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# The Role of Innovation on Performance in Banking Sector: A Bibliometric Analysis

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## Abstract

**Purpose** – The banking industry has undergone significant transformation in recent decades, driven by rapid technological advances and regulatory changes. This study aims to explore the development of research related to the impact of innovation on banking performance.

**Methodology** – This study analyses a total of 211 full-text articles from Scopus database using VOSViewer software and content analysis approach.

**Findings** – This study found a significant increase in publications related to banking innovation since 2013. The journals "Sustainability Switzerland" and "Technological Forecasting and Social Change" are the main sources of publications and citations. The United States and China lead in the number of publications. Bibliographic coupling analysis identified 10 clusters with their respective main themes, including factors influencing firm performance, banking strategy, fintech adoption, SME growth, and the influence of organizational culture and intellectual capital. Further content analysis revealed that quantitative research dominates existing literature; product innovation is the most frequently discussed type of innovation; and financial and non-financial performance are often discussed together in a single article.

**Originality** – This study provides a systematic bibliometric synthesis that integrates publication trends, thematic clusters, and content characteristics, thereby offering a comprehensive overview of how innovation–performance relationships have been examined in the banking sector.

**Research limitations** – Articles analyzed limited to article and review publications in English until June 2024 available in Scopus.

**Practical implications** – Banks need to pursue customer-centric and secure innovation through strategic investment in digital technologies, effective risk management, collaboration with fintech firms, and continuous human capital development within a robust regulatory framework.

## Introduction

The banking industry, as a key driver of economic activity, plays a central role in supporting economic growth and enhancing societal well-being (Bhegawati & Utama, 2020). Banks function not only as financial intermediaries that mobilize and allocate public funds but also as

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institutions that support investment and economic development (Arsyad, 1999). However, over the past decades, the banking sector has encountered increasingly complex challenges. Rapid technological advancement, particularly the emergence of financial technology (fintech)—has disrupted traditional banking business models and intensified market competition. As a result, banks are required to respond swiftly by adopting new technologies, developing innovative products and services, and improving operational efficiency (Czímer et al., 2022).

In addition to technological disruption, continuous changes in banking regulations present further challenges for the industry. Regulatory frameworks are frequently updated in response to economic developments, technological progress, and emerging financial risks (Otoritas Jasa Keuangan, 2021). Banks must therefore be able to interpret and implement regulatory requirements effectively to ensure compliance and maintain financial stability. Moreover, rising customer expectations for faster, more convenient, and personalized banking services have increased pressure on banks to enhance service delivery (Jayawardhena & Foley, 2000). Contemporary customers demand high accessibility, seamless digital experiences, and services tailored to their individual needs, compelling banks to pursue continuous innovation and digital transformation (Ghandour, 2021).

In responding to these challenges, innovation has become essential to banks' long-term success and sustainability. Through innovation, banks can develop products and services that align with evolving market needs, enhance operational efficiency, and deliver improved customer experiences. One positive outcome of product and service innovation is the potential increase in bank revenue, derived from both fee-based and non-fee-based income sources. For instance, the introduction of innovative mobile banking applications can stimulate transaction activity and generate fee-based income through service charges. Similarly, digital loan products with streamlined and faster approval processes can contribute to higher non-fee-based income by increasing loan disbursement volumes(DeYoung & Rice, 2004).

Research related to innovation in the banking sector has experienced a significant increase in recent years. This indicates that innovation is increasingly recognized as a critical factor in improving banking performance and addressing challenges in the digital era. This research aims to comprehensively understand how innovation contributes to banking performance, both financially and non-financially. Specifically, this research will explore the definition and measurement of innovation in the banking context, identify the most relevant types of innovation, and analyze the impact of innovation on various dimensions of bank performance. Furthermore, through bibliometric analysis, this research will identify current research trends related to innovation and banking performance, thus providing valuable insights for practitioners and researchers in this field. This research was conducted through a literature review because the literature used as the object of study can reveal the role of innovation and its development in influencing banking performance.

## Literature Review

### A. Innovation

Innovation theory is not rooted in a single discipline or school of thought. Law Number 11 of 2019 concerning the National System of Science and Technology defines innovation as the result of thinking, research, development, assessment, and/or application that contains elements of novelty and has been implemented and provides economic and/or social benefits. In business, innovation is a systematic and planned practice in developing and marketing new and different products or services from existing ones, so that they are accepted and used by customers. This innovation involves the use of creative ideas and out-of-the-box thinking to create better and more effective solutions to meet market and customer needs (Lestari, 2019). There are three stages in the innovation process: invention, innovation, and diffusion. Invention is the first demonstration of an idea; innovation is the first commercial application of an invention in the market; and diffusion is the spread of technology or process throughout the market. In the late 20th century, innovation theory continued to evolve.

Innovation is commonly explained through three perspectives on technological change: induced innovation, evolutionary approaches, and path-dependent models. The induced innovation perspective suggests that innovation arises in response to external changes such as market demand, regulatory shifts, or factor price variations, as firms seek adaptive solutions to enhance performance. Evolutionary approaches view innovation as the outcome of competitive selection processes in which firms and technologies evolve, with those best suited to their environments prevailing over time. Path-dependent models emphasize the influence of past decisions on innovation trajectories, noting that once technologies or processes are established, change becomes constrained by structural and switching costs (Ruttan, 2000).

*1) Innovation in Banking*

In the banking sector, innovation can be defined as the process of developing and implementing new ideas, technologies, or business models within the banking industry to improve service, efficiency, and customer experience. This definition aligns with Khalifaturofi'ah's research, which states that innovation is one of the banking industry's efforts to improve performance and efficiency (Khalifaturofi’ah, 2019). Mutiasari (2020) highlighted that the digital transformation undertaken by the banking industry goes beyond simply providing online and mobile banking services. The banking and financial industry needs to innovate by combining digital technology with customer interaction. These new technological discoveries can simplify and provide convenience for users in accessing eight banking services.

*2) Types of Innovation*

There are three types of innovation found in the literature studied: product innovation, process innovation, and business model innovation. Product innovation involves the development and introduction of new banking products or services to the market (Liu, 2022). Examples include the development of digital banking products such as mobile banking and internet banking (Almuayad et al., 2024), as well as the creation of innovative investment products (Hameed et al., 2024).

Process innovation focuses on improving the efficiency and effectiveness of a bank's internal business processes. Process innovation includes process automation, such as the use of technology to automate routine and repetitive tasks, such as transaction processing, customer data verification, and basic customer service. Automation can increase efficiency, reduce operational costs, and improve accuracy (Adekanmbi & Ukpere, 2023). Technology can be applied to improve the quality of customer service, such as using chatbots to provide quick responses to customer inquiries or using data analytics to better understand customer needs and preferences (Kálmán & Tóth, 2021). This innovation also includes effective marketing strategies to reach a wider market (Ngo et al., 2022).

Business model innovation involves fundamental changes in how banks create, deliver, and capture value. Some examples of business model innovation in banking include the development of integrated digital banking platforms that offer a range of financial services online. This can include basic banking, investment, lending, and insurance, all within a single, easily accessible platform (Egorov, 2023). Banks increasingly collaborate with fintech companies to develop new products and services, expand market reach, and enhance operational efficiency. Such collaborations offer mutual benefits, as banks gain access to advanced technologies and innovative capabilities, while fintech firms benefit from banks' established customer bases, regulatory expertise, and operational infrastructure (Adekanmbi & Ukpere, 2023). In this innovation, it was also found that how company culture can influence performance (Alrabadi et al., 2023).

**B. Performance**

Performance is a set of results achieved and refers to the actions taken to achieve and execute a task as requested (Stolovitch & Keeps, 2006). Performance is considered good and successful if the desired goals are achieved. Therefore, performance is the willingness of an individual or group of people to carry out an activity and perfect it according to their responsibilities, resulting in the desired results (Nursam, 2017). Performance can be influenced by many factors, one of which is human resource management (HRM). HRM can provide two significant contributions to an organization: the ability of individuals in the operational area to manage crises and HRM interventions to facilitate organizational performance, both individually and collectively, improving crisis response (Aula et al., 2022).

Performance can be measured from various aspects, such as productivity, product or service quality, customer service, and profitability. Improving performance is the primary goal of management, and to achieve it, managers need to set clear objectives, plan effective strategies, allocate resources appropriately, and monitor and evaluate work results periodically (Chang & Chen, 1998). Performance measurement can be carried out using the balanced scorecard (BSC), which has four perspectives that serve as benchmarks for company performance success: financial, customer, internal business, and innovation and learning. These four perspectives have interconnected strategic objectives that form a cause-and-effect relationship (strategy map) (Ilmi et al., 2019).

*1) Banking Performance*

In the banking context, performance can be defined as the level of success and efficiency of a bank in achieving its goals. Banking performance can be seen from various financial ratios, including liquidity, solvency, profitability, and activity ratios (Retnadi, 2006). Profitability measures a bank's ability to generate profits (Al-Dmour et al., 2022). Commonly used ratios include Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). ROA indicates how efficiently a bank generates profit from its total assets (Huang & Lin, 2011), ROE indicates the rate of return generated from shareholder investment (Li, 2018), and NIM indicates the difference between interest income and interest expense (Di Febo & Angelini, 2022). In addition to profitability ratios, efficiency is also a benchmark for banking financial performance, measuring a bank's ability to manage its operational costs. Cost efficiency ratios, such as the cost-to-income ratio, are used to assess how efficiently a bank generates revenue relative to its costs (Watts & Watts, 2024).

Furthermore, performance can also be viewed from a non-financial perspective. Non-financial performance encompasses non-financial aspects that also contribute to a company's success, such as customer satisfaction with products, services, and their experiences interacting with the bank. Customer satisfaction can be measured through surveys, online reviews, or customer retention rates (Naimi-Sadigh et al., 2022). Customers' desire to continue using a bank's products and services in the long term. Customer loyalty can be measured through customer retention rates, cross-selling, and up-selling (Tengeh & Gahapa Talom, 2020). Public perception of the bank, including its reputation, value, and the quality of services offered. Brand image can influence customers' decisions in choosing a bank and can be measured through surveys, social media sentiment analysis, or third-party assessments (Chen, 2013). The bank's commitment to sustainable and socially and environmentally responsible business practices. This can include environmental initiatives, community empowerment programs, and good corporate governance practices (Meng & Imran, 2024).

*2) The Relationship Between Financial and Non-Financial Performance in Banking*

Financial and non-financial performance are often measured and analyzed separately, but they are interrelated and can influence each other. For example, increased customer satisfaction can lead to increased customer loyalty, which in turn can increase bank revenue and profitability [26]. On the other hand, strong financial performance can provide the necessary resources to invest in improved customer service and CSR programs, which can ultimately strengthen the bank's brand image and reputation (Al Mansoori & Bakri, 2023).

**C. Research Trends on Innovation and Banking Performance**

Recent years have seen a substantial increase in publications examining innovation and banking performance, indicating growing scholarly interest in this area. The reviewed literature largely emphasizes the impact of product innovation and the adoption of technologies such as fintech, blockchain, and artificial intelligence on banking performance, reflecting the central role of technology in the sector's ongoing transformation. While product innovation remains a dominant focus, emerging studies increasingly consider process and business model innovation as important drivers of performance. This shift suggests that innovation extends beyond the development of new products to include improvements in efficiency and changes in how banks operate. Furthermore, recent research highlights that the relationship between innovation and performance is shaped by contextual factors, including the business environment, regulatory frameworks, organizational culture, and market conditions.

Previous research on the role of innovation in banking sector performance was conducted by Chen & Peng (2020). However, that study was conducted only in Taiwan, so the present study will complement that research without being limited by country or year. Meanwhile, Galletta et al.'s (2022) study assessed the intellectual development, characteristics of authors, and manuscripts related to ESG (Environmental, Social, and Governance) in the banking industry. The results of this study indicate that ESG factors are a subject of increasing interest by national and international institutions.

In the banking sector, there is a growing awareness of the need to integrate ESG dimensions into strategies, processes, and financial instruments to generate value from a medium- to long-term perspective. Goncharenko (2020) identified dominant trends in the development of scientific thinking regarding business model transformation in banks and future research directions. This study found that the number of scientific articles on bank business model transformation began to increase between 2012 and 2017. These findings indicate that digital technology has had a significant impact on the banking industry, particularly in improving customer experience and maintaining banking performance. This indicates that the banking sector has undergone significant digitalization, which has impacted banking performance. Therefore, this research will specifically examine the role of innovation in banking sector's performance.

Meanwhile, two other studies discuss service innovation (Ferraz & de Melo Santos, 2016) and digital innovation (Nugroho & Hamsal, 2021). The study by Ferraz & de Melo Santos (2016) focused on the impact of innovation in service delivery on performance, while this research will focus on innovation in general and its impact on performance in the banking sector. Nugroho & Hamsal (2021) focused on digital innovation in banking and analyzed journals from 2011-2016. This research will discuss innovation in general and its impact on performance in the banking sector over an unspecified time period.

## Research Methods

In bibliometric research, keywords are considered a fundamental element for representing knowledge concepts and are commonly used to express the knowledge structure of a research domain (Chen & Xiao, 2016). To select the keywords to be used, the author considered previous research as shown in Table 1.

**Table 1.** Search Keywords in Previous Research

| Author | Title | Keywords |
|---|---|---|
| Chen & Peng, 2020 | Statistical and bibliometric analysis of financial innovation | ("financial innovation" AND bank) |
| Galletta et al., 2022 | A bibliometric analysis of ESG performance in the banking industry: From the current status to future directions | TS= ("financial institution*" AND "governance performance")<br>TS= ("bank*" AND "governance performance") TS= ("bank*" AND "environmental performance")<br>TS= ("bank*" AND "social performance")<br>TS= ("financial institution*" AND "social performance")<br>TS= ("financial institution*" AND "environmental performance")<br>TS= ("financial institution*" AND "ESG performance")<br>TS= ("bank*" AND " ESG performance") |
| Goncharenko, 2020 | From Business Modelling to the Leadership and Innovation in Business: Bibliometric Analysis (Banking as a Case) | TS=(bank* OR banking sector)<br>TS=(banking business model) |
| Ferraz & de Melo Santos, 2016 | The Relationship Between Service Innovation and Performance: A Bibliometric Analysis and Research Agenda Proposal | ("service innovation" AND performance) |
| Nugroho & Hamsal, 2021 | Research Trend of Digital Innovation in Banking: A Bibliometric Analysis | ("digital innovation" AND banking) |

Following that, this study used the following keywords "bank," "banking," "innovation," and "performance" in the database queries in Scopus:
#1- bank*
#2- performance
#3- innovation*
#4- #1 AND #2 AND #3

Using PRISMA flow diagram, data collection can be illustrated in the following figure 1.

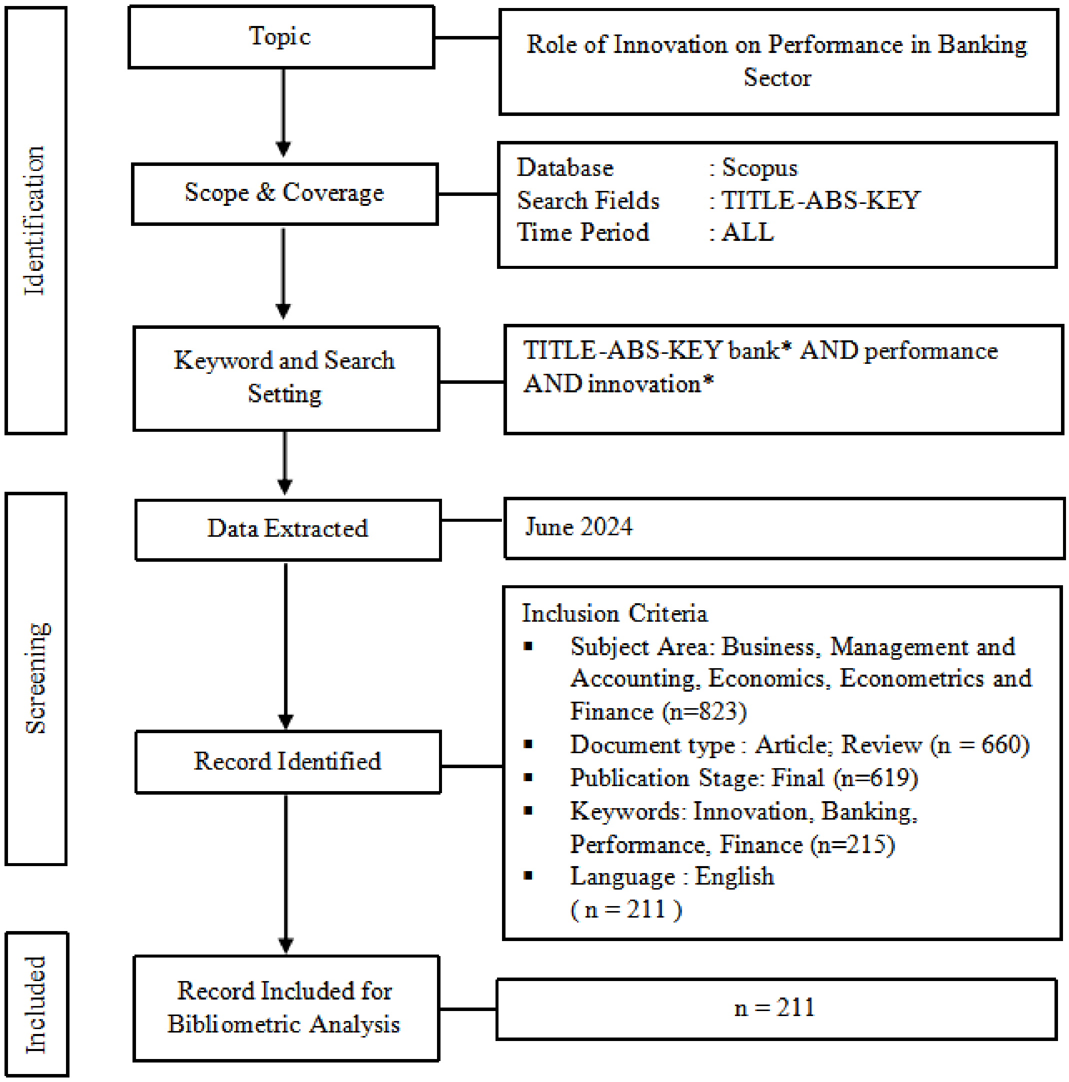


**Figure 1.** PRISMA flow diagram

Figure 1 presents the PRISMA flow diagram outlining the article selection process. In this study, bibliometric analysis was conducted using the VOSviewer tool, encompassing both scientific performance analysis and science mapping. Scientific performance analysis focused on identifying key publication characteristics, including sources, journals, authors, countries, keywords, and citation patterns. Following this stage, science mapping was employed to visualize and analyze relationships among publications using computational techniques. To further enrich the bibliometric findings, content analysis was subsequently performed to provide deeper insights into the existing literature. This process involved systematic coding procedures, the results of which are summarized in Table 6.

## Results and Discussion

The number of publications per year from 1994 to 2024 is shown in Figure 1 to illustrate the research trend on the impact of innovation on banking performance. Cumulatively, the number of publications in this field is 211 documents.

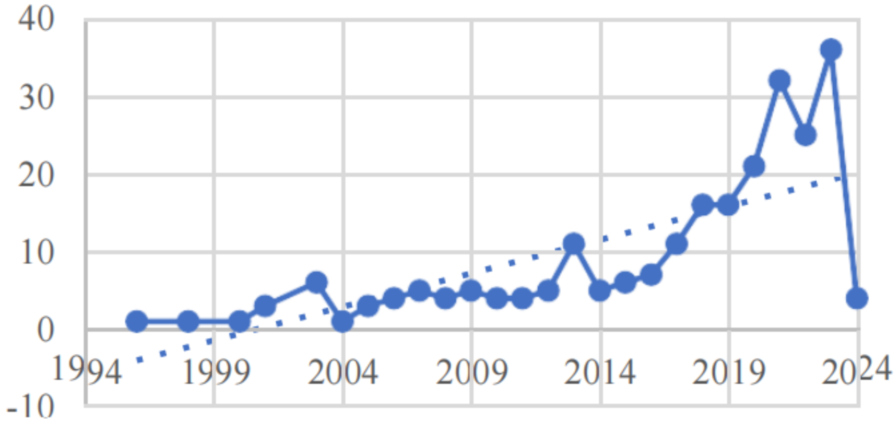


**Figure 2.** Annual Publication on the topic of Innovation and Performance in Banking Sector
**Source:** (Data processing)

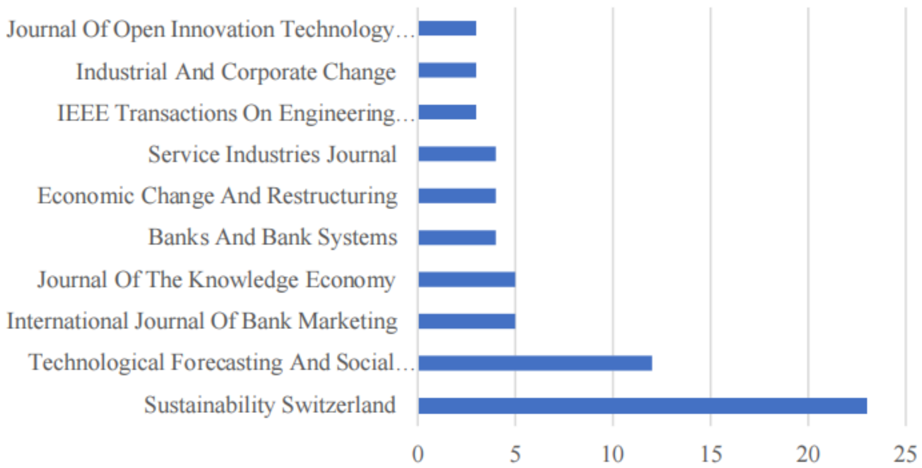


**Figure 3.** Journal with Highest Publications
**Source:** (Data processing)

**Table 2.** The Most Influential Journal in the Field of Innovation and Performance in the Banking Sector

| Source Title | CiteScore | TC | NP | h-index | g-index | m-index | PY_start |
|---|---|---|---|---|---|---|---|
| Technological Forecasting and Social Change | 9.18 | 568 | 62 | 9 | 12 | 0.9 | 2015 |
| Journal of the Knowledge Economy | 7.13 | 226 | 32 | 5 | 5 | 0.62 | 2017 |
| Industrial and Corporate Change | 6.66 | 116 | 17 | 3 | 3 | 0.25 | 2013 |
| Research Policy | 6.44 | 162 | 25 | 2 | 2 | 0.25 | 2017 |
| Journal of Business Research | 5.95 | 220 | 37 | 4 | 4 | 0.15 | 2018 |

| Source Title | CiteScore | TC | NP | h-index | g-index | m-index | PY_start |
|---|---|---|---|---|---|---|---|
| International Journal of Bank Marketing | 5.21 | 230 | 44 | 5 | 5 | 0.25 | 2005 |
| Service Industries Journal | 4.16 | 61 | 15 | 4 | 4 | 0.2 | 2005 |
| Economic Change and Restructuring | 3.96 | 139 | 35 | 3 | 4 | 0.33 | 2016 |
| Journal of Open Innovation: Technology, Market, and Complexity | 3.8 | 46 | 12 | 3 | 3 | 0.5 | 2019 |
| IEEE Transactions on Engineering Management | 3.43 | 103 | 30 | 3 | 3 | 0.1 | 1996 |

**Source:** (Data processing)

Publication Performance and Research Trends: There has been a significant increase in publications related to banking innovation since 2013, indicating growing research interest in this topic. The journals "*Sustainability Switzerland*" (656,590) and "*Technological Forecasting and Social Change*" (226,642) are the main sources of publications and the highest number of citations, reflecting the important role these journals play in disseminating knowledge about banking innovation.

**Table 3.** Publication by Country

| Country | Articles |
|---|---|
| United States | 34 |
| China | 32 |
| United Kingdom | 27 |
| Turkey | 12 |
| Australia | 11 |
| Canada | 10 |
| Malaysia | 10 |
| India | 9 |
| Pakistan | 9 |
| South Africa | 9 |

**Source:** (Data processing)

The United States and China are the countries with the highest number of publications, indicating that these countries are centers of banking innovation research and development. Based on citation analysis, the most cited article is Lee et al. (2001), which discusses the influence of internal capabilities and external networks on the performance of Korean technology start-ups using data from 137 companies financially supported by Korean banks (Lee et al., 2001). The results of this study reveal several important findings regarding the influence of internal capabilities and external networks on the performance of Korean technology start-ups.

**Table 4.** Country Collaboration

| *Country1* | *Country2* | *Collaboration Count* |
|---|---|---|
| China | China | 84 |
| United Kingdom | United Kingdom | 72 |
| United States | United States | 59 |
| Japan | Japan | 46 |
| Romania | Romania | 31 |
| Canada | Canada | 29 |
| Italy | Italy | 22 |
| Saudi Arabia | Saudi Arabia | 21 |
| Kazakhstan | Kazakhstan | 20 |

**Source:** (Data processing)

**Collaborative and Conceptual Relationships**

The collaboration analysis revealed that all publications (100%) were Single Country Publications (SCP), indicating a lack of international collaboration in banking innovation research. However, the conceptual network analysis revealed the presence of strong research clusters, indicating that research tends to focus on specific themes such as technology adoption, product and process innovation, the impact of the financial crisis, and factors influencing innovation.

Summary of the Literature on the Role of Innovation on Performance in the Banking Sector:

a. The most frequently occurring words in the abstracts indicate a focus on innovation, performance, research in the banking sector, and financial aspects.
b. Frequently appearing bigrams such as "firm performance," "banking sector," and "innovation performance" indicate an interest in the relationship between innovation and performance in the banking sector.
c. Common themes that emerge are product innovation, process innovation, business model innovation, financial performance, market performance, and technology adoption.
d. The research also discusses the impact of the financial crisis, factors influencing innovation, and performance measurement.

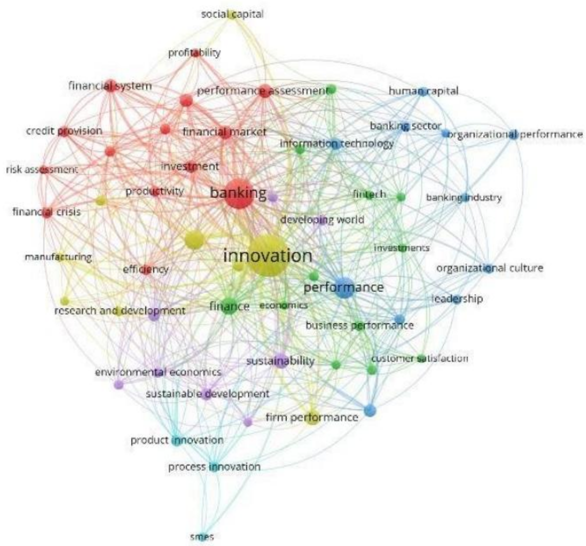


**Figure 4.** Conceptual Network Visualization
**Source:** (Data processing)

One cluster was found that was not relevant to the research theme, namely in the bibliometric coupling analysis of cluster 7, where in that cluster, the main theme of the research was the factors that influence the growth and innovation of Small and Medium Enterprises (SMEs) in transition countries, so that the main object studied in that cluster was SMEs, while in the research conducted the main object studied was banking. This could happen because the keywords entered by the author in the Scopus search query; bank, performance, innovation, were all listed in the research in this cluster, so that these articles became the author's sample because the keywords were in accordance with those that had been determined.

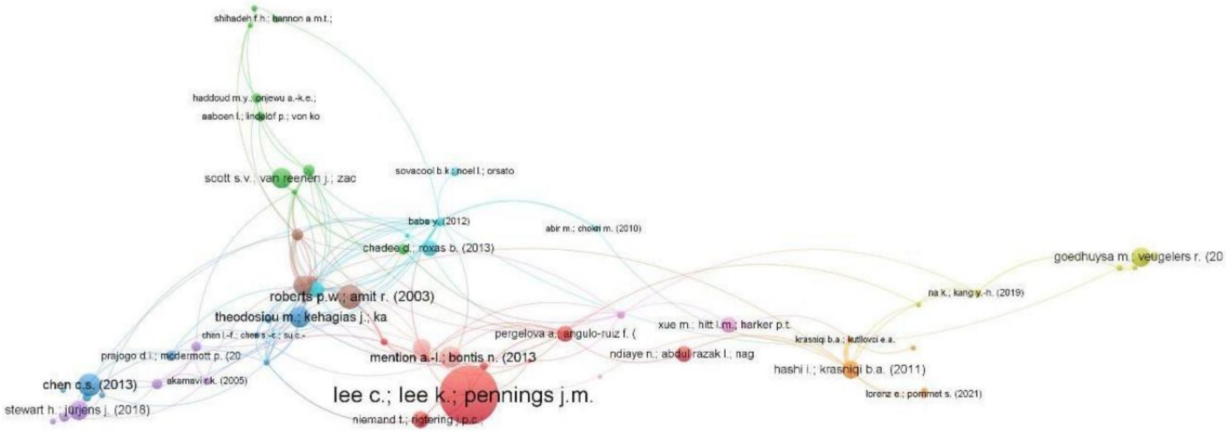


**Figure 5.** Bibliographic Coupling Network
**Source:** (Data processing)

**Table 5.** Summary of Bibliographic Coupling Network

| Cluster | Main Topic | Sub Topic |
|---|---|---|
| **1 (Red)** | Factors influencing the performance of small and medium enterprises (smes) | Financial access, government policy |
| **2 (Green)** | The influence of innovation and management practices on organizational performance in the banking sector | Technological innovation, HR management practices |
| **3 (Blue)** | Factors influencing strategy and adoption of banking services | Business strategy, mobile banking adoption |
| **4 (Yellow)** | The influence of innovation on the growth and performance of manufacturing firms in developing countries | Innovation and economic growth |
| **5 (Purple)** | Factors influencing the adoption of financial technology (fintech) in germany | Consumer trust, data security, added value, user interface design, FinTech promotion |
| **6 (Light Blue)** | The influence of institutional factors and types of innovation on firm performance | Institutional environment, types of innovation |
| **7 (Orange)** | Factors influencing the growth and innovation of small and medium enterprises (smes) in transition countries | Technological capabilities, company characteristics |
| **8 (Brown)** | The influence of organizational culture and innovation on firm performance | Organizational culture, innovation |
| **9 (Pink)** | The influence of innovative factors and efficiency on firm performance | External knowledge, customer efficiency |

| | | |
|---|---|---|
| **10 (Light Purple)** | The influence of intellectual capital and its components on business performance | Intellectual capital, innovation |

**Source:** (Data processing)

To complement the bibliometric analysis, a content analysis was conducted on 211 articles examining innovation and performance in the banking sector, with the aim of deriving more comprehensive implications for both research and practice. The results of this analysis are presented below.

**Table 6.** Content analysis results based on coding schemes

| Category | Sub-Category | Sub-Sub Category | Total (n) |
|---|---|---|---|
| **Methods** | Quantitative | | 195 |
| | Qualitative | | 15 |
| | Mixed | | 1 |
| **Innovation** | Inovasi Produk | Technology Adoption | 80 |
| | | New Products/Services | |
| | | Product/Service Development | |
| | | Patents | |
| | Process Innovation | Service Delivery Process | 39 |
| | | Operations Process | |
| | | Marketing Methods | |
| | | Automation | |
| | | Human Resources | |
| | Business Model Innovation | Managerial Change/Innovation | 12 |
| | | Business Model Development | |
| | | Business Processes | |
| | | Organizational Learning | |
| | | Leadership Style | |
| **Performance** | Financial | Profitability | 70 |
| | | Return on Equity (ROE) | |
| | | Return on Assets (ROA) | |
| | | Return on Sales (ROS) | |
| | | Net Interest Margin (NIM) | |
| | | Share Price | |
| | | CAMELS | |
| | | Financing | |
| | | Added Value | |
| | | Efficiency | |
| | Non Financial | Customer/Employee Satisfaction | 53 |
| | | Competitive Advantage | |
| | | Productivity | |
| | | Number of Employees | |
| | | Company Resilience | |
| | | Market Success/Expansion | |
| | | CSR/Empowerment | |
| | | Managerial Success | |
| | | ESG | |
| | | Reputation and Brand Image | |

**Source:** (Data processing)

Product innovation was the most frequently discussed type of innovation in this topic. 80 of the 211 articles, or approximately 38%, discussed product innovation, followed by process innovation (18.5%) and business model innovation (5.7%). For innovation, aside from articles that each explain a specific innovation style, 47 articles discussed two innovations simultaneously: 35 articles discussed product and process innovation, 11 articles discussed product and business model innovation, and 1 article discussed business model and process innovation. The remaining 33 articles discussed product, process, and business model innovation simultaneously.

Regarding performance measurement, although much of the existing literature focuses on financial performance (33.2%), followed by non-financial performance (25.1%), a substantial proportion of studies, 88 articles (41.7%), examine financial and non-financial performance simultaneously. This emphasis on mixed performance aspects underscores the importance of considering both dimensions when evaluating performance in the banking sector.

**Relationship to previous research**

1. Statistical and Bibliometric Analysis of Financial Innovation (Chen & Peng, 2020). This research sampled banks worldwide and discussed innovation in general. This study aligns with Chen and Peng (2020) in identifying product (including financial), process, and business model innovation as key innovation categories in banking. However, while Chen and Peng (2020) focused solely on the impact of financial innovation on financial performance in Taiwanese banks, the present study extends this perspective by demonstrating that innovation also influences non-financial performance across a broader banking context.
2. A Bibliometric Analysis of ESG Performance in the Banking Industry: From the Current Status to Future Directions (Galletta et al., 2022). This study complements Galletta et al. (2022) by expanding the analytical focus from ESG performance to innovation-driven banking performance more broadly. It incorporates a wider range of innovation types, extends the dataset to include literature up to 2024, and adopts a global perspective beyond the European focus of the earlier study.
3. From Business Modeling to Leadership and Innovation in Business: Bibliometric Analysis (Banking as a Case) (Goncharenko, 2020). While Goncharenko (2020) examined business model innovation and leadership in relation to banking performance using data up to 2019, this study updates the analysis through 2024 and broadens the innovation scope. The bibliographic coupling analysis identifies ten thematic clusters, including one cluster emphasizing the influence of organizational culture, leadership, and innovation on firm performance.
4. "The Relationship Between Service Innovation and Performance: A Bibliometric Analysis and Research Agenda Proposal" (Ferraz & De Melo Santos, 2016). Consistent with Ferraz and de Melo Santos (2016), this study identifies product (including service), process, and business model innovation as central themes. However, it extends prior work by incorporating a broader temporal and geographic scope and by examining both financial and non-financial performance outcomes, whereas earlier research emphasized non-financial dimensions such as strategy and market orientation.
5. Research Trend of Digital Innovation in Banking: A Bibliometric Analysis (Nugroho & Hamsal, 2021). This research complements the research conducted by Nugroho & Hamsal

(2021) by expanding the scope of the analysis from 2011-2021 to 1994-2024 and focusing not only on digital innovation but also on product, process, and business model innovations found in the content analysis. The research conducted also provides an in-depth content analysis to identify key themes and trends in banking innovation research as shown in the bibliographic coupling analysis, thus complementing the bibliometric analysis conducted by Nugroho & Hamsal (2021).

## Conclusion

Innovation has emerged as a strategic imperative for the banking sector amid evolving market conditions, intensified competition, and rising customer expectations. This review confirms that innovation significantly influences banking performance across both financial and non-financial dimensions. Innovations in products, processes, business models, and technology contribute to improved profitability, operational efficiency, customer satisfaction and loyalty, brand image, and corporate social responsibility.

The findings also reveal a notable growth in scholarly interest in innovation and banking performance in recent years, underscoring the increasing relevance of this research domain. Current trends highlight a strong emphasis on technological innovations such as fintech, blockchain, and artificial intelligence, alongside a gradual shift from a predominant focus on product innovation toward greater attention to process and business model innovation. Moreover, the literature increasingly acknowledges the role of contextual factors, including regulatory frameworks, organizational culture, and the business environment, in shaping the innovation–performance relationship.

These insights offer important implications for both practitioners and researchers. For banking practitioners, the findings reinforce the need to invest strategically in innovation to enhance performance and competitiveness. However, innovation initiatives should be aligned with organizational capabilities, market demands, and regulatory conditions to ensure effective implementation and sustainable outcomes.

Recommendations for future research include first, future studies could further examine the impact of product innovation on banking performance, particularly given its prominence in the literature identified through bibliographic coupling analysis. Such research may assess how new products influence both financial performance indicators (e.g., profitability and efficiency) and non-financial outcomes (e.g., customer satisfaction, loyalty, and market share), as well as changes in customer behavior and service usage. Second, further investigation is needed into the internal and external factors that drive or constrain innovation in the banking sector. Drawing on themes identified in the bibliographic analysis, future research could explore the roles of organizational culture, leadership, and resource availability alongside external influences such as regulation, competition, and technological change. Third, future research may focus on financial technology (fintech) innovation by examining how technologies such as artificial intelligence, blockchain, and big data contribute to more efficient, innovative, and customer-oriented banking services. This direction aligns with existing research clusters emphasizing factors influencing fintech adoption. Finally, additional studies could explore innovation in support of sustainable development, particularly how banks can design products that deliver financial value while generating positive environmental and social impacts, such as green finance and inclusive banking initiatives. This avenue is increasingly relevant given the growing emphasis on non-financial performance in literature.

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