triangulate the findings from the interviews and provide a more comprehensive picture of the innovation processes in the financial service sector.

In summary, the data collection methods employed in this study aimed to provide rich and detailed insights into the innovation processes of the selected financial companies, as well as their success measurement. By combining primary and secondary data sources, the study ensures a rigorous and in-depth exploration of the research topic.

3.3. Data Analysis

Data analysis in this qualitative study was guided by the principles of thematic analysis, a widely used method for identifying, analyzing, and reporting patterns within qualitative data (Braun & Clarke, 2006). Thematic analysis offers flexibility and adaptability, allowing researchers to analyze the data in a systematic manner while capturing the nuances of the participants' experiences and perspectives (Nowell et al., 2017).

The data analysis process began with the transcription of the interviews, followed by a thorough and iterative reading of the transcripts to familiarize the researchers with the data. During this stage, initial ideas and observations were noted, which helped in the development of a preliminary coding scheme. The coding process involved assigning descriptive labels to segments of the data that were relevant to the research questions. The codes were then grouped into broader themes based on their similarities and relationships, which were reviewed and refined to ensure that they accurately represented the data.

To enhance the trustworthiness and credibility of the data analysis, the researchers engaged in several strategies, including the use of peer debriefing and member checking. Peer debriefing involved discussing the coding and thematic development process with fellow researchers, while member checking entailed seeking feedback from the participants to ensure that their perspectives were accurately represented (Creswell & Poth, 2018). These strategies helped to minimize potential researcher biases and strengthen the validity of the findings.

In summary, the data analysis process employed thematic analysis to systematically identify, analyze, and report the key themes and patterns within the qualitative data collected from the interviews. This approach facilitated a comprehensive understanding of the innovation processes and success metrics in the financial companies studied.

3.4. Ethical Considerations

Ethical considerations are of paramount importance in conducting research, especially when human participants are involved (Bryman, 2016). This study followed the ethical guidelines outlined by the American Psychological Association (APA, 2017) to ensure the protection of participants' rights, confidentiality, and well-being. First, informed consent was obtained from all participants before conducting the interviews. This involved providing them with detailed information about the purpose and objectives of the study, the nature of their participation, and the potential risks and benefits associated with their involvement. Participants were also informed of their right to withdraw from the study at any time without any negative consequences.

Second, confidentiality and anonymity were maintained throughout the study by assigning pseudonyms to participants and companies, and ensuring that any identifiable information was removed from the transcripts and the final report. Additionally, all data collected, including audio recordings and transcripts, were stored securely and access was limited to the research team.

Third, the research team was mindful of the potential power dynamics between the interviewer and the participants, and strived to create a comfortable and non-threatening environment during the interviews. Open-ended questions were used to encourage participants to share their experiences and perspectives, and the interviewer maintained a non-judgmental attitude throughout the discussions.

Lastly, the researchers were aware of their potential biases and preconceptions and took steps to minimize their influence on the data collection and analysis process. This included engaging in reflexivity, which involves critically reflecting on one's own beliefs, values, and assumptions and how they might affect the research process (Berger, 2015).

This study was designed and conducted with a strong emphasis on ethical considerations, including informed consent, confidentiality, anonymity, and reflexivity. These measures helped to ensure the protection of participants' rights and well-being, as well as the credibility and trustworthiness of the research findings.

4. Results and Analysis

The findings from the transcripts reveal several common themes and patterns across the six companies regarding the innovation processes of ideation, incubation, experimentation, and commercialization. The findings also reveal that innovation processes within the financial services industry are often unstructured and not standardized across organizations. The ideation phase is characterized by flexibility and informality, allowing for creativity and the exploration of various potential solutions. Collaboration and communication across different departments are crucial for the success of innovation projects, as well as ensuring that all relevant stakeholders, especially customer-facing teams, are informed and engaged in the innovation process. Evaluation and measurement of innovation success are often challenging due to the lack of standardized metrics and processes. A detailed analysis of the findings reveals critical insights into the innovation processes in the six companies, emphasizing the nuances and variations between them.

Company A: This is a leading integrated digital payments and commerce company in Nigeria. It operates by focusing on the digitization of cash-based transactions and the integration of different payment services into one platform. Its operations span across various

sectors such as banking, retail, and transportation, making it an influential player in the African fintech industry. Company A's representative elucidated, "*Innovation for us isn't just about coming up with new ideas, it's about making those ideas work. We leverage customer feedback, market trends, and technology to drive our innovation process.*" This highlights their customer-centric and market-informed approach to innovation.

Company B: Based in Finland, Company B is a significant entity in the banking and financial sector. It provides a range of services including banking, asset management, insurance, and other related services. Its operations are designed to provide a seamless and robust financial experience for its customers, and it holds a strong position in the Finnish banking industry. Company B, on the other hand, emphasized collective effort, with their spokesperson stating, "*Our organization believes that innovation is the key to staying competitive. We involve our entire team in the process, from brainstorming to implementation, ensuring a collective effort towards problem-solving and growth.*"

Company C: Company C, situated in Estonia, is a notable IT solutions company. It provides comprehensive digital transformation services to businesses, ranging from consultation to implementation. It has established a strong foothold in the Baltic IT market, demonstrating a commitment to innovation and customer-centric solutions. Company C's innovation strategy pivots on seeing challenges as opportunities, as their representative shared, "*We see innovation as an integral part of our business model. We embrace challenges as opportunities for innovation and work collaboratively to generate solutions that cater to our clients' needs.*"

Company D: This is an emerging fintech company based in the Netherlands. Company D specializes in digital payments and financial solutions, making transactions more convenient and secure for its users. Although it's a relatively new player in the market, it shows promising growth and potential for innovation. In contrast, Company D underscores a relentless push for better digital solutions, as their interviewee affirmed, "*Innovation is embedded in our DNA. We constantly strive to push the boundaries of what's possible in digital payments, always aiming to make transactions more secure, efficient, and user-friendly for our customers.*"

Company E: As one of Estonia's leading banking institutions is part of a larger banking group in the Nordic and Baltic region with its corporate headquarter in Sweden, Company E provides a variety of financial services, including personal and business banking, wealth management, and insurance. With a strong commitment to customer satisfaction and digital innovation, it continues to maintain a significant market share in the Estonian banking

industry. Company E adopts a holistic view of innovation, beyond just technology. Their representative conveyed, "*For us, innovation is about more than just technology. It's about reimagining how we can better serve our customers, whether that's through new products, services, or improving our existing offerings.*"

Company F: Company F is a major bank in Estonia and is part of a larger banking group in the Nordic and Baltic region. It provides a wide range of banking and financial services, including retail and corporate banking. Its operations are driven by a commitment to reliable, customer-friendly services and a willingness to innovate, making it a strong player in its market. Company F's representative expounded on their comprehensive approach to innovation, "*Our approach to innovation is multifaceted. We consider data, customer feedback, market trends, and even societal changes. We aim to create solutions that not only solve immediate problems but also position us for future growth.*"

In the ideation phase, the organizations displayed varying degrees of structure and formality. Some companies used structured brainstorming sessions, innovation workshops, or innovation contests to encourage idea generation. In contrast, others adopted a more organic approach, encouraging employees to share ideas and feedback through informal channels, such as team meetings or internal communication platforms. The diversity in ideation approaches highlights the need for organizations to adopt a tailored approach that aligns with their unique culture and industry context.

During the incubation process, the companies displayed different levels of resource allocation and support for innovation projects. Some organizations had dedicated innovation teams or labs, providing a focused environment for nurturing ideas. In contrast, others relied on cross-functional teams or external partnerships to foster collaboration and facilitate the development of innovative solutions. This variety in incubation approaches underscores the importance of identifying the most suitable method for each organization to promote innovation effectively.

Experimentation played a crucial role in the innovation process, with organizations using various methods to test and refine their concepts. Pilot projects, prototypes, and simulations were commonly used to gather data and evaluate the feasibility of proposed solutions . The findings also revealed that companies adopted a learning-oriented mindset, embracing failure as an opportunity to learn and iterate their ideas, which is a critical aspect of successful innovation.

In the commercialization phase, the transcripts revealed the importance of seamless collaboration between various departments, such as IT, marketing, and customer service, to

ensure a successful launch. Companies also placed a strong emphasis on internal communication and employee training, recognizing the need to equip customer-facing staff with the knowledge and skills to effectively support the new products or services. Additionally, performance monitoring was an essential aspect of the commercialization process, with companies using performance indicators, customer feedback, and market data to evaluate the success of their innovations and inform future improvements.

Overall, the in-depth analysis of the findings highlights the complexities and variations in the innovation processes across the six companies. These insights emphasize the need for organizations to adopt tailored approaches to ideation, incubation, experimentation, and commercialization that align with their specific industry context and organizational culture. Table 3 below summarizes our findings.

Table 3

Summary of the Innovation Processes approach, key activities and Metrics across Six Companies.

Company	**Ideation**	**Incubation**	**Experimentation**	**Commercialization**
A	Structured brainstorming sessions, Employee workshops, customer insights/Tickets	Dedicated innovation team, Internal funding	Pilot projects, In-house testing, feedback loop	Collaboration between departments, performance monitoring, Strategic partnerships, product launch
Key activities	Brainstorming, user feedback collection	Project planning, resource allocation	Developing prototypes, user testing	Market research, pricing strategies
Metrics	Number of ideas, user engagement	Project milestones, resource utilization	Prototype performance, user satisfaction	Market share, revenue growth
B	Innovation workshops, Idea generation contests, market trends	Cross-functional teams, Start-up collaborations, specialized resources	Prototypes, User testing, iterative development	Internal communication; employee training, Gradual market release, performance tracking
Key activities	Idea submission, trend analysis	Joint ventures, resource sharing	Rapid prototyping, user feedback	Market penetration, sales performance

			collection	
Metrics	Idea quality, trend relevance	Collaboration success, resource efficiency	User satisfaction, iteration speed	Customer retention, revenue per user
C	Innovation contests, Cross-functional brainstorming sessions	Innovation lab, Support from external experts, time allocation	Simulations, Prototype development, customer validation	Seamless collaboration between departments; customer feedback, Licensing deals, international expansion
Key activities	Collaborative idea generation, market research	Expert input, team formation	Customer trials, feedback integration	Licensing negotiations, global marketing
Metrics	Idea diversity, market alignment	Expert satisfaction, team productivity	Validation success, customer feedback	Licensing revenue, international market share
D	Informal idea sharing in team meetings, Open innovation, customer feedback	External partnerships, Technology scouting, partnerships with start-ups	Embracing failure as a learning opportunity, Pilot projects, data-driven decision making	Equipping customer-facing staff with knowledge and skills, Marketing campaigns, sales channel optimization
Key activities	Crowdsourcing, user feedback analysis	Technology evaluation, partnership formation.	Real-world testing, data analysis	Marketing strategy, channel management
Metrics	External idea quality, feedback quantity	Technology potential, partnership success	Pilot project outcomes, data-driven improvements	Market reach, channel performance
E	Employee feedback through internal communication, Internal idea platform, innovation labs	Collaboration with external organizations, Project-based teams, budget allocation	Use of data and iterative improvements, Fast iteration, market simulation	Performance indicators and market data, Direct sales, retail partnerships
Key activities	Idea submission platform, lab experiments	Task delegation, budget management	Iterative development, market analysis	Sales strategy, retail partner acquisition
Metrics	Platform engagement, lab	Team efficiency, budget utilization	Iteration speed, market alignment	Direct sales growth, retail partner

	outcomes			performance
F	Combination of structured and informal methods, Collaborative idea generation, R&D	Balanced approach between dedicated teams and labs, Incubator program, mentorship	Combination of pilot projects, prototypes, and simulations, In-market testing, customer feedback integration	Comprehensive approach to commercialization, incorporating all aspects, E-commerce channels, strategic alliances
Key activities	Joint brainstorming, R&D projects	Mentoring, incubator resources	Product trials, customer reviews	Online marketing, alliance formation
Metrics	Idea synergy, R&D progress	Incubator success rate, mentor feedback	Trial performance, review scores	E-commerce sales, alliance effectiveness

Table 3 provides a summary of the innovation processes observed in the six companies, covering the ideation, incubation, experimentation, and commercialization phases. The table highlights the variations between the companies and the different approaches each company adopts in each stage of the innovation process.

5. Discussion, Implications for policy or business

The results of the interviews reveal that the six companies within the financial sector utilize a variety of key metrics to measure the success of their individual innovation processes even though they are not documented, and in some sense, they (the companies) “flow with the tide”. This revelation supports the notion that organizations should employ a diverse set of metrics to evaluate the effectiveness of their innovation processes (Adams, Bessant, & Phelps, 2006).

During the ideation phase, companies measure success using metrics such as the number of ideas generated, user engagement, idea quality, and alignment with market trends. This is consistent with the literature, which suggests that ideation success can be evaluated by assessing the quantity, quality, and relevance of ideas generated (Cooper, Edgett, & Kleinschmidt, 2004).

In the incubation phase, companies focus on metrics related to project milestones, resource utilization, collaboration success, and resource efficiency. This aligns with the literature, which highlights the importance of managing resources, team collaboration, and project progress in the incubation stage (Blank, 2013).

For the experimentation phase, companies assess success using metrics such as prototype performance, user satisfaction, validation success, and iteration speed. This is in line with the literature on lean innovation and agile development, which emphasize the importance of rapid prototyping, user testing, and continuous improvement (Ries, 2011; Denning, 2018).

In the commercialization phase, the interviewed companies measure success using metrics such as market share, revenue growth, customer retention, and international market penetration. These findings echo the literature, which suggests that successful commercialization can be evaluated based on market performance and financial outcomes (Cooper, 2011).

Overall, the findings from the interviews align with existing literature on key metrics for measuring the success of individual innovation processes in the financial sector. The diverse set of metrics identified in the interviews highlights the importance of having a comprehensive and adaptable approach to measuring innovation success, allowing companies to tailor their evaluations based on their unique context and objectives.

The findings of this study have several practical implications for organizations in the financial sector, as well as for policymakers and practitioners involved in innovation management. By identifying key metrics for measuring the success of individual innovation processes, this study provides valuable insights for organizations seeking to optimize their innovation efforts and improve performance.

First, understanding the key metrics for measuring the success of innovation processes can enable organizations to better align their innovation strategies with their overall objectives. By selecting and monitoring relevant metrics, organizations can ensure that their innovation efforts are focused on delivering value and addressing market needs (O'Connor, Paulson, & DeMartino, 2008).

Second, the identified metrics can serve as a basis for creating a comprehensive framework for innovation management within organizations. By incorporating these metrics into their innovation management practices, companies can establish a systematic and data-driven approach to evaluating the success of their innovation processes. This can lead to more informed decision-making and resource allocation, ultimately enhancing the overall effectiveness of innovation efforts (Chesbrough, 2003).

Third, the study's findings can inform the development of industry benchmarks and best practices for innovation management in the financial sector. Policymakers and industry associations can use these insights to establish guidelines and recommendations for

organizations seeking to improve their innovation processes and outcomes (McKinsey & Company, 2018).

Finally, the identification of key metrics for measuring innovation success can support the development of targeted training and capacity-building programs for innovation practitioners. By understanding the factors that contribute to successful innovation processes, organizations can invest in developing the skills and capabilities needed to excel in ideation, incubation, experimentation, and commercialization (Damanpour & Aravind, 2012).

The practical implications of this study are far-reaching, providing valuable insights for organizations in the financial sector, as well as policymakers and practitioners involved in innovation management. By understanding the key metrics for measuring the success of individual innovation processes, organizations can optimize their innovation efforts, enhance performance, and contribute to the continued growth and competitiveness of the financial sector.

6. Conclusion

The study aimed to identify and document key metrics for measuring the success of individual innovation processes (ideation, incubation, experimentation, and commercialization) within the financial sector. Interviews with representatives from six companies provided valuable insights into their innovation management practices and the metrics they use to evaluate the success of their innovation processes. The findings emphasized the importance of a structured approach to innovation, along with a clear understanding of relevant metrics to assess progress and outcomes.

The study contributes to the field of corporate innovation by providing a deeper understanding of the metrics used by organizations in the financial sector to measure the success of their innovation processes. The empirical data gathered through interviews, along with the analysis and interpretation of these findings, add to the existing literature on innovation management practices and success measurement within the financial sector. This study also highlights the potential benefits of adopting a systematic approach to innovation management and performance evaluation.

Future research could further explore the relationship between the identified metrics and organizational performance in the financial sector. Longitudinal studies could provide a deeper understanding of how these metrics evolve over time and contribute to the overall success of an organization. Additionally, comparative studies across different industries could offer valuable insights into the generalizability of the findings and the potential for cross-industry application of the identified metrics and best practices.

This study has provided valuable insights into the key metrics for measuring the success of individual innovation processes in the financial sector. The findings, as illustrated in Figures 1 & 2, in the Appendice section, offer a basis for organizations to optimize their innovation efforts, leading to improved performance and competitiveness in a rapidly evolving industry. The study also contributes to the growing body of literature on corporate innovation, providing a foundation for future research and practical application.

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Statement of interest

Our interest in Innovation processes in corporate was sparked by the growing importance of refined Innovation processes and its impact on regulated institutions like the financial services. We have long been fascinated by the interplay between innovation processes and the metrics to measure each process, and how these dynamics can contribute to improvements in the innovation strategies of corporations.

Throughout the course of our studies, we have sought to gain a comprehensive understanding of Innovation processes and the metrics to measure them. This project presented a unique opportunity to explore the topic in depth and contribute to the existing

body of knowledge in this field. It is our hope that the findings and recommendations put forth in this study will prove valuable to researchers, practitioners, and policymakers alike as we collectively work towards addressing the challenges and harnessing the opportunities presented by Innovation .

Looking to the future, we are eager to continue building upon this foundation and exploring further research in this area. Our ultimate goal is to make meaningful impact on organizational innovation strategies by fostering a better understanding of how these metrics can further improve innovation approaches.

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APPENDIX A

Proposed Framework for Innovation Processes in Corporates

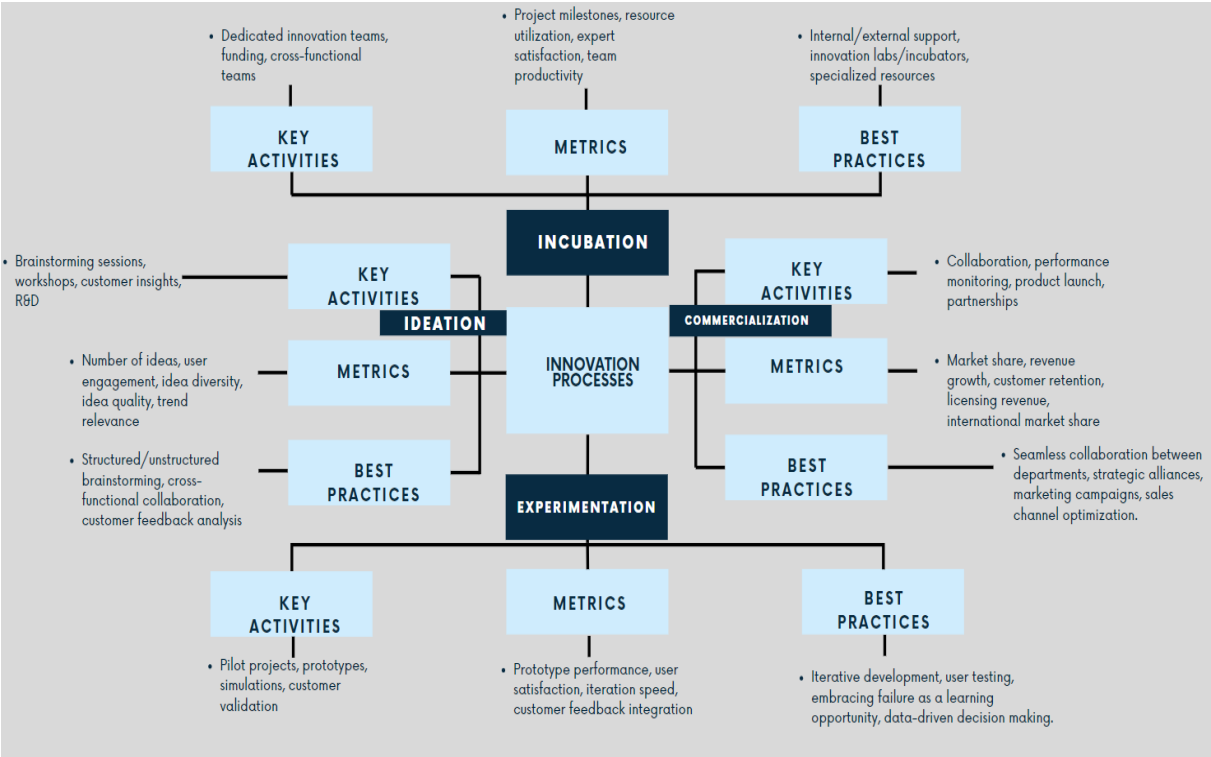

Figure 1. Proposed Framework for Innovation Processes in Corporates

Proposed Framework

This proposed framework for innovation management in the financial sector is based on the findings of this study, which examined the key metrics for measuring the success of individual innovation processes (ideation, incubation, experimentation, and commercialization) and identified best practices employed by organizations operating in the sector. By adopting this framework, financial organizations can systematically manage their innovation efforts and align their strategies with business objectives, ultimately driving growth and competitiveness in an increasingly dynamic industry.

APPENDIX B

Proposed innovation process Checklist (Success Criteria)

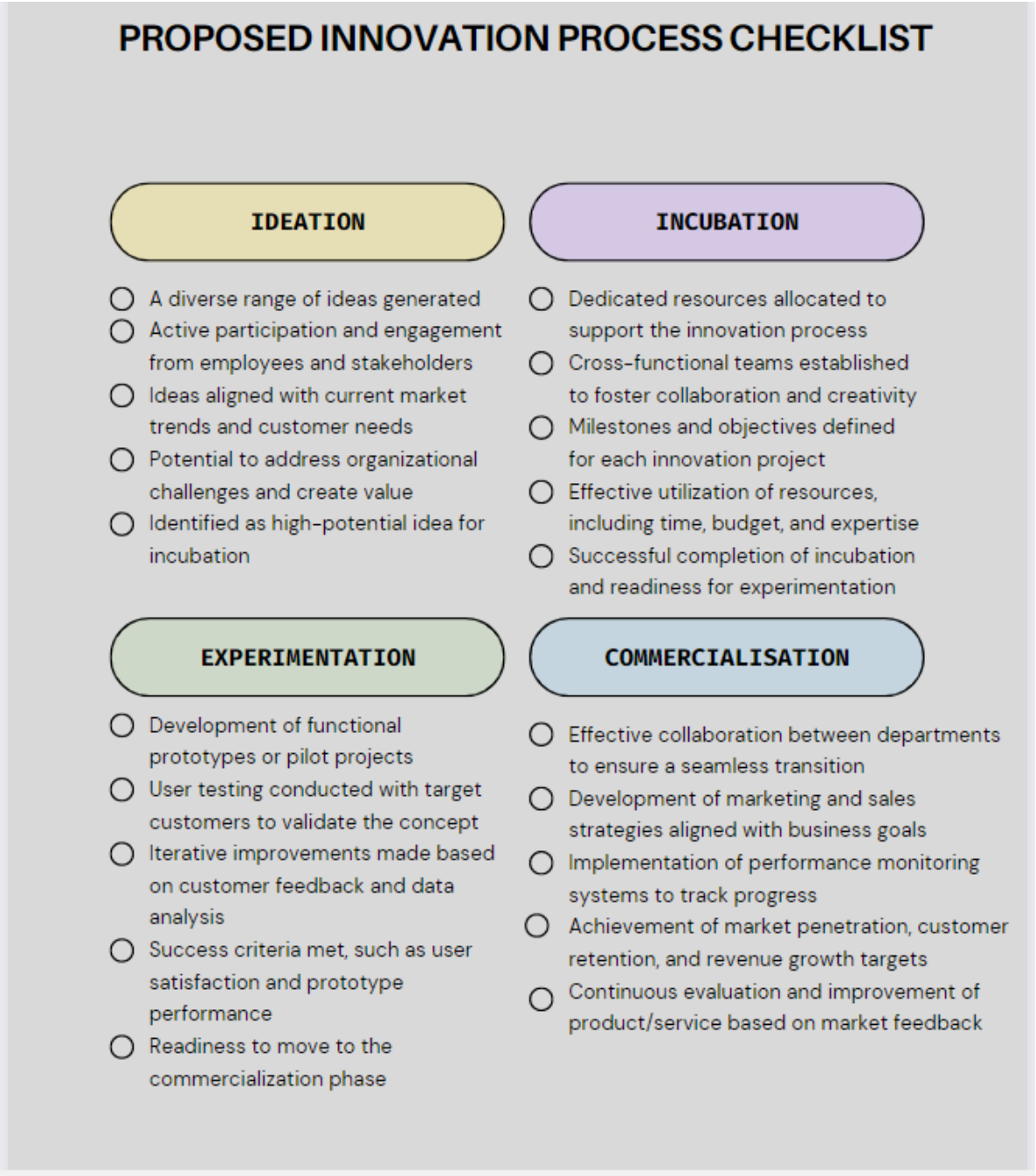

Figure 2. Proposed innovation process Checklist (Success Criteria)

This diagram presents a checklist for organizations in the financial sector to gauge the success of their innovation processes before moving on to the next stage. By ensuring that each process meets the outlined criteria, organizations can optimize their innovation management efforts and improve overall performance.

APPENDIX C

Semi-structured interview questions for overall Innovation process management

We asked questions related to their experience and knowledge in corporate innovation, specifically **how they measure the success of each process involved in corporate innovation**, and how they think **organizations can improve their innovation strategies**. We also explored their insights on **how corporate organizations can scale/innovate better**.

1. How does your organization define innovation, and how does this definition guide your approach to innovation process management? (Reference: Chesbrough, H. (2003). Open innovation: The new imperative for creating and profiting from technology. Harvard Business Press.).
2. Can you describe a time when your organization implemented a new innovation process, and what were the key factors that contributed to its success or failure? (Reference: Tidd, J., & Bessant, J. (2013). Managing innovation: Integrating technological, market and organizational change. John Wiley & Sons.)
3. How does your organization measure the impact of innovation on its overall business performance, and what specific metrics do you use to evaluate the success of your innovation processes? (Reference: Cooper, R. G., & Kleinschmidt, E. J. (1995). Benchmarking the firm's critical success factors in new product development. Journal of product innovation management, 12(5), 374-391.)
4. Can you describe any challenges or obstacles that your organization has faced in managing the innovation process, and how have you addressed these challenges? (Reference: O'Connor, G. C., & DeMartino, R. (2006). Managing innovation fatigue. Research-Technology Management, 49(5), 20-27.)
5. How does your organization foster a culture of innovation, and what specific practices or initiatives have been successful in promoting innovation within the organization? (Reference: Damanpour, F. (2014). Footnotes to research on management innovation. Journal of Management, 40(4), 1083-1106.)

Semi-structured interview questions for different innovation processes:

Ideation:

1. How does your organization measure the success of the Ideation process, and what metrics do you use to evaluate success? (Bessant & Tidd, 2007; O'Connor & DeMartino, 2006)
2. How does your organization promote collaboration and creativity among employees to foster idea generation? (Hargadon & Bechky, 2006; Pisano, 2015)

Incubation:

1. How does your organization measure the success of the incubation process, and what metrics do you use to evaluate success? (Bessant & Tidd, 2007; O'Connor & DeMartino, 2006)
2. How does your organization structure its incubation process to develop and refine new ideas? (Chesbrough, 2006; Rosenbaum & Wong, 2013)

Experimentation:

1. How does your organization ensure that experiments are designed to address the most important uncertainties associated with new ideas? (Chesbrough & Rosenbloom, 2002; McGrath, 2010)
2. How does your organization measure the success of experiments, and what metrics do you use to evaluate success? (Cohen & Levinthal, 1990; Thomke & Fujimoto, 2000)

Commercialization:

1. How does your organization structure its commercialization process to launch and scale new products or services? (Chesbrough & Appleyard, 2007; Markides & Charitou, 2004)
2. How does your organization measure the success of commercialization activities, and what metrics do you use to evaluate success? (Cooper, Edgett, & Kleinschmidt, 2004; Song & Parry, 2013).

APPENDIX D

Interview Transcripts

The Interview Transcripts can be found on this **link**

Resümee

INNOVATSIOON ETTEVÕTETES: FINANTSSEKTORI ETTEVÕTETE INNOVATSIOONIPROTSESSIDE EDU MÕÕTMISE PÕHIMÕÕDIKUTE UURING

Anya Olumba Chima & Tobechi Obinwanne

Uuringu eesmärk oli tuvastada ja dokumenteerida põhimõõdikud üksikute innovatsiooniprotsesside (ideed, inkubeerimine, katsetamine ja kommertsialiseerimine) edu mõõtmiseks finantssektoris. Intervjuud kuue ettevõtte esindajatega andsid väärtuslikku ülevaadet nende innovatsioonijuhtimise tavadest ja mõõdikutest, mida nad kasutavad oma innovatsiooniprotsesside edukuse hindamiseks. Tulemused rõhutasid struktureeritud lähenemisviisi tähtsust innovatsioonile ning asjakohaste mõõdikute selget mõistmist edusammude ja tulemuste hindamiseks.

Uuring panustab ettevõtete innovatsiooni valdkonda, pakkudes sügavamat arusaama mõõdikutest, mida finantssektori organisatsioonid kasutavad oma innovatsiooniprotsesside edukuse mõõtmiseks. Intervjuude kaudu kogutud empiirilised andmed koos nende leidude analüüsi ja tõlgendamisega täiendavad olemasolevat kirjandust innovatsioonijuhtimise tavade ja finantssektori edukuse mõõtmise kohta. Selles uuringus tuuakse välja ka võimalikud eelised, mis tulenevad innovatsiooni juhtimise ja tulemuslikkuse hindamise süstemaatilisest lähenemisviisist.

Tulevased uuringud võiksid täiendavalt uurida seost tuvastatud mõõdikute ja organisatsiooni tulemuslikkuse vahel finantssektoris. Pikisuunalised uuringud võiksid anda sügavama ülevaate sellest, kuidas need mõõdikud aja jooksul arenevad ja aitavad kaasa organisatsiooni üldisele edule. Lisaks võivad eri tööstusharude võrdlevad uuringud anda väärtuslikku teavet tulemuste üldistatavusest ning tuvastatud mõõdikute ja parimate tavade valdkonnaülese rakendamise potentsiaalist.

Kokkuvõtteks võib öelda, et see uuring on andnud väärtuslikku teavet finantssektori üksikute innovatsiooniprotsesside edukuse mõõtmise põhinäitajate kohta. Tulemused annavad organisatsioonidele aluse oma innovatsioonipüüdluste optimeerimiseks, mis toob kaasa parema jõudluse ja konkurentsivõime kiirelt arenevas tööstuses. Uuring aitab kaasa ka ettevõtete innovatsiooni käsitleva kirjanduse kasvavale hulgale, luues aluse tulevastele uuringutele ja praktilistele rakendustele.

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18/05/2023