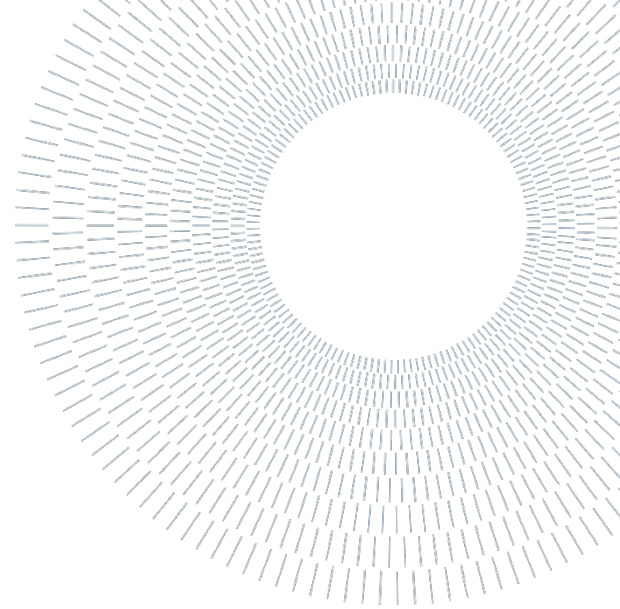




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E DELL'INFORMAZIONE



EXECUTIVE SUMMARY OF THE THESIS

Analysis of the Open API services in Europe

TESI MAGISTRALE IN MANAGEMENT ENGINEERING – INGEGNERIA GESTIONALE

AUTHOR: MICHAEL MOLARO

ADVISOR: ALESSANDRO PEREGO

ACADEMIC YEAR: 2023-2024

1. Introduction

Open Banking has emerged as a significant development in the financial services industry, facilitated by the use of Application Programming Interfaces (APIs) to enable third-party developers to create applications and services around financial institutions. This evolution has been primarily driven by regulatory initiatives such as the Payment Services Directive 2 (PSD2) in Europe, which mandates banks to open their payment services and customer data to third-party providers (TPPs) under secure and regulated conditions. This thesis seeks to present a comprehensive overview of the Open Banking landscape in Europe.

The primary objectives of Open Banking include enhancing competition, fostering innovation, and improving the quality of financial services available to consumers. This study aims to identify and analyze the key trends followed by third-party providers utilizing Open Banking services across Europe.

This thesis examines the broader European context, by comparing seven European countries to see how their financial institutions and TPPs are adopting and implementing Open Banking initiatives.

2. Literature Review

Traditional methods such as cash and credit or debit cards are contrasted with modern approaches like Account-to-Account (A2A) transactions, Buy Now Pay Later (BNPL) services, digital wallets, and cryptocurrencies. With all these changes, the payment industry has demonstrated great dynamism and innovation in recent years. Amidst all these, open banking shows considerable potential.

Open Banking leverages APIs (Application Programming Interfaces) to enable secure and standardized access to banking data for third-party providers (TPPs). By providing controlled access to customer data, APIs are pivotal in modernizing the financial ecosystem by enabling seamless integration between disparate financial systems, but their significance in Open Banking extends

beyond technical facilitation; they also represent a shift towards more transparent, customer-centric financial services where consumers have greater control over their financial data and how it is used.

The introduction of PSD2 by the European Union marked a significant milestone in open banking evolution, mandating that banks open their payment services and customer data to TPPs under secure and regulated conditions.

PSD2's main goal was to break down the monopolistic control banks had over customer data. By requiring banks to provide API access to TPPs, PSD2 facilitated the entry of new players into the financial services market, thereby increasing consumer choice and fostering a more competitive landscape. PSD2 also establishes the legal foundation for secure and efficient data sharing, setting the stage for the development of a more integrated and competitive financial ecosystem in Europe [1].

This regulatory shift was complemented by advancements in technology, particularly the proliferation of mobile banking and digital financial services, which further accelerated the adoption of Open Banking practices. [2]

As Open Banking continued to evolve, it became clear that the benefits extended beyond regulatory compliance and competition. It began to transform the way financial services were delivered and banks' business models themselves. New four business model possibilities are possible through the use of open APIs: *Bank-as-a-distributor*, *Bank-as-a-producer*, *Bank-as-a-service*, *Bank-as-an-integrator* [3].

The potential benefits of Open Banking include improved customer service, personalized financial products, and enhanced operational efficiencies. However, the transition also poses significant challenges, such as ensuring data security, maintaining regulatory compliance, and managing the complexities of integrating new technologies.

Third-party providers are integral to the Open Banking ecosystem. The literature identifies three main categories of TPPs: Payment Initiation Service Providers (PISPs), Account Information Service Providers (AISPs), and Card Issuer Service Providers. PISPs facilitate online payments directly from the consumer's bank account, bypassing traditional card networks. AISPs provide consolidated account information from multiple

banks, enabling users to manage their finances more effectively. Card Issuer Service Providers offer card-related services through API integrations [4].

At the center of the European regulatory framework for Open Banking lies the Payment Services Directive 2. Implemented by the European Commission, PSD2, as already mentioned, mandates banks to provide third-party providers access to customer data, with the customer's consent. This directive aims to foster innovation, enhance competition, and improve consumer choice in the financial services sector. PSD2 establishes the legal foundation for secure and efficient data sharing, setting the stage for the development of a more integrated and competitive financial ecosystem in Europe [1].

Following the PSD2 more regulations are already being planned, such as PSD3 and FIDA. These forthcoming regulations aim to build on the foundations laid by PSD2, addressing emerging technological advancements and market dynamics. PSD3 is expected to introduce stricter security measures, more robust consumer protection mechanisms, and enhanced standards for API integration and data interoperability.

The FIDA initiative, on the other hand, seeks to create a more comprehensive framework for financial data access, extending beyond payment services to include a broader range of financial products and services and enabling consumers to have greater control over their financial data.

3. Methodologies

The primary objective of this thesis is to provide a comprehensive overview of the Open Banking landscape in Europe. This study aims to identify potential trends and phenomena that may indicate the future direction of the industry in the upcoming years. To achieve this, the thesis seeks to answer several research questions formulated after a thorough literature review. These questions include: What are the trends followed by third-party providers (TPPs) that use Open Banking services in Europe? Who are the main customers of TPPs using Open Banking? How does the future look for these offerings going forward?

This section provides an in-depth look at the processes involved in creating the thesis, which is

divided into three distinct parts: literature review, data collection for the census, and synthesis and analysis of findings. Each part employs a rigorous methodology to ensure thorough and comprehensive research.

3.1 Literature Review

The literature review was essential in familiarizing with the current state of knowledge on Open Banking. To achieve this, various sources were studied and cited throughout the work. Initially, an overview of payment methods was conducted to better understand the context and position of Open Banking compared to other systems.

The review then delved into the foundation of Open Banking, which is the API and Open API. It was crucial to understand what APIs are, how they work, and the different types that exist, especially open APIs, followed by an examination.

With the necessary background established, the phenomenon of Open Banking was described, tracing its evolution over the years since its inception and also exploring the advantages and challenges that it presents.

Further, the literature review explained third-party providers, differentiating between payment initiation service providers, account information service providers, and card issuer service providers, outlining their capabilities and limitations.

The review concluded with a general overview of the Open Banking situation in Europe, including norms and directives from the European Commission. The PSD2 directive was analyzed, followed by discussions on future directives like PSD3/PSR and FIDA. Brief descriptions of the UK and Italy's situations were provided, noting the UK as a promoter of Open Banking, while Italy's situation appeared less positive.

3.2 Data collection for census

Regarding the data collection, data on the presence of third-party providers in various European countries was gathered from the European Banking Authority (EBA) website. The EBA is an independent EU authority with the objective of

safeguarding the integrity and robustness of the EU banking sector. The data considered for analysis was updated until the end of 2023. Any changes made after that were not included.

To narrow down the search for institutions, various options had to be selected on the institution search page, such as the national competent authority, the country where the services are provided, and the specific services of interest (payment initiation services and account information services).

Despite some challenges with the website, such as the inability to filter providers acting solely as Payment Initiation Service Providers or Account Information Service Providers and the inability to select a specific limited period in the past, these issues were addressed through calculations.

3.3 Analysis of the data

The analysis of the census data was crucial to understanding the demographic and socio-economic situation of different European regions. To provide a comprehensive representation, the analysis focused on seven prominent European countries: Italy, Germany, Spain, France, Sweden, Poland, and the Netherlands. These countries were chosen based on their large economies and diverse geographic locations.

The analysis was divided into two main parts. The first part focused on the number of TPPs and their typology in each country, specifically Payment Initiation Service Providers, Account Information Service Providers, and combined PISP/AISP. The research also tracked the year of authorization for each TPP and noted those from which authorization was withdrawn. It was important to differentiate between domestic TPPs, operating within their home country, and international TPPs, providing services from a different state. This differentiation allowed for a comparative analysis through separate tables for each country.

The second part focused on each TPP considered in the previous part, providing the exact number of TPPs operating in the selected countries. eight variables were considered for each TPP: *the country of origin, the type of player, the type of customer, the Open banking services provided (PISP, AISP or both),*

the countries serviced, the services provided with the account information license, the services provided with the payment initiation license and other services offered by the company.

4. Analysis and results

This section offers a thorough analysis of Third-Party Providers (TPPs) participating in open banking in various European countries. The study assesses the expansion, distribution, and categories of TPPs, as well as their licensing and service offerings under the PSD2 framework. The analysis comprises a review at the national level and a more in-depth examination at the enterprise level, encompassing the various types of players and the customers they serve.

4.1. National level

The growth and distribution of TPPs vary significantly among the countries studied, including Italy, Germany, France, Spain, Sweden, Denmark, Netherlands, and Poland.

- **Italy** has a complex scenario with a low number of home-authorized TPPs but the highest number of passported TPPs. This indicates a significant presence of foreign TPPs operating within the country.
- **Germany** shows early adoption and strong initial growth in TPP numbers, but market saturation and competition have slowed the entry of new TPPs since 2021.
- **France** experienced a robust initial uptake in Open Banking which has since stabilized. The country has a balanced distribution of PISP and AISP licenses.
- **Spain** saw delayed growth due to later PSD2 ratification but has shown progress in standardization and support for Open Banking initiatives.
- **Sweden** and **the Netherlands** have high digital adoption rates, fostering advanced Open Banking ecosystems. Both countries, however, face market saturation.
- **Poland** has a nascent Open Banking sector with fewer TPPs but significant growth potential driven by regulatory developments and market adoption.

Overall, Italy, Germany, and France exhibit a larger number of TPPs authorized to offer both Payment Initiation Services (PISP) and Account Information Services (AISP). In contrast, Denmark and Poland have fewer home-authorized TPPs but show consistent growth in passported TPPs. This trend reflects the varied regulatory environments and market maturity in adopting open banking solutions across Europe.

The European overview reveals a fragmented landscape in the adoption and implementation of open banking. Each country faces unique challenges, from regulatory hurdles to varying levels of digitalization and standardization issues. The lack of uniform API standards is a significant barrier, causing financial institutions to develop customized APIs, which is both time-consuming and expensive. The introduction of PSD3 and new PSR directives is expected to alleviate these issues. The distribution of TPPs across Europe shows a general preference for account information services (AIS) over payment initiation services (PIS), despite the latter offering significant advantages such as cost-effectiveness and faster transaction confirmations. The lag in PIS adoption is attributed to established domestic alternatives, prohibition on surcharging, and obstacles to using TPPs at points of sale. If these obstacles are overcome, PIS could introduce effective competition and resolve the fragmented market for innovative payment solutions.

4.2. Enterprise level

At the enterprise level, the thesis delves into the characteristics and strategic choices of 257 analyzed TPPs. The analysis covers several aspects: the type of player, type of customer, open banking services provided, and other related services.

Starting from the first one, the TPPs are categorized into different types, including fintech companies, open banking platforms, and businesses focused on accounting and audit services. Fintech companies dominate the landscape, representing more than half of the TPPs. Open banking platforms form the second-largest group, providing solutions to banks and other fintechs, thus standardizing APIs and facilitating broader service integration. Accounting and audit firms,

though fewer, leverage open banking primarily for data collection and analysis.

Moving to the customers, The TPPs serve diverse segments:

- **Enterprises:** The largest customer group, encompassing small, medium, and large businesses. These TPPs offer services to enhance business efficiency through open banking technologies.
- **Individual Customers:** Services tailored for individual financial management and improved understanding of personal finances.
- **Financial Institutions:** TPPs provide enhanced solutions such as new APIs and additional financial information services.
- **E-commerce:** Focused on online businesses, offering simpler payment systems and financial management tools.
- **Mixed Customer Bases:** Some TPPs cater to both enterprises and individual customers or financial institutions, providing versatile solutions adaptable to different needs.

The customer distribution analysis shows that over 65% of TPPs provide services to enterprises, reflecting a preference for the broader revenue opportunities offered by business clients. Individual customers form the second-largest group, with TPPs focusing on personalized financial services. Financial institutions occupy a smaller segment, likely due to their preference for developing in-house solutions.

This paragraph outlines the various services offered by TPPs under their AISP and PISP licenses. AISPs primarily focus on financial data aggregation and analysis, providing users with a consolidated view of their financial status. This service is highly beneficial for individuals and businesses looking to manage multiple accounts and gain insights into their financial health. PISPs facilitate payment initiation services, allowing users to make payments directly from their bank accounts without needing intermediaries. This service offers significant advantages such as cost reduction and faster transaction confirmations, improving the

efficiency of payment processes for both consumers and businesses.

Some TPPs hold both AISP and PISP licenses, enabling them to offer comprehensive financial solutions. These dual-licensed TPPs can provide a seamless experience, integrating account information services with payment initiation, thereby simplifying financial management for users.

In addition to primary open banking services, many TPPs offer a range of other services to enhance their value proposition. Accounting and auditing services are prominent among these additional offerings. TPPs leverage open banking data to provide comprehensive financial insights and ensure compliance with financial regulations, aiding businesses in maintaining accurate records and meeting audit requirements. IT services, including API management, cybersecurity solutions, and technical support, are also commonly offered by TPPs. These services ensure that the integration and operation of open banking systems are smooth and secure, allowing businesses to focus on their core activities without worrying about technical issues. Financial advisory services are provided by some TPPs, offering personalized financial advice and wealth management services. Leveraging the aggregated financial data obtained through open banking, TPPs can provide tailored recommendations to help individuals and businesses make informed financial decisions, manage their wealth effectively, and plan for the future.

These additional services allow TPPs to differentiate themselves in a competitive market and provide holistic financial solutions to their customers.

5. Conclusion

Open banking has significant socio-economic benefits, including promoting financial inclusion and stimulating economic growth. It improves access to financial services for unbanked and underbanked populations and underserved businesses through fintech solutions like microloans and financial education tools. This approach is projected to boost the EU's GDP by 1-1.5% by 2030, primarily benefiting financial institutions. The growth stems from increased innovation and competition, leading to new fintech

startups, job creation, and improved financial efficiency and productivity.

5.1. Recommendations

For financial institutions, it is crucial to invest in advanced cybersecurity measures to protect customer data. Collaborating with fintech startups and third-party providers (TPPs) can foster innovation and enhance the customer experience. Implementing educational programs can empower consumers to manage their finances securely, building trust and engagement with open banking services.

Legislators should create a dynamic regulatory framework that adapts to technological changes and new business models. They must prevent monopolies by big tech firms through measures like the “reciprocity clause” and harmonize regulations across borders [5]. Ensuring customer safety with strict data protection laws and awareness campaigns is essential. Supporting innovation by establishing sandboxes for controlled experimentation and providing incentives for research and development in financial technologies is also important.

Third-party providers need to prioritize cybersecurity, comply with regulatory requirements, and enhance customer experience through intuitive interfaces and personalized services. Maintaining consumer trust through transparent communication and robust customer support is vital. Collaborations with other TPPs and financial institutions can create comprehensive financial solutions and provide valuable insights.

Future research should focus on the ongoing evolution of open banking, its integration with other financial technologies, and the socio-economic impacts of these advancements. Regular analysis of consumer behavior, market dynamics, and regulatory changes is essential for adapting strategies to ensure sustainable and secure growth. Open banking, driven by PSD2, represents a significant advancement in the financial sector, offering opportunities for innovation and fostering a more inclusive, efficient, and dynamic financial ecosystem.

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7. Acknowledgment

I express my gratitude to Professor Perego for granting me the opportunity to work on this thesis project. I am also sincerely thankful to Matteo Ruggieri, whose assistance and support were invaluable from the initial stages right through to the conclusion. Lastly, I would like to extend my thanks to my relatives and friends who have been unwavering in their support throughout this extensive academic journey.