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THE IMPACT OF OPEN BANKING IN NORDIC BANKS:

Opportunities and Challenges in Finland, Norway and Sweden

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ABSTRACT:
The European Union's Revised Payment Services Directive (PSD2), which went into effect in January 2018, has significantly changed the financial services sector in the Nordic region, which includes Finland, Norway, and Sweden. The regulatory foundation of what is commonly referred to as "open banking" is PSD2, which requires banks to exchange customer-consented financial data with licensed third-party providers (TPPs) via safe Application Programming Interfaces (APIs). This thesis looks at the strategic, technological, and operational responses to this framework from five large Nordic banks: Nordea (Finland), DNB (Norway), and SEB, Swedbank, and Handelsbanken (Sweden).The study makes use of publicly accessible institutional documents, such as annual reports (2018–2024), developer portal publications, regulatory filings, and press communications, using a qualitative, constructivist-interpretivist research design that combines Thematic Content Analysis (TCA) and Cross-Country Comparative Analysis (CCCA). To reduce strategic communication bias, documents were chosen based on clear criteria of authority, importance, and recentness; coded using a hybrid deductive-inductive framework; and triangulated across several source types. Porter's (1985) Five Forces model, the Resource-Based View (Barney, 1991), dynamic capabilities theory (Teece et al., 1997), and open innovation theory (Chesbrough, 2003) are all incorporated into the theoretical framework. Together, these four frameworks function as a cohesive explanatory system that links the PSD2 regulatory shock through institutional resources and

capacities to the competitive challenges banks encounter and the strategic positions they take. Each framework offers a unique analytical viewpoint. The results show that the case banks have three different strategic stances. By using its API Market to generate over 50 million API requests each month and gain industry accolades for commercial breakthroughs like the Instant Reporting offering, Nordea has become the most proactive platform builder. In order to provide pan-Norwegian account aggregation, DNB has adopted an ecosystem-integration approach, co-investing €5.2 million in Nordic API Gateway. While Handelsbanken has maintained a compliance-first orientation reflecting its decentralized corporate culture, SEB and Swedbank have adopted cooperative approaches, taking part in the P27 pan-Nordic payments initiative and fintech partnerships (most notably Swedbank–Minna Technologies, generating 50 million SEK in customer savings). The study highlights enduring issues such as cybersecurity vulnerabilities brought about by increased API surfaces, regulatory fragmentation resulting from Norway's non-EU EEA status, and notable resource differences between large platform-oriented banks and smaller compliance-driven institutions. The study adds four things to the small body of comparative academic literature on Nordic Open Banking: it uses open innovation theory as a methodical explanatory lens for banking; it shows how DNB's strategic options are structurally constrained by the EU-EEA distinction; it offers an empirically supported typological classification of all five institutions; and it places findings within the emerging PSD3/PSR regulatory landscape that is anticipated to resolve many of the national-implementation inconsistencies found in this study.

KEYWORDS: Open Banking, PSD2, Nordic banks, Nordea, DNB, SEB, Swedbank, Handelsbanken, open innovation, API strategy, fintech collaboration, regulatory compliance, PSD3, dynamic capabilities .

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Abbreviations

AISP Account Information Service Provider

API Application Programming Interface

ASPSP Account Servicing Payment Service Provider

BaaS Banking-as-a-Service

CCCA Cross-Country Comparative Analysis

EBA European Banking Authority

EEA European Economic Area

EU European Union

FIDA Financial Data Access (Regulation)

FIN-FSA Finnish Financial Supervisory Authority (Finanssivalvonta)

FinTech Financial Technology

GDPR General Data Protection Regulation

MFA Multi-Factor Authentication

OAuth Open Authorisation Protocol

PISP Payment Initiation Service Provider

PSD2 Revised Payment Services Directive (Directive EU 2015/2366)

PSD3 Third Payment Services Directive (Proposal, COM/2023/366)

PSR Payment Services Regulation

RBV Resource-Based View

SCA Strong Customer Authentication

TCA Thematic Content Analysis

TIPS TARGET Instant Payment Settlement

TPP Third-Party Provider

VRIN Valuable, Rare, Inimitable, Non-substitutable

1 INTRODUCTION

After finishing this thesis, the reader will have four distinct contributions that they were unable to deduce prior. It first shows empirically how PSD2 operates as a mandated open innovation experiment and how the interplay of institutional resources, dynamic capabilities, and regulatory context explains the resulting strategic variation, ranging from full platform engagement to compliance minimalism. Second, it demonstrates that the EU-EEA structural distinction is a continuous constraint that influences the basic strategic alternatives accessible to Norway's banks rather than just a time aberration. This conclusion has immediate consequences for the design of PSD3 and FIDA implementation. Third, it closes a vacuum in the comparative academic literature by offering an organized, empirically supported typological taxonomy of five significant Nordic organizations. Fourth, it places all of the findings in the context of the developing PSD3/PSR and FIDA regulatory framework, offering an analytical basis for predicting how future regulatory changes would impact Nordic banks' competitive positions and available strategic options. Beyond geographical convenience, the Nordic setting is analytically significant because it combines the highest rates of digital banking adoption in the world with different regulatory implementation pathways across EU and EEA jurisdictions, making it an ideal laboratory for studying the interactions between institutional context and a shared regulatory shock.

1.1 Research Background

Over the past 20 years, the financial services sector has experienced unprecedented structural upheaval. Rapid advancements in digital technology, the evolution of consumer expectations toward real-time, personalized, and frictionless financial services, and a new wave of regulatory interventions intended to foster competition and consumer empowerment have all contributed to this transformation. The Nordic region, where Finland, Norway, and Sweden have continuously led the continent in digital literacy, internet penetration, and the use of technology-enabled financial

services, is where this shift has been most noticeable in all of Europe (Finance Finland, 2019; Eurostat, 2018). The Revised Payment Services Directive (PSD2), officially known as Directive (EU) 2015/2366, has been a key regulatory development in this transition. Adopted on November 25, 2015, the Directive went into effect in EU member states in January 2018. The controlled, customer-consented exchange of financial account information and payment initiation capabilities between banks and licensed third-party providers (TPPs) using secure Application Programming Interfaces (APIs) is known as Open Banking, and it is made possible by PSD2. PSD2 significantly alters the competitive and cooperative dynamics of the financial services industry by requiring banks to make their payment infrastructure accessible (Nicholls, 2019; Petrović, 2020).

The three national contexts examined in this thesis present a rich diversity of regulatory implementation pathways. In Finland, PSD2 was transposed into national law in 2018 through the Act on Payment Services (Maksulaitoslaki), with the Finnish Financial Supervisory Authority — FIN-FSA or Finanssivalvonta — designated as the competent authority for licensing TPPs and supervising compliance. In Sweden, the directive was implemented through amendments to the Payment Services Act (Betaltjänstlagen), with Finansinspektionen as the supervisory authority. Norway's position as a member of the European Economic Area (EEA) rather than the EU introduced a structural complication with lasting consequences: PSD2 was incorporated into the EEA Agreement and applied in Norway from April 2019, approximately 15 months after the EU implementation deadline, under the oversight of Finanstilsynet. These differing implementation pathways — and the distinct national technical standards that have emerged — have produced a degree of regulatory fragmentation that this thesis examines in detail (Finanstilsynet, 2023).

The five focus institutions of this study — Nordea, DNB, SEB, Swedbank, and Handelsbanken — represent some of the largest and most influential financial institutions in the Nordic region. Nordea's API Market hosts over 6,800 registered sandbox users and facilitates more than 50 million API calls per month (Nordea, 2024). DNB commands approximately 30% of the Norwegian retail banking market and has adopted a partnership-led approach to Open Banking that reflects both its market

position and the peculiarities of Norway's EEA regulatory status (DNB, 2023). SEB, Swedbank, and Handelsbanken, each with distinct corporate cultures and customer strategies, illustrate the diversity of strategic responses possible even within a single national market. The larger picture is the continuous growth of regulations. The European Commission's proposals for a Third Payment Services Directive (PSD3) and an accompanying Payment Services Regulation (PSR), tabled in June 2023, aim to eliminate national implementation inconsistencies, introduce more stringent API performance standards, and expand data-sharing obligations toward Open Finance — encompassing mortgages, savings, investments, pensions, and insurance data (European Commission, 2023). Understanding how Nordic banks have responded to PSD2 therefore provides the analytical foundation for anticipating the regulatory landscape ahead, particularly as the PSD3/PSR framework is expected to come into force between 2026 and 2027. Nordic consumers are among the most digitally engaged in the world, with digital banking penetration exceeding 92% across all three focus countries by 2023 (Mastercard, 2023). Consumer attitudes toward data sharing are markedly more permissive in the Nordic countries than in many other European markets (Yapily, 2024), representing a structural advantage for banks seeking to build Open Banking ecosystems. The digital readiness indicators are examined in detail in Section 2.2.

1.2 Research Gap, Question and Objectives

Despite the growing significance of Open Banking as a regulatory, technological, and strategic phenomenon, academic scholarship on its implementation in the Nordic context remains limited and fragmented. The majority of existing peer-reviewed studies adopt either a broad European perspective or a technical focus on API design and data security (Botta et al., 2018; Gomber et al., 2018). Industry reports from consultancies such as PwC (2018) and Innopay (2018) provide market intelligence but are constrained by limited analytical transparency and the absence of academic rigour. The application of open innovation theory to the banking industry represents a second

major gap. Chesbrough's (2003) framework has been widely applied in manufacturing and technology sectors, but its systematic applicability to financial services — and specifically to the bank-fintech collaboration dynamics that Open Banking enables — has received limited scholarly attention. Yet Open Banking is, by its very design, a mandated experiment in open innovation: it compels banks to share proprietary infrastructure with external actors and to compete or co-create within a multi-participant ecosystem. Third, comparative analysis of how specific major Nordic banks have interpreted and enacted Open Banking strategies across different national regulatory contexts is largely absent from the peer-reviewed literature. Fourth, the literature predates or does not adequately consider the PSD3/PSR regulatory proposals and their potential to resolve many of the fragmentation issues that characterise the current PSD2 landscape. The following is the formulation of the main research topic for this thesis: RQ: How are Nordic banks — specifically Nordea, DNB, SEB, Swedbank, and Handelsbanken — adapting their strategic, technological, and regulatory responses to the Open Banking framework established by PSD2, and what do their experiences reveal about the opportunities and challenges of open banking in the Nordic region?

The study explores four distinct research aims in order to answer this research topic. The first is to analyse the strategic orientations of the five focus banks against established typologies and assess the degree to which each corresponds to the platform-leader, ecosystem-integrator, collaborative-innovator, selective-innovator, or compliance-oriented archetypes. Examining each bank's technology implementations is the second step, with an emphasis on sandbox availability, developer portal quality, API development maturity, and fintech partnership structure. The third is to analyze national regulatory environments and their impact on bank strategy, including variations in PSD2 implementation in Finland, Sweden, and Norway as well as the structural limitations of Norway's EEA membership. The fourth is to use Porter's Five Forces, the Resource-Based View, open innovation, and dynamic capabilities as a cohesive explanatory framework.

1.3 Scope, Definitions and Limitations

The method of facilitating customer-consented financial data sharing between banks and authorized third-party providers through standardized, secure APIs while adhering to the PSD2 regulatory framework is referred to in this study as "open banking" (Nicholls, 2019). FinTech is the term for technology-driven businesses that offer or facilitate financial services, either as partners or rivals of traditional banks (Kuszewski, 2018). According to Chesbrough (2003, p. xxiv), open innovation refers to the use of intentional information inflows and outflows to boost internal innovation and increase markets for innovation's outward use. An API is a software gateway that facilitates controlled data flow across several organizations by allowing two programs to connect in accordance with standardized rules and protocols. This study's scope is restricted to corporate and retail banking operations in Finland, Norway, and Sweden from January 2018 to the conclusion of the fiscal year 2024. The core analysis does not include asset management, insurance, or investment banking. Another restriction is to data availability: as this is a qualitative study based on institutional records that are publicly accessible, the analysis is inevitably limited by what banks decide to reveal in annual reports, developer portals, regulatory filings, and public communications. All assertions are triangulated across at least two independent source types in order to reduce strategic communication bias. For instance, annual report statements are cross-referenced with results from regulatory supervisors and independent press communications. To further enhance the results, future study employing expert interviews with bank Open Banking leads, fintech partners, or regulators could solve the lack of primary interview data. These restrictions align with the research's exploratory and interpretive nature.

1.4 Structure of the Thesis

The financial ecosystem, trends in digital penetration, the regulatory environment under PSD2, and the variety of industry-level strategic responses are all covered in Chapter 2's contextual review of the Nordic banking sector. A thorough literature analysis covering the conceptual underpinnings of Open Banking, strategic management theory, bank response typologies, Nordic-specific scholarship, fintech collaboration, and the function of API strategy is presented in Chapter 3. The research methodology, including the qualitative research design, data collection techniques, the analytical framework that combines TCA and CCCA, and an evaluation of validity, reliability, and ethical issues, is covered in Chapter 4. The results for each of the five case banks are presented and discussed in Chapter 5, which incorporates them into a theoretical synthesis and cross-country comparative analysis. The investigation is concluded in Chapter 6, which summarizes the results, explains theoretical contributions, provides useful advice, and suggests future lines of inquiry.

2 OVERVIEW OF THE NORDIC BANKING INDUSTRY

This chapter uses a five-dimensional map of the Nordic banking scene to contextualize the empirical investigation. The financial ecology and market structure of Finland, Norway, and Sweden are described in Section 2.1. The remarkable digital preparedness of Nordic consumers is documented in Section 2.2. The country regulatory implementations of PSD2 and their differences are discussed in Section 2.3. Section 2.5 looks at the importance of fintech collaboration and ecosystem growth, while Section 2.4 summarizes the range of strategic approaches visible at the sector level. Together, these sections demonstrate that the Nordic region is not only a convenient geographic focus but also an analytically unique setting that offers an exceptionally rich laboratory for researching Open Banking strategy due to its high rate of digital adoption and different legislative routes.

2.1 The Nordic Financial Ecosystem

High levels of market concentration, sophisticated digital infrastructure, a long history of regulatory cooperation, and a deeply ingrained culture of trust in both public institutions and digital platforms are characteristics of the Nordic financial ecosystem, which includes the banking industries of Finland, Norway, and Sweden. Together, the three nations are home to some of Europe's most advanced financial institutions, functioning within a regulatory framework that is both domestically distinct and generally harmonized (Lee & Shin, 2018). Three large banks, Nordea, OP Financial Group, and Danske Bank, control more than 70% of all loans and almost 80% of all deposits in Finland (Finance Finland, 2020). Nordea continues to be the most important institution in the Finnish market, with its registered office still located in Helsinki. With over 30% of the retail banking market in Norway, DNB is the biggest financial institution in the nation (DNB, 2023). One of the most successful instances of pre-competitive cooperation in the Nordic region is Vipps, a mobile payment platform that is jointly owned by the major Norwegian banks and has nearly universal user

usage. The banking industry in Sweden has a more competitive multi-player structure, with the majority of retail and corporate loans coming from Handelsbanken, SEB, Swedbank, and Nordea's Swedish subsidiaries. There is also an increasing number of fintech startups in the ecosystem. Sweden's Klarna and Tink have become global leaders in the financial services industry when it comes to the disruptive potential of technology. The business importance of open banking infrastructure is demonstrated by Visa's acquisition of Tink in 2022 for about €1.8 billion. FIN-FSA, Finanstilsynet, and Finansinspektionen are examples of regulatory agencies that operate within the larger EU/EEA supervisory framework while retaining national interpretive discretion. This balancing both contributes to the fragmentation described in this thesis and is a source of regulatory richness.

2.2 Digital Banking Penetration and Consumer Behaviour

Nordic customers are among the world's most tech-savvy. With around 90% of the population using digital banking services, Finland has the highest rate of online banking usage in Europe, compared to the EU average of 54% (Eurostat, 2018). According to more recent data from Mastercard (2023), digital banking adoption has increased even further in the three focus nations, surpassing 92% in each of the three national markets. Significant structural ramifications have resulted from this digital preparedness. While making significant investments in mobile banking features, such as real-time payment confirmation, biometric verification, personal financial management tools, and integrated investment and savings dashboards, banks have been able to streamline their physical branch networks. Compared to many other European markets, consumer attitudes toward data sharing are significantly more liberal in the Nordic countries (Yapily, 2024). This cultural openness is a structural advantage for Nordic banks looking to establish Open Banking ecosystems.

2.3 Regulatory Landscape and PSD2 Implementation

Adopted on November 25, 2015, PSD2—Directive (EU) 2015/2366—must be incorporated into national law by January 13, 2018. Subject to express consumer consent, its fundamental rules require account-servicing payment service providers (ASPSPs) to grant licensed TPPs access to client payment accounts through secure, standardized APIs. Account Information Service Providers (AISPs) and Payment Initiation Service Providers (PISPs) are two new types of regulated activity created by PSD2 (Petrović, 2020). The Act on Payment Services (Maksulaitoslaki) in Finland implemented PSD2, and FIN-FSA adopted a principles-based supervisory approach that has largely supported Nordea's premium API strategy. The Payment Services Act (Betaltjänstlagen) was amended in Sweden to implement the directive. Finansinspektionen's 2023 evaluation found major weaknesses in the API quality standards of Swedish banks, especially with relation to fallback interface availability, authentication flows, and uptime obligations (Finansinspektionen, 2023).

A long-lasting structural issue was brought about by Norway's EEA membership: PSD2 went into effect in Norway in April 2019, around 15 months beyond the EU implementation deadline. Additionally, the EEA incorporation process creates a structural uncertainty that does not exist for Nordea, SEB, Swedbank, or Handelsbanken regarding the application of future EU financial market laws, such as PSD3, the PSR, and the Financial Data Access (FIDA) Regulation, in Norway (Finanstilsynet, 2023). Real-time instant payment settlement in SEK and euros is made possible by Sweden's participation in the TARGET Instant Payment Settlement (TIPS) program in February 2024, which is a significant development (Noda Live, 2024).

2.4 Strategic Responses to Open Banking

Due to variations in company culture, leadership vision, past technological investment paths, and the unique competitive dynamics of each national market, Nordic banks' strategic reactions to Open Banking have been everything but consistent. There is a discernible range of strategic stances, from Handelsbanken's compliance-focused

simplicity to Nordea's assertive platform leadership. While compliance-focused organizations have put risk management ahead of commercial innovation, larger banks with strong digital capabilities have typically seen Open Banking as a strategic opportunity rather than just a compliance problem. The main factors that account for this variance include institutional size in relation to the market, corporate culture, leadership vision, and the unique regulatory environment that each bank faces. These factors are further examined in Chapter 5.

2.5 Fintech Collaboration and Ecosystem Development

In the Nordic region, fintech collaboration has become a key component of Open Banking policy. This includes co-development partnerships, formal API partnership agreements, equity investments in fintech businesses, and innovation accelerator programs. One of the most notable instances of bank-fintech co-ownership in the area is DNB's co-investment in Nordic API Gateway, a pan-Nordic provider of PSD2 infrastructure. A strategic logic of infrastructure sharing that distributes costs and risks while speeding capabilities development is seen in the €5.2 million joint equity investment made by DNB and Danske Bank in 2018 (Finextra, 2019).

These collaborations are not without difficulties. Integration may be hampered by differences between banks and fintech companies in terms of organizational culture, technical architecture, risk tolerance, and regulatory interpretation. It is necessary to properly negotiate and continuously monitor governance frameworks pertaining to data-sharing agreements, intellectual property ownership, liability allocation, and joint development protocols (Chesbrough & Brunswicker, 2014). The competitive dynamics of bank-fintech cooperation are particularly complicated; as Visa's acquisition of Tink showed, a fintech partner today might become a rival tomorrow. In conclusion, Chapter 2 has demonstrated that the Nordic banking industry offers an analytically valuable laboratory for researching Open Banking.

It combines the highest adoption rates of digital banking in the world with a variety of institutional strategies, from Nordea's platform leadership to Handelsbanken's

compliance orientation, and different regulatory implementation pathways, such as EU transposition in Finland and Sweden versus EEA incorporation in Norway. The five focus institutions' unique opportunities and difficulties are shaped by these contextual elements, which also serve as the empirical background for the application of the theoretical frameworks discussed in Chapter 3.

3 LITERATURE REVIEW

This chapter identifies the four holes that this thesis fills by reviewing the research on open banking in seven different domains. The conceptual underpinnings and strategic management ideas that apply to Open Banking are established in Sections 3.1 through 3.2. These theories are combined into a single explanatory framework in Section 3.3. The typological, Nordic-specific, fintech collaboration, and API strategy literatures are reviewed in Sections 3.4 through 3.7. The gaps are summarized in Section 3.8. This chapter's main contention is that existing literature has applied the four theoretical frameworks—open innovation, RBV, dynamic capabilities, and Porter's Five Forces—individually rather than collectively, and that they are most effective when viewed as a cohesive explanatory system rather than as parallel lenses.

3.1 Conceptual Foundations of Open Banking

The controlled exchange of customer-authorized financial data between banks and approved third-party providers via safe, standardized APIs is what defines open banking, a revolutionary paradigm in the financial services industry (Zachariadis & Ozcan, 2016). The vertically integrated approach that has traditionally characterized banking, in which a single organization controls the whole value chain from data collecting through product delivery to customer relationship management, is fundamentally different from this idea. Open Banking replaces it with a decentralized, data-driven ecosystem architecture where banks serve as data custodians, infrastructure providers, and, in the most sophisticated situations, platform orchestrators for a larger community of service providers (Gozman et al., 2018).

A theoretical foundation for comprehending the dynamics of API ecosystems is provided by the economics of platform markets, especially the work of Rochet and Tirole (2003) on two-sided markets. The scale and diversity of the participant community in a two-sided market improves the platform's worth to any individual

participant: more developers building on an open banking API produce more goods, draw in more consumers, and in turn draw in more developers in a self-reinforcing loop. Open Banking is a mandatory platform: regulators have forced banks to make their infrastructure accessible to outside parties, making them platform operators regardless of whether they choose to deliberately take on that role or only adhere to its minimal criteria. An additional level of complication is introduced by the connection between Open Banking and the General Data Protection Regulation (GDPR). While GDPR sets strict guidelines for how that data may be processed, stored, and used by TPPs, PSD2 requires data exchange with consumer consent. In all three national markets, the interaction between these two regulatory frameworks has led to interpretation uncertainty and compliance difficulties, especially for smaller TPPs (Finansinspektionen, 2022).

3.2 Strategic Management in the Banking Sector

Porter's (1985) Five Forces model, the Resource-Based View (RBV) (Barney, 1991), and dynamic capabilities theory (Teece et al., 1997) are three complementary theoretical frameworks found in the strategic management literature that help explain how banks react to significant environmental disruptions like Open Banking. These frameworks offer a multi-level understanding that connects the external regulatory shock through institutional capabilities to observed strategic postures when used as an integrated explanatory system, as seen in the conceptual framework discussed in Section 3.7 below.

According to Porter's (1985) Five Forces study, Open Banking significantly modifies each of the five competitive forces. As PSD2 lowers obstacles for fintech companies, the prospect of new entrants grows because any licensed AISP with customer consent can now access customer account data that was previously only available to the account-holding bank. The ability of PISPs to provide payment initiation services directly raises the risk of substitutes. Customers' financial data becomes more portable, which lowers switching costs and increases buyer power. As banks' Open Banking

operations become more reliant on third-party cloud and API infrastructure, the power of technology suppliers grows. As the advantages of distinction provided by exclusive data access diminish, the level of competition among current banks intensifies.

The strategic assets that established banks can use to keep a competitive edge in the face of fintech entry are identified under the Resource-Based View (Barney, 1991). Fintech entrants find it difficult to reproduce the VRIN resource of customer trust that has been developed over decades of safe custody. Personalized services are based on extensive proprietary databases gathered over decades of customer connections. In the highly regulated financial services industry, regulatory knowledge and current banking licenses offer benefits. Building on the RBV, dynamic capabilities theory (Teece et al., 1997) highlights the significance of organizational agility—the capacity to recognize new opportunities and threats, seize them through strategic partnership and investment choices, and reorganize current assets and capabilities to maintain competitive advantage over time. The ability of banks to quickly build and refine API products, establish and oversee fintech alliances, reorganize internal technological infrastructures, and foster an ecosystem-oriented innovation culture are examples of dynamic skills in the Open Banking setting.

3.3 Integrated Conceptual Structure

Although each of the four frameworks discussed above has unique explanatory potential, their usefulness is maximized when used as an integrated explanatory system as opposed to as separate lenses. This is how the integration operates: Porter's Five Forces model reflects the external competitive pressure created by PSD2's regulatory shock, which lowers entry barriers, boosts buyer power, and intensifies rivalry. How a particular bank reacts to this pressure depends on its resources (RBV) and its organization's capacity to recognize, grasp, and adapt to the changing competitive environment (dynamic capabilities). The strategic decision that open innovation theory explains is whether the bank uses its resources and capabilities through an open innovation strategy—actively integrating external knowledge from

fintech partners and developer communities—or retreats to compliance minimalism (Chesbrough, 2003).

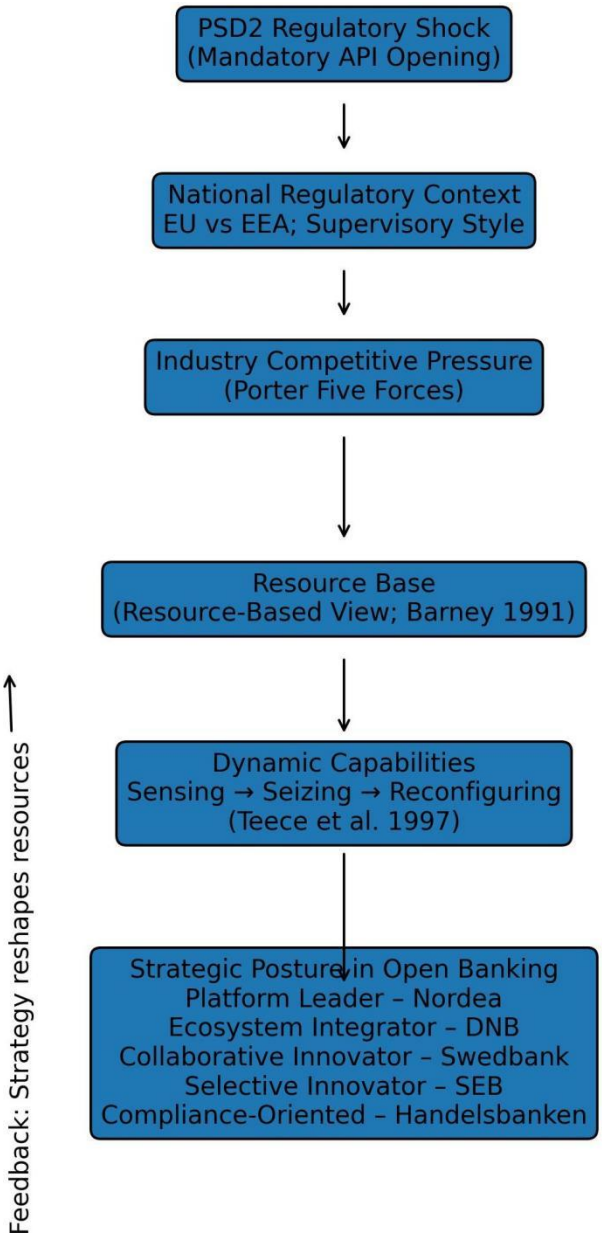
Table 1. Integrated Theoretical Framework Summary

Framework	Core Contribution	Unique Explanatory Role	Interaction with Others
Open Innovation (Chesbrough, 2003)	Explains purposive knowledge flows across firm boundaries	Accounts for why banks vary from full ecosystem engagement to compliance minimalism	Identifies what knowledge resources (RBV) can be leveraged externally; sets the context for sensing opportunities (DC)
Resource-Based View (Barney, 1991)	Identifies VRIN resources conferring sustained advantage	Explains which incumbent assets (trust, data, licences) matter in the post-PSD2 environment	Resources determine the seizing and reconfiguration capacity (DC); constrain or enable open innovation depth
Dynamic Capabilities (Teece et al., 1997)	Explains organisational agility: sensing, seizing, reconfiguring	Illuminates why first-mover advantage compounds over time (Nordea's 2017 portal launch)	Translates resource base (RBV) into enacted strategic posture; governs openness of innovation boundary
Porter's Five Forces (Porter, 1985)	Maps competitive pressures exerted by PSD2's market opening	Shows how the regulatory shock reshapes rivalry, entry, substitution, buyer power, and supplier power	Creates the external pressure to which dynamic capabilities must respond; determines value of VRIN resources

Note. Frameworks applied as an integrated explanatory system. Source: Author's own compilation based on theoretical frameworks reviewed in Sections 3.1 and 3.2.

The practical implication of this integration is that banks are better positioned to implement advanced open innovation strategies if they have strong VRIN resources (RBV), such as Nordea's pan-Nordic scale and brand, and strong dynamic capabilities, such as early platform investment and developer community development. Compliance minimalism is more common in banks with fewer resources or more inflexible organizational cultures. Although both tactics are proactive, DNB's ecosystem-integration approach and Nordea's platform leadership differ structurally because regulatory environment dictates the constraints within which these dynamics play out.

Figure 1. Integrated Conceptual Framework: Linking Regulatory Shock to Strategic Posture



Note: Using Porter's Five Forces as a lens, the framework shows how the regulatory shock brought about by the Revised Payment Services Directive alters industry competition. Businesses build adaptive capabilities in accordance with the Dynamic Capabilities framework (Teece, Pisano & Shuen, 1997) and react depending on their internal resources in accordance with the Resource-depending View (Barney, 1991). According to Chesbrough (2003), these competencies influence banks' strategic positioning along an open innovation continuum. Over time, implemented techniques may strengthen or weaken company resources, according to the feedback loop.

The four theoretical frameworks function as a cohesive explanatory system, as seen in Figure 1. From top to bottom, the external pressure that transforms all five competing forces is created by PSD2 and the national regulatory backdrop (Porter, 1985). A bank reacts to this pressure by considering the strength of its dynamic capabilities (Teece et al., 1997) and its institutional resource base (Barney, 1991). From complete platform involvement at the Nordea end to compliance minimalism at the Handelsbanken end, the resulting strategic posture reflects the bank's position on the open innovation continuum (Chesbrough, 2003). The feedback arrow at the bottom of the figure illustrates a crucial temporal dynamic: a bank's strategic posture today either increases or decreases the VRIN resources that will determine its competitive position tomorrow. For this reason, Nordea's 2017 first-mover investment has compounded into an ecosystem that rivals now find too costly to replicate.

3.4 Nordic Banking and Open Banking Research

There is still a dearth of scholarly study that focuses on open banking in the Nordic region. The high baseline of digital preparedness in Sweden and Finland is documented by Nicholls (2019). The dominance of large incumbent institutions and the slow growth of the TPP market during the early PSD2 period are confirmed by Finance Finland (2020). The research currently in publication acknowledges but does not thoroughly analyze the strategic differences between large and small Nordic banks in their

approaches to Open Banking. By concentrating on five disparate case institutions that together represent the entire spectrum of strategic postures detailed in the typological literature, the current study fills this gap. Although useful as a contextual baseline, the Nordic-focused material examined in this section has a number of methodological flaws that should be noted. Studies showing high rates of digital adoption and market concentration in Finland and Sweden (Nicholls, 2019; Finance Finland, 2020) mostly rely on supervisory reports and aggregate market statistics, which capture macro-level trends but are unable to disclose the organizational dynamics, trade-offs, or strategic reasoning behind individual banks' Open Banking decisions. Additionally, studies published during the early PSD2 implementation period (2018–2021), when few banks had progressed beyond compliance-minimum API offerings, may underestimate the strategic differentiation that has since emerged. Additionally, API adoption rates are frequently used in the literature as a stand-in for strategic success without considering whether compliance efforts result into.

3.5 Fintech Collaboration and Innovation Ecosystems

In contrast to strictly market-based transactions, Chesbrough and Brunswicker (2014) contend that formal collaboration arrangements such as joint ventures, license agreements, and innovation partnerships are linked to open innovation in large, established enterprises. These mechanisms take the form of developer community development initiatives, API cooperation programs, and fintech co-investment in the banking industry. According to Lee and Shin's (2018) fintech ecosystem model, the building of mutual trust among ecosystem members over time, the alignment of strategic goals, and the interoperability of technological systems are all critical to the success of open innovation projects.

There is a noticeable selection bias in the literature on bank-fintech collaboration reviewed in this section: studies and industry reports typically highlight successful, publicly announced partnerships, while failed collaborations, dissolved agreements, and partnerships that did not advance past the pilot stage are mostly missing from the record. The academic literature, which frequently concentrates on the strategic justification and market results of partnerships rather than on their internal governance dynamics, also underrepresents the governance complexity of bank–fintech relationships, including liability allocation, data-sharing protocols, and intellectual property ownership (Chesbrough and Brunswicker, 2014). Furthermore, research from the United States and the United Kingdom, where Open Banking regulatory frameworks differ structurally from the PSD2 context, dominates the literature on fintech ecosystems; as a result, direct application of findings from those markets to the Nordic context requires caution. By focusing on partnership structure and governance within the Nordic PSD2 environment, this thesis helps to address this imbalance. However, because it relies on publicly available documents, private governance agreements and partnership failure cases are not included in the analysis.

3.6 Technological Infrastructure and API Strategy

Open Banking's technical foundation is made up of APIs. A successful API strategy includes both the creation of premium commercial APIs that generate additional revenue prospects and PSD2 compliance, which is the legally required disclosure of account information and payment initiation services. According to Gozman et al. (2018), there are two types of APIs: strategic APIs and regulatory APIs. Strategic APIs are created beyond regulatory standards in order to generate commercial value through enhanced developer experience and differentiated functionality. Nordic banks, and Nordea in particular, frequently score among the top performers in studies of Open Banking API quality across European banks (Deloitte, 2021; Open Banking Tracker, 2023).

The literature on API strategy examined in this section consistently treats API call volumes, developer registrations, and portal quality scores as stand-ins for strategic success without considering whether these technical metrics result in quantifiable competitive outcomes like cost reduction, improved customer retention, or revenue diversification. Because it is conceivable for a bank to generate high API call volumes from a limited number of major institutional clients without creating the broad developer ecosystem that generates sustainable competitive advantage, this confusion of activity metrics with strategic results is a key restriction. Direct cross-study comparisons are inaccurate since different API quality assessments, such the Open Banking Tracker (2023) and Deloitte (2021), use distinct methodological frameworks. This further limits comparability across research. This shortcoming is acknowledged in the current thesis, which treats API data as indicative rather than definitive evidence and always triangulates technical indications against regulatory assessments and strategic messaging before making typological inferences.

3.7 Gaps in the Literature

This thesis fills in the four main gaps identified by the literature review. The first is the lack of a comparative study that particularly looks at how each of the main Nordic banks has reacted to Open Banking in various national regulatory environments. The second is the restricted use of open innovation theory as a methodical analytical framework for bank-fintech cooperation, as opposed to a descriptive term. The third is the inadequate analysis of how Norway's EEA non-EU status affects the Open Banking plans of its banks. The fourth is the lack of research placing Nordic bank plans in the context of PSD3/PSR regulations. This thesis provides a methodically based and theoretically informed knowledge of how regulatory backdrop, institutional characteristics, and strategic decision interact to determine Open Banking strategy by filling up these four gaps through a qualitative comparative case study.

In conclusion, the theoretical and empirical underpinnings of the study that follows

have been outlined in Chapter 3. A cohesive explanatory system that connects the PSD2 regulatory shock through institutional resources and capabilities to the strategic postures noted in Chapter 5 has been created by integrating open innovation theory, the Resource-Based View, dynamic capabilities, and Porter's Five Forces (Section 3.3). This thesis fills the four main holes found in the literature review: comparative Nordic analysis, open innovation application to banking, EEA regulatory framework, and PSD3 positioning. The methodological strategy used to close these gaps is now covered in Chapter 4.

4 METHODOLOGY

The methodological decisions supporting the empirical analysis are explained and supported in this chapter. The qualitative, constructivist-interpretivist philosophical stance is established in Section 4.1. The triangulation process and document selection criteria used to reduce strategic communication bias are described in Section 4.2. The two-stage analytical framework that combines Thematic Content Analysis and Cross-Country Comparative Analysis is described in Section 4.3, along with the hybrid deductive-inductive coding procedure. Reliability, validity, reflexivity, and ethical issues are covered in Section 4.4. The precise declaration of document selection criteria, coding kinds, and triangulation sources that make the analytical reasoning transparent and repeatable is this chapter's main methodological contribution.

4.1 Research Design and Philosophical Positioning

A constructivist-interpretivist epistemological framework serves as the foundation for the qualitative, exploratory research design used in this thesis. The study question, which focuses on how institutions create, convey, and implement strategic solutions to a complicated and dynamic regulatory-technological phenomenon, justifies the use of qualitative technique. The institutional narratives, strategic framing, and interpretive variations at the center of this investigation cannot be captured by quantitative financial indicators, although they can offer helpful contextual data.

According to the constructivist-interpretivist paradigm (Creswell, 2014), discourse, institutional practice, and human interpretation all contribute to the social construction of social phenomena, such as organizational strategies and regulatory responses. The bank strategies discussed in this thesis are socially created stances that represent the institutional cultures, leadership visions, and competitive presumptions of the organizations that implement them; they are not just technical solutions to regulatory requirements. In a sequential and integrated framework, the study design

integrates two analytical techniques: Cross-Country Comparative Analysis (CCCA) and Thematic Content Analysis (TCA). The strategic, technological, and regulatory themes found in the documentary corpus for each focus institution are first identified and characterized using TCA. The patterns found in the three national situations are then compared using CCCA, progressing from descriptive to explanatory comprehension of the organizational, market-structural, and regulatory elements that explain strategic variation

4.2 Data Collection and Sources

The empirical data comes from a methodical examination of publicly accessible institutional records created by or pertaining to the five focal banks and the pertinent national regulators. (1) primary source documents from the focus banks, such as annual reports (2018–2024) and developer portal documentation; (2) regulatory documents from FIN-FSA, Finanstilsynet, Finansinspektionen, the European Banking Authority, and the European Commission; (3) industry reports from Finextra Research (2023), Mastercard (2023), and Yapily (2024); (4) peer-reviewed academic publications found using the search terms "open banking," "PSD2," "Nordic banks," "API strategy," "fintech collaboration," and "open Banking Tracker database. Three specific criteria were used to influence the selection of documents. The extent to which the paper addressed the strategic, technological, or regulatory aspects of Open Banking at one or more of the focal institutions was used to determine its relevance. Primary sources, such as bank publications, regulatory reports, and official European Commission documents, were given more evidential weight than secondary sources when authority was evaluated based on institutional provenance. For regulatory and market-context materials, recentness was given priority, with a focus on 2020–2025. All assertions in Chapter 5 are triangulated across several different source types in order to reduce strategic communication bias,the following triangulation rule was used throughout the analysis to systematically operationalize this commitment: before being considered a trustworthy foundation for typological classification, any significant assertion regarding

a bank's Open Banking posture must be backed by evidence from at least two independent source types. For example, before being categorized as a finding, a claim from a bank's annual report has to be supported by data from the developer portal, an independent press report, or an evaluation by a regulatory supervisor. Claims are specifically marked as provisional in the analysis when just one type of source is available. This criterion lessens the possibility that the typological results will be influenced by strategic communication bias, which is the propensity of banks' public publications to reflect optimistic framing rather than operational reality, which is the possibility that banks' public publications reflect optimistic strategy framing rather than operational reality. For instance, DNB's partnership disclosures are verified against independent Finextra press reporting; Finansinspektionen's 2023 quality review findings are compared with the developer portal documentation of Swedish banks; and Nordea's reported API call volumes are cross-referenced with Open Banking Tracker data. In Chapter 5, no factual claim is based solely on one source.

To further support transparent evidence weighting, documentary sources were classified into four reliability tiers. Conclusions are weighted in proportion to the reliability tier of their supporting sources, with regulatory and audited sources given greater evidential authority than commercial communications:

Table 2: Source Quality Classification

Tier	Source type	Reliability rationale	Usage in this thesis
High	Regulatory reports (FIN-FSA, Finanstilsynet, Finansinspektionen, EBA, European Commission)	Independent institutional authority; no commercial incentive; subject to public accountability	Primary corroboration for compliance assessments and national regulatory context
Medium-high	Audited annual reports (bank primary disclosures, 2018–2024)	Legally required disclosures subject to external audit; material misstatements carry legal liability	Primary source for strategic orientation statements and partnership disclosures
Medium	Industry research reports (Mastercard 2023, Yapily 2024,	Methodologically transparent but commercially positioned; findings directionally reliable but	Supporting corroboration for market context and comparative

	Finextra Research 2023, Deloitte 2021)	should not be used as sole evidence	benchmarks
Medium-low	Bank press releases, developer portal marketing pages, conference presentations	Strategic framing likely; content may reflect aspirational positioning rather than verified operational data	Used only when corroborated by a higher-tier source; never used as sole basis for typological classification

Note. Source classification developed by the author. Where a claim could only be supported by medium-low tier sources, this is explicitly acknowledged in the analysis and the conclusion is treated as provisional.

4.3 Analytical Framework

There are two interwoven steps to the analysis. Thematic Content Analysis (TCA) is used in the first stage in accordance with Braun and Clarke (2006). A hybrid deductive-inductive process was used to develop the coding framework: first analytical categories were built deductively from the theoretical frameworks in Chapter 3, using the dynamic capabilities dimensions of Teece et al. (1997), the open innovation framework of Chesbrough (2003), and the strategic typologies of Gozman et al. (2018). After that, these preliminary classifications were inductively improved through repeated, intensive interaction with the empirical data. The primary thematic dimensions addressed in the TCA are: strategic orientation toward Open Banking; API investment level and commercial differentiation beyond PSD2 requirements; developer portal quality and community engagement; fintech partnership structure and governance; regulatory interpretation and compliance approach; cybersecurity and data protection posture; competitive positioning relative to fintech entrants; and strategic trade-offs (innovation versus compliance risk, platform investment versus partnership dependence, centralisation versus decentralisation). This final dimension was not included in the original deductive framework, but it was introduced inductively in response to patterns seen in the data.The coding process is described below as a five-step sequence to improve the analytical process's transparency and reproducibility:

Step 1: Compiling the documents. As explained in Section 4.2, all materials that satisfied the three inclusion criteria—relevance to Open Banking strategy at one or more target institutions, institutional authority of the source, and recentness—were assembled into a working corpus.

Step 2: Use a deductive codebook. Using the dynamic capacities dimensions of Teece et al. (1997), the open innovation framework of Chesbrough (2003), and the strategic typologies of Gozman et al. (2018), the first coding categories were deduced from the theoretical frameworks examined in Chapter 3. After a thorough reading, each text was categorized according to the eight main thematic dimensions.

Inductive code generation is step three. New inductive codes were implemented when data patterns did not fit within preexisting deductive categories. This process gave rise to the "strategic trade-offs" dimension, which was then added to the framework.

Step 4: Theme consolidation and code improvement. Through recurrent interaction with the corpus, codes were examined, combined where they overlapped, and aggregated into overarching themes. To verify accuracy, the initial codes were compared to their original papers.

Step 5: Classification of strategic typologies. Using the predetermined decision rules listed in the table below, each institution was categorized into a strategic typology. Evidence from at least two distinct source types was needed for categorization; if a classification was supported by just one source type, the conclusion was noted as tentative.

The decision rules used for typology classification are as follows:

Table 3. Strategic Typology Decision Rules

Strategic typology	Required evidence	How distinguished from adjacent typology
Platform leader	Premium commercial APIs documented; large developer community (1,000+ registered users or equivalent); co-design or community engagement; ≥2 independent source types	Distinguished from Ecosystem Integrator by presence of proprietary platform with commercial differentiation, not partnership-dependent capability
Ecosystem integrator	Co-investment or co-ownership in shared infrastructure; partnership-dependent Open Banking capability; no proprietary premium API platform; ≥2 source types	Distinguished from Collaborative Innovator by structural co-ownership or governance rights in shared infrastructure, not bilateral service partnership
Collaborative innovator	Publicly disclosed bilateral fintech partnership generating documented consumer value; active participation in multi-bank infrastructure; ≥2 source types	Distinguished from Selective Innovator by consumer-facing value creation; from Ecosystem Integrator by absence of co-ownership
Selective innovator	Open Banking investment concentrated in specific institutional client segments; corporate-focused APIs; PSD2-compliant infrastructure with targeted commercial additions	Distinguished from Compliance-Oriented by targeted commercial investment beyond minimum compliance; from Collaborative by institutional rather than consumer focus
Compliance-oriented	PSD2-compliant API and developer portal confirmed; no publicly disclosed commercial strategy, premium API, or bilateral partnership; ≥2 source types across full study period	Distinguished from all higher typologies by absence of documented commercial or partnership intent across the full 2018–2024 period

Note. Decision rules developed by the author from the strategic typology framework of Gozman et al. (2018) and applied consistently across all five focus institutions. All classifications required corroboration across at least two independent source types.

The second stage, which is organized around four comparative dimensions—regulatory environment and PSD2 implementation approach; strategic orientation and API development investment; fintech partnership structure and open innovation practice; and competitive positioning and market outcomes—uses Cross-Country

Comparative Analysis (CCCA) to investigate how the themes found in Stage 1 vary across the three national contexts.

4.4 Reliability, Validity and Ethical Considerations

Reliability and validity issues with qualitative research designs are well-documented. The study uses thorough documentation of all coding choices and theme classifications (see Appendix 3) to address dependability, which is the consistency and reproducibility of the analytical process. This allows readers to trace and assess the analytical reasoning. The first analytical categories are derived from well-established theoretical frameworks, and the hybrid deductive-inductive coding system is made explicit.

As explained in Section 4.2, triangulation across several documentary sources is used to address validity, or the extent to which the study yields results that accurately represent the phenomenon under examination. Cross-case claims are clear and traceable to particular sources according to a structured evidence comparison table (Table 5) that offers comparable indicators across the five institutions. Instead than being interpreted as a lack of evidence, the analysis specifically acknowledges when data are not publically available or comparable across institutions. By being open and honest about the theoretical framework used and any potential drawbacks, reflexivity is addressed. The report admits that the open innovation framework was not created with the banking industry in mind and that applying it requires theoretical extrapolation, which includes interpretive risks. By supporting all theoretical assertions with particular empirical data from the documentary corpus and by making a clear distinction between description and interpretation throughout the study, these dangers are reduced. The main drawback of the study is its reliance on publicly accessible records, which inevitably leaves out private partnership agreements, proprietary performance statistics, and internal strategic discussions. This restriction is in line with the research's exploratory nature. The analytical insights would be greatly enhanced by future research using expert interviews with bank Open Banking leads, fintech partners, or regulators. Since the study is based solely on publicly accessible

institutional papers and all claims regarding particular institutions can be immediately linked to listed sources, there are no serious ethical issues. In conclusion, the empirical analysis now has a clear and strict methodological base thanks to Chapter 4. For a research issue focused on institutional meaning-making and strategic decision-making, the constructivist-interpretivist qualitative design is suitable. The results in Chapter 5 are traceable, defendable, and well calibrated to the limitations of a document-based technique thanks to the hybrid deductive-inductive coding architecture, the clear document selection criteria, and the triangulation process. The empirical results for each of the five focus institutions are now presented and discussed in Chapter 5.

5 FINDINGS AND DISCUSSION

The empirical results for each of the five target institutions are presented and discussed in this chapter before being incorporated into a theoretical synthesis and cross-national comparison study. Strategic orientation, API and technology implementation, fintech partnership structure, and evaluation against theoretical frameworks are all part of the same framework that every bank case adheres to. The chapter concludes with a theoretical synthesis using the integrated framework created in Section 3.3 and a cross-case comparison analysis organized around the four CCCA features established in Chapter 4. The conclusions are supported by particular documentary sources throughout, and when strategic decisions are examined, their underlying reasoning, trade-offs, and motivations are made clear.

5.1 Nordea: Platform Leadership and Commercial Open Banking

5.1.1 Strategic Orientation

Among the five target institutions this study looked at, Nordea's involvement with Open Banking is the most sophisticated and strategically sound reaction to PSD2. Nordea's leadership clearly rejected a compliance-minimalist stance from the beginning of the PSD2 implementation process in favor of what its then-Head of Open Banking, Jarkko Turunen, described as a lead position in the Nordic market in the open API sector (Fintech Futures, 2017). The early release of a developer portal in 2017—a full year before the PSD2 mandatory deadline—and the subsequent creation of a two-tier API strategy that makes a clear distinction between commercially differentiated premium APIs and mandatory compliance APIs helped to operationalize this aspirational stance. Currently, more than 6,800 sandbox users have registered on Nordea's API Market, which enables more than 50 million API calls per month from more than 400 organizations that access real-time data throughout the Nordic region

(Nordea, 2024). The conscious decision to invest in ecosystem size as a long-term competitive moat is reflected in the strategic reasoning behind Nordea's platform approach. The short-term expense of a large investment in developer experience, high-quality documentation, and community involvement that would otherwise go into internal product development is the trade-off recognized in this decision. The anticipated return is a self-reinforcing network effect: a sizable and vibrant developer community creates entrance hurdles for rival banking systems and offers a steady flow of outside innovation inputs. Strong post-hoc confirmation of the strategic reasoning is provided by the fact that this trade-off has been justified across seven years of compound ecosystem expansion, from a standing start in 2017 to 50 million monthly API calls in 2024.

5.1.2 API Strategy and Technological Implementation

The PSD2-mandated compliance APIs and Nordea's commercial premium APIs, which provide more features like real-time transaction data, cash flow forecasts, foreign exchange rate data, fixed income market access, and account analytics, are clearly separated architecturally. It is structurally impossible for pure-play fintech companies without banking licenses and balance sheet resources to mimic the new income stream created by the premium APIs, which are supplied on a subscription or usage-based commercial basis. At Treasury Today's Adam Smith Awards in 2024, Nordea received recognition for the Instant Reporting API, which allows corporate treasurers to access real-time account and transaction data and integrate it directly with enterprise resource planning systems. The API has been adopted by institutional clients, such as the Swedish charity foundation Radiohjälpen (Nordea, 2024). This use case demonstrates how, when supported by enough technical quality, domain experience, and successful commercial packaging, a regulatory-mandated open banking capability can be turned into a premium commercial service. In line with Nordea's pan-Nordic institutional orientation, the choice to invest in corporate treasury as a premium area is a strategic trade-off in favor of high-value institutional clients over the creation of a broad consumer ecosystem. The industry has consistently

praised Nordea's developer site for its excellence and thoroughness. The site provides a community forum, a fully functional sandbox environment, a dedicated developer support staff, and distinct documentation pathways for technical developers and business users. By treating the developer community as an external source of product development input rather than just as a consumer of finished API products, the bank actively invites external developers to participate in the co-design of new APIs through structured feedback mechanisms. This approach exemplifies Chesbrough's (2003) open innovation framework.

5.1.3 Fintech Partnerships and Open Innovation

Nordea has explored a few strategically important fintech relationships outside of its API platform. Because of its partnership with Tink, which Visa later purchased for about €1.8 billion in 2022, Nordea was able to provide account aggregation services across several Nordic banks, adding pan-Nordic coverage to its own account data that a single-institution platform was unable to offer on its own. Participating in industry forums, publishing practitioner-focused open banking content, actively participating in the European Commission's PSD3 consultation process, and organizing developer events are just a few of Nordea's community development initiatives that demonstrate an ecosystem-builder orientation that goes beyond specific bilateral partnerships.

5.1.4 Assessment against Theoretical Frameworks

Nordea most closely fits into the platform-oriented category according to the Gozman et al. (2018) typology, with additional aspects of the ecosystem-builder attitude evident in its co-design and community involvement strategies. From a dynamic capabilities perspective (Teece et al., 1997), Nordea demonstrates strong sensing capabilities — evidenced by the early 2017 recognition of Open Banking as a commercial opportunity — strong seizing capabilities — evidenced by rapid premium API development and developer community investment — and adequate reconfiguration capabilities — evidenced by the restructuring of internal technology architecture to support an API-first business model. From a Resource-Based View

perspective, Nordea's open banking platform represents a durable competitive advantage rooted in a combination of technological investment, regulatory expertise, network effects, and developer community scale that is both valuable and difficult for competitors to replicate on a comparable timescale.

5.2 DNB: Ecosystem Integration in an EEA Context

5.2.1 Strategic Orientation and National Context

DNB's approach to Open Banking must be understood in the specific context of Norway's position as an EEA rather than EU member state — a structural condition that has no parallel in the Finnish or Swedish banking markets. The delayed implementation of PSD2 in Norway — April 2019 versus January 2018 in Finland and Sweden — and the additional regulatory complexity introduced by the EEA Agreement's incorporation mechanism have created structural constraints on DNB's open banking strategy that distinguish its situation from those of the other four focus institutions. Finanstilsynet's supervisory approach, while broadly consistent with the EBA's regulatory technical standards, has introduced national specificities in areas including API performance requirements and fallback interface obligations that have complicated cross-border service provision and increased DNB's compliance costs.

Within these constraints, DNB has pursued an ecosystem-integration strategy that is more partnership-dependent than Nordea's proprietary platform-building approach. The strategic logic underlying this choice reflects an explicit judgement — made by DNB's leadership — that the returns to proprietary platform development are insufficient to justify the investment given the specific size of the Norwegian market and the regulatory complexities of DNB's EEA operating environment. The trade-off accepted is the loss of full strategic control over open banking capabilities in exchange for lower capital allocation and broader partnership coverage. The risk this trade-off introduces — dependency on partners whose strategic interests may diverge over time — is partially mitigated by DNB's co-ownership governance rights in Nordic API Gateway.

5.2.2 Nordic API Gateway Partnership

The cornerstone of DNB's open banking strategy is its co-ownership of Nordic API Gateway, a pan-Nordic PSD2 infrastructure provider that offers a unified API layer aggregating account information and payment initiation services across the majority of Scandinavian banks. DNB and Danske Bank made a joint equity investment of €5.2 million in Nordic API Gateway in 2018 (Finextra, 2019), reflecting a strategic logic of infrastructure co-investment that distributes the costs and risks of building out PSD2 capabilities across multiple institutional participants. The practical output was integrated into DNB's mobile banking application, enabling customers — including customers of other Norwegian banks — to access and manage accounts held elsewhere through a single interface. As Per Kristian Naess Fladset, DNB's Head of Open Banking, stated at the time of integration, the partnership reflected a commitment to taking full advantage of the opportunities PSD2 creates by aggregating account information from other banks to give customers a comprehensive financial overview (Finextra, 2019). By offering a thorough financial overview that goes beyond DNB's own accounts, this aggregation capability positions DNB as an AISP under PSD2 and reflects a customer-centric strategic rationale centered on strengthening the bank-customer relationship.

5.2.3 Digital Banking Strategy and Compliance Approach

Christian Løverås, DNB's head of Nordic Finance Innovation at the time, saw compliance minimalism as an existential strategic risk in the context of Open Banking (DNB, 2018). DNB established a specialized innovation unit including open banking, data strategy, payments infrastructure, and fintech relationship management as a result of this leadership awareness. By 2023, over 95% of retail banking transactions will take place via digital channels, making DNB's digital banking capabilities among the most sophisticated in Norway (DNB, 2023). In order to show how Open Banking data

may be integrated into essential banking procedures rather than only provided as a stand-alone API product, the bank has made large investments in AI-assisted mortgage origination and SME financing workflows that use PSD2 account data.

5.2.4 Comparison with Theoretical Frameworks

Among those identified by Gozman et al. (2018), DNB's strategic posture most closely aligns with the ecosystem-integration typology. From the standpoint of dynamic capabilities, DNB exhibits reasonable seizing capabilities and strong sensing capabilities, as evidenced by the early co-investment in Nordic API Gateway prior to Norway's April 2019 implementation date. However, the intricacy of operating within the EEA framework structurally limits its reconfiguration capabilities. Unless specific provisions address the EEA-EU regulatory incorporation mechanism, the EEA constraint—a structural factor that restricts DNB's ability to take advantage of cross-border open banking opportunities available to its Finnish and Swedish peers—is likely to continue even under the PSD3/PSR framework.

5.3 SEB, Swedbank and Handelsbanken: Collaborative and Compliance Strategies

5.3.1 The Swedish Open Banking Context

In the context of Nordic Open Banking, Sweden holds a unique and contradictory stance. It has created one of the most vibrant open banking ecosystems on the continent and is home to two of Europe's most well-known fintech startups, Tink and Klarna. However, according to Finansinspektionen's 2023 assessment, the regulatory environment under Finansinspektionen has been marked by ongoing quality gaps in Swedish banks' PSD2 API implementations. The main takeaway from this paradox is that third-party aggregators and fintech providers filled in service gaps left by incumbent banks' own API implementations, which contributed to the growth of Sweden's fintech sector. This dynamic aligns with the open innovation theory, which states that external actors occupy vacant innovation space left by banks.

5.3.2 Swedbank: Fintech Partnership and Consumer Value Creation

The longest-standing collaboration between Swedbank and Minna Technologies, a Swedish fintech that specializes in subscription management services, is the bank's most important open banking effort. Through the agreement, which started in 2017 and predates the adoption of PSD2, Swedbank customers can use the bank's mobile application to immediately discover, review, and cancel subscription services they don't want. By 2023, Swedbank claimed that its clients had saved around 50 million SEK because to this capability (Swedbank, 2023). This number demonstrates the real consumer value that long-term, well-structured bank-fintech relationships can produce. This partnership's longevity is analytically significant in and of itself because it shows that, in contrast to the short-lived fintech partnerships that typify much of the banking industry, well-managed bilateral collaborations may produce sustainable benefit spanning nearly ten years. Investing on particular, high-impact consumer-value use cases through reliable bilateral partnerships rather than attempting to create a wide developer ecosystem is the strategic logic of Swedbank's approach, which is consistent with a collaborative-innovator mentality. Lower ecosystem scale is recognized as a trade-off for deeper, longer-lasting customer value production inside particular markets.

5.3.3 SEB: Corporate Focus and Selective Innovation

SEB has mostly seen Open Banking from the perspective of its institutional and business clientele. The bank has not made the same investments in creating a consumer-facing open banking ecosystem as Swedbank or Nordea, but it does maintain PSD2-compliant API infrastructure with a sandbox environment for developer testing (Open Banking Tracker, 2023). This is a reflection of SEB's strategic choice to concentrate its Open Banking capabilities on the corporate treasury and transaction banking markets, where SEB's established client relationships give it a competitive edge over fintech entrants and where the value proposition of real-time data access and automated payment initiation is particularly strong. The biggest cooperative Open

Banking commitment made by SEB is its involvement in P27. A resource-allocation discipline that places more emphasis on depth of skill than ecosystem breadth is consistent with the strategic logic of selective innovation, which focuses open banking investment in areas that complement core institutional strengths.

5.3.4 Handelsbanken: Compliance Orientation and Decentralised Culture

Of the five focus institutions, Handelsbanken is the most notable example. An Open Banking strategy that puts regulatory compliance ahead of commercial innovation is the result of the bank's corporate culture, which is defined by radical decentralization, long-term relationship-based banking, and a strategic resistance to centralized technology-driven initiatives. Although Handelsbanken has a developer portal and PSD2-compliant APIs (Open Banking Tracker, 2023), it hasn't officially announced a proactive Open Banking policy akin to those of Nordea, DNB, or Swedbank.

On its own terms, Handelsbanken's compliance focus makes sense strategically: the bank's business model depends more on long-term, deep customer connections developed by empowered local branch managers than it does on centralized digital product innovation. There may be less overall need for consumer-oriented aggregation and subscription management services among its clientele, who tends to be high-net-worth individuals and well-established corporate clients with strong incumbent loyalty. As data portability under PSD3 and FIDA further lowers switching costs, this orientation's strategic risk is that the informational moats supporting Handelsbanken's relationship model are likely to weaken over time. Handelsbanken's involvement in P27 shows that even a compliance-focused organization understands the value of participating in group infrastructure projects when efficiency advantages are significant enough.

5.4 Cross-Country Comparative Analysis

Table 2 offers a general overview of the cross-country comparison analysis, which is organized around four analytical dimensions. The study shows how these drivers interact with the regulatory environment and finds the primary causes that account for observed disparities between institutions.

Table 4. Cross-Country Comparative Analysis Summary

Dimension	Finland (Nordea)	Norway (DNB)	Sweden (SEB)	Sweden (Swedbank/Handels.)
PSD2 Legal Basis	EU transposition 2018	EEA incorporation 2019 (delayed)	EU transposition 2018	EU transposition 2018
Regulator	FIN-FSA (Finanssivalvonta)	Finanstilsynet	Finansinspektionen	Finansinspektionen
Strategic Orientation	Platform leadership	Ecosystem integration	Selective innovation (corporate focus)	Collaborative / Compliance mix
API Maturity	High — premium APIs; 50M+ monthly calls	Medium — PSD2-compliant; partnership-augmented	Medium — PSD2-compliant with corporate APIs	Medium-High — P27 participant
Key Partnership	Tink (ecosystem collaboration)	Nordic API Gateway (co-owned, €5.2M equity)	P27 pan-Nordic payments	Minna Technologies / P27
Cross-border Complexity	Low	High — EEA constraints	Low (TIPS member since Feb 2024)	Low
Open Innovation Level	High	Medium	Medium	Medium (Swedbank) / Low (Handelsbanken)

Note. Data compiled from Nordea (2024), DNB (2023), Swedbank (2023), Open Banking Tracker (2023), Finanstilsynet (2023), and Finansinspektionen (2023). EEA = European Economic Area; EU = European Union; TIPS = TARGET Instant Payment Settlement.

5.4.1 Regulatory Environment and Implementation Approach

The biggest structural distinction between the three national cases is Norway's membership in the EEA rather than the EU, which has resulted in a 15-month delay in the implementation of PSD2, a more complicated regulatory incorporation process, and continuous uncertainty regarding the application of future EU Open Banking legislation in Norway. As a result, DNB now operates in a unique and structurally limited environment that is unmatched by the other four core institutions. Even within EU member states, Finland and Sweden have developed different national implementations of PSD2: Finansinspektionen's 2023 review in Sweden revealed persistent API quality gaps that have caused friction for TPPs, while FIN-FSA's principles-based approach in Finland has generally supported premium API commercial differentiation. These variations highlight the exact regulatory fragmentation that PSD3's immediately applicable PSR regulation aims to eradicate.

5.4.2 Strategic Orientation and API Development

There is a distinct hierarchy of open banking aspirations among the five target institutions: The top spot is held by Nordea; DNB is in an intermediate partnership-oriented position; SEB and Swedbank are in comparable intermediate places; and Handelsbanken is in the most compliance-oriented position. This disparity can be explained by three main factors. First, corporate culture and leadership vision: Handelsbanken's radical decentralization reflects a structural cultural barrier to platform investment, while Nordea's early leadership conviction that Open Banking represents a commercial opportunity rather than a compliance burden explains its first-mover investments in 2017. Second, market size and regulatory context: Given the size of the Norwegian market and the complexity of EEA regulations, DNB's partnership orientation represents a strategic judgment that proprietary platform profits are insufficient in relation to the expenses. Third, institutional customer focus: The integration of Open Banking capabilities with its main business segment, where returns on targeted investment are best, is reflected in SEB's selective innovation.

5.4.3 Fintech Partnership Structure

The five banks' different strategic objectives are reflected in their cooperation structures. The bank's API platform serves as the main hub of Nordea's hub-and-spoke business strategy. In Nordic API Gateway, DNB is pursuing a co-ownership concept. A long-term bilateral cooperation approach centered on certain consumer-value use cases has been pursued by Swedbank. In line with its corporate customer focus, SEB has actively sought out innovative alliances. Handelsbanken's collaborative efforts are restricted to the P27 infrastructure project as a whole. A systematic assessment of the available evidence across institutions is shown in Table 5.

Table 5. Structured Evidence Comparison Across Focus Institutions

Indicator	Nordea	DNB	SEB	Swedbank	Handelsbanken
Developer portal launched	2017 (pre-PSD2)	2019	2018	2018	2018
Sandbox environment	Yes (full)	Yes	Yes	Yes	Yes
Monthly API calls (est.)	50M+	Not disclosed	Not disclosed	Not disclosed	Not disclosed
Registered sandbox users	6,800+	Not disclosed	Not disclosed	Not disclosed	Not disclosed
Premium commercial APIs	Yes (Instant Reporting, FX, cash flow)	Partial (via Nordic API Gateway)	Partial (corporate treasury)	Partial (FX, ERP)	No
Key fintech partnership	Tink (Visa, €1.8B valuation)	Nordic API Gateway (€5.2M co-	P27 (collective)	Minna Technologies; P27	P27 (collective)

		invest)			
Measurable consumer outcome	Industry award (Treasury Today 2024)	Pan-Norwegian account aggregation	Not publicly quantified	50M SEK customer savings	Not publicly quantified
Regulatory quality review finding	Principles-based approval (FIN-FSA)	EEA delay; ongoing FIDA uncertainty	API quality gaps (Finansinspektionen 2023)	API quality gaps (Finansinspektionen 2023)	API quality gaps (Finansinspektionen 2023)
P27 participant	Yes	No	Yes	Yes	Yes

Note. Where metrics are not publicly disclosed, this is explicitly acknowledged rather than treated as absence of evidence. Sources: Nordea (2024), DNB (2023), Swedbank (2023), Open Banking Tracker (2023), Finansinspektionen (2023), Finextra (2019)

5.5 Theoretical Synthesis

5.5.1 Open Innovation Framework Applied

The open innovation paradigm developed by Chesbrough in 2003 offers a potent explanation for the trends found in all five of the focus banks. The PSD2 regulatory mandate serves as a mandatory opening of the innovation border in the Open Banking framework, requiring banks to make their data and payment capabilities available to outside parties. What banks decide to do beyond this minimal regulatory opening is the crucial strategic variable, and the five focus institutions exhibit the greatest variance on this dimension. A prime example of the advanced open innovation response is Nordea, which uses external information flows as inputs into its internal product development processes, publishes a community-oriented developer portal, and allows outside developers to co-design new APIs. The co-creation of shared infrastructure with an outside fintech partner is a distinct but analytically sound example of open innovation, as demonstrated by DNB's co-ownership approach. Through a bilateral co-development agreement, Swedbank's Minna Technologies cooperation embodies the open innovation concept. Chesbrough's closed innovation paradigm, which emphasizes internal growth and unwillingness to include external

information flows beyond the bare minimum necessary by regulatory obligation, most closely aligns with Handelsbanken's compliance approach.

Table 6. Strategic Typology Classification of Focus Institutions

Institution	Strategic Typology (Gozman et al., 2018)	Open Innovation Level (Chesbrough, 2003)	Key Distinguishing Feature
Nordea	Platform leader	High	50M+ monthly API calls; co-design with 6,800 developers; premium commercial APIs
DNB	Ecosystem integrator	Medium	Co-ownership of Nordic API Gateway (€5.2M); pan-Norwegian account aggregation
Swedbank	Collaborative innovator	Medium	Minna Technologies partnership generating 50M SEK customer savings; P27 participation
SEB	Selective innovator	Medium	Corporate-focused API strategy; P27 participant; AI-integrated treasury services
Handelsbanken	Compliance-oriented	Low	PSD2-compliant APIs; P27 participant; decentralised culture limits platform investment

Note. Strategic typologies adapted from Gozman et al. (2018). Open innovation levels assessed against Chesbrough (2003). Data compiled from bank annual reports (2018–2024), developer portals, and regulatory documents.

Table 7. Theoretical Framework Application Summary

Theoretical Framework	Key Propositions	Application to Nordic Open Banking
Open Innovation (Chesbrough, 2003)	Firms benefit from purposive inflows and outflows of external knowledge; boundaries between firm and environment become permeable	PSD2 functions as a mandated opening of the innovation boundary; banks vary from full open innovation (Nordea) to compliance minimalism (Handelsbanken)
Resource-Based View (Barney, 1991)	Sustained competitive advantage derives from valuable, rare, inimitable, non-substitutable (VRIN) resources	Customer trust, proprietary data, regulatory expertise, and developer ecosystem scale represent VRIN resources in the Open Banking context
Dynamic Capabilities (Teece et al., 1997)	Sustained advantage requires sensing opportunities, seizing them, and reconfiguring organisational assets	Nordea's early sensing (2017 portal) generated first-mover advantages; Handelsbanken's weak sensing capabilities explain compliance posture
Porter's Five Forces (Porter, 1985)	Industry profitability determined by threat of entry, buyer power, supplier power, substitutes, and rivalry	PSD2 lowers barriers to entry for fintech firms, increases buyer power by enabling data portability, and heightens substitution threats for payment services

Note. Frameworks applied to the observed strategic patterns of the five focus institutions. Source: Author's own compilation based on theoretical frameworks reviewed in Chapter 3.

5.5.2 Dynamic Capabilities and Strategic Adaptation

The organizational elements that underlie noted strategy variations are revealed by the dynamic capacities framework (Teece et al., 1997). Nordea had a substantial first-mover advantage due to its early sensing capability, which allowed it to recognize in 2017 that PSD2 provided a commercial possibility. After seven years of consistent ecosystem development, Nordea estimates 50 million monthly API calls and 6,800 registered sandbox users. For banks that have not yet reached comparable ecosystem scale and are now confronted with increasingly prohibitive entry costs, this temporal dimension of competitive advantage—the way that early capabilities investment generates compounding network effects—is a crucial realization.

The early co-investment in Nordic API Gateway demonstrates DNB's detecting and seizing capabilities; nonetheless, the structural intricacy of the EEA framework limits its reconfiguration capabilities. In line with their intermediate strategic positioning, SEB and Swedbank have intermediate dynamic capabilities. The structural characteristics of a decentralized corporate culture, which make it particularly challenging to maintain the cross-functional coordination necessary for platform investment at scale, are reflected in Handelsbanken's dynamic capabilities in the Open Banking domain, which seem to be the weakest among the five institutions.

5.5.3 Resource-Based View: Competitive Advantage in Open Banking

The network effects created by Nordea's developer ecosystem—which are valuable, uncommon, and getting harder for rivals to imitate—as well as its institutional expertise in API product development and commercial packaging are the company's most significant VRIN resources. The two most significant competitive assets for DNB are its strong market position in Norway and its co-ownership of Nordic API Gateway, which offers advantages in infrastructure costs and strategic influence. The ten-year collaboration between Swedbank and Minna Technologies has produced customer trust and retention statistics that serve as a VRIN resource in the subscription management market. Although the Open Banking environment raises concerns about whether these relationship assets can be maintained as data portability under PSD3 and FIDA gradually lowers switching costs, Handelsbanken's most valuable competitive resource is still its client relationships. In conclusion, Chapter 5 has shown that the five Nordic focus institutions occupy distinct positions on the open innovation continuum, and that these positions are explained by the interplay of three important drivers: the depth of institutional client focus, market size in relation to the regulatory environment, and corporate culture and leadership vision. The compounding consequence of a 2017 first-mover choice that has produced self-reinforcing network effects over the course of seven years is Nordea's platform leadership. The structural limitations imposed by Norway's EEA position, which restricts the returns on investment in proprietary platforms, are reflected in DNB's ecosystem-integration

approach. Swedbank's cooperative strategy shows that long-lasting bilateral alliances produce quantifiable and enduring customer value. For institutions with solid institutional franchises, matching Open Banking investment with core client segments is a logical approach, as demonstrated by SEB's selective innovation. Although Handelsbanken's compliance focus is internally compatible with its decentralized culture, the company faces increasing strategic risk as the switching costs that safeguard its relationship-banking model are gradually eroded by data portability under PSD3 and FIDA. These results are translated into theoretical contributions, useful suggestions, and future research objectives in Chapter 6.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of Findings

This thesis has looked at the responses of five large Nordic banks to the PSD2-established Open Banking framework: Nordea (Finland), DNB (Norway), and SEB, Swedbank, and Handelsbanken (Sweden). Each of the four research objectives listed in Chapter 1 is summarized in relation to the findings. The results show a distinct and theoretically consistent range of postures with regard to the first research goal, which is the analysis of strategic orientations. As the most sophisticated open banking operator in the Nordic region, Nordea embodies open innovation principles through co-design techniques and large-scale developer community participation, aligning with the platform-oriented typology. By co-investing €5.2 million in Nordic API Gateway and incorporating pan-Norwegian account aggregation into its mobile banking app, DNB has adopted an ecosystem-integration strategy. With a ten-year relationship with Minna Technologies that has produced verifiable client savings of 50 million SEK, Swedbank has been the most proactive Swedish institution. SEB has pursued selective innovation aligned with its corporate client focus. Handelsbanken has maintained a compliance-oriented posture consistent with its decentralised corporate culture.

With respect to the second research objective — technological implementations — the findings confirm the primacy of developer portal quality and API maturity as differentiating factors. When it comes to documented quality, community scale, and commercial API distinction, Nordea's developer site is unique. Swedish institutions show variable API maturity, with Finansinspektionen's 2023 review documenting persistent quality gaps. With respect to the third research objective — national regulatory contexts — the findings confirm that the EU-EEA distinction is the most significant structural factor differentiating the regulatory environments of the three national cases. Norway's 15-month implementation delay, the ongoing ambiguity around PSD3 and FIDA applicability, and the complexity of the EEA incorporation mechanism collectively represent a structural disadvantage for DNB that has no

parallel for the Finnish or Swedish focus institutions. With respect to the fourth research objective — theoretical assessment — the findings confirm that the four frameworks together provide a comprehensive and mutually complementary explanatory system. Open innovation theory is particularly powerful in explaining the variation in strategic ambition across the five institutions, while dynamic capabilities theory illuminates the organisational factors — timing of investment, ecosystem scale, and reconfiguration agility — underlying observed strategic differences.

6.2 Theoretical Contributions

This thesis makes four principal contributions to the academic literature. The first is the systematic application of Chesbrough's (2003) open innovation framework to the Nordic Open Banking context as an analytical — not merely descriptive — tool, demonstrating how PSD2's mandatory data-sharing regime creates conditions analogous to an externally imposed open innovation boundary. This is among the first studies to use Nordic case evidence drawn from systematic documentary analysis to empirically ground open innovation theory in financial services.

The second contribution is the cross-country comparative analysis revealing how national regulatory contexts — and in particular the structural distinction between EU membership and EEA membership — shape the strategic options available to banks. This finding has implications for the design of future Open Banking regulatory frameworks, specifically for the question of how EEA incorporation mechanisms can be structured to minimise competitive distortions. The third contribution is the typological analysis providing empirically grounded case evidence classifying each of the five focus banks against the Gozman et al. (2018) strategic typology, supplementing the largely theoretical or industry-report-based evidence available in the existing literature. The fourth contribution is the situating of Nordic Open Banking findings within the PSD3/PSR regulatory landscape, providing an analytical foundation for anticipating the implications of the forthcoming regulatory change.

6.3 Practical Recommendations

For bank executives and strategy practitioners, the findings suggest four actionable recommendations. First, developer portal quality and API community development should be treated as strategic priorities rather than technical maintenance activities. The evidence from Nordea's experience demonstrates that the gap between early platform investors and compliance-only institutions widens over time as network effects compound initial advantages: the 6,800 registered sandbox developers and 50 million monthly API calls that Nordea reports today are a compounding return on investments made as early as 2017. Second, banks should explicitly map the strategic trade-offs involved in their chosen Open Banking orientation — innovation versus compliance risk, platform investment versus partnership dependence, centralisation versus decentralisation — and ensure that governance frameworks are designed accordingly. Banks pursuing ecosystem-integration strategies, like DNB, require robust co-ownership governance frameworks that balance partnership dependency against strategic control. Third, cybersecurity governance should not be viewed as a secondary technological issue but rather as a top priority in Open Banking strategy for all Nordic banks, independent of their strategic direction. The expansion of API surfaces under PSD2 materially increases the attack surface available to malicious actors: each new third-party connection represents a potential vulnerability point, and the more advanced a bank’s open banking ecosystem, the larger its exposure. This thesis's conclusions point to three distinct investment and governance priorities that make sense in light of the strategic postures that have been noted. Platform-oriented banks such as Nordea, whose ecosystems involve thousands of external developers and hundreds of live API connections, should invest in automated API threat monitoring, OAuth token lifecycle management, and third-party security auditing as standing components of their developer partnership agreements. Ecosystem-integrating banks such as DNB, whose open banking capabilities depend partly on co-owned infrastructure, should ensure that security standards and incident response protocols are contractually specified in

co-ownership agreements and regularly reviewed. Compliance-oriented banks such as Handelsbanken face a different but equally real cybersecurity risk: the minimum-standard APIs mandated by PSD2 may be implemented with less rigorous ongoing security monitoring than premium commercial APIs, creating vulnerabilities that are harder to detect precisely because they receive less strategic attention. All institutions should treat the PSD3's forthcoming enhanced API performance standards as a baseline security floor, not a ceiling, and invest in security capabilities that exceed regulatory minimums. For policymakers and regulators, the findings underscore the importance of harmonising API performance standards across national jurisdictions. The regulatory fragmentation documented in this study imposes unnecessary compliance costs on cross-border TPPs and retards the development of pan-Nordic Open Banking services. The PSR's directly applicable status, which eliminates the need for national transposition, represents the most promising structural mechanism for addressing this fragmentation. For institutions operating in the EEA-but-not-EU context — specifically DNB — the recommendation is to engage actively with EEA-EU regulatory harmonisation processes and advocate within appropriate fora for timely EEA incorporation of PSD3 and the PSR. The delays introduced by the EEA incorporation mechanism represent a persistent competitive disadvantage that strategic advocacy can partially mitigate. As FIDA expands mandatory data-sharing obligations to non-payment financial data, compliance-only institutions will face a significantly greater transition challenge. Therefore, all Nordic banks should treat investments in Open Banking readiness today as concurrently investments in Open Finance readiness under FIDA. The results suggest three specific recommendations for fintech firms and third-party providers involved in the Nordic Open Banking ecosystem. First, fintech companies looking to collaborate with Nordic banks should give preference to organizations whose strategic orientation aligns with their own innovation model: ecosystem-integrating banks like DNB offer co-investment partnership models that distribute governance rights alongside cost sharing, while platform-oriented banks like Nordea offer access to large developer ecosystems and co-design opportunities but demand adherence to premium API technical standards

and commercial agreements. Fintechs should approach compliance-focused banks like Handelsbanken through collective infrastructure vehicles like P27, where participation is already established, as attempting to engage them through ecosystem or platform proposals is likely to encounter structural cultural resistance. Second, the EU-EEA regulatory distinction should be taken into consideration when fintech companies operating in the Nordic region as Account Information Service Providers (AISPs) or Payment Initiation Service Providers (PISPs) plan their market debut. Operating concurrently in Norwegian and EU-member Nordic markets necessitates adherence to two different regulatory regimes and exposes the company to EEA incorporation delays that impact upcoming regulatory changes, such as PSD3 and FIDA. A phased entry strategy lowers regulatory complexity and enables the company to optimize its technical infrastructure for the more standardized PSR environment before adjusting to Norway's unique requirements. This involves starting operations in the EU market first and expanding to Norway later, once EEA incorporation timelines are more clear. Third, the FIDA Regulation, which will extend mandatory data-sharing to non-payment financial data such as mortgages, savings, investments, pensions, and insurance products, will present new opportunities and obligations for fintech companies that have built their business models on the regulatory API infrastructure required by PSD2. Banks that have invested heavily in Open Banking infrastructure — particularly Nordea and DNB — will be well-positioned to offer premium data products in the FIDA domain; fintech firms that develop complementary data analytics, personalised financial planning, or cross-product comparison tools ahead of FIDA’s implementation will be positioned to capture first-mover advantages comparable to those that distinguished the early PSD2 ecosystem leaders.

6.4 Future Research Directions

Future study should address the three main weaknesses of this thesis. The first is the dependence on publicly accessible records, which leaves out private partnership agreements and internal strategic discussions that would give a more comprehensive picture of bank strategies. Future studies employing expert interviews with senior Open Banking strategists, regulatory officials, and fintech partnership managers at the focus institutions would significantly enrich the analytical insights and provide access to the interpretive processes not visible in public documents. The second limitation is the static snapshot character of a documentary case study. Longitudinal studies tracking the evolution of Nordic banks' Open Banking strategies over time — particularly through the PSD3/PSR implementation process expected to unfold between 2026 and 2027 — would enable researchers to examine how strategies adapt in response to regulatory changes and competitive pressures. Researchers who begin tracking strategy documents and regulatory responses now will be well-positioned to analyse the new framework's implementation dynamics in real time. The third drawback is that only five target institutions were chosen, making it impossible to generalize to the Nordic banking industry as a whole. Future quantitative studies examining the relationship between Open Banking investment — measured by API quality scores, developer ecosystem metrics, fintech partnership counts, and API call volumes — and bank performance indicators — including revenue diversification, customer retention, and cost-to-income ratio — would complement the qualitative findings of this study. In the peer-reviewed literature, there is still a dearth of empirical research on the overall performance effects of Open Banking techniques at the bank level.

The unique difficulties EEA-member financial institutions have navigating the EU Open Banking regulatory environment are the subject of a fourth direction. The EEA incorporation mechanism introduces structural delays, governance complexities, and competitive distortions that are poorly understood in both the academic and policy literature, and that are likely to become increasingly significant as the depth and breadth of EU Open Banking regulation increases through PSD3, FIDA, and related instruments. Regulatory design and academic knowledge would both benefit from focused scholarly attention to this mechanism, which would use qualitative case evidence in conjunction with comparative legal analysis.

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Appendices

Appendix 1: Summary of Regulatory Framework (PSD2/PSD3)

This appendix provides a summary overview of the key regulatory instruments governing Open Banking in the Nordic region, including the provisions most directly relevant to the strategic analysis conducted in Chapter 5.

Instrument	Key Provisions	Nordic Relevance
PSD2 (Directive EU 2015/2366)	Mandated API access for AISPs and PISPs; SCA requirements; fallback interface obligations; ASPSP licensing	In force FI/SE from Jan 2018; Norway from Apr 2019 via EEA Agreement incorporation
PSD3 / PSR (Proposal COM/2023/366)	Directly applicable PSR eliminates national transposition variance; enhanced API performance standards; expanded data sharing scope toward open finance	Expected in force 2026–2027 for EU; EEA incorporation timeline uncertain for Norway
FIDA Regulation (Proposal)	Extends Open Banking to non-payment financial data including mortgages, savings, investments, pensions, and insurance products	Applicable to FI and SE upon adoption; Norway EEA incorporation subject to separate process

Note. AISP = Account Information Service Provider; ASPSP = Account Servicing Payment Service Provider; EEA = European Economic Area; FIDA = Financial Data Access; PISP = Payment Initiation Service Provider; PSD2 = Revised Payment Services Directive; PSD3 = Third Payment Services Directive; PSR = Payment Services Regulation; SCA = Strong Customer Authentication.

Appendix 2: Bank Profile Data Summary

This appendix summarises key institutional characteristics of the five focus banks as of the most recent available reporting period (2023–2024). Data are compiled from annual reports and public institutional disclosures.

Characteristic	Nordea	DNB	SEB	Swedbank	Handelsbanken
HQ Country	Finland (Helsinki)	Norway (Oslo)	Sweden (Stockholm)	Sweden (Stockholm)	Sweden (Stockholm)
Primary Market(s)	Nordic region (FI, NO, SE, DK)	Norway	Sweden, Baltic states	Sweden, Baltic states	Sweden, Netherlands, UK
Open Banking Strategy	Platform leader	Ecosystem integrator	Selective innovator	Collaborative innovator	Compliance-oriented
API Market	Nordea API Market (6,800+ sandbox users)	PSD2-compliant + Nordic API Gateway	PSD2-compliant + corporate APIs	PSD2-compliant + Swish + premium	PSD2-compliant developer portal
Monthly API Calls (est.)	50M+	Not publicly disclosed	Not publicly disclosed	Not publicly disclosed	Not publicly disclosed
Key Fintech Partnership	Tink (account aggregation)	Nordic API Gateway (co-owner, €5.2M)	P27 pan-Nordic payments	Minna Technologies (subscription mgmt.)	P27 pan-Nordic payments
P27 Participant	Yes	No	Yes	Yes	Yes

Note. Data compiled from annual reports (2023–2024) and public institutional disclosures. est. = estimated. Sources: Nordea (2024), DNB (2023), Swedbank (2023), Open Banking Tracker (2023).

Appendix 3: Document Analysis Coding Framework

This appendix presents the coding framework applied in the Thematic Content Analysis (TCA) stage of the analytical process (Chapter 4). The framework was developed through a hybrid deductive-inductive process, with initial categories derived from the theoretical frameworks reviewed in Chapter 3 and subsequently refined through iterative engagement with the documentary corpus.

Thematic Dimension	Analytical Indicators	Theoretical Source
1. Strategic orientation	Explicit strategy statements; investment announcements; leadership communications; competitive positioning language	Gozman et al. (2018); Chesbrough (2003)
2. API investment level	API documentation quality; sandbox availability; premium API scope; developer portal investment	Gozman et al. (2018); Zachariadis & Ozcan (2016)
3. Developer community engagement	Registered user numbers; API call volumes; community forum activity; co-design invitations	Chesbrough (2003); Lee & Shin (2018)
4. Fintech partnership structure	Partnership announcements; co-investment disclosures; governance documentation; product launch communications	Chesbrough & Brunswicker (2014); Eckhardt et al. (2018)
5. Regulatory compliance approach	Regulatory filings; compliance statements; supervisory correspondence; fallback interface documentation	Petrović (2020); Finanstilsynet (2023)
6. Open innovation level	External knowledge integration; co-development language; ecosystem participation; knowledge outflow activities	Chesbrough (2003)
7. Dynamic capabilities	Sensing language; investment timing; reconfiguration announcements; organisational restructuring	Teece et al. (1997)

Note. Coding framework applied to all documents in the analytical corpus across all five focus institutions. Themes are non-exclusive: individual documents may contain evidence relevant to multiple thematic dimensions simultaneously.

Coding Demonstration: Worked Examples

To illustrate how the coding process was applied in practice, three representative examples are provided below. Each example shows a documentary excerpt, the code applied, the thematic dimension it belongs to, and how it feeds into the strategic typology classification.

Example 1 — Nordea (Platform Leader classification)

Element	Content
Document source	Nordea (2024), API Market documentation, Developer Portal
Documentary excerpt (paraphrase)	Nordea's API Market currently hosts over 6,800 registered sandbox users and facilitates more than 50 million API calls per month from more than 400 organisations accessing real-time data across the Nordic region.
Code applied	API investment level — high commercial differentiation beyond PSD2 requirements
Thematic dimension	Dimension 2: API investment level and commercial differentiation (Gozman et al., 2018; Zachariadis and Ozcan, 2016)
Secondary code applied	Developer community engagement — large registered developer base
Typology contribution	Evidence of both high API maturity and active developer community engagement across two independent indicators satisfies the decision criteria for Platform Leader classification.
Triangulation source	Corroborated by Open Banking Tracker (2023) independent quality assessment and Fintech Futures (2017) contemporaneous press reporting on the 2017 portal launch.

Example 2 — DNB (Ecosystem Integrator classification)

Element	Content
Document source	Finextra Research (2019a, 2019b); DNB (2023) Annual Report
Documentary excerpt (paraphrase)	DNB and Danske Bank made a joint equity investment of €5.2 million in Nordic API Gateway in 2018. DNB's Head of Open Banking stated the partnership reflected a commitment to providing customers with a comprehensive financial overview of accounts held across multiple banks.
Code applied	Fintech partnership structure — co-ownership model with shared equity and governance rights

Thematic dimension	Dimension 4: Fintech partnership structure and governance (Chesbrough and Brunswicker, 2014)
Secondary code applied	Strategic orientation — ecosystem integration; strategic trade-off: lower capital allocation in exchange for partnership dependency
Typology contribution	Co-ownership of infrastructure rather than proprietary platform development, combined with no reported commercial premium APIs, places DNB in the Ecosystem Integrator rather than Platform Leader category. The EEA regulatory context provides the structural explanation for this strategic choice.
Triangulation source	Corroborated by DNB (2023) Annual Report and Finanstilsynet (2023) regulatory report confirming EEA-specific compliance requirements.

Example 3 — Handelsbanken (Compliance-Oriented classification)

Element	Content
Document source	Open Banking Tracker (2023), Handelsbanken profile; Handelsbanken Annual Reports 2018–2024
Documentary excerpt (paraphrase)	Handelsbanken maintains a PSD2-compliant developer portal and sandbox environment. No proactive commercial Open Banking strategy, premium API offering, or bilateral fintech partnership has been publicly announced across the study period.
Code applied	Strategic orientation — compliance minimalism; no proactive commercial engagement
Thematic dimension	Dimension 1: Strategic orientation (Gozman et al., 2018); Dimension 6: Open innovation level (Chesbrough, 2003)
Negative case note	Handelsbanken's participation in P27 was examined as a potential disconfirming case. This was resolved by distinguishing collective infrastructure participation — which imposes no platform investment requirements — from proactive bilateral Open Banking engagement, which defines the higher typology categories.
Typology contribution	Absence of commercial API offerings and proactive partnerships across all source types and across the full 2018–2024 period satisfies the decision criteria for Compliance-Oriented classification.
Triangulation source	Corroborated by Finansinspektionen (2023) noting persistent API quality gaps among Swedish banks, consistent with compliance-minimum investment levels.

Note. Coding framework applied as described in Section 4.3. Themes are non-exclusive; individual documents may contain evidence relevant to multiple thematic dimensions simultaneously.