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Banks and FinTechs in the Open Banking Era: Competition, Cooperation, and Transformation

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1. Introduction

The banking and financial services industry is undergoing major change driven by new technologies, regulatory shifts, and evolving consumer expectations. A key part of this change is the growing relationship between traditional banks and financial technology companies, known as FinTechs. These companies are working within the rules set by Open Banking initiatives. The 2008 global financial crisis damaged public trust in traditional banks and limited their ability to innovate due to stricter regulations and capital requirements. At the same time, advancements in mobile technology, cloud computing, artificial intelligence, and data analytics opened up new possibilities for delivering financial services through technology. Additionally, venture capital investment in FinTech surged during the 2010s, supporting a new wave of companies that offered faster, cheaper, and more user-friendly alternatives to traditional banking services.

Despite growing research on FinTech and the digital transformation of banking, important gaps remain in our understanding of how Open Banking regulations, FinTech development, bank profitability, and strategic adaptation are interconnected. The current literature offers scattered insights into these areas but lacks comprehensive frameworks that link regulatory factors to the outcomes financial institutions experience. This research aims to identify the key factors shaping Open Banking's impact on banks and to provide a comprehensive analysis of how FinTech adoption affects banks' profitability and digital transformation in the financial sector. We examine whether partnerships between banks and FinTech companies strengthen banks' central role in financial services or diminish traditional banking functions by giving third-party providers greater power.

This research addresses three interrelated research questions designed to advance understanding of bank-FinTech dynamics in the Open Banking era:

Table 1: Research Questions and Scope

RQ	Research Question	Focus Areas

RQ1	What is the impact of Open Banking on banks, and what role do FinTechs play in this transformation?	PSD2 effects; API banking; TPP access; market structure changes
RQ2	How does FinTech affect bank profitability and digitalization strategies?	Revenue impacts; cost structures; digital transformation; technology investment
RQ3	How are banks responding strategically to FinTech disruption?	Partnership models; build vs. partner decisions; success factors; failure analysis

Source: Author's formulation.

These research questions are designed to build upon one another in a logical progression. RQ1 establishes the regulatory and structural context by examining how Open Banking has altered the competitive landscape and enabled FinTech participation in banking services. RQ2 investigates the consequences of this transformed landscape for bank financial performance and strategic priorities. RQ3 examines banks' adaptive responses, with particular attention to the partnership mechanisms through which banks and FinTechs interact.

FinTech provides alternative banking services that are faster and more efficient. It aims to deliver personalised, affordable options that could make traditional banking products, such as payments, deposits, and loans, more common and less unique. (Stefanelli & Manta, 2023). This puts pressure on the traditional banking model by providing better customer experiences and more efficient operations, forcing established banks to rethink their strategies (Ahmadirad, 2024). Consequently, banks face intense pressure to innovate and collaborate strategically with FinTechs to remain competitive in an era of rapid digital transformation. (Vukoslavović & Tatar, 2025c).

1.1 Theoretical Framework

This research employs three complementary theoretical perspectives to examine the relationship between banks and FinTech companies in the Open Banking era.

Disruptive Innovation Theory[1], as articulated by Christensen (1997), helps to understand how FinTech entrants have challenged incumbent banks. According to this framework, disruptive innovations initially target underserved market segments with simpler, more affordable, or more convenient alternatives to existing offerings. Over time, these innovations improve in quality and capability, eventually competing directly with established players. The FinTech phenomenon

1 **Disruptive innovation** is innovation that creates a new market and value network or enters at the bottom of an existing market and eventually displaces established market-leading firms, products, and alliances. In theory, disruptive innovation makes it hard for leading firms to stay at the top of their industry. The term, "disruptive innovation" was popularized by the American academic Clayton Christensen and his collaborators beginning in 1995. https://en.wikipedia.org/wiki/Disruptive_innovation

exhibits classic characteristics of disruptive innovation: initial focus on niche segments (e.g., peer-to-peer payments, underbanked populations), superior user experience enabled by modern technology, and progressive expansion into mainstream banking services.

Resource-Based View (RBV)[2], developed by Barney (1991) and subsequent scholars, illuminates the complementary resource profiles of banks and FinTechs that create potential gains from partnership arrangements. Banks possess valuable resources including regulatory licenses, customer trust, extensive customer bases, risk management capabilities, and capital reserves. FinTechs contribute technological expertise, agility, user-centric design capabilities, and modern technology infrastructure. The RBV perspective suggests that partnerships that allow both parties to leverage their distinctive resources while accessing each other's complementary capabilities can generate value that neither could achieve independently.

Institutional Theory [3]helps explain banks' strategic responses to regulatory change and competitive pressure. This perspective emphasises how organisations respond to institutional pressures—including regulatory mandates, industry norms, and competitive dynamics—through processes of institutional isomorphism. The widespread adoption of FinTech partnership strategies among banks can be understood partly as mimetic isomorphism, wherein organisations facing uncertainty adopt practices observed among successful peers. Additionally, coercive isomorphism arising from regulatory requirements (PSD2 compliance) has compelled banks to develop API capabilities and engage with third-party providers.

1.2 Methods

This research employs a mixed-methods research design combining a systematic literature review with quantitative analysis of secondary data to address the three research questions. The literature review employed a systematic search strategy across multiple academic databases and industry sources. Academic literature was sourced from peer-reviewed journals indexed in Scopus, Web of Science, and Google Scholar, with particular attention to journals specialising in banking, financial technology, and digital transformation. Key journals included the Journal of Digital Banking, the Journal of Risk Management in Financial Institutions, the Journal of Payments Strategy and Systems, the Journal of Financial Economics, and the International Review of Financial Analysis.

[2] The **resource-based view** (**RBV**), often referred to as the "resource-based view of the firm", is a managerial framework used to determine the strategic resources a firm can exploit to achieve sustainable competitive advantage. https://en.wikipedia.org/wiki/Resource-based_view

[3] According to Scott (2008), **institutional theory** is "a widely accepted theoretical posture that emphasizes productivity, ethics, and legitimacy." Researchers building on this perspective emphasize that a key insight of institutional theory is ethics: rather than necessarily optimizing their decisions, practices, and structures, organizations look to their peers for cues to appropriate behavior. https://en.wikipedia.org/wiki/Institutional_theory

Industry and regulatory sources constituted an essential component of the evidence base, given the rapidly evolving nature of FinTech and Open Banking. These sources included reports from the Basel Committee on Banking Supervision (BCBS), the European Central Bank (ECB), the Financial Stability Board (FSB), the Committee on Payments and Market Infrastructures (CPMI), and the World Bank. Industry research from McKinsey & Company, Oliver Wyman, EY-Parthenon, KPMG, Finastra, and Cornerstone Advisors provided market-level insights and survey data on bank-FinTech dynamics. The primary quantitative data source for this analysis is the Global Findex Database 2025, published by the World Bank. The Global Findex (Global Financial Inclusion Database) is the world's most comprehensive dataset on financial inclusion, providing nationally representative surveys measuring how adults save, borrow, make payments, and manage financial risks. The database covers approximately 140 economies and has been conducted in waves since 2011, with data available for 2011, 2014, 2017, 2021, and 2024.

Beyond academic literature and the Global Findex Database, this analysis draws extensively on industry surveys and reports that provide insights into bank strategic behaviour and bank-FinTech partnership dynamics. These sources offer practitioner perspectives and market-level data that complement academic research.

Table 2: Key Industry and Regulatory Data Sources

Source	Type	Key Contributions
ECB (2023)	Regulatory survey	Digital transformation priorities; FinTech cooperation patterns; automation statistics
EY-Parthenon	Industry survey	Partnership failure rates; strategic importance of FinTech partnerships
Oliver Wyman (2021)	Industry report	BaaS economics; customer acquisition cost benchmarks
Cornerstone Advisors	Industry survey	Bank partnership objectives; FinTech integration priorities
Finastra	Industry survey	Build vs. partner preferences; FinTech integration motivations
McKinsey (2025)	Industry report	Customer loyalty metrics; banking profit trends; market share data
BCBS (2018, 2024)	Regulatory guidance	Risk and opportunity frameworks; FinTech implications for banks and supervisors

Source: Author's compilation.

1.3 Analytical Framework

The analysis is structured around the three research questions using an integrated framework that connects regulatory drivers (PSD2/Open Banking), market actors (banks and FinTechs), and outcomes (profitability, digitalisation, strategic response). This framework draws on established theoretical perspectives including Disruptive Innovation Theory (Christensen, 1997), which explains how FinTech entrants can undermine incumbent bank positions through initially inferior but improving technologies; Resource-Based View (Barney, 1991), which underlines the complementary resources that banks and FinTechs bring to partnership arrangements; and Institutional Theory, which helps explain banks' strategic responses to regulatory changes and competitive pressures.
Evidence synthesis follows a triangulation approach, comparing findings across academic literature, regulatory reports, industry surveys, and quantitative data to identify robust patterns and acknowledge areas of uncertainty or contradiction. Where sources provide conflicting evidence, the analysis documents these discrepancies and considers possible explanations based on methodological differences, temporal factors, or contextual variations.

2. Understanding PSD2 in the context of a conductive regulatory environment for FinTech companies.

The main idea of the PSD2 directive was to increase competition and innovation. (Akyildirim et al., 2025). This led to more customised financial products and services, together with ongoing technological advancements. The PSD2 regulation, as a cornerstone of Open banking, plays a pivotal role in this transformation. It allowed FinTechs to create innovative, more competitive products by using API access to customer account data from banks and integrating banking services into their applications. This regulatory approach has been identified as a key factor in strengthening competition within retail financial markets (the sector where financial services are offered directly to consumers, such as banks, credit unions, and online lenders) by lowering entry barriers for new players (such as new banks, peer-to-peer lending platforms, or digital payment services) and enabling third parties (companies that provide services but do not hold customer accounts, like payment processors such as PayPal or financial management apps) to access customer payment accounts (Palmieri & Nazeraj, 2021), like savings or payments accounts. The combination of PSD2 and open APIs has accelerated the digital economy in banking, enabling third parties to build applications and services on top of traditional banking infrastructure. (Yawe & Mukisa, 2020). This access enables FinTechs to offer alternatives to traditional banking, including online payments, peer-to-peer transfers, and mobile wallets. As a result, FinTechs can provide seamless, user-friendly payment experiences that meet consumers' growing expectations. Consequently, the implementation of PSD2 has empowered consumers with greater control over their financial data, fostering a more dynamic and customer-centric financial ecosystem. (Omarini, 2018). On the one hand, PSD2 regulation created opportunities for collaboration between banks and FinTech, allowing banks to leverage FinTech innovation to improve and diversify service offerings (Cateland, 2024) and to create mutually beneficial ecosystems. Open banking supports the development of new business models, including embedded finance and open data ecosystems, that increase efficiency and reduce costs across the financial industry. The implementation of PSD2 has created a more open and competitive landscape, encouraging the

growth of new business models that enhance the overall efficiency and transparency of banking services. Recent literature emphasizes that the broader regulatory environment fosters fintech growth and development by providing a clear legal framework, reducing uncertainty, and promoting investment. This regulatory evolution is crucial for the ongoing progress of the fintech industry, particularly in payments, where rapid technological advances and consumer demand are significantly reshaping the financial services sector.

3. Defining FinTech

FinTech is an innovative financial services provider that uses technology and customer financial data, enabled by Open banking, offering innovative financial products and services. (Babina et al., 2022), more efficiently and more accessible than traditional institutions. (AlMomani & Alomari, 2021). FinTech refers to the ongoing technological evolution in the financial industry.
According to Wikipedia, Fintech is "Financial technology (abbreviated as fintech) refers to the application of innovative technologies to products and services in the financial industry.""
This evolution is characterised by the integration of digital tools and platforms, including mobile applications, digital payment platforms, mobile wallets, mobile money, online financial platforms, and peer-to-peer transfers. These innovations enable financial service providers to deliver faster, more affordable, and more accessible services and to offer personalized solutions tailored to individual customer needs. (Murinde et al., 2022). Such technologies improve access to financial services in developing and underserved communities by reducing barriers to banking (Shahen & Sharaf, 2025). Fintech includes any novelty innovation on any given space at any given time if it is considered to be revolutionary or disruptive enough to change the activities in the financial sector. (Setiawan & Maulisa, 2020)
Academic definitions of Fintech state: Fintech is a new financial industry that applies technology to improve financial activities." (Schueffel, 2017). (Leong, 2018) Define FinTech as a cross-disciplinary subject that combines Finance, Technology Management, and Innovation Management. MFSA describes fintech as "as 'technologically-enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and the provision of financial services'."4 EBA describes: technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions, and the provision of financial services.[5]
The financial technology ecosystem includes various types of companies. While **startups** developing new financial technologies or services are often associated with financial technology,

[4] MFSA, citing EBA (2018)
[5] EBA Discussion Paper EBA/DP/2017/02 on the EBA approach to financial technology (FinTech)
FinTech, which is defined by the FSB on a working basis as 'technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services',2 has the potential to transform further the provision of financial products and services. The current growth of FinTech may also alter the scope and objectives of regulatory and supervisory authorities as they adjust to market developments and may result in the revision of risk appetite.

the sector also encompasses **established technology companies expanding into financial services** and **traditional financial institutions adopting new technologies**.[6][7] More definitions of FinTech (Appendix1)

3.1 Emergence and Evolution of FinTech

The COVID–19 pandemic has accelerated digital transformation (the need for digital connectivity to replace physical interactions).[8] The adoption of technology is not new in the financial sector. We can define technology in finance as a long-standing relationship. Today's regulatory (PSD2) and FinTech sector extends this technological trend rather than originating it.

Table 3 Evolution of FinTech

Phase	Years	Main focus	Key features / innovations	Source
FinTech 1.0	1866–1987	Building global financial infrastructure, early IT. **Ecosystem development**	Creation of fundamental physical telecommunication networks, including transatlantic transmission cables that enabled correspondent banking and long-distance financial connectivity.	Varga, 2017, (Bátiz-Lazo & Wood, 2002).
FinTech 2.0	1987–2008	Digitization of traditional financial institutions, **Pioneering Services**	Expansion of banks' IT infrastructure, development of ATMs and electronic banking channels, and growing use of computer systems for internal operations and customer transactions.	Varga, 2017, (Hoffmann et al., 2020).
FinTech 3.0	2008–Present	Coexistence of banks and new tech-enabled financial service providers, **Human-Centered Design**	Rise of startup FinTech firms receiving significant investment, alongside incumbent FinTech 2.0 institutions that still spend heavily on IT, largely to maintain legacy systems.	Varga, 2017, (Locatelli et al., 2021)

In the 19th–mid-20th century (FinTech 1.0 / early IT): Telegraph, telephone, and early mechanised bookkeeping marked the "early adoption" phase in commercial banking, during which information processing began to be industrialised. (Bátiz-Lazo & Wood, 2002). 1960s–2000s (FinTech 2.0): Mainframes, ATMs (from 1967), credit cards, electronic payment systems,

[6] https://en.wikipedia.org/wiki/Financial_technology#cite_note-7

[7] A. Startups

- **Stripe**: A startup that provides payment processing solutions for online businesses, enabling them to accept payments and manage transactions seamlessly.

B. Established Technology Companies

- **Apple**: Through Apple Pay, the company has expanded into financial services, allowing users to make payments using their devices and integrating financial transactions into their ecosystem.

C. Traditional Financial Institutions Adopting New Technologies

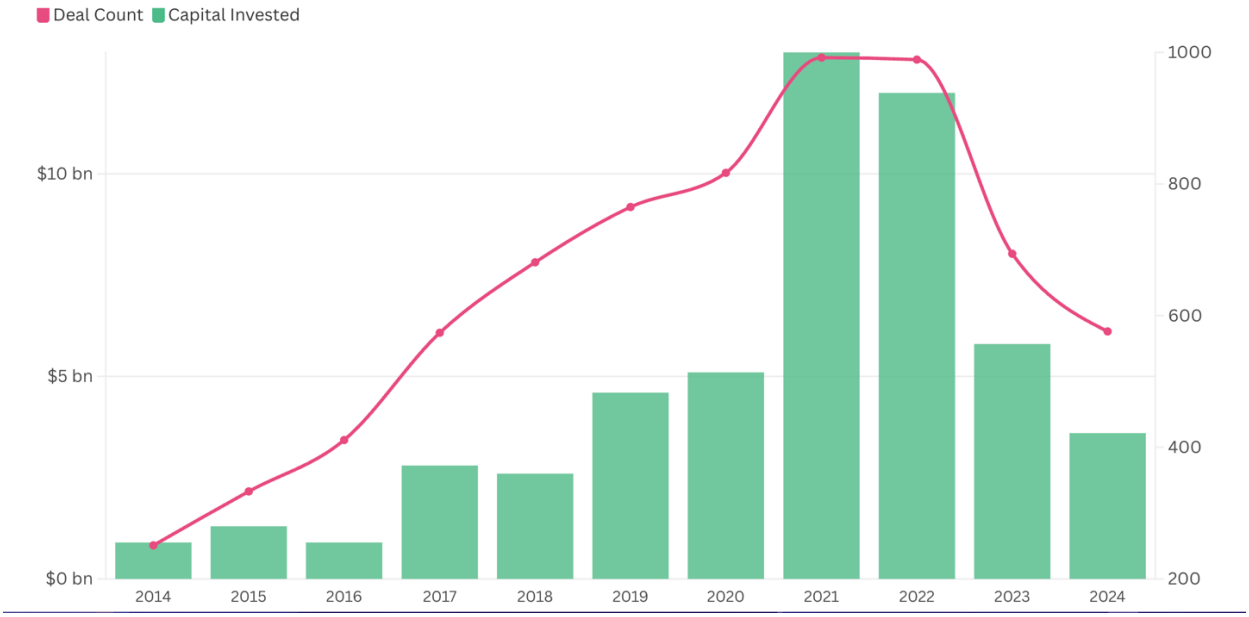
- **JPMorgan Chase**: This traditional bank has embraced technology by investing in blockchain technology and developing its own digital currency, JPM Coin, to facilitate faster payments.

[8] World Bank Group " *Fintech and Digital Transformation of Financial Services : Implications for Market Structure and. Public Policy*" 2022

and later online and telephone banking diffused widely, transforming front-office services and back-office operations (Hoffmann et al., 2020).1960s-2000s Post-2008 (FinTech 3.0 and beyond): Smartphones, cloud computing, and platform economics enabled fintech startups, mobile wallets, P2P lending, robo-advisors, and crypto assets, further digitalising payments, lending, and investment services (Locatelli et al., 2021)

FinTech companies expanding across borders often face several challenges, with funding among the most significant. The United Kingdom has maintained its position as Europe's FinTech leader, accounting for approximately 44% of the region's capital, having raised $3.6 billion from 576 deals. However, this represents a sharp decline from $5.8 billion in 2023. While this drop highlights broader market challenges, the UK's continued dominance underscores its enduring appeal as a global FinTech hub. In this context, investing in FinTech has become essential for traditional banks seeking to remain competitive in the evolving financial landscape. Many banks recognise the need to adopt FinTech innovations to enhance their services and efficiency (Omarini, 2018). This includes using technologies that provide faster, more secure services and automating processes to reduce operational costs, particularly in credit approval and risk management (Li & Chen, 2024). Additionally, FinTech has facilitated the automation of banking operations through artificial intelligence and machine learning. Investing in FinTech is increasingly popular among financial institutions because it helps them improve service quality, expand their product offerings, and meet evolving customer demands for convenience and personalised experiences (Pampurini & Quaranta, 2023). By actively engaging in these investments, banks can turn potential competitive threats into opportunities for collaboration, thereby enhancing their digital capabilities and boosting overall operational efficiency (Vukoslavović & Tatar, 2025). These investments can take various forms, such as buying shares in FinTech startups, forming joint ventures, or creating in-house innovation labs. These strategies aim to develop new products and integrate advanced technologies (Nuyens, 2019).

UK FinTech investments (2024- 2024):



Source: https://www.innovatefinance.com/capital/fintech-investment-landscape-2024/[9]

3.2 The distinction between FinTech and traditional financial services

According to Wikipedia, a bank is a financial institution that accepts deposits from the public and creates demand deposits while simultaneously making loans. Lending activities can be directly performed by the bank or indirectly through capital markets[10]. Banks' models are more capital-intensive and maturity-stage, built around deposits, branches, and regulated balance sheets. (Stulz, 2019). Banks are operating under strict licensing from central banks or financial authorities, whereas Fintech operates under the Payment Services Directive (PSD2 in the EU) and an e-money licence. The business model for banks is capital-intensive and maturity-transforming, centred on deposits, branches, and regulated balance sheets, supervised under strict banking licences.11 The FinTech core role is to use technology to deliver specific financial services (e.g., payments, lending, robo-advice) more efficiently or innovatively than incumbents.[12]

[9] The 2024 market report highlights that the UK continues to dominate as the European leader in FinTech, ranking second globally behind the USA.
[10] https://en.wikipedia.org/wiki/Bank

[11] https://european-economy.eu/2017-2/the-impact-of-fintech-on-banking/

[12] EU Parliament „FinTech and the EU"

Table 4: The distinction between FinTech and Banks

Dimension	FinTech	Traditional financial services
Core concept	Technologically enabled financial innovation, often delivered through digital platforms and apps.	Established provision of financial products (deposits, loans, payments, investments) through incumbent institutions such as banks and insurers.
Typical providers	Start-ups, BigTechs, neo-banks, specialized platforms, and tech-driven non-banks.	Regulated banks, credit institutions, insurance companies, and investment firms operating under traditional licenses.
Technology role	Technology is the primary driver of the business model (APIs, cloud, AI, DLT, mobile-first design).	Technology mainly supports existing processes and legacy systems; innovation is incremental and slower.
Customer interface	Direct, digital, often mobile-only channels with highly personalized, user-centric design.	Branch networks, call centers, and multi-channel models where digital is one channel among others.
Speed of innovation	Rapid product cycles, experimentation, and scaling enabled by agile development and venture funding.	Longer innovation cycles constrained by regulation, legacy IT, and risk/committee structures.
Regulatory perimeter	Often operate in specific niches or under light or evolving frameworks (e.g., sandboxes, specialized licenses).	Fully within established banking, insurance, and securities regulatory regimes with comprehensive prudential requirements.
Business model focus	Unbundling of financial services, niche specialization (payments, lending, robo-advice, crowdfunding), platform and data-driven models.	Universal or broad-based service provision, cross-selling across product lines, balance-sheet-based intermediation.
Use of data and analytics	Intensive use of real-time data, APIs, and advanced analytics/AI for personalization and risk scoring.	More reliance on internal, historical data and traditional scoring models with slower data integration.
Funding and ownership	Frequently venture-backed, with high growth expectations and flexible ownership structures.	Typically widely held or state/strategic-investor-owned, with focus on stability, dividends, and long-term relationships.
Role in the financial system	Act as challengers, partners, or enablers that can disintermediate parts of the value chain.	Act as core intermediaries responsible for deposit-taking, lending, and payment system stability.

4. Key enabling technologies: APIs, mobile technologies, NFC,..

APIs (*Application Programming Interfaces*) have become the driving force behind the FinTech revolution, reshaping how customers access and consume digital products and services, as well as how organisations operate and understand their business environment (Omarini, 2018). This phenomenon, referred to as "APIsation" (Karri, 2025), involves the systematic implementation of standardised interfaces throughout financial infrastructure. By integrating these interfaces, APIs fundamentally transform development economics, competitive dynamics, and service delivery models, serving as essential links between software applications and enabling them to share data and functions.

Data is essential for modern businesses, especially in the finance sector, where it enhances decision-making, drives innovation, and enables personalised customer service. Traditionally, banks operated as isolated entities, tightly controlling customer data and the services associated with it. However, the emergence of open banking has disrupted this model (Alonso-Robisco et al., 2025). At the core of open banking initiatives is the secure, efficient sharing of financial data from bank customers with third-party providers via application programming interfaces (APIs). The API economy, through its extensive network of programmable interfaces, provides FinTech companies and traditional banks with access to vast datasets (Sinha & Jha, 2024). This access to

diverse data sources, combined with advanced analytical tools, enables financial institutions to gain deeper insights into market trends and customer behaviour (Parate et al., 2023), thereby optimising strategic decision-making and product development. Moreover, the effective use of these APIs for data aggregation and real-time processing has played a crucial role in the rapid growth of payment processing solutions, which are now a well-established category within financial services (Avvari, 2025).

The evolution of financial technology often involves the crossover of telecommunications engineering into finance. For example, early experimentation with NFC (*Near Field Communication*)[13] payment standards.The impact of Fintech companies on traditional banks in the context of **NFC payments** is strongly visible. PSD2 forced banks to open their data via APIs .This enabled fintechs to build seamless onboarding processes, allowing customers to verify their bank accounts and add a virtual card to their NFC wallets in seconds. PSD2 enforced stricter security through SCA (*Strong Customer Authentication*), which increased NFC adoption as biometric methods like FaceID and Fingerprint on smartphones are more secure and quicker than entering a PIN on a POS terminal, and improve user experience. (Liébana-Cabanillas et al., 2025)

According to McKinsey's 2025 Report[14], **consumer expectations are changing,** driving increased demand for personalised, seamless financial services. This trend highlights a larger movement toward customer-focused financial ecosystems that prioritise transparency, convenience, and value (Kröner, 2018). As a result, traditional banks must adapt their strategies to remain competitive. The ability to rapidly deploy new applications and services through API-driven architectures has become a critical differentiator for financial institutions seeking to retain and expand their customer base. In 2024, global banking profits reached approximately $1.2 trillion, the highest among industries. Consumers are increasingly digital and less loyal, with only 4% of new checking account applicants choosing their existing bank.[15] FinTechs and Open Banking have trained customers to compare and switch providers more easily, reducing reliance on traditional banks' customer loyalty. The emergence of digital-only banks exemplifies how customers are now empowered with more choices for managing their finances, compelling traditional institutions to innovate or risk losing market share (Institute & Ozcan, 2021).

4.1 Dimensions of Fintech Activity

Open banking has led to the proliferation of FinTech categories, each targeting specific areas previously dominated by traditional banks, enabling these firms to specialize and offer services that are often more agile, cost-effective, and user-friendly than those of their traditional

[13] NFC is a set of communication protocols that enables communication between two electronic devices over a distance of 4 cm (1+1⁄2 in) or less, https://en.wikipedia.org/wiki/Near-field_communication,
NFC is a method of wireless data transfer called NFC (Near field communication) that detects and then enables technology in close proximity to communicate without the need for an internet connection

[14] https://www.mckinsey.com/industries/financial-services/our-insights/global-banking-annual-review#/
[15] https://www.mckinsey.com/industries/financial-services/our-insights/global-banking-annual-review#/

counterparts (Brandl & Hornuf, 2020; Ahmadirad, 2024). Fintech, besides offering more agile products, is focusing on value creation and customer experience.

4.2 FinTech Categories

Table 5. FinTech Categories

FinTech category	description	Examples (typical services)
Money transfer & payments (PayTech)	Digital tools that move money quickly and cheaply between people or businesses.	Mobile wallets, P2P transfers, contactless cards, QR payments, remittance apps, B2B & A2A payments infrastructure (PSPs, gateways, pay-in, payout), Mobile payments, card network infrastructure
Savings & investments	Apps and platforms that help users save, invest, and manage assets online.	Robo-advisors, micro-saving apps, online brokerage, ETF/stock investing platforms.
Financial planning	Digital tools that support budgeting, goals, and overall financial health.	Budgeting apps, personal finance dashboards, retirement planners, spending trackers.
Insurance (InsurTech)	Technology-driven insurance products with online distribution and data-based pricing.	Usage-based car insurance, digital travel insurance, comparison sites, instant micro-cover, fraud and payments, search and quoting software, data and underwriting
Borrowing (digital lending)	Platforms that provide loans using online processes and data-driven credit assessment.	P2P lending, BMPL - buy-now-pay-later, online consumer loans, SME lending marketplaces, loan servicing and origination, lending technology[16]

Digital payments are a key pillar of FinTech activity and have been at the forefront of its rise, particularly due to the rapid digitalization of payments driven by global events such as the COVID-19 pandemic. [17]This shift has led to a significant increase in the use of contactless payment methods and digital wallets.[18] Additionally, the prior widespread adoption of smartphones and the growth of online commerce during the pandemic have further accelerated FinTech's expansion, compelling banks to integrate innovations such as digital money and mobile wallets to stay competitive. The PayTech sector has continued its evolution since the 1980s,
Open banking accelerated the creation of advanced payment systems (such as instant, secure, and cost-effective alternatives to traditional banking systems, particularly for cross-border payments) that integrate smoothly with various FinTech applications, making the distinction between traditional banking and specialized payment services. (Jede & Teuteberg, 2025).

4.3 Are PayTech companies a complement to banks, or do they operate as competitors?

According to Costa et al. (2025), when two companies have resources, skills, and objectives that complement each other, they are more likely to cooperate than to compete. However, for PayTech companies and banks, the situation is different. PayTech companies compete with banks by offering more efficient and often cheaper payment and transfer services **(**Suprun et al., 2020). This

[16] State of European Fintech 2025, Report.
[17] World Bank Group – Report" *Global Patterns of Fintech Activity and Enabling Factors*", 2022
[18] Open Banking Worldwide Edition, 2025, Whitepapper, Qwist.

competition arises because, despite potential areas for cooperation, the differing objectives and market strategies lead to a rivalry rather than a partnership.
When a paytech company becomes a licensed bank, it can directly challenge traditional retail banking by leveraging its technological expertise and existing customer relationships to offer a broader range of financial products and services. (Guibaud, 2016). Revolut exemplifies this trend, having evolved from a digital-first payment provider into a fully licensed bank that competes directly with established institutions. FinTech companies, particularly those that have become licensed banks, pose a significant competitive threat by offering similar services with improved digital experiences and often lower operational costs (Patadiya et al., 2025).

5. Banking Market Reaction to FinTech

In response to competitive pressures, traditional banks are improving their digital services and partnering with FinTech companies, recognising they need to adopt new technologies to stay relevant and leverage FinTech's flexibility to attract new customers and enhance their offerings. (Mohan, 2016). However, while banks recognise the need for innovation, their structural rigidity and extensive regulatory obligations often impede their ability to keep pace with FinTech development. (Klus et al., 2019). Bank–Fintech partnerships allow banks to benefit from FinTech's agility, innovation, and technological expertise, while FinTechs gain access to banks' established regulatory frameworks, greater resources, and deeper market understanding. (Vukoslavović & Tatar, 2025)

Banks are actively developing their own mobile banking and money platforms. Conversely, FinTechs often possess greater agility and can innovate more rapidly due to their lack of legacy infrastructure and lower organisational complexity. (Hornuf et al., 2020). The difference in adaptability between banks and FinTechs often stems from banks' reliance on complex, outdated legacy systems. These systems are expensive to change and can create significant operational risks. In contrast, FinTechs use modern, flexible technology that enables them to adapt quickly. (Varga, 2017). Banks are looking to **automate services,** particularly in insurance. (Suprun et al., 2020) which allows them to respond to market demands. Conversely, Fintech companies aim to use open banking to provide personalised, customised financial services, giving customers immediate insights into their financial status (Omarini, 2018). Banks are moving toward personalisation and setting individual rates based on data analysis using Big Data (Suprun et al., 2020). Fintech companies are using open banking to make comprehensive customer data analysis using Big Data, transforming from traditional models to more data-driven approaches (Stefanelli & Manta, 2023). This comprehensive data analysis not only enables more precise risk assessments and fraud management but also informs strategic decisions about product development and market positioning (Harsono & Suprapti, 2024).

5.1 Build or Partner?

To remain competitive, banks must decide whether to build technology internally or partner with FinTechs, a decision that depends on factors such as internal resources, competencies, and costs. Internal development demands significant investment in infrastructure and human capital,

whereas partnerships offer a faster route to market with shared resource allocation.[19] This decision influences the bank's ability to innovate and adapt to market changes.

Most often, the reasons Banks choose partnerships over internal development include the ability to quickly integrate new technologies, access specialised expertise, and reduce the financial investment and time required for in-house development. (Som & Ram, 2020).

Table 6: The reasons Banks choose partnerships over internal development

Issue / driver	Description	Source
Inefficiency of internal resources	Internal IT departments are often expensive, slow, and complex, so maintaining large in-house development teams can be inefficient for banks .	Vukoslavović & Tatar, 2025
Lack of core competency	Banks are fundamentally financial institutions and typically lack the capabilities needed to operate as agile, cutting-edge IT companies .	Vukoslavović & Tatar, 2025
Cost considerations	Building and sustaining a large internal IT sector for development and digitalization requires very high ongoing costs .	Vukoslavović & Tatar, 2025

Table 7: Banks' reasons for partnering with FinTechs rather than relying solely on internal IT can be summarised as follows.

Aspect / advantage	Collaboration with vendors	Internal development	Source
Expertise and experience	Specialised vendors have deep experience and expertise in building specific financial/IT solutions .	Internal bank teams may have less specialised solution-building experience but know internal processes well .	Vukoslavović & Tatar, 2025. (Jede & Teuteberg, 2025)
Implementation speed	Partnerships can significantly speed up implementation of new systems and functionalities .	Development cycles may be longer because capacity is limited to internal resources .	Vukoslavović & Tatar, 2025, (Jede & Teuteberg, 2025)
Scalability	Vendors often provide scalable solutions that can grow with the bank's needs .	Scaling may require hiring and training more staff or rebuilding parts of the system .	Vukoslavović & Tatar, 2025, (Jede & Teuteberg, 2025)
Maintenance and support	Vendors usually provide continuous support and maintenance, simplifying problem-solving and upgrades .	Bank bears full responsibility for support, bug fixing, and upgrades with its own resources .	Vukoslavović & Tatar, 2025, (Jede & Teuteberg, 2025)
Innovation and disruption	Vendors often introduce new ideas and innovative approaches that reveal new business opportunities .	Innovation depends on internal culture, budget, and skills; may be slower or more incremental .	Vukoslavović & Tatar, 2025, (Som & Ram, 2020), (Jede & Teuteberg, 2025)
Control	Some control is ceded to the vendor over design choices and roadmaps .	Full control over functionalities, architecture, and customisation to specific bank needs .	Vukoslavović & Tatar, 2025, , (Som & Ram, 2020), (Jede & Teuteberg, 2025)
Flexibility	Changes may require renegotiation or depend on vendor priorities and capacity .	Internal teams can react more quickly to changing requirements or market conditions .	Vukoslavović & Tatar, 2025, (Som & Ram, 2020), (Jede & Teuteberg, 2025)
Integration	Integration can be more complex and dependent on vendor interfaces and cooperation .	Typically better integration with existing internal systems and architectures .	Vukoslavović & Tatar, 2025, , (Som & Ram, 2020)

[19] Visa Report " *What Lies Ahead For bank Fintech Partnerships*?", November 2023

By focusing on their core competencies, banks can benefit from the rapid innovation cycles characteristic of FinTech firms (Kyprianides, 2018). This approach allows banks to maintain relevance and competitive advantage in a rapidly evolving financial landscape by leveraging FinTech capabilities to introduce innovative products and services without incurring substantial in-house development costs or delays (Enriques & Ringe, 2020).

5.2 How Banks Cooperate with FinTech -*Partnerships*

According to Omarini (2018), existing financial institutions might lose a significant portion of their market share and profit margins if new competitors (FinTech) manage to innovate more effectively, provide lower-cost services that better satisfy customer needs, and create more personalised, quicker-to-market solutions. **Banks partner with FinTechs** to drive digital innovation (modernising core business activities) to improve services, introduce digital-first financial products, and adapt to evolving customer expectations. Partnerships or alliances are a dominant approach for banks. (Hornuf et al., 2020).
Banks are known for stability and regulatory expertise, but often lack the agility and cutting-edge technologies that FinTech's offer. Banks have many opportunities to collaborate with FinTech to benefit from the growing digital ecosystem and stay aligned with market trends. By embracing FinTech innovations, banks can offer more personalised, efficient, and secure services, leading to stronger customer relationships and improved business. (Marwa, 2022). Partnerships enable banks to meet evolving customer expectations for speed, convenience, and digital offerings. (Costa et al., 2025). FinTechs bring new ideas, disruptive business models, and specialised expertise that help banks identify and exploit new market niches and opportunities they might otherwise miss. (Vukoslavović & Tatar, 2025). Research by financial software provider Finastra suggests that banks will contact fintechs to solve the problem. Its poll of almost 750 banking leaders from across the globe found that 56% of respondents want to use a network of integrated fintech solutions, with only 6% preferring to build functionality in-house. Some 75% of banks plan to engage with an average of three fintechs over the next 12 to 18 months.[20] The research, conducted by East & Partners, finds that the core motivations of global respondents to integrate fintech solutions are reducing operational costs (46%), deploying new technology with greater ease (43%), and aligning more closely with evolving compliance needs (37%)

According to the Future of Global Fintech report[21], the main drivers of FinTech growth are consumer demand for digital services and financial literacy, as well as supportive funding and regulatory environments.

[20] https://www.raconteur.net/growth-strategies/why-banks-are-chasing-fintech-partnerships

[21] Cambridge Centre for Alternative Finance " *The Future of Global Fintech: From Rapid Expansion to Sustainable Growth*" Insught Report, June, 2025

5.3 The benefits of Bank-Fintech cooperation for both counterparties

Table 8: The benefits of Bank-Fintech cooperation for both counterparties

Perspective	Benefit	Description
Banks	Innovation and agility **Technological solutions and Infrastructure**	Partnering with FinTechs gives banks access to technology and specialist expertise without large internal R&D, enabling faster rollout of new services like digital wallets, P2P payments, and advanced lending. Banks aim to access external and rapid innovation, adapt business models, outsource services,and gain strategic and competitive advantages. (Costa et al., 2025)
Banks	Cost efficiency	Banks can lower operational costs by using FinTech solutions to automate processes, streamline operations, and reduce paperwork, instead of funding expensive in-house development.
Banks	Enhanced customer experience	By integrating FinTechs' user-friendly and innovative interfaces, banks can offer more intuitive, personalized, and seamless digital experiences, such as smooth digital wallet payments and improved online services.
Banks	Access to new markets and segments	Collaborations with FinTechs help banks reach new and underserved customer segments and expand into markets they previously could not serve effectively.
Banks	Risk management and compliance	AI-driven fraud detection, RegTech, and other FinTech tools help banks strengthen security, automate monitoring and reporting, and manage complex multi-country regulatory requirements more efficiently.
FinTechs	Scale : Access to customer base and resources	FinTech companies gain access to banks' large customer bases, capital, and infrastructure, helping them scale faster and deepen market penetration.
FinTechs	Credibility and trust	Association with established banks enhances FinTechs' credibility and trust in the eyes of customers and partners, making it easier to attract and retain users.
FinTechs	Regulatory expertise	Banks share their regulatory knowledge and compliance frameworks, helping FinTechs navigate complex rules so they can focus more on technology, product design, and customer experience.
FinTechs & Banks	Shared investment and risk	Both parties share the financial burden and risk of developing and launching new products; banks often fund or co-fund projects while FinTechs drive innovation, improving chances of success for both sides.

For a partnership to be successful, there needs to be deep alignment of goals, values, and strategies, and a willingness from both sides to engage deeply and adapt to challenges. (Vukoslavović & Tatar, 2025)

5.4 Structural models of bank–FinTech cooperation

Table 9: Structural models of bank–FinTech cooperation

Structural model	Description & typical use
API Integrations	API-based solutions, Open access Apis, Banking- as – a Service (Baas)/ Embedded Finance/ Identity, Compliance, Risk
Technology provider	Cloud/ Infrastructure provider, analytics
Partnership / alliance	Joint product development or distribution; non-equity cooperation where the FinTech remains independent.
Acceleration / incubators / innovation labs	Banks scout and mentor FinTechs and test proofs of concept (PoCs); used at early stages to keep an option on deeper commercial or equity deals.
Investment / acquisition ("absorption")	Banks take equity stakes or fully acquire FinTechs, gaining more control over technology and products but facing significant integration and cultural-fit risks.

API integrations create a direct technical link between a fintech and a financial institution. This means that banks open up parts of their systems, data, or services via Application Programming Interfaces, allowing fintech companies to securely connect and build new applications or enhance existing services on top of the bank's infrastructure (Vukoslavović & Tatar, 2025). Instead of building every new digital service themselves, banks can act as platforms. An example is BaaS[22] (banking-as-a-service).

Platform-Based Banking

Transitioning to deliver financial services through digital platforms and creating a comprehensive customer experience will require significant changes for many established banks. It is crucial for these banks to recognize that the potential to offer solutions extends beyond their current offerings to include third-party providers. Sharing economic value among all participants is essential for the long-term success of a digital platform ecosystem. The **Banking-as-a-Service (BaaS)** model facilitates this by allowing banks to offer their payment infrastructure, funding, and customer base, enabling the integration of financial services into third-party online applications. **Embedded finance** involves incorporating banking and payment services directly into the websites and mobile apps of non-bank companies. Examples include processing payments through a taxi app, providing flexible financing options at the point of sale for online retailers, and offering travel insurance when booking a flight. These integrations can significantly boost revenue growth for companies; for instance, embedding lending options at online checkouts can increase purchase conversion rates by up to 50%. A notable example of this trend is Walmart's partnership with FinTech investor Ribbit.[23]

Banks can promote embedded finance by offering their payment and banking infrastructure through the BaaS[24] model. This model enables fintech companies and other third-party organizations to connect to a bank's system via APIs, allowing them to build innovative financial services that leverage the bank's regulated infrastructure. For example, a ride-sharing app like Uber can use BaaS to offer in-app payment solutions, allowing drivers to receive payments instantly without interacting with a traditional bank. By integrating banking services directly into its platform, Uber enhances the user experience and provides a seamless transaction process for both drivers and passengers. This change redefines who owns the customer relationship, how value is shared within the financial ecosystem, and how profits and risks are distributed. The combination of BaaS and embedded finance is shifting the economics of banking toward a model

[22] **Banking as a service** (**BaaS**) is the provision of banking products (such as deposit accounts, loans and credit cards) to customers through non-bank or non-financial third party partnerships. The bank provides the balance sheet management, including capital, liquidity and credit risk management, while the partner company (typically a fintech) interacts directly with the customer via their proprietary app, often accessing the bank's systems and data via API's. https://en.wikipedia.org/wiki/Banking_as_a_service

[23] Platform-Based Banking, KPMG, 2022

[24] Banking as a Service (BaaS) is a financial industry concept that refers to the delivery of banking and financial services through a third-party platform or API (Application Programming Interface), https://sdk.finance/blog/top-banking-as-a-service-companies/

focused on shared infrastructure and revenue sharing within ecosystems, where platforms capture much of the customer-facing value. In this new environment, profitability depends on scale, the ability to coordinate services, data advantages, and efficient regulatory compliance. This shift is also changing the landscape of competition, inclusion, and risk across the financial system (Pramitasari et al., 2025).

6. Impact of Open Banking on Banks – Role of FinTechs

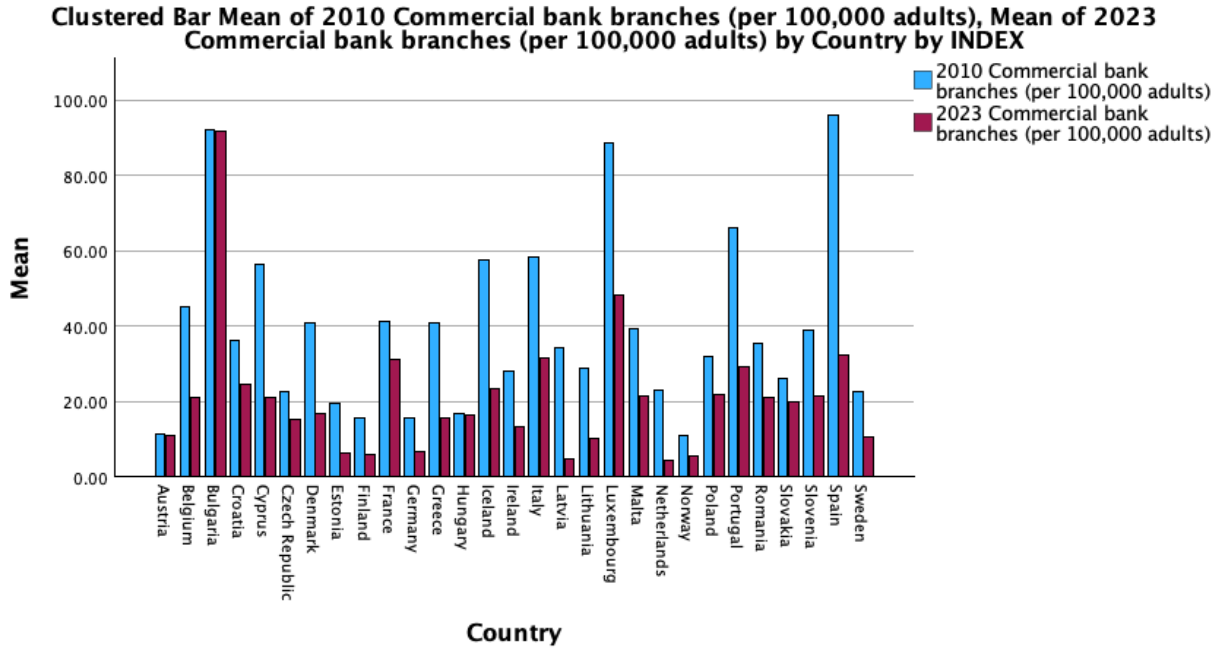
Impact on bank digitalisation
Impact on bank profitability

Digital transformation involves integrating digital technologies across all areas of a business, fundamentally changing how organisations operate and deliver value. (Shi et al., 2023). According to ECB Banking Supervision, "digital transformation is not just an option any longer but a necessity to remain competitive and continue meeting customers' evolving demands," emphasising strategic, organisational, and technology change.[25] According to Omarini (2018), the role of banking and finance is more as a strategic "enabler" than as a provider of products and services.

The rise of **mobile devices**[26] and improved internet access, which together create digital connectivity[27], has made financial services indispensable for consumers and significantly expanded access to them. This shift has driven the rapid growth of **digital wallets**[28], a key technology integrated with mobile banking platforms that enables individuals in remote areas to access financial services[29],c thereby promoting financial inclusion. As a direct result of this digital transformation, there has been a noticeable reduction in brick-and-mortar branches, with digital channels increasingly serving as the primary interface for customer interactions (Zeeland & Pierson, 2024). The reduction of physical banks' infrastructure, together with the shift to digital platforms, significantly lowered banks' operational costs. This enabled them to allocate more resources to improving digital service channels and enhancing the customer experience (Kanwal

[25] https://www.bankingsupervision.europa.eu/press/supervisory-newsletters/newsletter/2023/html/ssm.nl230215_2.en.html
[26] According to World Bank Database (2024), 86% of all adults own a mobile phone. Global Findex Database, 2025.
[27] Digital Connectivity - to access to and use of the internet or dedicated apps by means of a device—such as a network-connected computer, tablet, or mobile phone—to interact and transact with individuals, businesses, financial institutions, or governments. The goal of digital connectivity is to make these devices and related applications easy, safe, and affordable and enable users to create economic and social value. Global Findex Database, 2025.
[28] Digital Wallet is a software-based system that securely stores payment information and passwords for numerous payment methods and websites, thereby facilitating convenient and swift digital transactions
[29] OECD (2020), Digital Disruption in Banking and its Impact on Competition

et al., 2023). This trend is reflected in the decline of new commercial bank branch openings and the rise in closures since 2012, illustrating a broader movement toward virtual banking channels.



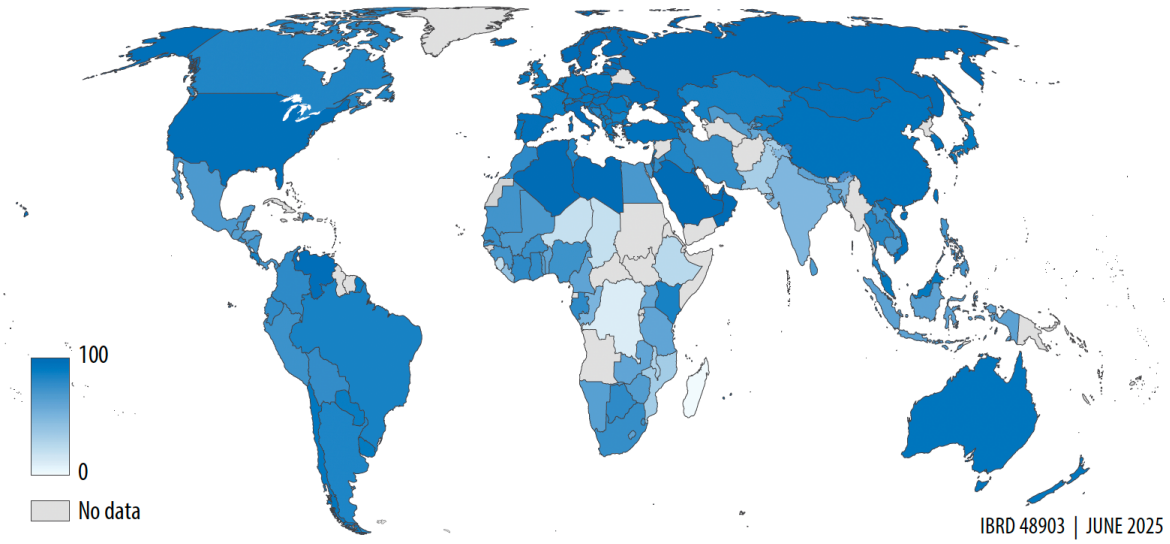
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6.1 Impact on bank digitalisation

Digital transformation in the banking industry, driven by FinTech companies, has led traditional banks to rethink their business models. They are now focusing on strengthening digital capabilities and customer engagement strategies to remain competitive (Srivani, 2025). Digital transformation is more than just adopting new technology; it involves fundamentally changing how financial services are delivered and how customers engage with them. New competitors such as FinTech and BigTech, together with rapid technological progress, have increased competition in the financial industry, potentially putting banks' profits at risk. (Vukoslavović & Tatar, 2025). In response, traditional institutions are increasingly **investing in advanced analytics and artificial intelligence to automate processes, reduce costs, and improve service delivery**. This strategic realignment usually includes a digitalisation plan to increase revenue, improve customer experience, and cut costs through automation.

[30] The graph shows a clear and nearly universal decrease in physical presence of commercial banks across Europe from 2010 to 2023, reflecting the sector's shift toward digital channels and new competitive realities. This SPSS Statistics clustered bar graph illustrates the change in commercial bank branch density per 100,000 adults across various European countries between 2010 and 2023, based on World Bank indicator data. Each country is represented by two bars: blue for 2010 and maroon for 2023.

Worldwide, 86% of adults own a mobile phone – Adults with mobile phone (%), 2024



Source: Global Findex Database, 2025

The impact of open banking on the banking industry varies significantly based on the size and technological maturity of individual banks. Smaller banks can take advantage of open banking to increase their market share by making it easier for customers to switch providers, thereby improving customer retention and acquisition. In contrast, larger banks with advanced digital infrastructure are better positioned to capitalise on open banking opportunities through sophisticated data analytics, enabling them to offer highly personalised financial services that align with changing customer expectations. (He et al., 2022)
According to Citterio et al. (2024), banks that increase IT investments to enhance structural efficiency and streamline procedures (primarily through cost-reduction measures) are more profitable. (Beccalli, 2007) states that investments in IT services from external providers positively influence the profitability of European banks.

Table 10: Negative Impact on bank digitalisation

Model	Description	Example citations*
Legacy system challenges	Modernizing banks' legacy IT infrastructure remains complex and resource-intensive, slowing digital transformation	(Citterio et al., 2024)
Partnership failure rate	Approximately 40% of bank-fintech partnerships fail (U.S.), due to poor alignment around strategy and execution	EY-Parthenon survey[31]2023

[31] https://www.ey.com/en_us/insights/strategy-transactions/how-banks-can-fix-broken-fintech-partnership-models

Cyber risk and data security	The heightened connectivity and data sharing inherent in open banking frameworks introduce new vulnerabilities	(Crouhy et al., 2025)

Table 11: Positive Impact on bank digitalisation

Model	Description	Example citations*
Mobile Banking and Digital Channels	Investment in mobile banking platforms as a priority, Digital onboarding with biometric authentication (facial recognition, fingerprint scanning, voice biometrics)	(Stefanelli & Manta, 2023c)
Process Automation	ECB survey findings: **83% of banks** see process automation as a key lever for digital transformation, Faster customer onboarding and reduced account opening times	ECB Dygitalisation Report, 2024
API Infrastructure and IT infrastructure modrnization	Legacy system transformation, Cloud computing adoption, CRM system upgrades (analytical and operational). IT infrastructure often involves a transition from legacy systems, which are increasingly expensive and difficult to maintain, to more agile, cloud-based solutions that can facilitate quicker deployment of new services and enhanced data security.	OECD Report Digital Disruption in banking and Impact on Competition, 2020
Branch Network Optimization	Resources reallocated to digital infrastructure. This involves strategic closures of underperforming branches and a reallocation of resources towards digital channels	OECD Report Digital Disruption in banking and Impact on Competition, 2020
Embedded Banking and Platformization	Integration of financial services into non-financial platforms. This integration, facilitated by APIs, enables banks to diversify their customer base and collaborate with both banking and non-banking entities,	OECD Report Digital Disruption in banking and Impact on Competition, 2020, (Jihane & Aziz, 2022)

We can assume that the impact of OB is multifaceted, with both positive and negative effects on Banks.

Table 12: Open Banking and the emergence of FinTech Impact on Banks:

Dimension	Positive impact on banks	Negative impact on banks
Competition and innovation	More market entrants and data sharing push banks **to innovate in products**, channels, and business models, often via APIs and partnerships.	Greater competitive pressure from agile fintech's and big tech can erode incumbents' pricing power and margins, especially where legacy IT slows innovation.
Product development and customer value	Access to richer transaction data enables **more tailored products**, dynamic pricing, and value-added services, improving customer satisfaction.	Standardization of data access makes it easier for rivals to copy offerings, reducing differentiation and weakening traditional cross-selling advantages.
Customer engagement and loyalty	**Data-driven insights** support highly personalized advice, loyalty programs, and omnichannel experiences that can deepen relationships.	Lower switching costs and account aggregation tools make it easier for customers to move activity away from the primary bank, **diluting loyalty.**
Collaboration and ecosystem role	**Banks can become platform providers,** collaborating with fintechs and third parties to extend reach and offer embedded finance solutions.	If banks fail to reposition, they risk being relegated to back-end utilities providing regulated balance sheets and payments rails with thin returns.
Data access and information power	**Broader data** (including from partners) can enhance risk models and credit decisions where banks successfully integrate external sources.	**Loss of data monopoly** weakens incumbents' informational advantage and associated rents, shifting bargaining power toward customers and new entrants.
Profitability and business model	**New fee streams from APIs,** data-driven services, and platform models can partially offset pressure on interest and fee income.	**Implementation costs**, margin compression, and disintermediation in payments and lending can **reduce overall profitability,** particularly for slower-moving banks.

Market structure and ecosystem design	Can lead to a more diverse and specialized ecosystem with new roles (aggregators, platforms, niche lenders), opening strategic options for banks.	Traditional universal banks may **lose economies of scope and market share** as activities fragment across specialized players and platform ecosystems.

6.2 The Impact on Bank Profitability

Open Banking and the rise of FinTech have affected bank profitability, primarily through improved customer experience and operational efficiency (Tarawneh et al., 2024). As a result, banks now compete or cooperate with FinTech companies that offer more innovative digital solutions than traditional banks. This dynamic makes it essential for traditional banks to enhance their services to retain customers. For example, a bank adopting Open Banking practices can allow customers to view their financial data across multiple accounts in a single app, making it easier to manage their finances. But practical implementation faces significant challenges. Banks have not deeply embedded platform-based approaches into their strategy, channel development, or organizational structures—they support API-based structures conceptually but struggle with true embedded banking implementation.

Open Banking regulations facilitate data sharing, enabling FinTechs to deliver more personalized, competitive services based on data previously reserved for banks. **For instance, a FinTech company might use customer transaction data to offer tailored financial advice or create customized savings plans that directly address individual spending habits.** This change can weaken the direct relationship between traditional banks and their clients, as customers may prefer the more personalized experiences offered by FinTechs. Ultimately, this trend can impact bank profitability, as traditional banks may lose clients to these agile competitors[32].

As FinTech firms gain a reputation for being customer-centric, they bridge the gap between traditional financial services and consumer needs, posing a risk to banks (Omarini, 2018).

For example, a FinTech company like **Robinhood**[33] offers commission-free trading and a user-friendly app that appeals to younger consumers who value low costs and easy access to investment opportunities. Another example is **Revolut**[34]**,** which offers a range of financial services, including currency exchange, budgeting tools, and cryptocurrency trading, all within a user-friendly app. By prioritizing the customer experience and offering features such as instant account setup and low-cost international transactions, Revolut and other Fintechs attract clients away from traditional banks, increasing competitive pressure on these institutions.

[32] World Bank Group " Fintech and Digital Transformation of Financial Services: Implications for Market Structure and Public Policy" 2022

[33] **Robinhood Markets, Inc.** is a public financial technology company founded in 2013 and headquartered in Menlo Park, California. The company is named after Robin Hood, based on its mission to "provide everyone with access to the financial markets, not just the wealthy" Robinhood exemplifies FinTech's disruption of traditional banking by offering user-friendly, low-cost investment services that attract customers away from established financial institutions

[34] **Revolut** is a digital bank headquartered in Lithuania (Vilnius) that exemplifies FinTech disruption of traditional banking. **Scale**: Over 65 million customers globally. **Mission**: To enable every person and business to handle all money matters—spending, saving, investing, borrowing, and managing—in just a few taps. Revolut represents a prime example of how FinTech companies attract customers away from traditional banks by offering user-friendly apps, low-cost international transactions, budgeting tools, and cryptocurrency trading—all within a single platform. This demonstrates the competitive pressure FinTechs place on traditional banking institutions through superior digital experiences and often lower operational costs

Table 13: The negative impact on profitability

Impact area	Description
Loss of the data monopoly	Open banking removes banks' exclusive access to customer data, weakening the traditional relationship-banking model and reducing their advantage in pricing and tailoring financial services. (Omarini, 2018)
Profit reduction	Greater competition from FinTechs and other new entrants pressures banks to lower prices and enhance services, which can reduce overall profitability. FinTech firms are known for their customer focus, meeting the needs of today's consumers and thereby reducing the importance of banks in people's daily lives. As a result, individual banks face higher risks to their profits because FinTechs are gaining market share by breaking down traditional banking services (Omarini, 2018).
Shift in market share	Open banking lets customers share their data with other financial providers, causing a decline in traditional banks' market share as customers build relationships with FinTechs and non-bank lenders. (Naceur, 2023)
Restructuring of the banking ecosystem	Open banking can trigger a reorganization of the financial sector, with banks losing economies of scope and being partly replaced by more specialized, interconnected firms (Babina et al., 2022).
Declining customer loyality	The convenience and flexibility offered by FinTech solutions have reshaped consumer preferences and expectations, leading to a demand for seamless, user-friendly experiences in financial transactions (Nnaomah et al., 2024)
Investments in Technology	This often involves substantial capital expenditure in advanced IT infrastructure and cybersecurity measures, which can strain profitability in the short term, even as it positions them for long-term competitiveness (Awasthi, 2024)

Table 14: The positive impact on the bank's profitability

Impact area	Description
New revenue streams	Open Banking creates business opportunities beyond regulatory compliance
Operational efficiency	API-enabled integration and digital workflows lower operating costs by automating onboarding, credit assessment, and payments. That leeds to Improved banking processes and digital management
Decreased investments in Brick and mortar	FinTech has dramatically reduced physical bank branches as digital platforms become customers' preferred choice
Bank – Fintech Partnerships	Bank-FinTech strategic partnerships positively impact bank efficiency by enhancing profitability
Product and service innovation	Banks can rapidly launch new offerings such as robo-advice, instant lending, and value-added payment solutions by partnering with FinTechs, diversifying income sources and differentiating themselves from competitors.
Better risk management and pricing	Enhanced risk management capabilities through technology adoption

The decline of brick-and-mortar stores and the rise of digital consumer interfaces. (for example, web and mobile) enable new players to reach consumers both near and far. By using apps from different competitors, consumers can build their own complete bank and gain more personalised services. This has likely reduced the value of legacy physical networks and the incumbent's grip on customers, who can easily shift funds to other providers to access preferred services (Shevlin, 2019).

7. Conclusions and Results

In this article, we present the empirical findings addressing the three research questions outlined in the introduction: (1) the impact of Open Banking on banks, including the role of FinTechs; (2)

how FinTech affects bank profitability and digitalisation strategies; and (3) banks' strategic response to FinTech disruption. The analysis synthesises evidence from academic literature, industry surveys, regulatory reports, and the Global Findex Database 2025.

7.1 The Impact of Open Banking on Banks: The Role of FinTechs

The implementation of PSD2 has fundamentally restructured the competitive dynamics of the European banking sector by dismantling banks' traditional data monopoly. This regulatory intervention has enabled third-party providers to access customer financial data through standardised APIs, creating new market entry points for FinTech companies while simultaneously pressuring incumbent institutions to adapt their business models.

7.1.1 Regulatory Framework as Catalyst for Transformation

Evidence from Spain demonstrates that PSD2-driven Open Banking has improved PayTech performance primarily through revenue growth rather than cost reduction (Alonso-Robisco et al., 2025). This finding suggests that Open Banking creates value predominantly by enabling new service offerings rather than by achieving operational efficiencies. FinTechs operating as Account Information Service Providers (AISPs) and Payment Initiation Service Providers (PISPs) have leveraged regulatory access rights to develop competitive alternatives to traditional banking services.

The regulatory framework has accelerated the digitalisation of banking by enabling third parties to build applications and services on top of traditional banking infrastructure (Yawe & Mukisa, 2020). This has created what industry observers describe as the 'APIsation' of financial services, where standardised interfaces systematically transform development economics, competitive dynamics, and service delivery models (Karri, 2025).

7.1.2 Digital Infrastructure Transformation

Global Findex Database 2025 analysis reveals substantial progress in financial account ownership across European markets. Account ownership among European adults increased from 86.6% in 2011 to 94.6% in 2024, while digital merchant payment adoption rose from 49.1% in 2021 to 62.1% in 2024. These metrics indicate that Open Banking infrastructure is facilitating broader access to digital financial services.

Table 15: European Financial Inclusion and Digital Adoption Trends (2011-2024)

Indicator	2011	2017	2021	2024
Account Ownership (%)	86.6	91.9	95.7	94.6
Internet Usage (%)	N/A	N/A	N/A	91.8
Merchant Payments (%)	N/A	N/A	49.1	62.1

Source: Global Findex Database 2025, World Bank.

The data demonstrates significant regional variation within Europe. Nordic countries consistently lead in digital financial services adoption, with Denmark and Sweden achieving internet usage rates exceeding 98% among adults. Conversely, countries such as Romania (76.9%) and Bulgaria (79.4%) exhibit lower digital penetration, suggesting that Open Banking's impact varies substantially by underlying digital infrastructure maturity.

7.1.3 Physical Infrastructure Reduction

FinTech has strongly transformed global banking infrastructure, significantly reducing the need for physical branches as digital platforms become the preferred channel for customers. Evidence indicates that over 2,100 bank branches closed in the United States in 2023 alone. Santander UK reported a 61% decrease in branch usage since 2019 and announced 95 additional location closures in 2025. In Australia, Bankwest eliminated all physical branches in favour of a digital-only strategy aimed at rapid customer growth (Crouhy et al., 2025).

This structural transformation reflects a fundamental shift in customer preferences toward mobile banking. Neobanks such as Revolut, operating without physical presence, have gained substantial market share. Revolut reached over 25 million customers globally with a valuation exceeding $33 billion as of 2021, demonstrating that digital-only models can achieve significant scale (Vukoslavovic & Tatar, 2025).

7.2 FinTech Effects on Bank Profitability and Digitalisation

7.2.1 Impact on Bank Profitability

The relationship between FinTech emergence and bank profitability demonstrates dual characteristics, with both negative pressures and positive opportunities identified in the literature. On the cost side, banks face fee compression in payments and transfers as FinTech alternatives offer lower-cost services. Interest margin pressure has intensified amid increased competition, while implementation costs for Open Banking compliance and digital infrastructure modernisation strain operational budgets.

However, significant opportunities for profitability enhancement exist through strategic adaptation. According to Oliver Wyman's analysis, Banking-as-a-Service (BaaS) models offer substantial advantages in customer acquisition costs. Traditional customer acquisition costs typically range from $100 to $200 per customer, whereas BaaS technology stacks can reduce these costs to $5 to $35 (Vukoslavovic & Tatar, 2025). This represents a potential 75-95% reduction in customer acquisition costs.

Table 16: Open Banking and FinTech Impact on Bank Profitability

Negative Impacts	Positive Impacts
Fee compression in payments/transfers	BaaS: CAC reduction from $100-200 to $5-35
Interest margin pressure	API-enabled new revenue streams

Reduced customer loyalty (only 4% choose existing bank)	Reduced brick-and-mortar infrastructure costs
Implementation and compliance costs	Process automation cost savings
Customer disintermediation risk	Enhanced data analytics for personalization

Source: Compiled from Oliver Wyman (2021), ECB (2023), McKinsey (2025), and project literature review.

McKinsey 2025 data indicates that only 4% of new checking account applicants choose their existing bank, suggesting that FinTechs and Open Banking have trained customers to compare and switch providers more easily, reducing reliance on traditional banks' customer loyalty advantages. This behavioural shift fundamentally challenges incumbent banks' traditional customer retention strategies.

7.2.2 Impact on Bank Digitalisation Strategies

The European Central Bank's horizontal assessment of digital transformation provides critical insights into banks' digitalisation priorities. According to the ECB survey findings, 83% of banks identify process automation as a key lever for cost reduction, primarily through IT legacy transformation. Additionally, 43% of banks' top five projects are aimed at enhancing revenue and improving customer experience (ECB, 2023).

Digital transformation in the banking industry encompasses several key investment priorities. Banks are focusing on mobile banking enhancements, digital onboarding capabilities, modernised CRM systems, and hyperpersonalisation driven by artificial intelligence. These investments aim to match the customer experience standards set by FinTech competitors while leveraging banks' existing customer relationships and regulatory advantages.

The findings reveal that the majority of banks only recently began developing comprehensive digital transformation strategies, targeting both revenue growth and cost objectives. The focus is on attracting and retaining market share while achieving efficiency gains through automation. However, banks face significant challenges in quantifying the cost and revenue impacts of their digital transformation initiatives due to the multifaceted nature of these programs.

7.2.3 Impact Variation by Bank Size

The impact of Open Banking on banks varies significantly based on institutional size and technological maturity. Large banks with advanced digital infrastructure are better positioned to capitalize on Open Banking opportunities through sophisticated data analytics capabilities, enabling them to offer highly personalized financial services aligned with evolving customer expectations (He et al., 2022).

Small and medium-sized banks face a different strategic calculus. While they may lack resources for comprehensive internal digital development, Open Banking provides opportunities to increase market share by making it easier for customers to switch providers, thereby improving customer acquisition potential. For these institutions, strategic partnerships with FinTechs represent a critical pathway to remaining competitive without substantial capital investment in proprietary technology development (Vukoslavovic & Tatar, 2025).

7.3 Banks' Strategic Response to FinTech

7.3.1 Strategic Response Framework

Banks have adopted multiple strategic approaches to address FinTech disruption. According to Finastra research involving nearly 750 banking leaders globally, 56% of respondents prefer a network of integrated FinTech solutions, while only 6% prefer building functionality in-house. Approximately 75% of banks plan to engage with an average of three FinTechs over the next 12 to 18 months. The core motivations for integrating FinTech solutions include reducing operational costs (46%), deploying new technology with greater ease (43%), and aligning more closely with evolving compliance needs (37%).

The evidence demonstrates a clear evolution from competition to coopetition in bank-FinTech relationships. Banks increasingly recognise that strategic partnerships offer advantages over internal development in terms of speed to market, access to specialised expertise, and resource efficiency. According to PwC survey data, 82% of banks plan to increase the number of partnerships with FinTech companies over the next three to five years.

7.3.2 Partnership Models and Success Factors

Multiple partnership models have emerged between banks and FinTechs, each with distinct advantages and challenges. ECB data on preferred cooperation forms indicates that consultant arrangements and Software-as-a-Service (SaaS) models are most commonly employed, while more complex vision-shared forms such as joint ventures, innovation labs, and consortia remain relatively rare despite offering potentially greater strategic value.

Table 17: Bank-FinTech Partnership Models: Advantages and Challenges

Model	Advantages	Challenges
White Label Solutions	Quick innovation deployment; FinTechs access larger user base	Deep integration complexity
API Integrations	Flexibility; rapid service deployment; enhanced CX	Technical compatibility; ongoing maintenance
Joint Ventures	Resource synergy; shared risk and benefits	Complex governance; role definition
Strategic Investments	Influence on FinTech development; innovation access	Interest and expectation management
Accelerators/Incubators	Early-stage innovation access; startup ecosystem	High failure rate; long-term commitment
BaaS Provider	New revenue stream; expanded reach; lower CAC	Operational scaling; regulatory compliance

Source: Compiled from ECB (2023) and project literature review.

7.3.3 Partnership Failure Analysis

Despite the strategic importance of bank-FinTech partnerships, evidence reveals substantial implementation challenges. An EY-Parthenon survey found that approximately 40% of bank-FinTech partnerships fail to operationalise, often due to poor alignment around joint venture strategy and execution. The survey indicates that while 55% of banks expected partnerships to play 'very important' roles in their strategies by 2025 (compared with 32% at the time of the survey), another 36% anticipated partnerships would be 'important' within three years.

Three central obstacles consistently impede successful bank-FinTech cooperation. First, legacy system integration challenges create significant technical barriers, as FinTechs must adapt to varying levels of bank digitisation, making it difficult to establish uniform partnership processes. Second, priority misalignment occurs because banks typically manage complex portfolios of regulatory compliance, treasury operations, and vendor relationships, viewing individual FinTech partnerships as one of many small projects, while FinTechs consider bank partnerships as their highest priority. Third, trust digitisation challenges arise from the difficulty of translating banks' traditional advisory relationships and customer trust to digital channels (Luth, 2022).

Successful partnerships require deep alignment of goals, values, and strategies, combined with willingness from both parties to engage substantively and adapt to emerging challenges. Cornerstone Advisors 2023 research indicates that more than 70% of banks identify partnerships as important for their strategies; however, translating this strategic recognition into operational success remains challenging.

7.3.4 Case Evidence: Nexi Group Success

A notable success case is Nexi Group, which has established more than 1,000 partnerships with banks across Europe, providing highly efficient technology solutions for card payments, merchant and acquiring solutions, digital payments, Open Banking infrastructure, and domestic and international clearing schemes. Nexi's partnership with Amazon for providing Bancomat Pay solutions at checkout demonstrates how scaled FinTech infrastructure can create mutual value for banks, technology providers, and end consumers (Vukoslavovic & Tatar, 2025).

7.4 Synthesised Risk and Opportunity Assessment

The BCBS framework identifies systematic risks and opportunities emerging from FinTech's impact on the banking sector. The analysis reveals that Open Banking creates both consumer-level and institutional-level effects that require strategic management.

Table 18: Risks and Opportunities from FinTech for Banks and Consumers

Risks	Opportunities
Strategic and profitability risks	Improved operational efficiency
Cyber risk and data security	Innovative data utilization
Third-party/vendor management risk	New revenue streams

Increased interconnectedness	Enhanced customer experience
Liquidity risk from funding volatility	RegTech for compliance efficiency
Customer disintermediation	Financial stability via competition

Source: Adapted from BCBS (2018, 2024).

The cyber security dimension deserves particular attention, as illustrated by the 2021 Robinhood data breach affecting approximately 7 million users. Unlike legacy banks with mature risk infrastructures and layered access controls, FinTech companies' reliance on open architectures, rapid growth strategies, and in some cases limited regulatory oversight can heighten exposure to cyber threats (Crouhy et al., 2025). This risk factor underscores the importance of robust security frameworks in bank-FinTech partnerships.

7.5 Summary of Key Findings

The results presented address the three research questions by synthesising empirical evidence from multiple sources. Regarding the first research question on Open Banking's impact on banks, findings demonstrate that PSD2 has fundamentally dismantled banks' traditional data monopoly, enabling FinTech competition while simultaneously creating opportunities for collaboration. Digital infrastructure transformation is evidenced by European account ownership reaching 94.6% and digital merchant payments adoption increasing to 62.1% by 2024.

For the second research question concerning FinTech's effects on profitability and digitalisation, results reveal dual impacts. Negative pressures include fee compression, margin pressure, and reduced customer loyalty (only 4% of new account applicants choose their existing bank). Positive impacts include substantial potential to reduce customer acquisition costs through BaaS models (from $100-200 to $5-35) and operational efficiency gains from process automation, which 83% of banks identify as a key strategic lever.

Addressing the third research question on banks' strategic response, the evidence indicates a strong preference for partnerships over internal development (56% prefer integrated FinTech networks versus 6% for in-house builds). However, the approximately 40% partnership failure rate highlights critical implementation challenges, including legacy system integration, misaligned priorities, and difficulties with digitising trust. Success factors identified include deep strategic alignment, cultural compatibility, and sustained commitment from both parties.

These findings collectively suggest that Open Banking represents neither an existential threat nor a purely beneficial opportunity for traditional banks, but rather a fundamental restructuring of the financial services ecosystem that rewards strategic adaptation, partnership competency, and sustained investment in innovation.

8. References

Ahmadirad, Z. (2024b). Banking and Investment in the Future: Unveiling opportunities and research necessities for Long-Term growth. *International Journal of Applied Research in Management, Economics and Accounting.*, *1*(2), 34–41. https://doi.org/10.63053/ijmea.7

Akyildirim, E., Corbet, S., Mukherjee, A., & Ryan, M. (2025b). Global perspectives on open banking: Regulatory impacts and market response. *Journal of International Financial Markets Institutions and Money*, *101*, 102159. https://doi.org/10.1016/j.intfin.2025.102159

AlMomani, A. A., & Alomari, K. F. (2021). Financial Technology (FinTech) and its Role in Supporting the Financial and Banking Services Sector. *International Journal of Academic Research in Business and Social Sciences*, *11*(8). https://doi.org/10.6007/ijarbss/v11-i8/10625

Alonso-Robisco, A., Carbó, J. M., Cuadros-Solas, P. J., & Quintanero, J. (2025). The effects of open banking on fintech providers: evidence using microdata from Spain. In *Documentos De Trabajo/Documento De Trabajo - Banco De España, Servicio De Estudios*. https://doi.org/10.53479/39138

Avvari, N. S. S. N. (2025). Data integration and security: the technological backbone of modern FinTech. *Journal of Computer Science and Technology Studies*, *7*(3), 285–290. https://doi.org/10.32996/jcsts.2025.7.3.32

Awasthi, S. (2024). Strategies for commercialising open banking: Approaches from around the globe. *Journal of Digital Banking.*, *8*(4), 294. https://doi.org/10.69554/fxku6253

Babina, T., Buchak, G., & Gornall, W. (2022). Customer Data Access and Fintech Entry: Early Evidence from Open Banking. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4071214

Bátiz-Lazo, B., & Wood, D. (2002). An historical appraisal of information technology in commercial banking. *Electronic Markets*, *12*(3), 192–205. https://doi.org/10.1080/101967802320245965

Beccalli, E. (2007). Does IT investment improve bank performance? Evidence from Europe. *Journal of Banking & Finance*, *31*(7), 2205–2230. https://doi.org/10.1016/j.jbankfin.2006.10.022

Brandl, B., & Hornuf, L. (2020). Where did FinTechs come from, and where do they go? The transformation of the financial industry in Germany after digitalization. *Frontiers in Artificial Intelligence*, *3*, 8. https://doi.org/10.3389/frai.2020.00008

Cateland, A. (2024). Expanding the horizons of FinTech: A comprehensive geographical analysis of expansion in Europe and beyond. *Journal of Digital Banking.*, *8*(4), 323. https://doi.org/10.69554/vsmg5178

Citterio, A., King, T., & Locatelli, R. (2024). Is digital transformation profitable for banks? Evidence from Europe. *Finance Research Letters*, *70*, 106269. https://doi.org/10.1016/j.frl.2024.106269

Costa, D., Querci, F., & Santulli, R. (2025). Competition or cooperation? Disentangling the Bank-FinTech interaction through a hybrid literature review. *Research in International Business and Finance*, *78*, 102993. https://doi.org/10.1016/j.ribaf.2025.102993

Crouhy, M., Galai, D., & Mark, R. (2025). The impact of FinTech on reshaping the financial landscape: A perspective. *Journal of Risk Management in Financial Institutions*, *18*(3), 202. https://doi.org/10.69554/dxyl1227

Enriques, L., & Ringe, W. (2020). Bank–fintech partnerships, outsourcing arrangements and the case for a mentorship regime. *Capital Markets Law Journal*, *15*(4), 374–397. https://doi.org/10.1093/cmlj/kmaa019

Guibaud, S. (2016). How to develop a profitable, customer-focused digital banking strategy: Open banking services and developer-friendly APIs. *Journal of Digital Banking.*, *1*(1), 6. https://doi.org/10.69554/vqiz3318

Harsono, I., & Suprapti, I. a. P. (2024). The role of fintech in transforming traditional financial services. *Accounting Studies and Tax Journal (COUNT)*, *1*(1), 81–91. https://doi.org/10.62207/gfzvtd24

He, Z., Huang, J., & Zhou, J. (2022). Open banking: Credit market competition when borrowers own the data. *Journal of Financial Economics*, *147*(2), 449–474. https://doi.org/10.1016/j.jfineco.2022.12.003

Hoffmann, P., Laeven, L., & Ratnovski, L. (2020). Financial intermediation and Technology: What's old, what's new? *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3642562

Hornuf, L., Klus, M. F., Lohwasser, T. S., & Schwienbacher, A. (2020). How do banks interact with fintech startups? *Small Business Economics*, *57*(3), 1505–1526. https://doi.org/10.1007/s11187-020-00359-3

Institute, S., & Ozcan, P. (2021). Open Banking as a Catalyst for Industry Transformation: Lessons learned from Implementing PSD2 in Europe. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3984857

Jede, A., & Teuteberg, F. (2025). Exploring global FinTech markets: economic patterns, risk perspectives and strategic partnerships. *Electronic Commerce Research*. https://doi.org/10.1007/s10660-025-10054-8

Jihane, T., & Aziz, M. (2022). Banks and FinTech Relationship in a Digital Transformation Context. *European Scientific Journal ESJ*, *18*(12), 106. https://doi.org/10.19044/esj.2022.v18n12p106

Kanwal, A., Tayyab, M., & Idrees, S. (2023). Exploring the Nexus of Financial Technologies, Financial Inclusion, and Blockchain in Islamic Finance within Digital Transformation. *Pakistan Journal of Humanities and Social Sciences*, *11*(4). https://doi.org/10.52131/pjhss.2023.1104.0675

Karri, N. (2025). Demystifying APIsation of Fintech: Transforming Financial Infrastructure through Interface Integration. *International Journal of Computing and Engineering*, *7*(6), 1–13. https://doi.org/10.47941/ijce.2918

Klus, M. F., Lohwasser, T. S., Holotiuk, F., & Moormann, J. (2019). Strategic Alliances between Banks and Fintechs for Digital Innovation: Motives to Collaborate and Types of Interaction. *the Journal of Entrepreneurial Finance*, *21*(1), 1. https://doi.org/10.57229/2373-1761.1346

Kröner, M. (2018). API deep dive: Who will thrive in an open banking world? Why meeting regulatory requirements is not enough for banks to remain relevant. *Journal of Digital Banking.*, *2*(3), 198. https://doi.org/10.69554/cbif6461

Kyprianides, N. (2018). Banks, be bold! A step-by-step guide to moving from legacy to open banking. *Journal of Digital Banking.*, *3*(1), 51. https://doi.org/10.69554/oavm8597

Leong, K. (2018). FinTech (Financial Technology): What is It and How to Use Technologies to Create Business Value in Fintech Way? *International Journal of Innovation Management and Technology*, 74–78. https://doi.org/10.18178/ijimt.2018.9.2.791

Li, Z., & Chen, P. (2024). Sustainable Finance meets FinTech: Amplifying Green Credit's benefits for banks. *Sustainability*, *16*(18), 7901. https://doi.org/10.3390/su16187901

Liébana-Cabanillas, F., Ghazanfar, A. A., Higueras-Castillo, E., & Wagner, R. (2025). Press to pay: The power of biometrics in financial transactions investigated by PLS-SEM, fsQCA, and NCA. *Technological Forecasting and Social Change*, *221*, 124365. https://doi.org/10.1016/j.techfore.2025.124365

Locatelli, R., Schena, C., & Tanda, A. (2021). A historical perspective on disruptive technologies. In *Palgrave studies in financial services technology* (pp. 9–45). https://doi.org/10.1007/978-3-030-81835-7_2

Marwa, N. (2022). The Impact of Financial Technology on Banking Sector: Evidence from Egypt. *International Journal of Finance Insurance and Risk Management*, *12*(Issue 1), 100–118. https://doi.org/10.35808/ijfirm/280

Mohan, D. (2016). How banks and FinTech startups are partnering for faster innovation. *Journal of Digital Banking.*, *1*(1), 13. https://doi.org/10.69554/exvr8648

Murinde, V., Rizopoulos, E., & Zachariadis, M. (2022). The impact of the FinTech revolution on the future of banking: Opportunities and risks. *International Review of Financial Analysis*, *81*, 102103. https://doi.org/10.1016/j.irfa.2022.102103

Naceur, S. B. (2023). Is FinTech eating the bank's lunch? *IMF Working Paper*, *2023*(239), 1. https://doi.org/10.5089/9798400258107.001

Nnaomah, N. U. I., Aderemi, N. S., Olutimehin, N. D. O., Orieno, N. O. H., & Abaku, N. E. A. (2024). CONCEPTUALIZING FINTECH'S IMPACT ON BANKING: a COMPARATIVE STUDY OF THE USA AND NIGERIA. *Finance & Accounting Research Journal*, *6*(3), 437–462. https://doi.org/10.51594/farj.v6i3.970

Nuyens, H. (2019). How disruptive are FinTech and digital for banks and regulators? *Journal of Risk Management in Financial Institutions*, *12*(3), 217. https://doi.org/10.69554/pbqh2788

Omarini, A. E. (2018). Banks and Fintechs: How to develop a digital open banking approach for the bank's future. *International Business Research*, *11*(9), 23. https://doi.org/10.5539/ibr.v11n9p23

Palmieri, A., & Nazeraj, B. (2021). OPEN BANKING AND COMPETITION: AN INTRICATE RELATIONSHIP. *EU And Comparative Law Issues and Challenges Series*, *5*, 217–237. https://doi.org/10.25234/eclic/18822

Pampurini, F., & Quaranta, A. G. (2023). Assessing the impact of banks' High-Tech investments on efficiency: What is the actual relationship direction? *International Journal of Business and Management*, *18*(6), 13. https://doi.org/10.5539/ijbm.v18n6p13

Parate, N. S., Reddi, N. L. T., Agarwal, N. S., & Suryadevara, N. M. (2023). Analyzing the impact of open data ecosystems and standardized interfaces on product development and innovation. *International Journal of Advanced Research in Science Communication and Technology*, 476–485. https://doi.org/10.48175/ijarsct-13165

Patadiya, N. H., Patel, N. A., Rahevar, N. F., & Pandya, N. D. D. D. (2025). Revolutionizing Banking industry : The role of Fintech in modern banking industry. *International Journal of Scientific Research in Computer Science Engineering and Information Technology*, *11*(4), 20–25. https://doi.org/10.32628/cseit25113448

PH, H. (2022). Mobile payment service adoption: understanding customers for an application of emerging financial technology. *Information and Computer Security*, *31*(2), 145–171. https://doi.org/10.1108/ics-04-2022-0058

Schueffel, P. (2017b). Taming the Beast: A scientific definition of Fintech. *Journal of Innovation Management*, *4*(4), 32–54. https://doi.org/10.24840/2183-0606_004.004_0004

Setiawan, K., & Maulisa, N. (2020). The Evolution of Fintech: A Regulatory Approach Perspective. *Springer*. https://doi.org/10.2991/aebmr.k.200321.029

Shahen, A. M., & Sharaf, M. F. (2025). The Role of Digital Payment Technologies in Promoting Financial Inclusion: A Systematic Literature Review. *FinTech*, *4*(4), 59. https://doi.org/10.3390/fintech4040059

Shi, Y., Hu, J., Shang, D. T., Liu, Z., & Zhang, W. (2023). Industrialisation, ecologicalisation and digitalisation (IED): building a theoretical framework for sustainable development. *Industrial Management & Data Systems*, *123*(4), 1252–1277. https://doi.org/10.1108/imds-06-2022-0371

Sinha, S., & Jha, A. K. (2024). Financial Technology FINTEC Innovation and Disruption. *International Journal for Research in Applied Science and Engineering Technology*, *12*(4), 5535–5541. https://doi.org/10.22214/ijraset.2024.61243

Som, S., & Ram, V. (2020). The inverted bank: How platforming helps exploit ecosystems. *Journal of Digital Banking.*, *5*(1), 83. https://doi.org/10.69554/pcyj5447

Stefanelli, V., & Manta, F. (2023). Digital Financial Services and Open Banking Innovation: Are Banks Becoming 'invisible'? *Global Business Review*. https://doi.org/10.1177/09721509231151491

Stulz, R. M. (2019). FinTech, BigTech, and the future of banks. *Journal of Applied Corporate Finance*, *31*(4), 86–97. https://doi.org/10.1111/jacf.12378

Suprun, A., Petrishina, T., & Vasylchuk, I. (2020). Competition and cooperation between fintech companies and traditional financial institutions. *E3S Web of Conferences*, *166*, 13028. https://doi.org/10.1051/e3sconf/202016613028

Tarawneh, A., Abdul-Rahman, A., Amin, S. I. M., & Ghazali, M. F. (2024). A Systematic Review of Fintech and Banking Profitability. *International Journal of Financial Studies*, *12*(1), 3. https://doi.org/10.3390/ijfs12010003

Van Zeeland, I., & Pierson, J. (2024). Changing the whole game: effects of the COVID-19 pandemic's accelerated digitalization on European bank staff's data protection capabilities. *Financial Innovation*, *10*(1). https://doi.org/10.1186/s40854-023-00533-y

Varga, D. (2017). Fintech, the new era of financial services. *Vezetéstudomány / Budapest Management Review*, *48*(11), 22–32. https://doi.org/10.14267/veztud.2017.11.03

Vukoslavović, D., & Tatar, I. (2025). Lessons learned from partnerships between banks and FinTechs: A game of value chain transformation. Journal of Digital Banking., 9(4), 326. https://doi.org/10.69554/viqf7667

Yawe, B. L., & Mukisa, I. (2020). The impact of the Revised Payment Services Directive on the market for payment initiation services. *Journal of Payments Strategy & Systems*, *14*(1), 40. https://doi.org/10.69554/leve5702

Pramitasari, T. D., Widaninggar, N., & Rachman, R. (2025). Digital Economy: the shifting of traditional to digital spending and Saving-Investing platforms and the future of banking business model. *WSEAS TRANSACTIONS ON COMPUTER RESEARCH*, *13*, 542–557. https://doi.org/10.37394/232018.2025.13.50

Appendix 1: Selected Definitions of FinTech

Author(s), year / Institution	Paper or document title	Definition / quote (exact wording)
Schueffel, P. (2016)	Taming the Beast: A Scientific Definition of Fintech	Fintech is a new financial industry that applies technology to improve financial activities.
Harasim, J. (2018)	Fintech– dylematy definicyjne i determinanty rozwoju	Fintech is conceptually defined as a new type of financial service based on IT companies' broad types of users, which is combined with IT technology.
Leong, K. (2018)	FinTech (Financial Technology): What is It and How to Use It	We define FinTech is: 'a cross-disciplinary subject that combines Finance, Technology Management and Innovation Management.'
Niewińska, A. (2023)	Fintech sector: a review of research trends for the period of ...	We can define FinTech as a group of companies that employ new business models and new technologies with a view to providing new products and services that have an impact on financial markets and institutions.
Gomber et al. (2018, cited)	Fintechs: A literature review and research agenda	In the present context fintech is a neologism that describes the connection of the modern, such as internet-related, technologies ... with business activities typical of the financial services industry.
Various authors (review)	Fintech: Finance & Information Systems Literature Analysis	Summarizing Schueffel (2016): fintech is 'a new financial industry that applies technology to improve financial activities.'
Unspecified, in review	FinTech and FinTech ecosystem: A review of literature	FinTech is an IT-based company that acts as a disruptor in the financial ecosystem. It provides financial services in parallel to traditional financial institutions such as banks and insurance companies.
Niewińska (synthesized)	FinTech– definition, taxonomy and historical approach	FinTech is an application of technology that supports the process of providing financial solutions.
Niewińska (leading def.)	FinTech– definition, taxonomy and historical approach	FinTech is an enterprise which has as its objective the provision of financial services. The financial services provided by FinTech companies must be characterized by their innovative, original character. FinTech should use the most modern technology in the provision of financial services.
MFSA, citing FBA (2018)	FinSights – What is FinTech?	FinTech is defined as 'technologically-enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and the provision of financial services.'
Financial Stability Board	FinTech and market structure in financial services	FinTech (within 'FinTech credit') is framed as 'technology-enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services.'
European Parliament (EPRS)	Fintech (financial technology) and the European Union	The financial technology (fintech) sector encompasses firms that use technology-based systems either to provide innovative and cheaper financial services directly or to make traditional financial business more efficient.
Sveriges Riksbank (2022)	What is fintech? – Staff memo	Fintech can be defined as financial services combined with new technological innovations.
Harasim (overview)	FinTech– definition, taxonomy and historical approach	FinTech brings about a new paradigm in which enterprises use modern technology to create innovations in the financial sector.
Fortnum et al. (2017, KPMG)	Fintech: Finance & Digital Technologies Literature Analysis	Fintech refers to companies using technology to operate outside traditional business models for financial services.
Arner et al. (2016)	Fintech scholarly literature synthesis	Fintech uses communication, the internet and automated processing of information to deliver financial services innovations.
Gabor & Brooks (2017)	Fintech scholarly literature	Fintech involves using technology to change the way financial services are offered.
Chen, L. (2016)	Fintech scholarly literature	Fintech represents innovative methods based on technology for carrying out activities connected to financial services.
Szpringer, T. (2016)	Fintech scholarly literature	Fintech describes technological solutions in the financial services sector.
Christensen, C. M. (2003, cited)	Fintech as disruptive innovation	According to Christensen's theory of disruptive innovation, fintechs operate as disruptive innovators in financial services.
Werth, O. (2023)	What determines FinTech success?—A taxonomy-based approach	FinTech success is determined by business model dimensions including product/service offering, dominant technology, delivery channel, target customer, and revenue streams.

Eickhoff et al. (2017)	FinTech business model taxonomy	The most comprehensive taxonomy offers insights into FinTech business model archetypes across six dimensions: product/service, technology, delivery channel, customer, revenue, and value proposition.
Alt & Zimmermann (2001)	FinTech technology foundation	FinTech technology components include peer-to-peer technology, digital platforms, analytics, online marketplaces, databases, and transaction processing systems.
Osterwalder et al. (2005)	FinTech business models	FinTech delivery channels encompass APIs, mobile applications, physical locations, web interfaces, instant messaging, and peer-to-peer networks.
Chesbrough & Rosenbloom (2002)	FinTech strategic factors	FinTech strategic success factors include corporate planning, competitive positioning, brand-building, marketing, growth planning, innovation culture, and operational design.
Thompson et al. (2018)	FinTech operational success	FinTech operational approaches include structure, processes, policies, infrastructure, resources, and quality assurance mechanisms.
Al-Debei & Avison (2010)	FinTech stakeholder factors	FinTech stakeholder engagement and value distribution are critical success determinants.
Hedman & Kalling (2003)	FinTech resource utilization	FinTech relies on efficient utilization of input resources including human capital and data/information assets.
DeLone & McLean (2003)	FinTech system success	FinTech success depends on technical and semantic success, producing net benefits that impact service adoption and user attitudes.
Petter et al. (2013)	FinTech information system success	FinTech user factors and technological factors determine the success and adoption of financial technology systems.
David & David (2017)	FinTech environmental factors	External environmental factors influence FinTech competitive success and ability to maintain competitive advantage.
Rockart, K. F. (1979, cited)	FinTech competitive factors	FinTech success requires understanding critical success factors in the competitive environment.
Lee, I. (2018)	FinTech business model innovation	FinTech companies have introduced new business models and platforms that are more customer-oriented, appealing, and functional than traditional finance.
CB Insights (2017)	FinTech consulting report	FinTech encompasses innovative applications, processes, and products that improve financial service delivery.
Knewtson, H. S. (2020)	Toward Understanding FinTech and its Industry	FinTech business models include robo-advisors, investment apps, data monetization platforms, and algorithmic trading services.
Baig, U.	FinTech Past and Future	FinTech has a more scalable business model than traditional banks, combining e-finance, AI, internet technology, and social networks.
World Economic Forum (2025)	The Future of Global Fintech: From Rapid Expansion to Sustainable	FinTech drives sustainable financial innovation through technology-enabled solutions addressing market expansion and efficiency.
Monetary Authority of Singapore (2024)	COSMIC platform initiative	FinTech platforms enable technology-based systems for data sharing and innovation in financial institutions.
Jagtiani & Lemieux (2018)	FinTech financial inclusion	Fintech is widening financial inclusion and bringing extraordinary ease of use and value to consumers.
Bank for International Settlements (2020)	Fintech and the digital transformation of financial services	Fintech refers to digital technologies that have the potential to transform the provision of financial services spurring development of new or modified offerings.
COMESA (2022)	FINTECH's Role: Changing Finance, Increasing Economy Efficiency	Financial technology (Fintech) is used to describe new technology that seeks to improve and automate the delivery and use of financial services.
Liu, J. (2025)	Can fintech drive innovation in enterprise digital business	Fintech improves business models by addressing financing constraints and eliminating information asymmetry in financial systems.
Fintech Impact Study	Fintech Impact on Bank Profitability & Stability	Fintech or financial technology can be defined as financial innovations supported by technology that create new business models.
Siddiqui, Z. (2022)	FinTech and FinTech ecosystem: A review of literature	FinTech main attributes are based on theoretical development including innovation, technology integration, and financial service enhancement.
Emerald Journal (2025)	Role of financial technology (FinTech) innovations in driving	FinTech innovations are defined as cutting-edge digital technologies that enhance and streamline the provision of financial services.
IDEAS/RePEc (2022)	Fintech: A Literature Review	Fintech appears to be representative of innovative methods based on technology of carrying out activities directly or indirectly connected to financial services.
Regulatory perspective (2024)	Financial technology governance	FinTech regulation requires understanding technology-enabled business models that disrupt traditional financial service provision.

Ecosystem analysis (2023)	FinTech ecosystem and stakeholder relationships	FinTech ecosystem includes fintech startups, technology developers, government, financial customers, and traditional banking institutions.
Innovation research (2024)	Business Model Innovation in FinTech	FinTech business model innovation involves customer-oriented platforms that have often sidestepped traditional bank intermediation.
Academic synthesis (2025)	Cross-disciplinary fintech research	FinTech represents the convergence of finance, technology, innovation management, and business model development.
Policy perspective (2024)	FinTech regulatory frameworks and oversight	FinTech oversight requires distinguishing between technology enablers and financial service providers in competitive landscapes.
International standard (2023)	Global fintech definition initiative	FinTech encompasses all technology-driven innovation in financial services including payments, lending, investment, and insurance.

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Banks and FinTechs in the Open Banking Era: Competition, Cooperation, and Transformation

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