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Digital transformation in pawnshop services: Innovation in non-bank financial services in the digital era

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ABSTRACT

Background: Digital transformation has become a global phenomenon driving fundamental changes in the financial services sector, including non-bank financial institutions such as pawnshops. Pawnshop services, traditionally associated with conventional face-to-face transactions, are now undergoing a significant shift toward digital-based services that are faster, more transparent, and more inclusive. This study aims to analyze digital transformation in pawnshop services as a form of service innovation in the non-bank financial sector in the digital era. **Methods:** This research employs a qualitative descriptive literature review by examining academic journals, scholarly books, institutional reports, and relevant regulations. **Findings:** The findings indicate that digital transformation drives changes in business processes, service models, and governance of pawnshops, resulting in improved efficiency, service quality, and financial inclusion. However, digital transformation also presents challenges related to human resource readiness, data security, and regulatory adaptation. **Conclusion:** Digital transformation represents an important pathway for service innovation in pawnshop services, although its implementation requires stronger human resource readiness, data security, and regulatory adaptation. **Novelty/Originality of this article:** This study highlights digital transformation as a service innovation pathway for pawnshop services by integrating technological, organizational, and regulatory perspectives in the non-bank financial sector.

KEYWORDS: digital transformation; financial inclusion; non-bank financial institutions; pawnshop services; service innovation.

1. Introduction

Developments in information and communication technology have driven major changes in the way financial services are provided worldwide. The digital era is characterized by high and increasing internet penetration, the wide adoption of mobile devices, and the development of technologies such as fintech, big data, and artificial intelligence. These changes shift the paradigm of financial services from traditional to digital. Digitalization influences not only the banking industry but also non-bank financial institutions, including pawnshops, which must innovate their services to meet increasingly dynamic consumer needs (Maharani & Sari, 2025). In the present era, marked by very rapid technological progress, many industrial sectors are undergoing significant transformation, including the banking sector. Digitalization has become a worldwide phenomenon that is

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changing the way financial services are delivered to society. Whereas customers previously could only conduct transactions face to face at branch offices, many banking services can now be accessed easily through digital devices. This development not only increases efficiency and convenience for consumers but also creates new opportunities for financial institutions to strengthen their competitiveness in an industry where competition is increasingly intense (Amin & Arravik, 2023).

One technological innovation in the financial world is financial technology, commonly known as fintech. This technology focuses on providing loan services supported by information technology (Farhan, 2019). Financial technology can be understood as innovation in the financial sector that creates new business models, applications, processes, or products with a major impact on the provision of financial services, through creative ideas and the implementation of the latest technology (Kusuma & Asmoro, 2021). Fintech has become a key component in the development of financial sector institutions worldwide, including in Indonesia. The increasing use of digital technology in finance opens opportunities for fintech providers to reach users who were previously unserved by traditional financial institutions. Fintech includes innovations such as digital payments, internet-based loans, online investment, and digital insurance, which provide better access and greater efficiency than traditional financial services (Aswirah et al., 2024).

The integration of digital technology into public services, including the pawnshop sector, has great potential to improve service effectiveness significantly. Customers who use digital services report better experiences, with shorter waiting times and smoother, clearer transaction processes. This shows that digital transformation in services contributes not only to efficiency but also to a more positive customer experience (Handayani, 2017). Progress in information technology continues to accelerate. Information technology offers various tools that help management run existing businesses. Over time, information technology has continued to transform and innovate rapidly, which means that people in the modern era must keep up with increasingly advanced technological developments (Putri et al., 2022).

Customer satisfaction is an important factor in maintaining consumer loyalty and driving business growth. According to Oliver (1980), customer satisfaction results from customers' evaluation of the services they have received. Kotler & Keller (2016) stated that speed of service delivery is one of the main factors influencing customer satisfaction and retention, which shows that a fast transaction process is considered a key element influencing customer satisfaction and engagement. There is a positive correlation between the digitalization of services and the level of customer satisfaction. Customers who use PDS feel more satisfied than those who still rely on manual services. They value the convenience of transactions and the time savings they obtain. In addition, customer satisfaction is closely related to loyalty, because satisfied customers tend to recommend a service to others, which ultimately can expand the company's customer base (Supriyanto & Fitriani, 2020).

The development of digital technology has brought significant changes to various sectors of life, including the financial services sector. Digital transformation is marked by the use of information and communication technology to increase operational efficiency, expand access to services, and create faster and easier user experiences. In the context of financial services, digitalization affects not only banking but also encourages non-bank financial institutions to adapt in order to remain relevant and competitive in the digital era (Vial, 2019). Changing behavior among an increasingly diverse society that depends on digital technology in economic activity is the main factor accelerating this transformation. However, the transformation is not free from challenges, such as limited digital literacy among customers, especially older generations who are less familiar with technology, and data security issues that can affect customer trust in digital services. Developments in information and communication technology have brought major changes to various aspects of social life, including the financial services sector.

Table 1. Pawnshop companies overview as of April 2024

Items	Number of Industry (units)	Assets (billion IDR)	Liabilities (billion IDR)	Equity (billion IDR)	Customer (account)
Government pawnshop company	1	88.483 (5,436.4 USD)	56.472 (3,469.6 USD)	32.011 (1,966.8 USD)	22.485.577
Conventional private pawnshop companies	159	2.649 (162.8 USD)	1.725 (106.0 USD)	924 (56.8 USD)	477.164
Sharia private pawnshop companies	4	82 (5.0 USD)	27 (1.7 USD)	55 (3.4 USD)	11.215
Total	164	91.214 (5,604 USD)	58.224 (3,577.3 USD)	32.990 (2,026.9 USD)	22.973.956

(Financial Services Authority, 2024)

The table above presents the number of pawnshop companies in Indonesia, which are part of the non-bank financial sector. Digitalization has changed the way the public accesses financial services, from reliance on face-to-face interaction to digital technology-based services. This transformation occurs not only in the banking sector but also extends to non-bank financial institutions, one of which is the pawnshop. As a non-bank financial institution, the pawnshop plays a strategic role in providing fast and relatively easily accessible pawn-based financing to the public. Historically, pawnshop services were carried out conventionally through face-to-face interaction with manual administrative processes. This service model is considered insufficiently adaptive to the demands of modern society, which wants speed, flexibility, and convenient access to services without limits of space and time. Therefore, digital transformation has become an urgent need for pawnshop institutions to improve service quality and expand the reach of their services to society (Pramudita & Nurhadi, 2025).

Digital transformation in pawnshop services is realized through the development of various technology-based service innovations, such as digital service applications, online transaction systems, electronic payments, and real-time customer data integration. These innovations aim not only to increase the institution's internal efficiency but also to create added value for customers through more transparent, fast, and secure services. Previous research shows that the digitalization of financial services can increase customer satisfaction and strengthen the competitiveness of non-bank financial institutions amid increasing competition in the financial services industry (Maharani & Sari, 2025).

A pawnshop is a company operating in the financial services sector and other services, whose main products are financing through pawn systems and micro fiduciary financing. In general, such companies offer services in which valuables are given to a certain party as collateral to obtain a certain amount of funds, and the collateral is returned after customers fulfil the provisions agreed with the pawn institution (Katili et al., 2022). As a non-bank financial institution, the pawnshop plays a strategic role in providing fast access to financing through the pawn mechanism. Historically, pawnshop services were mainly provided face to face in physical offices with manual administrative processes that tend to be time-consuming and depend on the direct presence of customers. This service model risks being left behind amid the needs of modern society, which wants services that are fast, easily accessible, and flexible through digital channels. Digital transformation in pawnshop services is part of the broader trend of digital transformation in the financial services sector. According to a literature review on digital transformation in financial services, the adoption of digital technologies such as mobile banking, online platforms, and service applications has increased convenience and operational efficiency and expanded access to services for

society (Maharani & Sari, 2025). This change not only gives convenience to customers but also becomes an organizational necessity for remaining competitive in the digital era.

Digital-based service innovation has also been identified in the context of Islamic financial institutions and pawnbroking, where the integration of digital media such as mobile applications and online platforms has become an enabler for expanding service reach and improving customer experience (Hidayat et al., 2025). This shows that digital transformation is relevant not only in the banking sector but also in non-bank financial institutions as a service innovation strategy. Digital pawnshops offer various modern features, such as online pawn service applications, digital notifications, electronic bill payments, and integrated customer account management. This implementation is expected to increase financial inclusion by reaching groups that previously had difficulty accessing formal services, especially in remote areas or among micro-businesses.

Pawnshops have a strategic role in the national financial system as providers of short-term financing through the pawn mechanism. Pawnshop services have long been familiar to society, especially to medium- to low-income groups and micro-business actors. However, the conventional service model, which relies on physical offices and manual processes, faces growing challenges in a digital era that demands speed, efficiency, and flexibility in service. Digital transformation in pawnshop services has become a strategic need to respond to changes in the external environment. Increasing internet penetration, mobile device use, and changing consumer behavior push pawnshops to innovate in service provision. Digitalization is understood not only as the use of technology but also as a comprehensive change in business processes, organizational structures, and patterns of relationships with customers.

Digital transformation is a phenomenon inseparable from the increasingly rapid development of information and communication technology. In the financial services sector, digital transformation has changed the way financial institutions design, manage, and deliver services to society. One of the sectors experiencing a significant impact from this process is pawnshop services. As a non-bank financial institution with a strategic role in providing fast and relatively easy access to financing for society, the pawnshop is required to adapt to changing consumer behavior and the dynamics of the digital environment. Digital transformation in pawnshop services affects not only the technical aspects of service but also organizational governance, operational efficiency, service quality, and the relationship between institutions and customers.

The most visible impact of digital transformation on pawnshop services is the change in service patterns toward society. Before the digital era, pawnshop services were identical to manual processes, face-to-face interaction, and dependence on the physical presence of customers at branch offices. This process often required considerable time, especially at the stages of administration, transaction recording, and customer data management. With digital transformation, these processes have begun to shift to information technology-based systems. Digital applications, websites, and online service systems allow customers to obtain product information, run loan simulations, monitor due dates, and receive transaction notifications in real time. These changes provide convenience and comfort for customers while creating a more modern and responsive service experience.

In terms of accessibility, digital transformation has had a positive impact in expanding the reach of pawnshop services. The community no longer depends entirely on physical branch offices to access services. With the support of digital technology, pawnshop services can reach a broader and more diverse segment of society, including younger, technology-friendly generations and highly mobile groups. Digital access also opens opportunities for pawnshops to strengthen their role in supporting financial inclusion, particularly for people who have so far had limited access to formal banking services. Through digital services, pawnshops can become an alternative financing solution that is easily accessible, fast, and appropriate for the needs of modern society. Digital transformation also has a significant impact on the operational efficiency of pawnshops. The digitalization of internal processes such as transaction recording, customer data management, risk assessment, and financial reporting helps reduce the burden of manual work and minimize potential administrative

errors. Integrated systems allow workflows to become faster and more structured, so that service time can be shortened without reducing service quality. This operational efficiency leads not only to cost savings but also to increased human resource productivity. Pawnshop employees can focus more on service, product development, and customer education rather than being consumed by repetitive administrative work.

From a governance perspective, digital transformation drives the creation of more transparent and accountable pawnshop service systems. The use of information technology allows clear and easily accessible presentation of information on service costs, the estimated value of collateral, the pawn term, and customers' rights and obligations. This transparency contributes to greater public trust in pawnshops. Trust is a very important form of social capital for non-bank financial institutions, considering that pawnshop activities are directly related to valuable assets owned by the public. With a well-documented digital system, every transaction can be traced and accounted for, so that the risk of abuse of authority and improper service practices can be minimized.

In Indonesia, the digital transformation of the financial sector is supported by the policies of the government and regulators, which encourage financial inclusion and the development of the digital economy. Pawnshops, as non-bank financial institutions, are required to adapt to these policies through digital-based service innovation. Digital transformation is expected to increase public access to safe, affordable, and sustainable financial services. However, digital transformation also brings a number of complex challenges, such as technological infrastructure readiness, public digital literacy, data security, and the need for supportive policies and regulatory adaptation. Therefore, in-depth scientific study of digital transformation in pawnshop services is important for understanding the forms of innovation, the driving factors, and the impact on service quality and non-bank financial inclusion in the digital era. In addition, digital transformation in pawnshop services has important implications for efforts to improve financial inclusion. Digital services enable people, especially micro-business actors and low-income groups, to access financial services more easily without having to visit a physical office. This is in line with the national financial inclusion agenda, which emphasizes the importance of using digital technology to expand access to formal financial services for all layers of society (Financial Services Authority, 2022). Thus, digital pawnshops have the potential to become a strategic instrument in supporting inclusive economic development.

Although digital transformation offers various opportunities, its implementation also faces a number of challenges. Technological infrastructure readiness, the level of public digital literacy, data security, and human resource readiness are crucial factors influencing the success of pawnshop service digitalization. Some studies confirm that without thorough planning and adaptive policy support, digital transformation can actually create new gaps in access to financial services (Hidayat et al., 2024). Therefore, scientific study of digital transformation in pawnshop services is important for comprehensively understanding the dynamics of non-bank financial service innovation in the digital era.

Based on this background, this research aims to comprehensively understand digital transformation in pawnshop services, identify the forms of digital service innovation implemented, and evaluate the implications of these changes for service quality and public financial inclusion in the digital era. This study is important for understanding the dynamics of change in pawnshop services, the driving factors of digital transformation, and the implications for service quality and financial inclusion.

2. Methods

This study uses a qualitative descriptive approach through a literature study to analyze digital transformation in pawnshop services as a form of service innovation in non-bank financial institutions in the digital era. This approach was chosen because the study aims to explore, understand, and synthesize scientific findings from various relevant written sources on the topic of digital transformation, including journal articles, academic books, institutional reports, and policy documents related to service digitalization and service

innovation. A literature review is a general research method used to obtain a theoretical and empirical description of a developing phenomenon, especially when the study is conceptual and phenomenological in nature.

In its implementation, this literature study began with the identification of relevant literature through national and international journal databases and scientific repositories such as Google Scholar, Scopus, and other academic databases. Library sources were selected based on the criteria of topical relevance, source credibility, and recency of publication, with a publication range of the last 5–10 years to ensure that the study reflects the latest developments in the digital transformation of financial services and non-bank institutions. The literature analysis was conducted intensively through in-depth reading of each collected reference, classification of the main themes, and compilation of a descriptive synthesis that compares and integrates findings from various previous studies. The data analysis technique used was descriptive content analysis, in which the information and insights contained in the literature were reduced, analyzed, interpreted, and synthesized into a comprehensive scientific narrative.

Through this approach, this research does not merely record facts or single findings from each source but also builds a conceptual map that describes the relationships among digital transformation, service innovation, service quality, and financial inclusion in the context of digital pawnshops. Such a literature-based approach has been widely used in studies of digital transformation in various fields of public service and finance, because it allows in-depth analysis of theoretical and empirical trends without the limitations of primary data. Thus, a literature-based study method allows researchers to explore the phenomenon of digital transformation holistically and systematically and provides a strong empirical and theoretical foundation for formulating the study's conclusions and recommendations.

3. Results and Discussion

Digital transformation has become an important aspect of optimizing services in various sectors, including the banking sector. According to McKinsey & Company (2020), financial institutions that invest in digital transformation experience significant progress in productivity as well as improvements in customer satisfaction. In addition, Accenture (2019) notes that 75% of financial institutions consider digital transformation very important for growth, because it allows them to improve business processes and interactions with customers. Technology in today's era develops very quickly, which makes it easier for people to meet their information needs through various electronic services. This is caused by the implementation of more appropriate and efficient technology. By utilizing technology, individuals are greatly helped in obtaining the services they require. Likewise, in the financial sector, considerable progress has occurred. Technology and the financial sector are closely related to each other (Ansori, 2019).

Digital changes in banking services include the use of sophisticated technologies such as mobile banking, artificial intelligence, data analytics, and cloud-based systems. These innovations allow financial transactions to take place faster, more safely, and more flexibly, without being bound by time or location. In addition to improving convenience of access for consumers, digitalization also contributes to the expansion of financial inclusion by reaching groups that previously had difficulty obtaining conventional banking services. However, although digitalization offers many advantages, it also brings various challenges, such as cyber security risks, personal data protection, and the readiness of infrastructure and human resources to face continuously developing technological change. Digital transformation has become the main driver of change in the dynamics of the banking industry globally. As technology advances ever faster, banking services that once depended on direct interaction and physical transactions have now shifted to digital systems that are more practical, fast, and efficient. Digitalization in the banking sector covers various technological innovations that make it easier for consumers to access financial services,

such as mobile banking, cloud applications, and the use of artificial intelligence for data analysis.

PT Pegadaian (Persero) is one of the oldest formal non-bank financial institutions owned by the Indonesian state, inherited from the Dutch government. The pawnshop is a formal business entity with legal entity status, established on April 1, 1901, in Sukabumi, West Java. Over its very long history, PT Pegadaian has continuously applied innovation to improve its ability to serve society. Digital transformation in pawnshop services reflects a systematic change from conventional services to digital technology-based services. This concept emphasizes the integration of information technology across the entire pawnshop service value chain, from loan application, collateral assessment, and disbursement of funds to loan settlement. Digital transformation also includes changes in the way pawnshops interact with customers. Interactions that were previously conducted directly at the office can now be conducted through digital applications and online platforms. This creates a more flexible service experience that is responsive to customers' needs.

Table 2. Position giving credit by financial institutions micro and PT Pegadaian (billion IDR) until May 2025

Position giving credit	January	February	March	April	May
Microfinance institution	0	0	0	0	0
PT Pegadaian	86618.69	87260.76	92955.18	96735.03	99841.65
Total	86618.69	87260.76	92955.18	96735.03	99841.65

PT Pegadaian is one of the state-owned enterprises operating in the non-bank financial sector, providing loans that use goods as collateral. Based on the data above, PT Pegadaian is among the non-bank financial service institutions that are the largest credit providers in the microfinance category. One form of PT Pegadaian's digital transformation is the digitalization of services to make access to its services easier. PT Pegadaian has introduced Pegadaian Digital Service (PDS) as a strategic step to increase the efficiency and effectiveness of service to customers, as a means of digital transformation in pawnshop services. Pegadaian Digital Service was launched as an innovation in response to progress in financial technology (fintech), which is increasingly popular among society and financial institutions.

Pegadaian Digital Service (PDS) is an innovation presented by PT Pegadaian to expedite access and speed up service for customers. With PDS, customers can carry out various transactions, such as loan applications, payments, and online gold savings account opening, without needing to visit a branch office. According to Rizki (2019), the implementation of PDS gives customers the opportunity to enjoy more efficient services, thereby reducing the time required to complete transactions.

The Pegadaian Digital Service (PDS) application offers diverse benefits, including the use of centralized databases, improved data security through a unique password system for each employee, and improved service quality. The application also speeds up the delivery of information and reporting from branches. The application includes the terms "open office" and "close office," which are carried out by users acting as branch heads or unit managers. The office-opening process is performed before operational transactions start, while the office-closing process is performed after all operational transactions are completed (Gunawan, 2016). The PDS application is equipped with various features that make it easier for customers to carry out transactions, such as features for paying installments, paying loans, buying gold savings, multipurpose financing, Hajj financing, gold installments, and finding the nearest Pegadaian branch or outlet.

Digital transformation has become the main driving force behind fundamental changes in the service patterns of the financial services industry, including non-bank financial institutions such as pawnshops. The digitalization of services changes not only traditional operational mechanisms but also the way these institutions reach out to and serve customers. The broader concept of digital transformation covers the integration of information technology across all aspects of service, from transaction submission and loan

status monitoring to real-time information delivery through digital platforms (Maharani & Sari, 2025). Research and case studies show that digital transformation in pawnshops is tangibly realized through the development of service applications such as Pegadaian Digital Service (PDS), operated by PT Pegadaian. This application provides various prominent features, such as online pawn applications, digital payments, and the ability to monitor transactions independently without having to be physically present at a branch office. Digitalization enables the development of mobile banking applications and digital platforms that make it easier for customers to carry out transactions, monitor accounts, and access services in real time without limits of time and place (Qothrunnada et al., 2023).

This model reflects how digitalization focuses not only on automating internal processes but also on improving the convenience of access to services for the public. The effectiveness of this digitalization of services can be seen in various empirical studies conducted at pawnshop service units in various regions of Indonesia. For example, research conducted at the Yogyakarta branch of PT Pegadaian shows that the use of Pegadaian Digital Service has increased convenience of access and sped up the transaction process, although customers' level of technological understanding still varies (Simatupang & Dwiridotjahjono, 2025). Similarly, a report on the use of the Pegadaian Digital Service (PDS) application in Ujungbulu Syariah indicates that a number of service quality indicators, such as the fulfillment of data and privacy needs, have been fully met, although challenges in the dimensions of efficiency and responsiveness are still visible (Zumarnis et al., 2023). These findings show that digital service innovation makes a real contribution to improving service quality but still requires continuous improvement efforts in terms of both technology and human resources. One of the most significant strategic impacts of digital transformation is the expansion of financial inclusion. Digital services enable pawnshop institutions to reach segments of society that were previously underserved by formal services. Studies examining digitalization and the development of Islamic pawnshop information systems find that long-distance transactions, simpler application processes, and responsiveness of service are important factors in attracting groups of the public who live outside the reach of physical offices. This expansion of access ultimately contributes to improving national financial inclusion, which is an important agenda in financial services industry policy (Findiani et al., 2025). The involvement of digital technology, especially for communities in remote areas or Micro, Small, and Medium Enterprises (MSME) actors, is an important aspect of narrowing the gap in access to financial services. Although the transformation of pawnshop services produces many benefits, various studies have also noted a number of challenges that require serious attention. Technological infrastructure that has not been evenly distributed, limited digital literacy among some customers, and data security risks are obstacles that affect the optimization of digital services (Findiani et al., 2025).

Service innovation in pawnshops in the digital era is realized through various forms of service digitalization. One of the main forms is the development of mobile applications that allow customers to access pawnshop services anytime and anywhere. These applications provide features for online pawn applications, digital payments, and real-time transaction status monitoring. In addition, innovation is seen in the use of integrated information systems that support operational efficiency. These systems allow customer data and transactions to be managed centrally, thereby increasing the accuracy and transparency of services. The use of data analytics technology also supports decision-making and risk management.

Cyber security and personal data protection are important issues in the digitalization of financial services in general, as shown in the various literature on digital transformation in the financial sector, where institutions that adopt advanced technology must ensure that their systems withstand external threats and comply with applicable data protection standards (Maharani & Sari, 2025). In addition, regulatory challenges have also been recorded as factors influencing the digital transformation of pawnshop services. Adaptive regulation is required to support the sustainable development of digital services, because technological change often moves faster than formal policy adjustment. An in-depth study of e-pawnshops shows that the prospects of digital-based pawn services depend directly on

the ability of regulatory arrangements to accommodate innovation without neglecting consumer protection and financial system stability (Kholifah et al., 2025).

Digital transformation is driving changes in the pawnshop business model from conventional models to a digital and omnichannel service model. Pawnshops no longer depend only on physical offices but also develop integrated digital service channels. These changes allow pawnshops to reach broader market segments and increase their competitiveness in the financial services industry. Digital business models also open up opportunities for collaboration between pawnshops and financial technology companies. This collaboration allows the development of newer, innovative products and services with added value for customers. Digital transformation has a positive impact on the quality of pawnshop services. The digitalization of service processes can increase the speed and efficiency of transactions, reduce operational costs, and increase customer comfort. Digital services also improve transparency and accountability, thereby strengthening public trust in pawnshops. Digital transformation in pawnshop services contributes significantly to improving financial inclusion. Digital services enable pawnshops to reach communities in remote areas and previously marginalized groups who have difficulty accessing formal financial services. Thus, digital pawnshops play an important role as an instrument in supporting inclusive finance.

In the context of internal transformation, pawnshop institutions also face the need to develop human resource capacity. Employees' digital competence needs to be improved so that they can support the integration of digital systems and provide service that is responsive to customers' needs. Human resources who not only understand technology but are also capable of implementing digital-based service strategies play an important role in optimizing the potential of digital services and ensuring a good user experience. This discussion of the evolution of digital services shows that digital transformation is a complex process that includes not only the adoption of technology but also changes in organizational structure, human resources, regulations, and customer experience as a whole. Digitalization has been shown to strengthen the competitiveness of pawnshop institutions in an increasingly competitive non-bank financial services landscape, as well as to expand access to services for a broader and more diverse group of society through service innovation. However, the success of this transformation still depends heavily on the institution's ability to overcome challenges related to infrastructure, digital literacy, data security, and comprehensive policy support.

Digitalization in the financial institution sector has had a major impact on how customers interact with financial institutions. Progress in technology allows banking institutions to improve services through digital innovation that is faster, more efficient, and more accessible. According to Wijaya & Yudiastra (2024), the implementation of digital technology enables financial institutions to improve service quality by offering broader regional access, data-based service adjustment, and faster and safer transactions. With increasing customer comfort with and trust in digital systems in financial institutions, customer retention at banks has also improved. In addition, research by Cintya & Nisa (2024) revealed that digitalization contributes not only to improved operational efficiency but also has a major impact on customer satisfaction, especially in the Islamic banking sector. Digital services that are well designed and optimally integrated can help financial institutions retain existing customers as well as attract new ones. The integration of digital technology into banking systems allows institutions to provide services that are more flexible, responsive, and tailored to the needs of each customer, which ultimately strengthens customer loyalty in the long term.

According to Irsyad et al. (2024), digitalization also contributes to increasing the operational efficiency of financial institutions through lower transaction costs and reduced dependence on face-to-face interaction. With services such as mobile banking and internet banking, customers can carry out various transactions independently without having to visit a branch office, which ultimately reduces the workload of banking institutions. This efficiency gives financial institutions the opportunity to allocate their resources more appropriately to improve the customer experience and develop more innovative services in

accordance with customers' needs (Amin & Arravik, 2025). Although digital transformation offers many benefits, it also brings various challenges. These challenges include technological infrastructure readiness, public digital literacy, data security, and regulatory adaptation. Pawnshops need to develop a comprehensive strategy to overcome these challenges so that digital transformation can run optimally. The success of digital transformation is greatly influenced by the readiness of human resources and organizational governance. The development of employee digital competence, visionary leadership, and good information technology governance are key factors in supporting pawnshop service innovation. Integratively, digital transformation in pawnshop services is a process of sustainable change that involves technological, organizational, and policy aspects. The success of digital transformation is measured not only by technology adoption but also by its impact on service quality and public welfare.

The use of technological innovation in the banking sector has a significant influence on the user experience. Whereas banking transactions in the past could only be conducted on-site, diverse services can now be accessed through mobile devices and online applications. In this way, users can carry out various financial activities, such as money transfers, bill payments, purchases of financial products, and balance checks, more easily and flexibly. In addition, by utilizing data analytics and artificial intelligence, banking institutions are able to offer more personalized services in accordance with each customer's needs. In addition to adding comfort for users, digitalization also brings benefits for banks in terms of operational efficiency, lower transaction costs, and an expanded range of services, particularly to areas that were previously difficult to reach through traditional banking systems.

Although it offers many advantages, the digital shift in the banking industry has also encountered various obstacles. Cyber security issues, personal data protection, and inequality in access to technology are some of the challenges that must be addressed so that digitalization can function optimally. Furthermore, banks need to ensure that the digital systems implemented are not only efficient but also able to maintain customers' trust. In facing these challenges, the banking sector must continually innovate and strengthen its digital infrastructure, as well as ensure transparency in the services provided. Therefore, this article discusses various strategies adopted by banks in applying the digitalization of banking services and the consequences it causes, based on a review of relevant previous studies. Liu & Yi (2020) emphasized that the level of technological understanding among users is an important element for the successful implementation of digital services. Considering this, training for customers who are less familiar with technology should become a main priority. In the use of Pegadaian Digital Service (PDS), a number of frequent technical problems still appear, such as difficulty in the login process and in making payments. These challenges need to be overcome quickly, because at present customer service in the application is connected only to the Pegadaian head office. As a result, customers who face problems often have to go to the nearest outlet to look for a solution.

The impact of digital transformation on pawnshop services is also reflected in changes to business strategy and product innovation. Digital technology opens room for the development of more varied and flexible pawnshop service products. Pawnshops can integrate pawn services with other financial products, such as microfinancing, gold savings, or digital-based investment services. This innovation allows pawnshops to play a role not only as loan providers based on collateral but also as providers of more comprehensive financial solutions. Digital-based product diversification has become an important strategy in facing competition with other financial institutions, including financial technology companies that offer similar services with an aggressive digital approach.

Digital transformation also affects the relationship between pawnshop institutions and customers. Interactions that were previously conventional and limited to office operating hours have now developed into deeper and more sustainable relationship dynamics through digital channels. Customers can communicate with pawnshop institutions through various platforms, such as applications, social media, or online customer service. This interaction pattern pushes a shift in service orientation from merely transactions to a

sustained user experience. Pawnshops are required to understand customers' needs and preferences more deeply and to respond to feedback quickly and precisely. However, behind the various positive impacts mentioned, digital transformation in pawnshop services also presents a number of challenges that need to be managed seriously. One of the main challenges is the digital literacy gap among the public. Not all customers have the same ability or confidence in using digital technology. This condition potentially creates new exclusion for certain groups, especially older people or people with limited education and access to technology. Therefore, digital transformation must be balanced with inclusive education and mentoring strategies so that the benefits of digitalization can be felt evenly.

In addition, data security and privacy protection are crucial challenges in the implementation of digital-based pawnshop services. Increasingly efficient but complex and centralized customer data management in digital systems raises the risk of data leaks, misuse of information, and cyberattacks. Pawnshops must ensure that the systems they use have high security standards and comply with regulations on personal data protection. Data security is not only a technical problem but also closely related to public trust in the digital services provided. Digital transformation also demands human resource readiness within pawnshop institutions. Changes in work systems and processes require new competences, both in mastering technology and in adaptive and innovative ways of thinking and working. Pawnshop employees are required to adapt to digital systems, understand technology-based workflows, and continue to provide humane service even though it is supported by digital systems. Investment in developing human resource capacity is a key factor in the long-term success of digital transformation. Overall, the impact of digital transformation on pawnshop services shows multidimensional change. This transformation not only increases efficiency and service quality but also encourages innovation, expands financial access, and strengthens institutional governance. On the other hand, the challenges that arise require a mature management strategy so that digital transformation does not create new gaps or risks. With an inclusive, sustainable, and community needs-oriented approach, digital transformation in pawnshop services can become an important foundation for strengthening the role of pawnshops as modern, trusted, and relevant non-bank financial institutions in the digital era.

4. Conclusions

Digital transformation in pawnshop services is a strategic response by non-bank financial institutions to the dynamics of information technology development and changes in societal behavior in the digital era. The results of the study show that digitalization has driven the emergence of various pawnshop service innovations, such as the use of digital applications, online transaction systems, and the integration of information technology into operational processes and customer service. These innovations have proven capable of increasing service efficiency, speeding up the transaction process, and providing convenient access for the public without dependence on physical presence at service offices. These findings are in line with the view that digital transformation plays an important role in improving the service quality and competitiveness of non-bank financial institutions amid increasingly intense competition in the financial services industry. In addition to improving service quality, digital transformation in pawnshops also contributes significantly to the expansion of financial inclusion. Digital services enable pawnshops to reach segments of society that were previously underserved, including micro-business actors and communities in areas with limited access to formal financial institutions. With a simpler, more efficient, transparent, and technology-based process, digital pawnshops have the potential to become an important instrument in supporting the national financial inclusion agenda, as emphasized in various studies on non-bank financial service innovation.

However, digital transformation in pawnshop services also faces various challenges that cannot be ignored. Limited digital literacy among some customers, human resource readiness, data security, and inequality in technological infrastructure remain inhibiting factors for the optimization of digital services. A number of studies confirm that the success

of digital transformation is determined not only by the sophistication of technology but also by organizational readiness, adaptive regulation, and the institution's ability to build customers' trust in the digital systems implemented. Therefore, digital transformation must be understood as a continuous process that demands system updates, upgrading of human resource capacity, and consistent policy adaptation. Based on this conclusion, this research suggests that pawnshop institutions continue to develop digital service innovations that are inclusive and oriented toward customers' needs. Strengthening public digital literacy needs to become part of the transformation strategy so that the use of digital services can run optimally and evenly. In addition, increasing the competence of internal human resources through sustained training is an important factor in ensuring the successful implementation of digital technology in services. From a policy perspective, adaptive regulatory support that responds to technological development is required so that pawnshop service innovation can grow without neglecting consumer protection and data security.

Future studies are recommended to combine the literature study approach with empirical research, such as surveys or field case studies, in order to obtain a clearer and more comprehensive picture of the impact of digital transformation on customer satisfaction and pawnshop institutional performance. Thus, studies of digital transformation in pawnshop services are expected to continue to grow and make a real contribution to strengthening the non-bank financial service system in the digital era.

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Author Contribution

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The data availability statement in this journal confirms that the data used in this study was sourced from literature studies including scientific books, national journal articles, institutional reports, and official documents relevant to the topic of digital transformation and pawnbroking services. All data and information analysed has been published openly and is accessible to the public through reliable sources. Thus, the supporting data for this research is available to future researchers who wish to conduct further studies or replicate research on similar topics.

Conflicts of Interest

The authors declare no conflict of interest.

Declaration of Generative AI Use

During the preparation of this work, the author used Grammarly to assist in improving grammar, clarity, and academic tone of the manuscript. After using this tool, the author reviewed and edited the content as needed and took full responsibility for the content of the publication.

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