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THE IMPACT OF DATA MONETIZATION IN BUSINESS MODELS: A STUDY ON THE PORTUGUESE BANKING INDUSTRY

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ABSTRACT

Title: The Impact of Data Monetization in Business Models: A Study on the Portuguese Banking Industry

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This thesis investigates the growing importance of Data Monetization in the business models of banking institutions. It explores the viability of innovative solutions based on data-driven business models, including Data Monetization, as well as analyzing the effects of business model innovation and digital transformation on these approaches. In addition, the study analyses barriers to their implementation, such as strict regulatory frameworks, the need for employees to acquire new technical skills, the requirement for agile infrastructures capable of managing the high volume of bank data and the low data-oriented culture that prevails in these organizations. The research methodology included ten qualitative interviews which, after thorough analysis, led to a number of conclusions.

The influence of Data Monetization on banks' sources of revenue is undeniable, even though it is not their main source of income. The considerable impact these solutions have underlines a significant business opportunity for banking institutions. Given the disruptive nature of this domain, rapid adoption could confer a competitive advantage. On the other hand, the value of this domain also means the potential expansion into financial services of new competitors, including large technology or retail companies.

This research underlines the current and prospective value of data for banks and other companies, thus revealing research topics that can elucidate or add to the existing body of knowledge on Data Monetization, a field considered to be under-explored.

Keywords: Data Monetization, Banking Sector, Digital Transformation, Data, Business Model Innovation, Competitive Advantage.

SUMÁRIO

Título: O Impacto da Monetização de Dados nos Modelos de Negócio: Um Estudo sobre o Sector Bancário Português

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Esta tese investiga a importância crescente da Monetização de Dados nos modelos de negócio das instituições bancárias. Explora a viabilidade de soluções inovadoras baseadas em modelos de negócio orientados por dados, incluindo a monetização de dados, para além de analisar os efeitos da inovação de modelo de negócio e da transformação digital nestas abordagens. Além disso, o estudo analisa barreiras à sua implementação, tais como os rigorosos enquadramentos regulamentares, a necessidade de os colaboradores adquirirem novas competências técnicas, a exigência de infraestruturas ágeis capazes de gerir a elevada volumetria de dados dos bancos e a cultura pouco orientada para os dados que prevalece nestas organizações. A metodologia de investigação incluiu a realização de dez entrevistas qualitativas que, após uma análise minuciosa, culminaram na extração de várias conclusões.

A influência da Monetização de Dados nas fontes de receitas dos bancos é inegável, apesar de esta não ser a sua principal fonte de rendimento. O impacto considerável que estas soluções exercem sublinha uma oportunidade de negócio significativa para as instituições bancárias. Dada a natureza disruptiva deste domínio, uma adoção rápida poderá conferir uma vantagem competitiva. Por outro lado, o valor deste domínio também significa a potencial expansão para serviços financeiro de novos concorrentes, incluindo grandes tecnológicas ou empresas de retalho.

Esta investigação sublinha o valor atual e prospetivo dos dados para os bancos e outras empresas, revelando assim temas de investigação que podem elucidar ou aumentar o corpo de conhecimentos existente sobre a monetização de dados, um domínio considerado pouco explorado.

Palavras-Chave: Monetização de Dados, Sector Bancário, Transformação Digital, Dados, Inovação de Modelos de Negócio, Vantagem Competitiva.

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LIST OF ABREVIATIONS

API	Application Programming Interfaces
AI	Artificial Intelligence
ATM	Automated Teller Machines
BDA	Big Data Analytics
DM	Data Monetization
DDBM	Data-Driven Business Models
DT	Digital Transformation
GDPR	General Data Protection Regulation
IT	Information Technology
POS	Point of Sale
R&D	Research and Development
SME	Small and Medium-Sized Enterprises

1. INTRODUCTION

The introduction of Business Models Innovation has fundamentally altered the mechanisms through which organizations orchestrate the creation, appropriation, and delivery of value. This transformation has occurred in tandem with the digital revolution, a phenomenon described by Appio et al. (2022) as complex and multifaceted, compelling organizations to adapt their strategies to align with new market realities.

The significance of big data as a valuable asset for organizations has been highlighted (Nguyen et al., 2018), enhancing data-driven decision-making processes (Nguyen et al., 2018) and bolstering customer satisfaction and loyalty (Fernández-Rovira, 2021). The adoption of big data has precipitated the emergence of innovative data solutions, such as Data Monetization, a methodology for assessing data value and generating tangible business benefits (Grover, 2018).

Particularly, the banking sector has been an early adopter of data-driven strategies (Hung et al., 2020). Despite this, banks continue to face challenges in effectively leveraging Big Data Analytics to enhance their value chains or to differentiate their product and service offerings to customers (Hung et al., 2020). The vast bases of customer data banks possess are considered a significant competitive edge due to the volume and quality of this information (Murinde et al., 2022).

Despite numerous regulatory challenges faced by the banking industry (Murinde et al., 2022), the opportunities available for banks to monetize data (Lakhani et al., 2021) make this sector attractive to new entrants (Dapp, Slomka, & Hoffmann, 2014; Vives, 2019; Murinde et al., 2022). Data Monetization, in particular, has the potential to influence banking business models by creating new revenue streams with minimal or insignificant additional costs (Jones and Tonetti, 2020).

However, the implementation of Data Monetization is not without its challenges including the necessity for employees to develop new technical competencies, agile infrastructures to manage vast amounts of bank data, and a generally low data-oriented culture within banks (Firk et al., 2021).

Moreover, the current literature demonstrates a conspicuous gap in research on Data Monetization, especially considering the rapidly evolving landscape of Data Monetization within the banking sector. Acknowledging the scarcity of research on Data Monetization

(Hartmann et al., 2016; Günther et al., 2017; Sorescu, 2017), this study employs a qualitative approach to address the research question: "How can Data Monetization influence business models within the traditional Portuguese banking industry?"

This thesis is structured into six chapters: an Introduction, which elucidates the emergence and importance of Data Monetization and its significance within the banking sector; a Literature Review that provides a critical and theoretical basis for the subject, uncovering clear gaps in existing literature; the Methods chapter offers an in-depth discussion and explanation of the methodology employed, alongside a review of data collection and analysis procedures; the Findings section presents a detailed account of research results derived from the analysis of ten interviews conducted for this study; the Discussion chapter deliberates on the findings, addressing some of the existing literature gaps and proposing a framework to interpret the results, and presents the limitations of the study, suggesting avenues for future research; finally, the Conclusion provides a summary reflection on the study's key insights, their implications, and the contribution of this research to the broader academic discourse on Data Monetization in the banking industry.

2. LITERATURE REVIEW

The present literature review focuses on the evaluation and synthetization of academic articles from prominent journals. The principal aim of this review is to furnish a robust foundation for the advancement of empirical research pertaining to Data Revenue Models within the banking sector. This encompasses an in-depth exploration of various themes including the innovation of Business Models and the profound influence that data exerts on corporate strategy. The review also extends to an examination of the opportunities and challenges that accompany the integration of data analytics and its subsequent implications for banking institutions.

Additionally, this review identifies a deficit in existing research related to Data-Driven Business Models and Data Monetization. Given the paucity of scholarly inquiry on this subject, the current review endeavors to address this gap by presenting a comprehensive overview of the state of data initiatives and systems. The discussion aims to shed light on both the theoretical and practical aspects of this emerging domain, recognizing its potential to redefine the traditional banking landscape through enhanced transparency and customer engagement.

2.1. Business Models

Magretta (2002) articulates that a business model serves as a narrative elucidating the mechanisms through which organizations function. This conceptual framework not only delineates the operational aspects of an enterprise but also ventures into addressing the more complex query of why these enterprises succeed. Magretta further posits that an efficacious Business Model adequately responds to pivotal questions such as "Who constitutes the customer base?" and "What do the customers deem valuable?" Additionally, it is incumbent upon the Business Model to elucidate how the organization generates revenue within its industry, detailing the fundamental economic rationale that facilitates the provision of value to customers while managing costs effectively.

Expounding upon this premise, some authors suggest that a clearly designed path will enable a business to create value for its customers. McGrath (2010) contends that the sustainability of a Business Model hinges on its adaptability, experimental nature, and propensity for discovery. In the face of a rapidly evolving commercial landscape, businesses must cultivate a perpetual drive to innovate and thus generate new competitive edges.

Finally, the present thesis acknowledges the definition that elucidates that a Business Model encapsulates the process by which an enterprise creates and imparts value to its customers (Teece, 2010). While acknowledging that a Business Model incorporates a schematic of revenue streams, cost structures, and profitability, Teece (2010) argues that its essence is predominantly conceptual, transcending mere financial considerations. Asserts that the construction of a successful Business Model, in itself, does not guarantee a competitive upper hand.

In light of these arguments, there exists a pressing impetus for innovation in Business Models, which may independently serve as a conduit to competitive advantage. Porter (1980) translates this notion of advantage as the attainment of productivity that surpasses that of competitors. The paradigm of Business Model Innovation thus emerges as a critical path to fostering exceptional performance and sustaining a competitive position.

2.1.1. From Innovation to Business Model Innovation

Miller and Friesen (1982) suggest that organizations with an inherent inclination towards innovation tend to exhibit an increased propensity for innovative activities. Consequently, they introduced two distinct models of innovation. The first, termed the Conservative Model, perceives innovation as a reactive measure, necessitated by significant challenges, threats, and instabilities emanating from competitors, customers, and the broader environment. According to this model, innovation is not pursued unless triggered by substantial external pressures (Miller et al., 1982).

Conversely, the Entrepreneurial Model is applicable to organizations wherein innovation is regarded as a fundamental component of their strategic approach. Such organizations are characterized by a proactive and consistent pursuit of innovation, undertaken boldly, except in cases where there is unequivocal evidence indicating that financial or other critical resources present insurmountable barriers (Miller et al., 1982).

Business Model Innovation constitutes a transformative alteration in the mechanisms through which a company orchestrates value creation, value appropriation, or value delivery. This transformation culminates in a substantial modification of the firm's value proposition (Sorescu, 2017). Business Models can foster innovation through two complementary ways: product and process innovation (Sorescu, 2017).

Product innovation is paramount in augmenting the value creation aspect of a Business Model. For a vast array of enterprises, such innovation does not represent an occasional effort but rather a persistent endeavor. Its principal aim encompasses the development of new ideas and the technologies (Massa et al., 2014). Process innovation pertains to alterations in the methods used for either value creation or value appropriation (Sorescu, 2017). Furthermore, process innovation introduces a novel, value-added method of marketing existing products or services (Massa et al., 2014).

2.2. Digital Transformation of Businesses

The concept of Digital Transformation (DT), characterized by its complex and multifaceted nature, has been a subject of considerable academic interest (Appio et al., 2022). DT is identified as an organizational transformation initiated and shaped by the widespread adoption of digital technologies (Hanelt et al., 2021). This perspective provides a framework for understanding the phenomenon of DT and its management within the context of business, leveraging the broad knowledge base related to organizational change and innovation (Poole and Van de Ven, 2004).

Historically, the study of organizational change in relation to Information Technology (IT) has laid the groundwork for understanding DT (Orlikowski, 2000; Volkoff et al., 2007). However, recent research posits that DT represents a departure from these earlier instances of organizational change facilitated by IT (Hanelt et al., 2021). DT is driven by technologies such as Big Data Analytics (BDA), social media, mobile technology, and cloud computing, which transcend traditional industry and firm boundaries, implicating a broader ecosystem and the consumer market (Tilson et al., 2010; Bharadwaj et al., 2013). Moreover, DT's implications, including the rise of new digital Business Models across various sectors, indicate a more profound shift compared to the incremental changes associated with earlier IT-driven transformations (Orlikowski, 2000).

DT is recognized as a catalyst for strategic and operational shifts within organizations, spurred by the opportunities and challenges presented by digital technologies (Vial, 2019). Its intricate nature has the potential to significantly redefine an organization's structural, operational, and Business Model frameworks (Broekhuizen et al., 2021). Such changes require a reevaluation of the firm's value proposition, along with its strategies for value creation and capture (Verhoef et al., 2021).

Hanelt et al. (2021) found that DT impacts organizations in various ways, from altering stakeholder engagement and internal processes to transforming management styles towards more technology-oriented approaches. This evolution is highlighted by the growing reliance on Artificial Intelligence (AI) and decision support systems (Kolbjørnsrud et al., 2016), the emergence of digital and customer-centric Business Models (Dutra et al., 2018), and the advancement towards automated, data-driven, and virtual business operations facilitated by digital technology and software (Porter and Heppelman, 2015). These developments underscore the shift towards data-driven operations that enhance organizational responsiveness to external feedback, such as customer insights, through AI and machine learning technologies (Hanelt et al., 2021).

Consequently, DT necessitates organizational adjustments, particularly in workforce management and talent development strategies (Porfírio et al., 2021). Leadership within this context must exhibit transformative capabilities to navigate the changes instigated by DT (Tabrizi et al., 2019). It is imperative for managers to grasp the implications of both existing and emergent digital technologies to strategically pivot the organization (Singh et al., 2020). This shift often coincides with organizational changes that accommodate the increased complexity and demands placed on both leaders and employees (Firk et al., 2021). Navigating this disruptive change demands profound technical and digital competencies among top management and staff, alongside a keen understanding of how digital technologies can be implemented to enhance competitive advantage (Scuotto et al., 2021). As technology propels organizations towards more knowledge-intensive operations and automates routine tasks, the importance of skilled employees escalates (Sinha et al., 2005; Autor et al., 2006; Brynjolfsson & Hitt, 2000), thereby enabling firms to meet emerging consumer demands and competitive pressures (Chakravarty et al., 2013).

Furthermore, the evolution brought about by DT has significantly altered customer expectations, leading to a shift in how they perceive their relationship with firms and the services they anticipate (Lucas Jr. et al., 2013). DT involves leveraging digital technologies to enhance customer experience and engagement, streamline operations, strengthen Business Models, and forge new business opportunities (Fitzgerald et al., 2014). According to Karimi et al. (2015), DT is inherently disruptive, signaled by its profound impact across various aspects of organizational and business practice.

2.2.1. Data Transformation of Businesses

The rapid advancement and proliferation of information and communication technologies have positioned big data as a crucial asset for organizations (Nguyen et al., 2018). BDA encompasses the application of sophisticated analytical methods to extract significant insights from data, thereby enhancing data-driven decision-making processes (Nguyena et al., 2018). The shift towards a culture of data-driven decision-making, in which senior management relies on data over intuition (LaValle et al., 2010), combined with the analytical insight from both structured and unstructured data streams, offers answers to previously unanswered business inquiries (Grover, 2018).

Data Analytics has emerged as a pivotal factor transforming business dynamics (Fawcett and Waller, 2014), allowing companies to thrive in the current dynamic and evolving market. Researchers highlight several benefits of employing BDA, including reduced operational costs, increased agility (Ramanathan et al., 2017), and the capability to meet unique customer needs, which is vital for maintaining a competitive edge (Nicola et al., 2014).

BDA has been instrumental in revolutionizing Business Models (Nguyena et al., 2015) by not only enhancing revenue streams from existing products through servitization - value proposition involves a service based on data-driven insights - but also by generating new revenue streams from novel data products (Opresnik and Taisch, 2015). Despite these advancements, the ecosystem supporting new Data-Driven Business Models (DDBM) remains underdeveloped (Nguyena et al., 2015). While big data research has garnered significant attention recently, investigations into its strategic business value are relatively limited (Grover, 2018). Hartmann et al. (2016) conduct a comprehensive review of the literature concerning the existing dimensions of Business Models and introduce a framework for DDBM, where DDBM is characterized by its reliance on data as a primary resource.

The commercial utilization of data has garnered increasing attention amongst corporations in recent years, prompting many to enhance their capacity for large-scale data analysis (Akter et al., 2016). BDA ensures the transformation of data into actionable insights and effective decision-making processes, thereby augmenting organizational performance (Fernández-Rovira et al., 2021).

Research into businesses employing Big Data reveals that large enterprises incorporate data collection into their core business strategies (Westerman and Bonnet, 2015). However, such

practices are predominantly observed in large corporations with considerable financial resources and highly skilled personnel, unlike smaller enterprises that struggle with data acquisition and technological adaptation due to limitations in knowledge and resources (Fernández-Rovira, 2021).

Big Data and AI significantly influence customization and adaptability to highly segmented market demands, as these technologies revolutionize marketing through the unprecedented customization opportunities they provide, leading to enhanced customer satisfaction and loyalty (Fernández-Rovira, 2021).

Furthermore, the extensive use of data by major technology companies has sparked debates over the ethical and transparent handling of user data (Grover, 2018). While Big Data initiatives offer numerous benefits to both business and society, the potential for data misuse underscores the urgency for regulatory measures (LaBriea et al., 2018).

2.2.2. Data Monetization and Data-Driven Business Models

Discussion has arisen regarding methodologies for evaluating the monetary value of data sets. Such discussions aim to explain the process by which investments in BDA can generate business revenue, often referred to as Data Monetization (DM) (Grover, 2018). Research concerning the monetization of data is intricately linked to DDBM, however, previous literature has seldom explored these topics together. Consequently, there is a notable lack of guidance available for understanding and advancing empirical research in the area of DM (Hartmann et al., 2016; Günther et al., 2017; Sorescu, 2017).

The extraction of value from data presents distinct challenges. Firstly, organizations encounter difficulties in determining the financial value of their data (Grover, 2018). Although the sale of data may appear as a straightforward path to success, given the unique characteristics of data assets (Quach et al., 2022; Wixom and Ross, 2017) and the widespread accessibility of data to many corporations (Lewis and McKone, 2016), the process of DM is complex. Secondly, there is a necessity for specialized capabilities in data processing and interpretation, which are essential to convert raw data into actionable insights and incorporate this information into products and services that add value (Ulaga and Reinartz, 2011).

A principal advantage of data is its potential for repeated use and resale by firms, often at minimal or no extra cost (Jones and Tonetti, 2020). Generally, firms can monetize data either

internally, by enhancing business decisions and processes, or externally, by offering data-driven products to both new and existing customers (Wixom and Ross, 2017; Quach et al., 2022).

Ritala et al. (2024) suggests four distinct data-driven value propositions for business-to-business (B2B) companies, including: data as a product, which the authors refer to "(…) sell raw or processed data to customers." (2024, p.6); data-enhanced products, that is to "take existing product offerings and enhance them with data." (2024, p.7); data-driven services, which regards to "(…) use the vendor's accumulated data to analyze, predict, and optimize customers' processes." (2024, p.8); and data-enabled performance outcomes, which "(…) combine data-enhanced products and data-driven services into complete smart solutions that can deliver performance outcomes." (2024, p.9). These data-driven value propositions can be employed by firms to market and monetize data-driven offerings. The authors further state the absence of a "one-size-fits all" strategy for DM, shedding light on the persistent struggles of numerous organizations to transform data into profitable value propositions, despite intensifying investments in data capabilities and technological infrastructure (Liozu and Ulaga, 2018).

2.3. Data Transformation in Traditional Banking

Banks track and store large amounts of customer data and this type of information constitutes competitive advantage, as they have a large volume of historical customer data and the type of information is of high difficulty of replication and transmission outside the respective bank (Murinde et al., 2022). To enhance their data competitive advantage, banks have to understand what has been collected in its data warehouse, extract insights from stored data, and then utilize these insights to enhance dynamic/adaptive capabilities (Erevelles et al., 2016).

The banking industry can be considered an early adopter in data-driven decision making (Hung et al., 2020), having early on embraced advanced analytical methods as well as the incorporation of non-financial data to develop more comprehensive analytical models. This approach has significantly contributed to strengthening their competitive advantage by leveraging the power of analytics (Zhang & Pang, 2019). Banks incorporated data and automation across a spectrum of services, including autonomous trading, investment management, and risk assessment in insurance (Lakhani et al., 2021). The employment of Data Analytics and AI has alleviated the compromise between cost and customization, enabling the provision of personalized products at virtually zero marginal cost (Iansiti et al., 2020).

Prominent banks, such as JP Morgan, The Royal Bank of Scotland, and BNP Paribas, have adopted data-driven operational models, thus enhancing customer acquisition and retention (Lakhani et al., 2021). Notwithstanding, banks strain in how to effectively deploy BDA to enhance their value chain, as well as in distinguishing their product and service portfolios for their customers (Hung et al., 2020). In spite of these advancements, the customization of services at the individual customer level continues to be an approach of relative novelty (Lakhani et al., 2021).

The major two customer divisions in the banking industry are personal banking, that provides services to individuals, and corporate banking, that provides services to corporate customers (Hung et al., 2020). Studies have found that BDA has been widely adopted in personal banking (Hung et al., 2020). Academic literature suggests that the most common personal banking marketing models are customer lifetime value prediction, customer clustering, and product affinity prediction (Ekinci et al., 2014). It is noted that the corporate banking market is considerably more valuable and more complex, since corporate banking is the major revenue source for most banks, given the fact they involve larger transaction amounts (Hung et al., 2020). For corporate customers, research efforts have been focused on risk management (Valverde, Solas, & Fernández, 2016). Studies have found that retaining an active existing corporate customer is much cheaper than acquiring a new customer (Ennew, Binks, & Chiplin, 2015). However, corporate banking data have not been analyzed in meaningful ways to identify potential corporate customers or to improve business offerings to existing corporate customers along the business's supply chains (Lilien, 2016).

2.3.1. Data Transformation in the Banking Industry

Traditional banks are increasingly integrating BDA to bolster their competitive edge, aiming to more effectively navigate the challenges presented by new entrants into the financial services sector, including FinTechs, BigTechs, and neobanks. Players from the telecommunications, retail, and other sectors are gradually moving to claim parts of the markets in different segments of the financial services (Dapp, Slomka, & Hoffmann, 2014; Vives, 2019; Murinde et al., 2022). This strategic adaptation is primarily driven by the swift advancements in technology (Vives, 2019).

In the context of transactional-based functions such as payments, FinTechs seem to have an advantage over traditional banks, because they have the initial tech infrastructure to implement them faster and the economies of scale and scope to make them a vehicle for

profitability (Murinde et al., 2022). However, it is a challenge for FinTechs to understand how to attract customers to use their innovative services (Hung et al., 2020). Reasons that have contributed to this disruption in the banking industry is the strict regulatory requirements for banks and in financial services spaces that do not require a banking license to be served (Murinde et al., 2022). In some cases, this also gives rise to regulatory arbitrage opportunities, which many FinTech firms can successfully exploit (Buchak et al., 2018), such as the provision of liquidity, in which FinTechs have principally disrupted and banks face most of competition (Vives, 2019).

To maintain their competitive edge, traditional banks are required to tackle competition from non-traditional banking sources and explore innovative Business Models that may prove advantageous, such as Platform-Based Business Models (Murinde et al., 2022). The essence of a Platform Business Model is for an institution to act as an intermediary that facilitates the connection between providers of goods and services and those in need of these offerings (Murinde et al., 2022). Furthermore, the advancement of digital technologies, including open Application Programming Interfaces (API), expands the capacity to mediate comprehensive services and products from suppliers (King & Nesbitt, 2020). Through Open Banking, banks have the opportunity to assume the role of platform providers, delivering fundamental functionalities while ensuring a structured process for the transaction of goods and services on their platform (King & Nesbitt, 2020).

3. METHODS

The choice of an empirical methodology is contingent upon the goals of the research (Saunders et al., 2016; Köhler et al., 2022), as various data analysis methods are suited to distinct research inquiries and contexts (Lo et al., 2020). The manner in which research questions are posed has a significant impact on whether the outcomes will be descriptive or explanatory (Saunders et al., 2016).

In quantitative research, analysis involves the use of numerical data. The results are gathered in the form of numerical and standardized data, with analysis performed via diagrams and statistical methods (Saunders et al., 2016). Typically, this form of research aims to characterize observable phenomena or explore possible relationships among several phenomena (Leedy et al., 2010).

Conversely, qualitative research employs non-numerical data, such as text, images, or video clips, for the purpose of data analysis. It gathers results in non-standardized forms, necessitating the categorization of data, and undertakes analysis through conceptualization (Saunders et al., 2016). The inherent flexibility of qualitative methods requires them to be adaptable, thereby facilitating the integration and modification of various qualitative techniques to align with the sample, phenomenon, and context studied (Denzin & Lincoln, 2017; Gehman et al., 2018). In instances where there is limited information on a subject, when variables are not clearly defined, or when there is a lack of a substantial theoretical foundation, qualitative research can play a pivotal role in identifying crucial aspects (Leedy et al., 2010). This argument underpins the rationale for employing a qualitative research approach in this dissertation, which aims to address previously recognized research gaps concerning Data Monetization Models.

Qualitative research, like any field of inquiry, has encountered criticisms and limitations, including concerns regarding trustworthiness (Pratt et al., 2022) and methodological rigor (Harley & Cornelissen, 2022); the techniques for data analysis and the transparency thereof (Lerman et al., 2022; Locke et al., 2022); and the exploration of innovative perspectives on the future of qualitative research (Cilesiz & Greckhamer, 2022; Lê & Schmid, 2022; Mees-Buss et al., 2022; Zilber & Zanoni, 2022). These critiques raise questions about whether qualitative researchers are generating theories based on insufficient evidence (Gioia et al., 2013). In an effort to mitigate these risks, the current study incorporates the utilization of probing questions during interviews to foster critical thinking and elicit more profound and comprehensive responses from the participants (Flick, 2018) and employs rigorous data collection and analysis methodologies (Creswell and Poth, 2018).

3.1. Sample Strategy

In accordance with the objectives delineated within this research ("How can Data Monetization influence Business Models within the traditional Portuguese banking industry?"), the methodological approach entailed conducting semi-structured interviews with individuals possessing considerable expertise in both the realms of Data Monetization and the traditional banking sector. This methodology was selected in order to secure both retrospective and real-time accounts from those individuals directly encountering the phenomenon under theoretical examination, thereby enhancing the engagement of the participants (Gioia et al., 2013).

When it comes to acquiring knowledge from experts, there are several challenges, with the primary one being the "paradox of expertise" - a phenomenon where, as individuals gain

proficiency in certain tasks, their awareness of the cognitive processes underpinning their performance diminishes (Agarwal et al. 1990). Despite its limitations and the existence of more advanced methods, interviews continue to be the most prevalent technique for extracting knowledge from experts (Buchanan et al., 1984). This study recognizes qualitative interviews as a pivotal data collection tool, emphasizing the importance of delving into the interviewees' experiences and viewpoints to attain a nuanced comprehension of the social reality (Flick, 2018).

This thesis concentrates on the identified literature gaps concerning Data Monetization, underscoring the necessity of engaging a cohort of experts well-versed and highly experienced in Data Monetization initiatives within the traditional banking sector. Nonetheless, their expertise spans technology, management, and analytics. This expansive expertise of the interviewees allows for a more profound examination of Data Monetization and a broader understanding of their perceptions on an array of subjects. The selection of participants was defined through a non-probability sampling technique, reliant on the subjective judgement of the researcher rather than random selection (Wolf et al., 2016).

The criteria for selecting interviewees spanned three dimensions: professional experience, seniority, and geography (Appendix 1). Firstly, only individuals with relevant experience in Data Monetization and its application to the banking industry were considered, to ensure that the insights provided were grounded in actual experience rather than mere speculation. Secondly, the seniority of participants was deemed crucial to ensure the inclusion of decision-makers and strategists. Thirdly, the geographical criterion was required by limitations related to time and resources, alongside the networking capabilities with the interviewees. This criterion serves a dual purpose, it ensures uniformity as all participants are governed by identical regulations and facilitates the application of knowledge and geographical proximity to the interviewees.

This thesis employed a dual sampling strategy, utilizing both purposive and snowball sampling methods (Patton, 2015). Purposive sampling, a widely employed strategy, involves selecting interviewees based on predefined criteria pertinent to the research (Mack et al., 2005). Snowball sampling, an offshoot of purposive sampling, capitalizes on the networks of already chosen interviewees, who are then requested to recommend other professionals potentially valuable to the study (Mack et al., 2005).

3.2. Data Collection

Interviews were facilitated using a semi-structured interview protocol (Appendix 2), which guided the discussions by tailoring questions and their sequencing to each interviewee's individual experiences and outlooks, specifically regarding their personal encounters with Data Monetization. Interview invitations were extended personally, via email or LinkedIn, and later conducted online through video conferencing on Microsoft Teams, with each session lasting approximately 30 to 45 minutes. Consent was obtained from all participants for audio-recording the interviews to ensure the accuracy of subsequent analyses. The majority of the participants were Portuguese, implying that data collection be conducted in Portuguese. However, an exception was made for one interview, which was conducted in English. The interviews were subsequently transcribed and translated using Sonix and DeepL, yielding a total of 114 pages of transcribed material.

This thesis follows to the Glaser and Strauss (1967) model of theoretical saturation, which served as the benchmark for determining the adequacy of the sampling strategy and establishing when the interview process had garnered sufficient insights such that no additional information could be uncovered.

The interview protocol encompassed five primary topics, designed to comprehensively address the research areas identified for exploration within the domain of Data Monetization. Firstly, the 'Background and Experience' segment aimed to gather insights into the participants' professional trajectories and their relevance to Data Monetization practices. Secondly, the focus shifted to 'Data Monetization and the Banking Sector' with an objective to unveil the participants' involvement in Data Monetization projects within the banking industry and to delve into the rationale behind the selection of this specific sector. The third topic, 'Data Monetization Impact,' was intended to acquire a deeper understanding of the implications of Data Monetization on the strategic and Business Model frameworks of banks. The fourth area, 'Challenges and Ethical Considerations,' sought to identify the limitations encountered in these projects, alongside evaluating the influence of regulations, such as those concerning data protection. Finally, the 'Future Outlook and Recommendations' section was dedicated to capturing the participants' perspectives based on their experiences, regarding potential disruptive trends in the realm of Data Monetization and the banking industry.

3.3. Data Analysis

In the analysis of data accrued through semi-structured interviews, Gioia's methodology was employed due to its nature for the exploration of data derived from inductive research (Gioia et al., 2013), which effectively addresses the concerns regarding the trustworthiness of qualitative research (Pratt et al., 2022). This methodology progresses from an inductive reasoning approach to a gradually shift towards an abductive reasoning framework, and this transition is facilitated by integrating the emerging data from empirical observations with extant theoretical frameworks (Magnani et al., 2023).

The initial phase of this methodology entails the identification of First-Order Themes through an open coding process, wherein the data is dissected into smaller segments based on content analysis (Strauss & Corbin, 1998). In this phase, the aim is to stay as faithful as possible to the terminology used by the interviewers, therefore, minimal effort is made to segregate categories, leading to a wide range of categories at the outset of the study, with the number of First-Order Themes frequently be between 50 and 100 (Gioia et al., 2012). In this particular study, the First-Order Themes are quotations directly derived from the interviews.

The subsequent phase involves the identification of Second-Order Themes, which are more abstract concepts that serve to clarify and elucidate the First-Order Themes that have been previously identified (Gioia et al., 2013).

The final phase consists of the condensation of these Second-Order Themes into Aggregate Dimensions, embodying the concepts of the previous collected data. This step is instrumental in laying the groundwork for the development of a theoretical model based on the empirical evidence (Gioia et al., 2012). At this phase, it is anticipated that "theoretical saturation" has been achieved, indicating a point at which additional data collection does not yield new insights relevant to the research questions (Glaser and Strauss, 1967).

4. FINDINGS

Refer to Appendix 3 for an in-depth analysis of the outcomes derived from the ten interviews conducted in this qualitative research study.

First-Order Themes	Second-Order Themes	Aggregate Dimensions
“It is necessary to be very careful about data privacy. In Europe, companies are very concerned about this and ensure a balance between Data Monetization and protecting customer privacy. (…) Banks, in particular, have regulators who demand that everything is organized, and that information is reported, which makes banks one of the most advanced sectors in terms of data governance.” (S2)	Banking industry regulations create barriers to Data Monetization adoption	Banks need to follow through specific tasks to tackle demanding regulations concerning data
“If there is a leakage of information from a bank, it's a scandal. That is why banks are averse to risk by nature. While most industries are very willing to sell and work on data, the bank is very afraid of that.” (S3)		
“When companies want to have this type of Data Monetization projects the main topic is the GDPR, which requires a lot of communication all the time with the legal teams.” (S7)		
"When companies are exploiting data, they need to ensure that they have consent to use it, that it is anonymized and that it is not deducible who the customer is." (S5)	Banks need to anonymize data, which can be achieved through data aggregation	
“The only thing to be careful about is security. All the data should be anonymized and that's it.” (S7)		
“The authorization to access data is attached to the agreement given to the client. (…) Companies should be transparent with the consent, while create here some gamification to value the customers, and in return make them feel good and share information.” (S1)	Companies should be transparent with the client when asking for data collection consent	
“It is very important to ensure that there is transparency with the customers, inform them and ask for explicit consent for this to happen. There are companies who write consent in small letters so customers accept everything on the terms, however this will bring some feeling of invasion to the customer.” (S2)		

"There has been a trend towards more consumers realizing the value of brands accessing their transactional information. To have customers' consent, companies have to give them something in return, and this is where the big challenge lies: what is the value proposition and how to convey it? (...) Since customers know that brands are analyzing their data, sometimes when they receive more generic offers than those segmented for them, they are surprised, and some are even dissatisfied." (S1)	Asking customers for their consent makes them more aware and demanding	
"Customers are also demanding in the banking sector and therefore they also want to have products that are personalized to their needs." (S3)		
"Customers who choose not to agree to the data policy do so because they feel that the banks are doing business with their data." (S3)	There is a challenge to understand when personalization becomes invasion	
"Sometimes, the more brands want to personalize, to make a more and more personalized and directed offer, this can be confused with invasion." (S4)		
"Data allows better-informed decisions, and that is the first pillar of data strategy, companies can make better-informed decisions and more data driven. It can also improve operations and, indirectly, have an economic value gain for the bank." (S2)	Customer data enhances banks' current business decisions	Enhancing current Business Model through improved data strategy (internal Business Model)
"When we look at the bank, it has a great advantage because it has a lot of data, including data that is generated in real time. There is data generated by internal processes, but also from the issuer's perspective, the card transactionality, and the data that is generated by the transactionality, known as POS." (S2)		
"Having data is fundamental. Knowing how to use that data correctly in the customer journey is crucial to maintaining business levels and the possibility of penetration and growth. (…) And Data Monetization can be a significant competitive advantage for banks who manage to use data in an integrated and clear strategy." (S10)		
"[Data Monetization] allows to provide a better service in the product customers acquire." (S1)	Data strategies contribute to improve customer experience	

“For example, if in the past 2 months a client did a lot of transactions in kids services or baby shop, it may mean that person is preparing for a baby. So, it makes sense to the bank push a financial product recommendation on a specific loan, because having a baby means maybe changing car or house, or even a long-term plan for the kids.” (S4)		
“Banks are in a sector where most products are commoditized and are defined by the rate, the price and few other things are what distinguish them. So, Data Monetization can be differentiating and add value to the service provided to the customer. (...) The bank has information about customer transactions and according to the purchases the customer makes and their profile, the bank can offer better and more personalized proposals for proposals and cashback.” (S5)		
“Each time they have become less loyal to the brands, and more looking for what best suits them. It's up to the companies, as we to give the best offers to their customers, to try to attract them, and personalize them. I think that the customers have valued this personalization. One of the pillars of the bank is increase revenue, but also increase client's satisfaction, and the Data Monetization fulfils these two axes. A bank with data can retain a client from the moment he/she is born, when the parents open an account, until he/she dies. If you treat him/her well, you can follow a client's life.” (S4)	Data strategy to improve cross selling and loyalty	
“The cross-sell strategy has a double objective. First to increase profits, and second to increasing client's retention. Customers who owned only product A, but acquired also product B and C, because wanted to have access to a data service, means they are more loyal to the bank. The more products customers have, the lower the risk of the client leaving to another bank.” (S5)		
“With a relatively low investment, banks can anonymize information, aggregate it and sell it.” (S3)	Data strategies may contribute to improve current business revenues	
“There can be a direct monetization, which is takes the data anonymously and sell it or transform the data into some actionable insight and sell it, or even monetize the algorithms themselves by selling them to companies as a service. Other way to monetize data is to create a new product.” (S5)		

“Since we started the marketplace, we've been increasing the number of partners who work with the bank, so we've also accelerated the financing business. In other words, we can say that last year the marketplace contributed to an acceleration of around 10% in the total volume of financing that the bank has. (…) We rapidly reached break-even value, 4 years to be precise, which is very acceptable for a project of this kind” (S10)		
“The future will be integration of AI in the development of these services.” (S4)	Data strategies and processes streamlined by AI	
“I believe AI will help scale the topic of Data Monetization.” (S6)		
“Now we're seeing AI, generative AI, and completely new models and algorithms emerging, which are going to open up almost infinite possibilities [to Data Monetization].” (S6)		
“There is this [external] opportunity which is linked to the financial transaction information from bank cards, which is different from knowing what products a customer buys. Using a credit card, you know which brand was bought, how much was spent, but you don't know in which products." (S1)	Bank data are an extremely valuable information for external companies	Creating new revenue streams for banks to monetize data (external Business Models)
“Normally, the target is companies, because most cases of direct use of Data Monetization have to do with profiling, segmentation or georeferencing logic, where they compare themselves with other players.” (S3)		
“There are other industries less data rich [then banks] which can be interested in acquiring bank data, for example utilities or insurance. The contact with the client in those is very reduced, so they can benefit a lot from making partnerships with big transactional companies, as allows them to gain more insights about the customers.” (S5)		
“The [Data Monetization] target depends a lot on the pricing model and the value proposition. The pricing itself will depend on the [bank] final goal.” (S3)	Data Monetization target depends on the pricing model and the value proposition	
“We have two pricing models. We have the marketplace plans, in which the partner buys the marketplace plan receives all the leads sent to them at no cost, and we have different plans: Plan2, Plan4 and Plan Pro, which is adapted to the size of each partner. If, for some reason, the partner doesn't want these plans, we have a per-lead model. In other words, for each lead that generated, we charge X for each lead delivered. So, in essence, we have a pre-paid model, which is based on the lead, and a post-paid model, which is based on the plan.” (S10)		

“Portugal has more than 60% of small and medium-sized companies, or micro even, there is a great potential here. (…) The target will never be only small and medium-sized companies, but all companies. However, I think those who will see this as an added value service/product, are mostly small and medium-sized.” (S5)	Smaller companies may have greater interest in accessing data	
“The marketplace also facilitates the transition to digitalization for companies and partners, that’s why we mostly work with small and medium-sized businesses. (…) Most of our partners [SMEs] are not data driven, they are not even analytical, and so we give them a lot of tools to help them sell better and more.” (S10)		
“If it is a product of sharing or even sale of services or data to integrate, large companies can be the target. They don't have problems accessing more raw information, unlike small and medium ones. They are more structured and have analysts to give these insights.” (S5)	Larger companies have higher revenues and can pay for expensive data services/products	
“The strategy focus is not small and medium-sized companies. It's an expensive product, as we make it a "custom-made" product for each client. Now, only a small range of companies that have available budget to invest in this type of [Data Monetization] projects.” (S7)		
"There are several options for direct monetization. Use the data anonymously and then sell it. Turning the data into insights and then selling those insights. Monetize the algorithms themselves by selling them to companies as a service. Or creating a new product as a way of monetizing the data." (S5)	Data Monetization yields vast use cases in banking, driving value for businesses and consumers alike	
"Some banks use a marketplace to monetize existing data that was already consumed by the bank's customers." (S8)		
"I think other sectors are more technologically prepared than banks. Since banks have a lot of data production, it's hard to get to a level where the bank is a completely data-driven organization." (S2)	Effective utilization of data and enhancement of IT capabilities are crucial for Data Monetization	Organizational challenges to implement new data strategies
“The IT team has to have some capacity to develop these [Data Monetization] insights and dashboards. However, the amount of data that banks have is of a digital density that makes this a challenge. What's more, a lot of the data is still unstructured and in scattered sources.” (S4)		

“I don't see data privacy as an issue. As long companies assure privacy by default in these projects, I don't think there is much risk.” (S5)	Overcoming banks distrust and enhancing security are imperative for the expansion of Data Monetization	
“Banks have a very bad image and people don't trust banks in general. So, for a customer to know that their bank is using their transactional data to make money, it needs to be integrated in a smooth way.” (S6)		
“At this stage of Data Monetization, the competitive advantage has to do with the timing and speed with which companies can bring many of these solutions to market. In 2 or 3 years, there will be so many offers that Data Monetization will no longer be a differentiating factor.” (S5)	Leveraging timely market entry and product value are essential for sustaining Data Monetization	
“There are telecommunications operators, for example, who want to enter the banking sector. So, if traditional banks don't innovate, they'll be left behind and others will overtake them.” (S8)		
“Data Monetization has been talked about for a long time, but it is still something that is not fully rooted in the culture of organizations. Both for those who produce it and for those who are going to buy it.” (S3)	Banks cultural organization change is key for banks to implement Data Monetization	
“There is still a feeling of mistrust [in the bank] internally about the use of Data Monetization information and its perception as a reliable source.” (S4)		
“I think [Data Monetization] is contributing to a cultural transformation, but there is still work to be done. The areas of the bank don't have this focus on data, they're more commercial and focused on sales.” (S5)		
“The future will depend above all on business decision-makers adopting and realizing the importance of data and analytics. With the perception of the importance of data and data modeling, there will be a change in work and its operations.” (S2)	Data Monetization requires decision-makers to adopt data-driven strategies	
“There's all this data generation, and then business decision-makers need to understand how to make the best use of it.” (S3)		

4.1. Banks need to follow through specific tasks to tackle demanding regulations concerning data

The finding has delineated the pivotal considerations for implementing Data Monetization strategies effectively, namely ensuring data privacy, governance, and security.

One particular characteristic of the banking sector is its inherently subjection to regulatory scrutiny designed to ensure meticulous and ethical handling of data ("It is necessary to be very careful about data privacy. In Europe, companies are very concerned about this and ensure a balance between Data Monetization and protecting customer privacy.", S2). This is primarily because banks are custodians of highly sensitive and unique customer information, encompassing account numbers, transaction histories, and other personal identifiers ("When we look at the bank, it has a great advantage because it has a lot of data, including data that is generated in real time.", S2). Non-compliance with these stringent regulations, particularly in the realm of data processing, can result in severe financial penalties. Consequently, this regulatory environment cultivates a risk-averse culture within traditional banks, often inhibiting innovation in certain domains ("If there is a leakage of information from a bank, it's a scandal. That is why banks are averse to risk by nature.", S3).

While stringent regulation facilitates advancements in data governance within the banking sector relative to other industries, it simultaneously poses considerable challenges to the adoption of data strategies due to the rigorous enforcement of data privacy laws ("Banks, in particular, have regulators who demand that everything is organized, and that information is reported, which makes banks one of the most advanced sectors in terms of data governance.", S2; "Banks place a lot of value on data security and data governance. While this provides organization and responsibility for data, it also creates some obstacles.", S8).

Interviews conducted revealed a consensus that Data Monetization does not pose a risk to financial institutions ("I don't think Data Monetization harms banks, I think that ethics has to be part of the data management policy that financial organizations have." S10). This is contingent upon the utilization of data from customers who have explicitly consented to the General Data Protection Regulation (GDPR) policies, thereby not infringing upon any customer rights or regulations ("The authorization to access data is attached to the agreement given to the client.", S1; "The only thing to be careful about is security. All the data should be anonymized and that's it.", S7).

For the successful deployment of Data Monetization initiatives, two critical prerequisites were identified. Firstly, enterprises must secure explicit consent from their customers for data processing activities ("In order to collect data, companies must ensure that customers are aware what their data will be used for and that they have their consent.", S3). Secondly, any monetization solutions must employ aggregated data to present information. Data aggregation is crucial in ensuring individual anonymity when sharing data, through techniques such as segmentation and clustering, to preclude the identification of individual customers from the monetized data ("Data Monetization is always related to data aggregation and segmentation. Data must always be shared in a non-individualized way.", S8).

Authorization to process customer data necessitates a formal request for consent, highlighting the importance of transparency and clarity in the company's intentions ("It is very important to ensure that there is transparency with the customers, inform them and ask for explicit consent for this to happen.", S2). Any attempts to deceive the terms of consent, for instance through the use of fine print, may engender feelings of privacy invasion among customers and detrimentally impact the company-customer relationship ("There are companies who write consent in small letters so customers accept everything on the terms, however this will bring some feeling of invasion to the customer.", S2).

This research surfaces a significant inquiry for future investigation: the extent to which personalizing customer solutions can be perceived as invasive. In an era where customers are increasingly well-informed about data usage and demand services tailored to their specific needs, companies face the challenge of navigating the fine line between personalization and perceived privacy invasion. While personalized offerings are often welcomed, there exists a threshold beyond which customers may view such practices as intrusive negotiations over their data, leading to reluctance in consenting to data processing. These dynamics underscore the evolving landscape of customer expectations and the imperative for companies to balance personalization with data privacy.

4.2. Enhancing current Business Model through improved data strategy (internal Business Model)

Data strategies possesses the potential to significantly enhance traditional banking Business Models by optimizing their internal operations, support business decisions, enhancing customer experience, and diversifying revenue streams. Furthermore, the insights garnered from data

analysis contribute to a more comprehensive understanding of the market landscape, including competitor analysis and the adoption of innovative practices.

Banks are characterized by owning a substantial density of very relevant data, which is generated in real-time (“When we look at the bank, it has a great advantage because it has a lot of data, including data that is generated in real time.”, S2). This significant volume of data emanates from various sources within the banking institutions, including internal banking processes that are diverse and numerous, customer information, and data derived from banking terminals, such as Automated Teller Machines (ATMs) and Point of Sale (POS) systems.

This surfeit of data holds considerable value as it enables banking institutions to derive data-driven, feasible, and reliable insights across different dimensions including operations, market analysis, customer understanding, and overall business strategy.

Data regarding internal banking operations facilitates a comprehensive understanding of the bank's various processes (“Drawing insights from data allows to find out more about internal processes, the market and customers.”, S3). This operational data empowers banks to exert enhanced control over their operations and to initiate improvements on the duration of each operation, the identification and mitigation of process errors and the associated operational risks, and the identification of processes that are amenable to automation.

Through data acquired from POS systems, banks can gather insights about companies and customers, thereby gaining a perspective on diverse industries (“I can have a POS with a monthly report with information on the competition, the people who have been there, the best and worst sales times and much more.”, S5). This is particularly useful for devising Data Monetization strategies that can yield significant benefits in other sectors.

Regarding customer data, the nature of information varies between individuals and companies. For individuals, the data is predominantly transactional, shedding light on their income and expenditures. Such data enables banks to gain a more nuanced understanding of their customers' spending habits, facilitating personalized banking experiences and the tailoring of banking product and service offerings to meet specific customer needs. An illustrative example entails identifying customers with a notable increase in child-related purchases, suggesting a potential new parenting phase and enabling the bank to offer relevant products or services, such as long-term plans for children or loans for major purchases, as a car or a house (“In the past 2 months a client did a lot of transactions in kids services or baby shop, it may

mean that person is preparing for a baby. So, it makes sense to the bank push a financial product recommendation on a specific loan, because having a baby means maybe changing car or house, or even a long-term plan for the kids.", S4). For companies, Data Monetization strategies also enables the offering of a distinctive portfolio of products and services, setting the bank apart from competitors in a sector where pricing significantly influences choice ("Banks are in a sector where most products are commoditized and are defined by the rate, the price and few other things are what distinguish them. So, Data Monetization can be differentiating and add value to the service provided to the customer.", S5; "Data for us [bank], is a key element in providing our partners with demand data, market data, average prices, and much more data that can contribute to a better and more effective management of what our partners buy and sell.", S10).

Improved customer understanding enhances the customer experience ("The bank has information about customer transactions and according to the purchases the customer makes and their profile, the bank can offer better and more personalized proposals for proposals and cashback.", S5), bolstering loyalty and reducing the likelihood of them transitioning to another banking institution ("A bank with data can retain a client from the moment he/she is born, when the parents open an account, until he/she dies. If you treat him/her well, you can follow a client's life.", S4). For companies, Data Monetization encourages strategies for cross-selling ("If banks can understand transactional data of their customers, they can increase the selling and cross-selling of financial products.", S6). Products or services developed from Data Monetization hold such value, due to banking data, that corporations are willing to invest in them. Consequently, banks can develop strategies that require customers to subscribe to additional banking products as a condition for accessing these valuable offers, increasing the customer's investment in the bank, and reducing the propensity to switch banks ("Customers who owned only product A, but acquired also product B and C, because wanted to have access to a data service, means they are more loyal to the bank. The more products customers have, the lower the risk of the client leaving to another bank.", S5).

Data Monetization strategies might not serve as the principal source of revenue for banks; however, their influence on financial results is notable. An interviewee discussed a case involving a Data Monetization marketplace, noting its role in expanding the number of partners collaborating with the bank and boosting its revenues. This marketplace facilitated around 10% increase in the bank's total financing volume and achieved a break-even value within four years

(“Since we started the marketplace, we've been increasing the number of partners who work with the bank, so we've also accelerated the financing business. In other words, we can say that last year the marketplace contributed to an acceleration of around 10% in the total volume of financing that the bank has. (…) We rapidly reached break-even value, 4 years to be precise, which is very acceptable for a project of this kind”, S10).

The analysis of operations, market, and customer data offers a holistic business perspective, aiding decision-makers in formulating clear, needs-aligned strategies for both the bank and its customers (“Deciding based on what data says, rather than what people believe, clearly represents an advantage for companies. (...) By enriching data consolidation, there will be automatic categorization of transactions, merchant identification, income recognition and many other different pieces of information that can be provided.”, S4).

Furthermore, the potential impact of AI in enhancing the value derived from banks' data and in facilitating the scaling of Data Monetization strategies was highlighted by interviewees, suggesting a promising avenue for future exploration and implementation (“Now we're seeing AI, generative AI, and completely new models and algorithms emerging, which are going to open up almost infinite possibilities [to Data Monetization].”, S6).

4.3. Creating new revenue streams for banks to monetize data (external Business Models)

As previously analyzed, data derived from banking transactions possesses significant value due to the insights it can provide. For external organizations, access to this data is equally invaluable, thereby uncovering new opportunities with Data Monetization for revenue strategies.

The information gleaned from banking transactions enables the development of detailed customer consumption profiles, highlighting preferred brands, spending patterns across different geographic locations, and seasonal variations in expenditure. Although banking data does not disclose specific product purchases - a level of detail more typical of retail industry data—it nevertheless offers a broader perspective on consumer behavior across various sectors.

Another aspect enhancing the value of bank data is its potential to augment existing datasets within other organizations, thereby enriching analytical models. For instance, an interviewee's reference this enrichment comes from the relative infrequency of customer interactions within the insurance industry, suggesting that the incorporation of external data can afford a more

nuanced understanding of customer profiles ("There are other industries less data rich [then banks] which can be interested in acquiring bank data, for example utilities or insurance. The contact with the client in those is very reduced, so they can benefit a lot from making partnerships with big transactional companies, as allows them to gain more insights about the customers.", S5).

Among the interviewees, there was a consensus that the primary beneficiaries of Data Monetization are corporate entities ("Normally, the target is companies, because most cases of direct use of Data Monetization have to do with profiling, segmentation or georeferencing logic, where they compare themselves with other players.", S3). However, opinions varied regarding the specific focus—whether on Small and Medium-Sized Enterprises (SMEs) ("The marketplace also facilitates the transition to digitalization for companies and partners, that's why we mostly work with small and medium-sized businesses. (…) Most of our partners [SMEs] are not data driven, they are not even analytical, and so we give them a lot of tools to help them sell better and more.", S10) or on larger companies ("If the bank is just selling data, [the target] probably has to be a large company, that has its own data science team and can apply the model.", S2). This divergence stems from each bank's unique objectives and the resultant variation in Data Monetization pricing strategies ("The [Data Monetization] target depends a lot on the pricing model and the value proposition. The pricing itself will depend on the [bank] final goal.", S3), a topic that merits further investigation to explore the interrelation between pricing strategies and the application of Data Monetization solutions by banks.

In Portugal, with over 60% of businesses classified as SMEs, there emerges a distinct market segment. Given their limited customer databases and constrained budgetary allocations for market research, SMEs are particularly inclined towards generic and straightforward Data Monetization solutions that offer industry and customer-segments insights.

Conversely, banking data holds significant appeal for larger companies equipped with more advanced infrastructural and team capabilities, allowing them to engage with more complex Data Monetization solutions. For these entities, solutions might range from the acquisition of aggregated and anonymized data - which these corporations are then tasked with analyzing - to the procurement of bespoke solutions tailor-made to their specific requirements, capitalizing on their greater financial resources for investment in such initiatives. Additional Data Monetization strategies applicable to both SMEs and larger corporations include the establishment of

platforms offering aggregated information, with companies paying for access, and the development of APIs facilitating direct data consumption by various companies.

4.4. Organizational challenges to implement new data strategies

The implementation of data strategies, including Data Monetization, encounters three primary challenges: human resources, technological infrastructure, and market competition.

Concerning human resources, the predominant issue stems from an ingrained organizational culture within banking institutions, affecting all levels from employees to decision-makers ("There is enormous resistance on the part of business decision-makers and even in front-line operations to wanting to change the way they work and to look with confidence at these types of analytics and AI models.", S1; "I think [Data Monetization] is contributing to a cultural transformation, but there is still work to be done. The areas of the bank don't have this focus on data, they're more commercial and focused on sales.", S5). This signifies a lack of advanced data competencies and a vision oriented towards leveraging data insights among the workforce, leading to resistance towards the adoption of data-driven methodologies.

Decision-makers resistance towards data strategies is notable, requiring a significant paradigm shift in operational methodologies. Feedback from interviews suggests that the adoption success of such strategies significantly depends on the leadership's recognition of data's potential and its integration into a consistent, strategic framework for the institution.

Technologically, the focus is on the banking sector's IT infrastructure and data management capabilities. The vast amounts of data in possession of these institutions are highly complex and predominantly unstructured, distributed across scattered platforms, thereby complicating accessibility and processing. The sheer scale of IT operations further complicates swift data processing ("One of the main challenges is from an IT perspective. Banks have the resources to do it, but they don't know how to do it, which is due to internal processes and IT [data] architecture.", S6)

Data security is another vital concern, particularly given the stringent regulatory environment within the sector. Challenges in exporting data and implementing certain Data Monetization strategies are amplified by regulatory constraints. Moreover, customer perceptions regarding the security of their personal data can pose significant challenges for banks ("Banks have a very bad image and people don't trust banks in general. So, for a customer

to know that their bank is using their transactional data to make money, it needs to be integrated in a smooth way.", S6). Despite one interviewee's reassurance of minimal risk ("I don't see data privacy as an issue. As long companies assure privacy by default in these projects, I don't think there is much risk.", S5), customer opinions, particularly in Portugal where banks are viewed with skepticism due to historical scandals and prevalent financial illiteracy - the latter being the most severe in the European Union, play a critical role ("I think that banking distrust in Portugal is more pronounced than in other countries, and this may be related to the fact that Portugal is the country with the worst financial literacy in the European Union. Portugal has had many banking scandals in the past and there is also a political context that accentuates the lack of trust. This [distrust] is an issue for the sector.", S3).

Data Monetization, despite being a relatively unexplored area, has been identified as a potential unique value proposition for businesses ("Data Monetization can be used for market analysis, insights for business expansion, calculating market shares, defining marketing strategies and much more.", S7). Nevertheless, as companies recognize the business advantages of this strategy, its uniqueness as a differentiator diminishes. Early adoption of Data Monetization strategies is advocated to maximize customer perceived value ("At this stage of Data Monetization, the competitive advantage has to do with the timing and speed with which companies can bring many of these solutions to market. In 2 or 3 years, there will be so many offers that Data Monetization will no longer be a differentiating factor.", S5)

Lastly, some interviewees foresee the potential of such strategies to attract newcomers into the banking sector, drawn by the rich data density and potential insights. These entrants could include entities from diverse sectors, such as telecommunications and major technology firms, aiming to innovate within the market ("I think that very soon we will see large technology companies entering the market and disrupting this sector a little.", S6; "There are telecommunications operators, for example, who want to enter the banking sector.", S8).

5. DISCUSSION

5.1. Theoretical and Managerial Contributions

Comparative analysis between the literature review and the present study underscores not only corroborations with preceding research but also introduces novel viewpoints, thereby enlightening the research question, "How can Data Monetization influence Business Models within the traditional Portuguese banking sector?"

The initial discovery of this study pertains to the literature on ethical and transparent management of user data (Grover, 2018), alongside the critical need for regulatory frameworks for Big Data initiatives (LaBrie et al., 2018). It is observed that this theme consistently emerges as a consideration, however, a novel insight is that this factor does not pose a limitation for implementing Data Monetization in banking, provided that data anonymization and clustering are employed. Presently, the European Union exhibits stringent regulations concerning privacy and data security. Nonetheless, as long as these criteria are met and client consent is obtained, no issues arise. The necessity for enterprises to maintain transparency with customers when requesting data processing consent aligns with previously identified literature findings. Moreover, these consent requests should be formulated clearly to avoid adversely affecting the bank-customer relationship.

The second discovery addresses the existing gap in guidance for understanding Data Monetization (Hartmann et al., 2016; Günther et al., 2017; Sorescu, 2017). This thesis reveals that banks should view personal banking customers as data providers, rather than as targets for Data Monetization strategies. The implementation of Data Monetization within the realm of personal banking is recognized as either a challenge or a vague goal, given that personal banking customers serve as data sources, and the concept of these customers purchasing their own data seems implausible. Thus, it becomes crucial for banks to secure consent for data processing within personal banking by offering attractive services and incentives.

Earlier research identified literature gaps on how corporate banking data has not been analyzed in meaningful ways to identify potential corporate customers or to enhance business offerings to existing corporate customers (Lilien, 2016). Nevertheless, this thesis also introduces the insight that the primary focus for banking Data Monetization should be on corporate banking, yet it remains unclear whether the emphasis is on SMEs or larger companies.

Both SMEs and larger companies require deeper insights into customers, but their organizational needs differ. This thesis corroborates prior research indicating that SMEs face challenges in adopting BDA (Liozu and Ulaga, 2018), such as the need for specialized data processing and interpretation capabilities (Ulaga and Reinartz, 2011), and they lack a large client database. In contrast, large companies possess an established BDA capability and workforce, seeking additional client data to enhance the value of their products and services.

The third discovery introduces the application of Data Monetization products/services in corporate banking's cross-selling strategies to augment both bank revenue and client loyalty, as banks face challenges in effectively leveraging big data analytics to distinguish their product and service offerings to customers (Hung et al., 2020). Furthermore, this thesis supports the application of data-driven models in banks to enhance customer acquisition and retention (Lakhani et al., 2021)

The fourth discovery emphasizes the potential for monetizing data solutions for non-financial companies, allowing such entities to incorporate bank data to refine their analytical models. Zhang & Pang (2019)'s research demonstrates how banks utilize non-financial data to further improve banking operations, and this thesis proposes that banks should adopt a similar strategy to monetize data, where banks are the ones selling data, particularly financial data, to non-financial companies.

The fifth discovery proposes a new categorization of the principal revenue strategies related to Data Monetization: 1) selling aggregated and anonymized banking data to external entities, either as raw data with the external company responsible for analysis or as processed data accompanied by a report and insights; 2) monetizing banks' analytical algorithms to external entities; 3) selling access to a platform of aggregated and anonymized data for data-enabled performance outcomes, and 4) utilizing a freemium model where access to different data layers requires the purchase of additional banking products. These insights complement Ritala et al.'s (2024) data strategies, as they can be categorized respectively as Data as a product, Data-driven services, Data-enabled performance outcomes, and Data-enhanced products.

This thesis reaffirms literature on the use of banking data for the improvement of internal operations (Hung et al., 2020). It presents that data enables a comprehensive understanding of the bank's diverse processes by facilitating the measurement of operation durations, the identification and mitigation of process errors and associated operational risks, and the recognition of processes suitable for automation. Through the reduction of operational risks, banks can positively influence their revenue, as operational risks may lead to substantial fines.

Furthermore, in addition to the numerous challenges banks encounter in adopting Data Monetization and data-driven Business Models (Ulaga and Reinartz, 2011; Lewis and McKone, 2016; Wixom and Ross, 2017; Grover, 2018; Quach et al., 2022), this research also confirms the diminished trust in Portuguese banks due to historical scandals and financial illiteracy,

alongside the potential disruption from the entrance of non-financial companies into the banking industry. Specifically, BigTech companies, with their agile and adaptable technological infrastructure (Murinde et al., 2022) and substantial client databases, pose a considerable impact.

The presented Figure 1 provides a conceptual framework delineating the impact of Data Monetization on traditional banking Business Models. This framework builds upon an extensive review of the literature on Digital Transformation and its consequent effect on the adoption of Data-Driven Business Models within the banking sector, leading to the implementation of Data Monetization solutions. The framework underscores the primary axes of challenges, needs, and revenue strategies from Data Monetization, along with the secondary domains identified for the application of Data Monetization. Additionally, it identifies the targets of the main revenue strategies connected to Data Monetization.

In sum, the findings derived from this examination hold significant implications within both theoretical and managerial paradigms. Furthermore, this framework offers value in enabling stakeholders to recognize critical facets within the Data Monetization adoption process, thereby facilitating strategic responses at nascent stages of implementation.

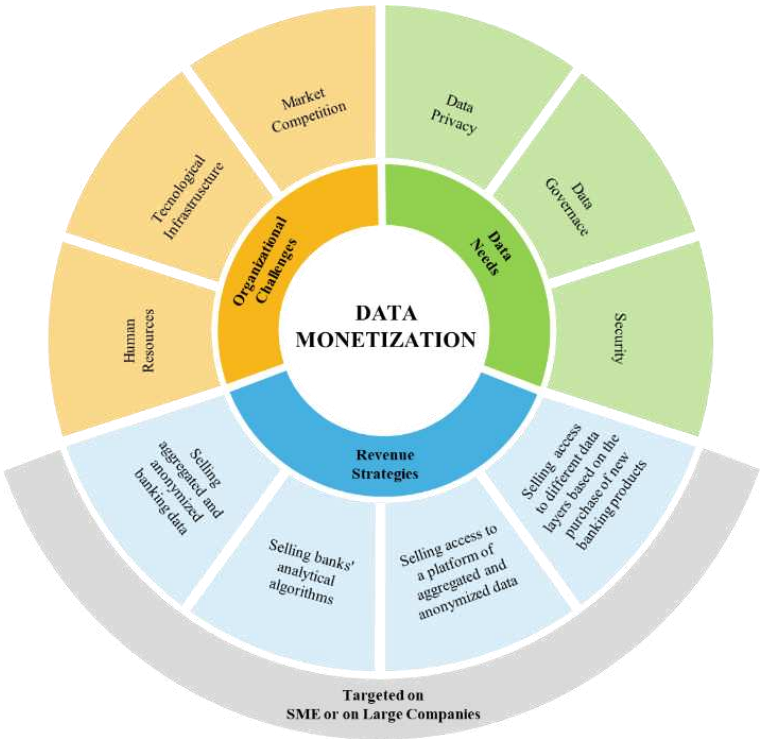

Figure 1. Framework for the Impact of Data Monetization on Traditional Banking Business Models

Source: Own illustration.

5.2. Limitations and Further Research

This study contributes valuable insights into the impact of Data Monetization on Business Models. However, it is essential to acknowledge its limitations and identify possibilities for future investigation.

The methodology of this research is qualitative, relying on interviews and text of collected data. Even though this approach enables a deep and flexible examination of the subject, it would be advantageous to augment this study with quantitative research methods. Such methods could serve to corroborate and generalize the findings more comprehensively. Moreover, the sample size employed in this study is relatively small, which constrains the extent to which these findings can be generalized.

The topic of Data Monetization is notably recent, and with the rapid DT coupled with increasing regulatory measures, the banking industry is in a state of continuous evolution. Consequently, the outcomes of this research offer merely a momentary study into the advancements within this area. As the banking industry progresses, these findings may become less pertinent over time. Thus, ongoing research is imperative to stay abreast of these developments and to further our understanding of Data Monetization.

For future studies, it is recommended to delve more profoundly into the revenue models associated with Data Monetization. This includes an exploration of how banks establish pricing strategies for various Data Monetization approaches and how they tailor these strategies for specific targets. Additionally, the focus on corporate banking as a target for Data Monetization warrants more extensive research. This should aim to comprehend its implications on the pricing models of Data Monetization solutions comprehensively.

6. CONCLUSION

The research presented within this thesis elucidates a straightforward yet impactful phenomenon, Data Monetization, and its transformative effect on banking industry Business Models. The investigation posits that the efficacious implementation of Data Monetization necessitates the incorporation of Data-Driven Business Models into the banking strategic framework. To achieve this, banks must confront and surmount primary challenges, which are categorized as follows: organizational challenges, marked by an underdeveloped culture of data-driven decision-making; process-related challenges, highlighted by the necessity for agile and flexible infrastructures to manage high data volumes; individual challenges, entailing the need for new workforce competencies; and environmental challenges, characterized by a highly regulated industry landscape alongside the emergence of disruptive market entrants.

This study furnishes significant theoretical and practical contributions. From a theoretical perspective, the findings offer an understanding of the use-cases applicability of Data Monetization within the banking sector, alongside delineating the potential targets of such solutions. Conceptually, this research positions Data Monetization as a catalyst for enhancing banks' revenue streams, rather than as a primary revenue source in itself. Moreover, Data Monetization is identified as a potential factor for differentiation among banks, particularly when adopted at an early stage.

Despite the rapid pace of Digital Transformation and the evolution of Data, it remains challenging to accurately forecast the future trajectory of Data Monetization solutions. However, Artificial Intelligence (AI) is anticipated to contribute to the emergence of new market scenarios and solutions. These advancements may unveil novel business innovations and precipitate further disruptions within the banking sector.

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8. APPENDIX

Appendix 1. Summary and high-level description of interviewees

Identification	Professional Experience		Seniority	Geography
	Industry	Role		
Interviewee S1	Data and Retail	Loyalty Partnership Manager	10 years	Portugal
Interviewee S2	Consulting	Associate Partner	16 years	Portugal
Interviewee S3	Consulting	Senior Manager	11 years	Portugal
Interviewee S4	Banking	Head of Business Insights	25 years	Portugal
Interviewee S5	Data and Banking	Chief Analytics Officer	17 years	Portugal
Interviewee S6	Data and Banking	Senior Account Executive	17 years	Germany
Interviewee S7	Data and Banking	Product Owner	3 years	Portugal
Interviewee S8	Data and Banking	Head of Data & Analytics	17 years	Portugal
Interviewee S9	Data and Banking	Client Executive and Data & Analytics Lead	21 years	Portugal
Interviewee S10	Data and Banking	Head of Acquisition	20 years	Portugal

Appendix 2. Semi-structured interview protocol

Topic 1: Background and Experience

Question 1: Could you briefly describe your current role and responsibilities? How long have you been working in this industry?

Question 2: Could you please tell me how you have been involved with Data Monetization projects? May I ask you to describe projects where you were involved in?

Question 3: What was the goal of the projects? What was your role?

Topic 2: Data Monetization and Banking Sector

Question 4: In which areas or functions have you been involved with Data Monetization Models?

Question 5: From your experience in Data Monetization projects, what were the motivations to explore these projects?

Question 6: Can you describe what impact the implementation of these models had in the organization? Have they affected the organization's Business Model?

Question 7: Have you had experience or were somehow involved in implementing Data Monetization Models in sectors other than banking? If so, which? What are the main differences between exploring Data Monetization in banking and other sectors? Could you please share specific examples or instances?

Question 8: To what degree were goals and motivations met after implementation?

Question 9: What were the benefits/advantages resulting from the integration of Data Monetization? Could you please share specific experiences? What were the costs/ disadvantages?

Topic 3: Data Monetization Impact

Question 10: How has Data Monetization affected the company competitive advantage? Which additional changes have you observed?

Question 11: Conversely, were there any instances where your expectations for Data Monetization exceeded what you really got out of it? Could you please describe?

Topic 4: Challenges and Ethical Considerations

Question 12: Regarding the Data Monetization projects you have worked on, what were the main difficulties or challenges?

Question 12: What ethical considerations do you have regarding Data Monetization adoption?

Question 14: What impact does Data Monetization, in your experience and opinion, have on the interactions between customers and banks?

Topic 5: Future Outlook and Recommendations

Question 13: Looking ahead, how do you foresee Data Monetization shaping the banking industry?

Question 14: What factors, in your opinion, should be taken into consideration when adapting Business Models to incorporate Data Monetization?

Topic 6: Closing Remarks

Question 15: Would you like to share any last views or information regarding the impact of Data Monetization in the banking industry?

Appendix 3. Sample data analysis

First-Order Themes	Second-Order Themes	Aggregate Dimensions
"There are several restrictions in the financial industry, so monetization of data in the banking industry has limitations that don't allow us to get as many insights as maybe other areas, like the area of retail. (…) [Data privacy] is one of the fundamental elements of Data Monetization for regulatory and GDPR reasons" (S1)	Banking industry regulations create barriers to Data Monetization adoption	Banks need to follow through specific tasks to tackle demanding regulations concerning data
"It is necessary to be very careful about data privacy. In Europe, companies are very concerned about this and ensure a balance between Data Monetization and protecting customer privacy. (…) Banks, in particular, have regulators who demand that everything is organized, and that information is reported, which makes banks one of the most advanced sectors in terms of data governance." (S2)		
"If there is a leakage of information from a bank, it's a scandal. That is why banks are averse to risk by nature. While most industries are very willing to sell and work on data, the bank is very afraid of that." (S3)		
"Open Banking is regulated in most of the European countries." (S6)		
"When companies want to have this type of Data Monetization projects the main topic is the GDPR, which requires a lot of communication all the time with the legal teams." (S7)		
"Banks place a lot of value on data security and data governance. While this provides organization and responsibility for data, it also creates some obstacles." (S8)		
"I don't think Data Monetization harms banks, I think that ethics has to be part of the data management policy that financial organizations have, and I think it's something that [financial organizations] are very aware of." (S10)		

“It is always aggregated information to understand the best behavior of the customers, in an anonymized way.” (S1)	Banks need to anonymize data, which can be achieved through data aggregation	
“By law, companies have to guarantee to anonymize the data and summarize it.” (S2)		
“Banks will never be able to sell data about a client, they will have to sell data about a group of customers. There must be minimums of clustering, segmentation, and anonymization of data.” (S3)		
"When companies are exploiting data, they need to ensure that they have consent to use it, that it is anonymized and that it is not deducible who the customer is." (S5)		
“The only thing to be careful about is security. All the data should be anonymized and that's it.” (S7)		
“Data Monetization is always related to data aggregation and segmentation. Data must always be shared in a non-individualized way.” (S8)		
“Customers’ data characterization generates high value, however it has to be anonymized information in order to be sold.” (S9)		
“The authorization to access data is attached to the agreement given to the client. (…) Companies should be transparent with the consent, while create here some gamification to value the customers, and in return make them feel good and share information.” (S1)	Companies should be transparent with the client when asking for data collection consent	
“It is very important to ensure that there is transparency with the customers, inform them and ask for explicit consent for this to happen. There are companies who write consent in small letters so customers accept everything on the terms, however this will bring some feeling of invasion to the customer.” (S2)		
"In order to collect data, companies must ensure that customers are aware what their data will be used for and that they have their consent." (S3)		
"There were a number of disclaimers, relating to Data Monetization among other things, so we were clear about what was underlying it. We didn't want any susceptibility." (S4)		

"There has been a trend towards more consumers realizing the value of brands accessing their transactional information. To have customers' consent, companies have to give them something in return, and this is where the big challenge lies: what is the value proposition and how to convey it? (...) Since customers know that brands are analyzing their data, sometimes when they receive more generic offers than those segmented for them, they are surprised, and some are even dissatisfied." (S1)	Asking customers for their consent makes them more aware and demanding	
"It's important for customers to feel that they get something back by agreeing to the use of their data and creating some value. To do this, companies need to create more value for the customer, for example a gamification program." (S2)		
"Customers are also demanding in the banking sector and therefore they also want to have products that are personalized to their needs." (S3)		
"A bank, based on purchases, can find out if a person likes sport, for example, and buys things from a certain brand. If then [the bank] sell that information to those brands and they do very targeted marketing, those customers can feel invaded." (S2)	There is a challenge to understand when personalization becomes invasion	
"Customers who choose not to agree to the data policy do so because they feel that the banks are doing business with their data." (S3)		
"Sometimes, the more brands want to personalize, to make a more and more personalized and directed offer, this can be confused with invasion." (S4)		
"Invasion is an issue when we talk about Data Monetization, as it uses data for business purposes, such as market segmentation that can later be used in marketing or sold to other industries." (S5)		
"Explore data allows to create correlations, and enables innovation, such as new creation of business lines and offers." (S1)	Customer data enhances banks' current business decisions	Enhancing current Business Model through improved data strategy (internal Business Model)
"Data allows better-informed decisions, and that is the first pillar of data strategy, companies can make better-informed decisions and more data driven. It can also improve operations and, indirectly, have an economic value gain for the bank." (S2)		

“When we look at the bank, it has a great advantage because it has a lot of data, including data that is generated in real time. There is data generated by internal processes, but also from the issuer's perspective, the card transactionality, and the data that is generated by the transactionality, known as POS.” (S2)		
“Drawing insights from data allows to find out more about internal processes, the market and customers. (...) Unlike other sectors, banks have access to data from other sectors, as they have all the transactions made via the card. They know where their customers are going and what kind of things they are buying." (S3)		
“Deciding based on what data says, rather than what people believe, clearly represents an advantage for companies. If a bank can make better decisions based on its data, it means that the data is indeed extremely valuable. (...) By enriching data consolidation, there will be automatic categorization of transactions, merchant identification, income recognition and many other different pieces of information that can be provided.” (S4)		
“I can have a POS with a monthly report with information on the competition, the people who have been there, the best and worst sales times and much more. This makes it possible to monetize this data internally to make decisions, add value to the service offered to the customer and improve the quality of the products and services created.” (S5)		
“With production of [banking] data, banks know all the life of customers. They know where, the frequency, and the amount they shop. Banks can even know where customers are traveling and what their favorite brand is.” (S6)		
“Banks can use data also for internal consumption and improvement of indicators and processes.” (S8)		
“Having data is fundamental. Knowing how to use that data correctly in the customer journey is crucial to maintaining business levels and the possibility of penetration and growth. (…) And Data Monetization can be a significant competitive advantage for banks who manage to use data in an integrated and clear strategy.” (S10)		

“[Data Monetization] allows to provide a better service in the product customers acquire.” (S1)	Data strategies contribute to improve customer experience	
“Data Monetization is very much related to improving the [bank's] offer.” (S2)		
“Data Monetization is a new source of revenue, it allows to diversify the portfolio a little bit, and especially improve the customer experience.” (S3)		
“For example, if in the past 2 months a client did a lot of transactions in kids services or baby shop, it may mean that person is preparing for a baby. So, it makes sense to the bank push a financial product recommendation on a specific loan, because having a baby means maybe changing car or house, or even a long-term plan for the kids.” (S4)		
“Banks are in a sector where most products are commoditized and are defined by the rate, the price and few other things are what distinguish them. So, Data Monetization can be differentiating and add value to the service provided to the customer. (...) The bank has information about customer transactions and according to the purchases the customer makes and their profile, the bank can offer better and more personalized proposals for proposals and cashback.” (S5)		
“I think [Data Monetization] will be a trend because it can provide insights. Also, an improved and more valuable client experience will come out of it.” (S6)		
“Data Monetization allows banks to have more services to offer to customers, whether they are companies or individual customers.” (S8)		
“Each time they have become less loyal to the brands, and more looking for what best suits them. It's up to the companies, as we to give the best offers to their customers, to try to attract them, and personalize them. I think that the customers have valued this personalization. One of the pillars of the bank is increase revenue, but also increase client's satisfaction, and the Data Monetization fulfils these two axes. A bank with data can retain a client from the moment he/she is born, when the parents open an account, until he/she dies. If you treat him/her well, you can follow a client's life.” (S4)	Data strategy to improve cross selling and loyalty	

“The cross-sell strategy has a double objective. First to increase profits, and second to increasing client's retention. Customers who owned only product A, but acquired also product B and C, because wanted to have access to a data service, means they are more loyal to the bank. The more products customers have, the lower the risk of the client leaving to another bank.” (S5)		
“If banks can understand transactional data of their customers, they can increase the selling and cross-selling of financial products.” (S6)		
"You can monetize the data, if you sell the access to the platform where you allow customers to have access to aggregated information of transactional data of the customers.” (S1)	Data strategies may contribute to improve current business revenues	
“Banks have data that is valuable to them, and which can also be valuable to other organizations. So, the topic of Data Monetization arises, and how a company can monetize its data and create economic value. (...) Banks don't want to think about strategy, data quality or operations, they want to invest in data and have a new revenue stream.” (S2)		
“With a relatively low investment, banks can anonymize information, aggregate it and sell it.” (S3)		
“The Business Model that can be set up, is a freemium model, that allows all customers to have access to a first layer of information and then there is a second one, only for those who have other products will have access to it. With this model we ended up monetizing indirectly.” (S5)		
“There can be a direct monetization, which is takes the data anonymously and sell it or transform the data into some actionable insight and sell it, or even monetize the algorithms themselves by selling them to companies as a service. Other way to monetize data is to create a new product.” (S5)		
“If banks can understand transactional data of their customers, they can increase the selling and cross-selling of financial products.” (S6)		
“Companies are beginning to realize that there are other types of ramifications in which they can apply Data Monetization beyond their own business. The more revenue streams a company has, even if they are different from the main one, the better.” (S7)		

“Data Monetization doesn't mean that it has large revenue streams, but it is a valuable revenue stream that allows banking institutions to collaborate with other economic agents and help its partners and provide them with differentiating information.” (S9)		
“Since we started the marketplace, we've been increasing the number of partners who work with the bank, so we've also accelerated the financing business. In other words, we can say that last year the marketplace contributed to an acceleration of around 10% in the total volume of financing that the bank has. (…) We rapidly reached break-even value, 4 years to be precise, which is very acceptable for a project of this kind” (S10)		
“Banks still need to improve the basics so that then can continue to create value, and I think that Gen AI will accelerate the improvement of this processes.” (S2)	Data strategies and processes streamlined by AI	
“The future will be integration of AI in the development of these services.” (S4)		
“I believe AI will help scale the topic of Data Monetization.” (S6)		
“Now we're seeing AI, generative AI, and completely new models and algorithms emerging, which are going to open up almost infinite possibilities [to Data Monetization].” (S6)		
“There is this [external] opportunity which is linked to the financial transaction information from bank cards, which is different from knowing what products a customer buys. Using a credit card, you know which brand was bought, how much was spent, but you don't know in which products." (S1)	Bank data are an extremely valuable information for external companies	Creating new revenue streams for banks to monetize data (external Business Models)
“There are cases in which two industries or two organizations from different industries can come together to get value. A strategy can be considering acquiring data from other industries, there's a lot of information that can be added and integrated into analytical models.” (S2)		
“Normally, the target is companies, because most cases of direct use of Data Monetization have to do with profiling, segmentation or georeferencing logic, where they compare themselves with other players.” (S3)		
“There are other industries less data rich [then banks] which can be interested in acquiring bank data, for example utilities or insurance. The contact with the client in those is very reduced, so they can benefit a lot from making partnerships with big transactional companies, as allows them to gain more insights about the customers.” (S5)		

“[Bank] Data Monetization enables improving and helping other business, or government, or public organizations, or consumers.” (S7)		
“Data for us [bank], is a key element in providing our partners with demand data, market data, average prices, and much more data that can contribute to a better and more effective management of what our partners buy and sell.” (S10)		
“The [Data Monetization] target depends a lot on the pricing model and the value proposition. The pricing itself will depend on the [bank] final goal.” (S3)	Data Monetization target depends on the pricing model and the value proposition	
“We have two pricing models. We have the marketplace plans, in which the partner buys the marketplace plan receives all the leads sent to them at no cost, and we have different plans: Plan2, Plan4 and Plan Pro, which is adapted to the size of each partner. If, for some reason, the partner doesn't want these plans, we have a per-lead model. In other words, for each lead that generated, we charge X for each lead delivered. So, in essence, we have a pre-paid model, which is based on the lead, and a post-paid model, which is based on the plan.” (S10)		
“Smaller companies that are starting to grow see value [in Data Monetization], because big companies already have a very large database of customers, unlike small companies.” (S1)	Smaller companies may have greater interest in accessing data	
“If the [Data Monetization] strategy is something as a service, which is scalable, the target will be smaller companies.” (S2)		
“Small companies are eager for information, because they don't have access to expensive consultancy studies with market data. Banks can create value as they have insightful data and support these companies to understand, within their sector, what good practices are being done, and that they can do to improve.” (S3)		
“In small companies, recommendations are something that happens a lot, allowing to easily penetrate this segment.” (S4)		
“Portugal has more than 60% of small and medium-sized companies, or micro even, there is a great potential here. (…) The target will never be only small and medium-sized companies, but all companies. However, I think those who will see this as an added value service/product, are mostly small and medium-sized.” (S5)		

“I think the target depends on the type of product we are talking about. If it is a more aggregated product small and medium are ones.” (S6)		
“The marketplace also facilitates the transition to digitalization for companies and partners, that’s why we mostly work with small and medium-sized businesses. (…) Most of our partners [SMEs] are not data driven, they are not even analytical, and so we give them a lot of tools to help them sell better and more.” (S10)		
“If the bank is just selling data, [the target] probably has to be a large company, that has its own data science team and can apply the model.” (S2)	Larger companies have higher revenues and can pay for expensive data services/products	
“If it is a product of sharing or even sale of services or data to integrate, large companies can be the target. They don't have problems accessing more raw information, unlike small and medium ones. They are more structured and have analysts to give these insights.” (S5)		
“The strategy focus is not small and medium-sized companies. It's an expensive product, as we make it a "custom-made" product for each client. Now, only a small range of companies that have available budget to invest in this type of [Data Monetization] projects.” (S7)		
"It's possible to monetize data by selling access to a platform with aggregated information on customers' transactional data. (...)With this, companies can see if there are customer movements, for example if they are losing customers to other brands." (S1)	Data Monetization yields vast use cases in banking, driving value for businesses and consumers alike	
"The solution for making Data Monetization available can be to sell raw data, KPI reports, exploratory analyses, or even to make it available in an API logic, to be consumed by other companies. This information can be used by companies to create more personalized and targeted marketing strategies. There are some examples of banks (that monetize data) that use this logic and distribute this information throughout the country." (S2)		
“In Data Monetization, you rarely stay within the silo of one sector. Some banks already work with other sectors, such as telecommunications, where they have entities that act as intermediaries to receive information from various entities, make it anonymous and then make the data available.” (S3)		

"There are several options for direct monetization. Use the data anonymously and then sell it. Turning the data into insights and then selling those insights. Monetize the algorithms themselves by selling them to companies as a service. Or creating a new product as a way of monetizing the data." (S5)		
"(Data Monetization) Can be done through Open Banking, customer data or CRM. Open Banking is simple, it's the possibility for non-financial institutions or credit card companies to also have access to customer data." (S6)		
"Data Monetization can be used for market analysis, insights for business expansion, calculating market shares, defining marketing strategies and much more." (S7)		
"Some banks use a marketplace to monetize existing data that was already consumed by the bank's customers." (S8)		
“A more advanced product of Data Monetization is Open API, where is a set of data services available, free, or paid, that companies can have access though an API. This adds value and differentiation to banks.” (S9)		
"Our Data Monetization Business Model, is based on selling the generated leads for our partners, who then use these leads to convert and make the purchase and sale.” (S10)		
"I think other sectors are more technologically prepared than banks. Since banks have a lot of data production, it's hard to get to a level where the bank is a completely data-driven organization." (S2)	Effective utilization of data and enhancement of IT capabilities are crucial for Data Monetization	Organizational challenges to implement new data strategies
“It's not common [in banks] for data to be well organized and available.” (S3)		
“The IT team has to have some capacity to develop these [Data Monetization] insights and dashboards. However, the amount of data that banks have is of a digital density that makes this a challenge. What's more, a lot of the data is still unstructured and in scattered sources.” (S4)		

“One of the main challenges is from an IT perspective. Banks have the resources to do it, but they don't know how to do it, which is due to internal processes and IT [data] architecture. Change their architecture, in some cases it's easy to integrate, but regarding of security, there are some risks, and most banks aren't prepared to take on that risk from a purely IT perspective.” (S6)		
“A big challenge that the banks have is that they don’t have a single integrated system, is typically 3, 4, 5, 6 tools, software, CRMs, databases, that they use and is built on top of each other, which makes the integration of all this data a challenge. In other words, it's all about building the data layers that encompass and integrate it, to have an overview of the customer's journey and value.” (S10)		
“Banks have a lot of data to work with and are willing to consume a lot of data. They have an enormous technological infrastructure and it's an industry that is used to working with a lot of data, but at the same time, due to security, it's an industry that is not used to the freedom to export data.” (S2)	Overcoming banks distrust and enhancing security are imperative for the expansion of Data Monetization	
“I think that banking distrust in Portugal is more pronounced than in other countries, and this may be related to the fact that Portugal is the country with the worst financial literacy in the European Union. Portugal has had many banking scandals in the past and there is also a political context that accentuates the lack of trust. This [distrust] is an issue for the sector." (S3)		
“I don't see data privacy as an issue. As long companies assure privacy by default in these projects, I don't think there is much risk.” (S5)		
“Banks have a very bad image and people don't trust banks in general. So, for a customer to know that their bank is using their transactional data to make money, it needs to be integrated in a smooth way.” (S6)		
“You have a very valuable database, but if your customers and brands don't perceive the use of this very valuable tool, you lose your service/product value.” (S1)	Leveraging timely market entry and product value are essential for sustaining Data Monetization	
“If every company has access to this information, then it can get less value. But there are also some strategies that can be used.” (S2)		

“At this stage of Data Monetization, the competitive advantage has to do with the timing and speed with which companies can bring many of these solutions to market. In 2 or 3 years, there will be so many offers that Data Monetization will no longer be a differentiating factor.” (S5)		
“I think that very soon we will see large technology companies entering the market and disrupting this sector a little. However, traditional banks still have a big advantage over challenger banks. They have a customer base and, more importantly, an offer of financial products that other FinTech’s don't have. Open Banking has forced traditional banks to review their strategy and focus more on user experience, data and how to generate new revenue streams." (S6)		
“I don't think many companies are taking advantage of the monetization of banking data yet.” (S7)		
“I think there's already an awareness on Data Monetization, which was something that didn't exist before and now banks are investing on it, with some being a little further ahead, others a little further behind.” (S10)		
“There are telecommunications operators, for example, who want to enter the banking sector. So, if traditional banks don't innovate, they'll be left behind and others will overtake them.” (S8)		
“What is perhaps missing, and we can make better use of it, is the ability to interpret, create and work on insights more quickly, to bring more value to banks.” (S1)	Banks cultural organization change is key for banks to implement Data Monetization	
“I don't know of any bank that has a truly data-driven culture. There is to work on the organizational structure to capture more value from data. Otherwise, the bank may have some value in a specific use case, but it doesn't make it a recurring thing." (S2)		
“Data Monetization has been talked about for a long time, but it is still something that is not fully rooted in the culture of organizations. Both for those who produce it and for those who are going to buy it.” (S3)		
“There is still a feeling of mistrust [in the bank] internally about the use of Data Monetization information and its perception as a reliable source.” (S4)		

“I think [Data Monetization] is contributing to a cultural transformation, but there is still work to be done. The areas of the bank don't have this focus on data, they're more commercial and focused on sales.” (S5)		
“There's a lot of turnovers in the bank because, in general, processes take a long time. Then, every two years, someone changes, and the predecessor doesn't have the same vision, making it difficult to maintain a consistent data culture over time.” (S6)		
“Banks find it difficult to work like other data-oriented companies because of their culture.” (S8)		
“There is enormous resistance on the part of business decision-makers and even in front-line operations to wanting to change the way they work and to look with confidence at these types of analytics and AI models.” (S1)	Data Monetization requires decision-makers to adopt data-driven strategies	
“The future will depend above all on business decision-makers adopting and realizing the importance of data and analytics. With the perception of the importance of data and data modeling, there will be a change in work and its operations.” (S2)		
“There's all this data generation, and then business decision-makers need to understand how to make the best use of it.” (S3)		
“I think the biggest difference is where the thrust of the organization's strategy lies. Currently, there is no clear strategy on what is to be monetized.” (S5)		
“Banks don't have a clear vision of what they want. Either because of internal processes or because there are too many people, but that's exclusively down to their organization and decision-makers.” (S6)		
“I think the big challenge is a lot about education, the market still needs to be data-driven, which it isn't, and so there's also a lot of work involved in educating the market itself to understand the value of data and how to use data.” (S10)		