



# Transforming Indonesia's Digital Banking through Open Banking and Fintech

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## Abstract

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Open Banking has emerged as a new paradigm in the global financial industry, enabling banks to securely share customer data with third parties through Application Programming Interface (API) based on the explicit consent of customers. In Indonesia, the adoption of Open Banking has become increasingly relevant in line with regulatory initiatives from Bank Indonesia and the Financial Services Authority, as well as the rapid growth of collaboration between major banks, fintech companies, and e-commerce platforms. This study employs a Systematic Literature Review (SLR) method to comprehensively analyze the implementation of Open Banking in Indonesia, focusing on the dimensions of regulation, innovation, collaboration, and challenges related to consumer data protection. The findings reveal that Open API plays a central role in building a more efficient, integrated, and competitive financial ecosystem. However, the main challenges include the urgent need for API standardization, ensuring strong data security, and improving the readiness of digital infrastructure. The study concludes that the successful implementation of Open Banking in Indonesia requires synergy between regulatory frameworks, technology adoption, and consumer awareness regarding the tangible benefits of digital financial services.

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## 1. Introduction

Open Banking is a significant innovation in the financial services sector that allows third parties, such as fintech, e-commerce, and financial technology startups, to access customer banking data with their consent through Application Programming Interfaces (APIs). This innovation brings a significant transformation to how financial services are developed, offered, and used by consumers. Global trends show that Open Banking has become one of the key strategies to improve service efficiency, drive innovation, and strengthen competitiveness among financial service providers. The implementation of Open Banking in Indonesia is becoming increasingly relevant with the rapid growth of the fintech ecosystem and the need for digital integration to support financial literacy and inclusion.

Globally, the successful implementation of Open Banking in the UK through the Payment Services Directive 2 (PSD2) regulation is a clear example of how the openness of banking data can encourage healthy competition and innovation in financial products. The UK has seen a significant increase in the adoption of Open Banking-based services, where fintech has been able to increase its market share to 14% of financial assets (Lynn et al., 2020). A similar situation is occurring in Brazil, which recorded more than 1.3 billion open data connections in the digital banking ecosystem, showing the enthusiasm of consumers and financial institutions to utilize more efficient and personalized services.

Indonesia itself is at an interesting stage of development. Although it has one of the largest fintech markets in Southeast Asia, the adoption of Open Banking still faces various challenges. Regulations from Bank Indonesia and the Financial

Services Authority (*Otoritas Jasa Keuangan* /OJK) have provided a legal basis and strategic direction, but limitations in digital infrastructure, low consumer data literacy, and concerns about data security and privacy are major issues. Previous research highlights that API standardization is a crucial element to ensure interoperability between banks and fintech while guaranteeing the protection of consumer data (Arugula & Gade, 2020).

Major banks in Indonesia, such as BRI and BNI, have launched Open API products as part of their digital transformation strategy. By reaching market segments that were previously untouched by conventional financial services, the financial industry can provide significant benefits for overall economic growth and community welfare (Nugroho et al., 2021). Through services like BRIAPI, banks can collaborate with third parties to present more innovative services that are integrated with customer needs. This shows that the Open Banking initiative is not just a regulatory policy, but also a business strategy to maintain competitiveness in the digital era (Mutiarra et al., 2019).

In the context of consumer protection, data security is one of the main concerns. Recent research shows a close relationship between consumer trust, data protection, and the adoption of Open Banking services in the fintech era. System security and transparency in data usage are important factors that influence customers' willingness to give consent to share data with third parties (Tan et al., 2021). Thus, developing policies that balance the need for innovation and data protection is key to the success of Open Banking in Indonesia.

This research will analyze the implementation of Open Banking in Indonesia through a Systematic Literature Review (SLR) approach by reviewing the literature. The research focuses on aspects of regulation, innovation, bank-fintech collaboration, and the challenges of data protection. This study is expected to contribute to the development of a more inclusive, secure, and competitive Open Banking strategy, as well as serve as a reference for policymakers, industry practitioners, and academics in understanding the dynamics of digital banking transformation in Indonesia.

## **2. Literature Review**

### **2.1. Regulation and API Standardization**

The aspect of regulation and Application Programming Interface (API) standardization is a crucial foundation in the implementation process of Open Banking, especially in Indonesia, which is in a transition phase towards a more open digital financial ecosystem. A study in Indonesia emphasizes that the existence of open APIs not only serves as a technological bridge between banks and third parties but must also be equipped with strict security standards, a high level of interoperability, and clear transparency in customer data sharing practices so as not to cause legal risks or violations of consumer privacy (Arugula & Gade, 2020). Consumer data protection is a major issue that cannot be ignored because the increasing practice of data sharing in the era of banking digitalization automatically increases the potential for information leaks that can harm customers.

Therefore, other research asserts that the success of Open Banking implementation fundamentally requires strong and comprehensive legal support to create the right balance between the demands of digital innovation in the financial sector and the certainty of customer data security protection as a fundamental right (Tan et al., 2021). In the Indonesian context, the regulations issued by Bank Indonesia and the Financial Services Authority (OJK) are considered to have begun directing the banking industry toward a more transparent and open system, although in practice there are still a number of significant gaps in implementation at the operational level.

## **2.2. Service Innovation and Collaboration between Banks and Fintech**

Innovation in banking services and collaboration with various financial technology companies or fintech are the main drivers in the transformation process of the modern banking industry. Major banks in Indonesia, such as Bank Rakyat Indonesia (BRI) with its BRIAPI initiative, and Bank Negara Indonesia (BNI), have launched Open API services specifically designed to support comprehensive integration with startups and rapidly growing e-commerce platforms. The presence of these Open APIs allows banks to offer more personalized services to customers, by tailoring products and features to users specific needs.

Research shows that this form of collaboration contributes significantly to the creation of a cohesive, interconnected, and highly competitive digital financial ecosystem amid global competition (Mutiarra et al., 2019). The collaboration model not only impacts the improvement of internal banking operational efficiency, such as accelerating transaction processes and reducing infrastructure costs, but also

expands the reach of financial services to segments of society that were previously underserved or even completely unserved by formal financial institutions. Thus, the existing literature consistently shows that the success of Open Banking implementation in Indonesia is heavily influenced by the quality of regulations that can provide legal certainty, as well as the seriousness of the banking industry in building a collaborative ecosystem that is secure, has clear standards, and continues to encourage sustainable innovation.

### **3. Methods**

This study uses a Systematic Literature Review (SLR) approach which aims to identify, evaluate, and analyze various academic literatures related to the implementation of Open Banking and the use of Open APIs in Indonesia. The SLR approach was chosen because this method is considered capable of providing a more comprehensive, thorough, and systematic overview of research developments in a particular field. In addition, SLR also serves to trace research trends, find the main contributions of various previous studies, and identify knowledge gaps that are still open and require further exploration by subsequent research.

The first stage in implementing the SLR is the formulation of research questions, which are focused on three main aspects. First, how do existing regulations influence the Open Banking implementation process in Indonesia. Second, to what extent can the implementation of Open APIs encourage faster, more inclusive, and more responsive digital financial service innovation to community needs. Third, what are the challenges that are still being faced, especially

related to consumer data security issues, public trust, and the level of technology adoption in the banking and fintech ecosystem. These research questions become the basic framework and guide in the literature selection process.

The second stage is a literature search conducted on reputable academic databases like Google Scholar, Garuda and Research Gate and is supplemented with national journal repositories. The search keywords used include terms such as “Open Banking Indonesia”, “Open API”, “fintech banking collaboration”, and “digital financial regulation Indonesia”. The search results are then selected based on inclusion criteria, namely publications within a certain period of time, using English or Indonesian, and having high relevance to the theme of Open Banking in the context of Indonesia or a regional area with similar characteristics.

The third stage is the filtering of articles that meet the eligibility criteria. This process is carried out by assessing the suitability of the topic, the quality of the publication, the reputation of the publisher, and the academic contribution to the research theme. The fourth stage is the content analysis of the literature, which is carried out using a thematic method. The literature is studied in depth to identify research patterns, findings trends, and differences in views among the authors. The results of the analysis are then grouped into three main dimensions, namely the aspects of regulation, financial service innovation, and consumer protection.

By applying the SLR approach, this study is expected to provide a comprehensive overview of the current condition of Open Banking implementation in Indonesia, while also highlighting the opportunities and challenges faced. Furthermore, the results of this analysis are expected to be a strong basis for

formulating a more effective, adaptive, and sustainable Open Banking implementation strategy.

## 4. Results

This The results of the systematic literature review show that the implementation of Open Banking in Indonesia is a process that is not simple and can be said to be very complex, because it involves multilayered factors that are interrelated with one another. This complexity includes regulatory factors related to legal certainty, technological aspects related to the readiness of digital infrastructure, the form of collaboration that exists between the banking industry and fintech companies, and the level of consumer awareness, acceptance, and trust in utilizing Open Banking services. All these factors complement each other and cannot be separated, so the implementation of Open Banking in Indonesia must be understood as a structural transformation that requires a comprehensive approach, not just as a technological innovation.

From a regulatory perspective, the literature asserts that the success of Open Banking is highly determined by the existence of clear legal standards that regulate in detail how data is shared between financial institutions, establish a strong consumer protection mechanism, and ensure consistent interoperability between banking systems. Good regulation will be an important foundation to ensure that data sharing practices run safely, transparently, and do not cause harm to customers. Research by Nastiti and Kasri (2019) highlights that Indonesia still needs a more comprehensive regulatory framework, which not only functions to support digital

innovation, but is also able to provide clear legal certainty for banks and fintech in developing API-based services.

With a definite regulatory framework, banks and fintech can be more confident in innovating, while consumers will also feel more protected. The literature also warns that there is a risk if the regulation is not balanced. Regulation that is too loose has the potential to create a large loophole for data leaks, privacy violations, and misuse of sensitive information. Conversely, regulation that is too strict can actually stifle the space for innovation and hinder the dynamics of digital ecosystem growth. Therefore, the balance between flexibility and protection is key to drafting effective and adaptive Open Banking regulations.

From a technological perspective, the literature emphasizes that Open API is the core infrastructure that is the main foundation for the success of Open Banking. The Open API enables the exchange of data between bank systems and third parties to run safely, quickly, and efficiently, thus becoming a catalyst for the creation of broad digital financial service integration (Chrismastianto, 2017). However, the success of the Open API is highly determined by the extent to which the technical standards used can be jointly adhered to by all parties. API standardization is considered very important because it will ensure that all industry players, be it large banks, medium-sized banks, or fintech, can interact without technical barriers. Consistent standardization will also support the creation of wider interoperability, making it easier for consumers to access services from various parties in an integrated ecosystem. This is very important for building an inclusive, efficient, and user-friendly digital financial ecosystem.

However, a challenge that arises is the gap in technology readiness among banks in Indonesia. Major national banks like BRI, BCA, Mandiri, and BNI generally already have a strong digital infrastructure and are relatively ready to adopt the Open API system. Conversely, regional banks and medium-sized banks still face various limitations, both in terms of technology resources, digital infrastructure investment capabilities, and the capacity of human resources who understand information technology. This disparity can create an uneven implementation of Open Banking, so that its benefits are only felt by some circles.

In addition to regulation and technology, industrial collaboration is also a major driving factor in the implementation of Open Banking in Indonesia. Collaboration between banks and fintech is considered very important because it allows both parties to complement each other's strengths. Banks have a large customer base and high public trust, while fintech has the flexibility, creativity, and ability to create digital solutions that can quickly adapt to market needs. A study by Santoso et al. (2021) reveals that this collaboration model even has the potential to produce a super app based on financial services, which is an integrated application that can provide various services at once, ranging from digital payments, micro-credit, personal financial management, to investment, in one platform. This super app phenomenon shows that the future of digital banking in Indonesia is not only determined by traditional banking, but also by a strong synergy between banks and fintech and other technology companies. If this synergy runs optimally, the banking industry will be able to provide services that are far more comprehensive, innovative, and relevant to the needs of modern society.

However, the adoption of Open Banking on the consumer side still faces a major challenge. The level of consumer trust is one of the most crucial factors that greatly influences the extent to which the public is willing to use Open Banking services. Many consumers still have doubts about sharing personal data, even if the data is used to provide more personalized services. A study by Mulia et al. (2021) shows that the intention of Indonesian consumers to utilize Open Banking services is highly influenced by their perception of system security, technology reliability, and the real added value offered. If consumers feel that sharing data only provides benefits to third parties without providing direct benefits to them, then resistance to adoption will remain high. Therefore, consumer education is no less important in the Open Banking implementation strategy. Education can help increase consumer understanding of the benefits gained, the security mechanisms that protect data, and their rights in the digital financial ecosystem.

The issue of data privacy and security also appears as a major highlight in almost all research. Almost all academic literature reviewed emphasizes that without a strong guarantee of data security, public trust will not be easily formed. Tan et al. (2021) assert that consumer data protection must be placed as a top priority in the development of Open Banking in the fintech era. Customer data is a very valuable asset, so privacy protection should not be viewed as an additional aspect, but rather as the core of the implementation strategy. If data is not well protected, the potential for Open Banking to drive financial inclusion will be difficult to achieve because the public will be reluctant to use services that they consider risky. Therefore, banks and regulators need to ensure that security systems, encryption, authorization

mechanisms, and supervision procedures are implemented in accordance with widely recognized international standards. Regulatory changes related to customer data security and privacy encourage financial institutions to strengthen their security measures. This includes the application of more advanced data encryption, more secure authentication systems, and protection against cyberattacks. The impact is better protection for customer data and information (Fariana & Safii, 2018).

Overall, the research results show that Open Banking in Indonesia has great potential to be the main driver of digital transformation in the banking sector and expand public financial access. However, the success of its implementation cannot be separated from three main factors. First, clear, adaptive, and balanced regulations, which are able to maintain consumer protection while providing space for innovation to grow. Second, adequate technology readiness, including consistent API standardization and strengthening digital infrastructure in all types of banks, not only large banks but also medium-sized and regional banks. Third, the level of consumer trust in system security and the real benefits of the services offered. Without a harmonious combination of these three factors, the implementation of Open Banking is at risk of being suboptimal.

Thus, the existing literature asserts that the Open Banking implementation strategy in Indonesia must be designed comprehensively, measurably, and oriented toward the long term. If the three main aspects can be integrated harmoniously, then Indonesia has a great opportunity to become one of the countries with a strong, inclusive, and highly competitive Open Banking ecosystem in the Asian regional area. However, conversely, if one of the aspects is ignored, be it regulation,

technology, or consumers, then the implementation of Open Banking actually has the potential to cause greater risks, ranging from legal problems, technical constraints, to low public trust.

## **5. Discussion**

The discussion of the results of this study confirms that Open Banking in Indonesia is a complex, multidimensional phenomenon that requires close, planned, and continuous collaboration between regulators, banks, fintech companies, and consumers as end-users. Compared to countries like the UK or Brazil that have adopted the Open Banking system earlier with a more mature level of regulation and technology readiness, Indonesia's position is still at an early stage (Belke & Beretta, 2020). This stage is characterized by regulatory fragmentation, where existing rules are not yet fully integrated, as well as a disparity in technology readiness between financial institutions. However, the potential for Open Banking development in Indonesia can actually be said to be greater, given the very rapid growth of the digital population, the high penetration of fintech that reaches various layers of society, and strong support from the government in encouraging the national digital transformation agenda.

One important aspect that emerges from the literature discussion is how regulation can play a dual role, as both a driver and a hindrance. Responsive regulation, such as the framework that has been prepared by Bank Indonesia regarding Open API, has proven to be able to create a conducive environment for innovation, by providing direction and certainty for the banking and fintech industry

in developing new products. However, real challenges still arise in the aspect of technical implementation. Small or regional banks often face limitations in terms of technology resources, funding, and the competence of human resources, making it difficult to meet the technical and security standards set by regulators.

Collaboration between banks and fintech is also another factor that is very decisive for success (Hoang et al., 2021). This collaboration not only brings out a variety of new and innovative products and services but also can accelerate financial inclusion in Indonesia by reaching people who were previously unserved. By utilizing customer data more intelligently and structured, banks can offer financial products that are more targeted and in line with community needs, ranging from financing for micro, small, and medium-sized enterprises (MSMEs) to providing digital investment solutions that are more easily accessible. However, without strong data protection, this collaboration is at risk of causing ethical and legal problems and even decreasing public trust.

From a consumer perspective, trust is a truly central issue. The adoption of Open Banking is only possible if consumers feel safe, their rights are protected, and they feel the real benefits of the services they use. Therefore, public education efforts regarding the benefits, rights, and risks of data sharing must be carried out consistently, directed, and sustainably. This is in line with the results of research in various countries which show that clear communication about data protection can significantly increase consumer participation.

Thus, this discussion emphasizes that the success of Open Banking implementation in Indonesia cannot be seen from only one specific aspect. Instead,

its success requires a holistic approach, including adaptive regulation, adequate technology readiness, close collaboration at the industry level, and the active participation and trust of consumers.

## **6. Conclusion**

This study concludes that Open Banking is an important catalyst for digital banking transformation in Indonesia. Through the Open API-based data sharing mechanism, banks can expand their service reach, increase efficiency, and create innovations that are relevant to consumer needs. Regulations drafted by Bank Indonesia and the OJK have provided a strategic direction, but implementation challenges still need to be overcome, especially related to API standardization, data security, and technology readiness at the level of smaller banks.

Collaboration between banks and fintech has proven to be a major driver that accelerates the birth of an inclusive and competitive digital financial ecosystem. However, the success of this collaboration is highly dependent on the level of consumer trust. Data protection, transparency in the use of information, and public education are key factors in building that trust.

Looking at international experience, Indonesia has a great opportunity to adopt Open Banking more widely. However, this achievement requires a synergy between adaptive regulation, strengthening technology infrastructure, and an effective public communication strategy. Thus, Open Banking can become a strategic instrument to increase financial inclusion, strengthen the competitiveness of the banking industry, and support the national digital transformation agenda.

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