

# An Analysis of the Effect of Using Online Loans on User Data Privacy

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**Abstract**—Online loans deliberately leak user data. The entry of the digital ecosystem at the beginning of the 20th century initiated major changes in society in the way information is controlled, communicated and expressed. Industrial development in Indonesia is growing very rapidly, especially along with the progress of the digital economy industry. Changes in the digital economy have changed the way we access the economy. The role of digitalization has changed the way we work and the way society collaborates with other parties. This digitalization cannot be separated from the role of financial technology, including online loans. Digitalization can simplify the lending and borrowing process and increase accessibility so that it can be done efficiently. However, we also have to be aware of the risks of online loans, especially in terms of user privacy and data security. According to the Financial Services Authority (OJK) rules, incidents of data privacy violations and online loan data leaks in 2022 will reach 1,200 cases. One case is when a loan provider acts by accessing a user's personal data to intimidate and threaten. They even made the situation even more threatening by coming to the user's location with several hired thugs to intimidate them into physical confrontation and making several unreasonable demands such as increasing loan interest. In some cases, there are fintechs who deliberately sell or trade some of their users' personal data for their own profit. This research aims to provide education about the importance of clear regulations from the central government regarding the Peer-to-Peer lending industry. This research uses a systematic literature review method to be more structured and objective in writing this paper.

**Keywords**—Online loans; data privacy; peer-to-peer lending; OJK; fintechs

## I. INTRODUCTION

Financial Technology, commonly known as FinTech, is acknowledged as a pivotal advancement in the financial sector and is experiencing rapid expansion [1]. Motivated by the erosion of customer trust in conventional financial service providers [2]. The majority of Financial Technology is motivated by several variables that are progressing, such as smartphone, increasingly mature technology, internet, sharing economy / business operations, etc. [2]. Governments still struggle to find a balance between users being able to benefit from online loans, and users' need for regulations that protect them [3]. In addition, many criminal cases are related to improper collection and minimal user awareness of the privacy of their data [4][5][6]. The feasibility of the P2P Lending platform which needs to be the main concern [7].

The issue of data privacy is a big problem because data privacy is often the main goal of criminals operating on the internet [8]. This proves that there is vulnerability in this sector, it is proven that there are online loans that trade user data to seek profit [9]. They even act illegally by accessing users' sensitive data to intimidate them, as well as calling thugs to threaten them to pay their bills [10]. Because the impact of this data leak is very large, such as psychological trauma and even suicide for individuals affected [11]. It doesn't stop there, financial losses and appearance damage resulting from data leaks vary greatly [12]. It appears that there is a need to form an organization that can firmly resolve this problem. On the other hand, creating an organization can be disastrous if not done properly. Protection of users' personal data is a form of regulation, as well as a way to protect user data from irresponsible people [13].

Therefore, developing a user data protection system is an important thing to pay attention to [7]. However, this good step cannot happen alone, there need to be other variables such as increasing literacy about privacy, this is aimed at ensuring that people have good knowledge to avoid the potential leak of their sensitive personal data [13]. Other variables such as the creation of an institution to monitor user data transfer traffic, the institution or organization regulates all security of user privacy data [14]. Companies can implement basic security measures such as secure data publication, encryption, and enforcement of access rights to sensitive data [15]. The firewall is a bodyguard whose job is to sort or limit access to the internal network, while the intrusion detection system monitors computer and network activity to look for unauthorized intrusions. In addition, antivirus can contribute to its protection against internal attacks. Intrusion detection systems (IDS) can also assist so that IDS can help detect malicious activities [16].

Because, protecting user privacy is key to building trust between users and service providers, in preventing potential risks of leakage and misuse of user information [17]. Then research questions are created to provide clear guidelines and clear objectives. Is it true that there are no mature regulations regarding data protection in the fintech industry, especially online loans? Next, this research focuses on online loans, data privacy, and trust of online loan users.

According to OJK, incidents of data privacy violations and online loan data leaks in 2022 will reach up to 1,200 cases. Although online loans can provide fast access to funds, we also need to consider what losses we will experience. This journal aims to provide more in-depth education regarding these

problems, it is hoped that users can take better action in managing their financial problems.

## II. THEORETICAL FOUNDATIONS

### A. Data Privacy in Online Loans

Privacy is an individual's right to control information about themselves. Russell Brown interprets the right to privacy as a right that arises from the right to private ownership of a specific asset [18]. The United States Supreme Court decision established this definition as "The Right of Bodily Integrity". The Supreme Court explained that the right to privacy is a basic individual right that cannot be interfered with by the government in decisions relating to personal welfare [19]. Data is the core material needed to produce information or information and must be processed first. Information resulting from data processing will be useful or at least will give someone an idea of a condition or situation [20]. Data privacy is a person's right to control their personal information. Referring to the concept of privacy, one of the concepts of privacy is the privacy of data about a person, namely data privacy can bind information about a person that is collected [21].

### B. Systematic Literature Review

Systematic literature reviews represent a systematic way to identify relevant studies, to summarize the results, to critically analyze the methods of the studies and, finally, to comment and recommend improvements for future research [26]. Systematic Literature Review/SLR is a way to identify, evaluate, and all research relevant to a topic area of interest [27]. The aim is to systematically draw conclusions that are relevant to the specified research topic [27]. SLR also aims to provide objective research on certain issues. SLR has been published in many different places, including FinTech [28].

### C. Online Loans

Financial Technology, or better known as Fintech, is a term used to describe technological innovation in the financial services industry. Financial Technology is a field that crosses various scientific disciplines such as Finance, Technology Management, and Innovation. In essence, it involves creative thinking that improves financial services processes by using technology solutions that match business needs. Financial technology can also pave the way for new business models or even the establishment of new businesses [22]. Financial technology, according to the National Digital Research Center (NDRC), refers to innovation in the financial services sector that utilizes modern technology [23], which combines technological advances with financial activities, especially in banking institutions. The aim is to provide financial services that are more practical, safe and modern. One example is online loans, which are a form of digital-based financial service. Online loans refer to borrowing money obtained entirely through an online platform, without requiring physical interaction with a bank or financial institution. Borrowers can submit applications, receive approval decisions, and manage loan payments digitally. Online loans are an important innovation in financing that is carried out online via the Internet, without involving traditional financial institutions or collateral [15]. Another opinion, online loans are financial services in the form of loans and which use information technology and internet networks, where agreements are made

without direct meetings between the lender and the loan recipient [25].

### D. VOSviewer

VOSviewer is a user-friendly software tool for building and visualizing bibliometric maps. They go on to say that VOSviewer can be used to analyze the structure and dynamics of scientific fields, identify emerging research trends, and track the development of an individual's research career. VOSviewer is a free open source software tool that can be downloaded from the VOSviewer website. It is a popular tool among researchers in a variety of fields, including the social sciences, humanities, and natural sciences [29].

### E. Financial Services Authority (OJK)

OJK, or Financial Services Authority, is a supervisory institution for the financial services industry in Indonesia, which is tasked with regulating, supervising, and protecting the interests of consumers and the public. Its function is to organize an integrated regulatory and supervisory system for all activities in the financial services sector, including the financial technology industry such as peer-to-peer lending.

## III. METHODOLOGY

Starting with the problem of searching / urgency on the topic you want to raise, looking for a solution by reading several related journals, determining the scope / scope you want to raise, determining the research question with the aim, then starting with determining the research methodology / contents of the SLR and the process of selecting the papers used, and using VOSviewer to find out how big the relationship is between one another, and continued with data collection and data analysis, and provides conclusions by providing an explanation regarding the results that have been found. The writing framework is based on the use of a Systematic Literature Review format which uses six steps [27] [30] [31]:

- Scope
- Research Questions
- Search Process
- Inclusion and Exclusion Criteria
- Data Extraction
- Analysis of the results

### A. Search Process

The process of searching for related articles is with the help of Publish or Perish 8 software, Google Scholar, which finds several relevant research papers taken from IEEEExplore, Science Direct, Wiley, and several journals that have or have not been Scopus. This is done by using selected search keywords with objective keywords in order to find relevant papers [32].

The search was conducted using a number of strategically selected keywords, including "online loans" and "data privacy". Additionally, various keyword combinations have been carefully crafted to improve search accuracy:

- "Online Loan" AND "Data Privacy"

- "Peer-to-Peer Lending" AND "Online Loan"
- "Online Loan" AND "Online Lending"

Careful selection of keywords. Carrying out a search is expected to provide results that have involvement with related research topics. This is expected to be able to find literature circulating on the internet as a whole.

**B. Inclusion and Exclusion Criteria**

In the inclusion criteria section, the author tries to read titles and abstracts that have the same topic, and the exclusion criteria are carried out by separating papers whose titles and abstracts do not match the topic. Then read in full if there is a paper that feels like the title and abstract, and keywords, variables, indicators are appropriate and will be included. The paper used has a year of publication between 2019 and 2023.

**C. Data Extraction**

Multiple search terms were used to find relevant papers, resulting in a pool of 120 candidates for potential inclusion in this study. After a careful selection process, a total of 40 papers were finally selected, as shown in Table I.

TABLE I. ACQUIRED RESEARCH PAPERS

No	Compilation and evaluation of acquired research papers.			
	Source	Studies Found	Candidate Studies	Selected Studies
1	IEEE	117	45	9
2	SCIENCEDIRECT	24	8	2
3	RESEARCH GATE	7	4	3
4	SPRINGER	4	2	1
5	DL.ACM	4	1	1
6	SSRN	3	1	1
7	EMERALD	3	1	0
8	ATLANTIS PRESS	1	1	1
9	SAGEPUB	1	0	0
10	Others	117	57	22
11	Total	281	120	40

By comparing the information contained in various articles and websites, it can be concluded that the characteristics of online loans have experienced a progressive evolution from year to year. The inherent pros and cons of this type of loan can be identified through in-depth documented developments over time.

**D. Previous Research**

Research conduct by Ryan Randy Suryono, Betty Purwandari, Indra Budi in 2019 discuss about insufficient regulations regarding finance technology industry and online loans using a systematic literature review method [7]. Another research conduct by Reni Sulastri and Marijn Janssen discussing about the fundamental elements of Peer-to-peer lending system using systematic literature review. They found that online loans or peer to peer lending faced with challenges attached to each of element in a constructed way [33].

**IV. RESULT AND DISCUSSION**

The focus of this research covers the demographics of Generation X (1965-1976) to Generation Z (1995-2010) living in Indonesia, especially Indonesian citizens who have adequate access or tools to use online loans. Based on data sourced from the Financial Services Authority (OJK) from Fig. 1, the use of online loan software in Indonesia has exceeded 178 million people, and the distribution of fintech loading funds reached 225.55 trillion based on facts taken from the Financial Services Authority (OJK) in Indonesia in 2022, the spread of online loan use in Indonesia shows that there are irregularities. This phenomenon can be seen from the concentration of Online Loan users which are still concentrated in three large cities on the island of Java.

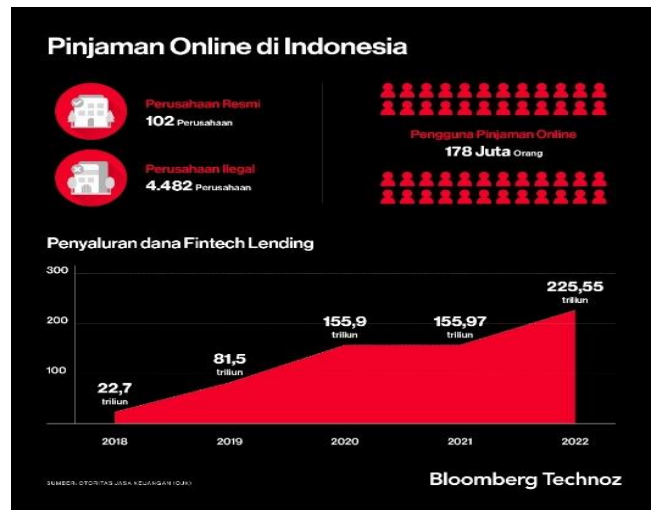


Fig. 1. The use of peer-to-peer lending.



Fig. 2. Provinces with the highest use of peer-to-peer lending.

Based on information published by the Financial Services Authority (OJK) in Indonesia, the largest users of online loans are spread across West Java, followed by Jakarta, East Java, Banten, Central Java, North Sumatra, South Sulawesi, South Sumatra, Bali, Lampung (Fig. 2.). It can be concluded that the use of online loans outside Java is very low when compared to Java province. It turns out that there is a type of active online loan user group, they can spend relatively large loans, namely

five million rupiah, with a repayment period of 12 months. The Indonesian Financial Services Authority (OJK) issued an appeal in the form of a warning to the Indonesian public to be careful when making loans from online loans. The authority urges online loan users to be educated and aware that the online loan application they will use is registered and supervised by the OJK. It is important for online loan users to have insight into the lending and borrowing conditions imposed by the online loan application.

The use of online loans must be used very wisely, their use must not be used just to try out of curiosity, it is best to only be used when the need is urgent, and must be thought about carefully, and you must avoid using it just for the sake of cover other debts, because of the high interest, it will activate a domino effect. From official data released by the Indonesian Financial Services Authority (OJK), incidents of data privacy violations and online loan data leaks of up to 1,200 user data privacy violations and data leaks in 2022, it is concluded that there will be an increase of up to 200 percent compared to 2021. Many factors influence leaked data, such as:

- Data leakage by online lenders.
- Insufficient security in the information systems of online loan providers.
- Human errors, such as negligence in managing data.

How can online loans intentionally leak user data? They start from arrears in payments by borrowers, if the arrears continue to be unpaid, they do not hesitate to act legally or illegally by accessing users' personal data to intimidate, threaten and contact third parties who have or have nothing to do with the loan [10]. They even sometimes collaborate with some authorized individuals to carry out threatening actions. The impact of violating user data privacy and data leaks will have a negative impact on users, such as:

- Loss of data privacy and extortion.
- Sexual harassment.
- Damage to reputation.
- Negative reactions of users and non-users regarding online loans.

The online lending / peer-to-peer (P2P) lending industry in Indonesia has grown very rapidly in recent years, providing a very easy way to borrow just via cellphone and internet from home. It doesn't stop there, the negative side also appears simultaneously, such as the regulations governing this industry are still not mature enough [3] [7] [13]. Until now, there are no mature regulations that can truly solve the problems that exist in the context of regulations that regulate data protection, privacy, and security in the online lending ecosystem.

This inconsistency in privacy and security data is a major highlight in the P2P lending ecosystem. If there are no clear regulations, the risk of misuse of personal data regarding identity

and sensitive information will continue to run rampant. The lack of ways to use and store personal data from central regulators can increase the risk of violating user data privacy.

It doesn't stop there, the lack of clarity in this regulation can have long-term consequences, such as the development of the P2P lending industry. Without clarity on the rules, investors and borrowers may be hesitant to try to enter the online lending ecosystem and hinder growth in this ecosystem.

Seeing this problem, the regulator in this means that the central government needs to move quickly to find out the existing problems and provide firm and measurable regulations in order to protect users and potential users of online loans who act outside their control. Steps such as standardization of online loans that can operate in Indonesia need to be implemented, and emphasize the importance of privacy and security. A strong regulatory enforcement mechanism needs to be the main highlight for the relevant regulators to be a shield for users and potential users.

The relevant authority (OJK) provides ways to avoid violations of user data privacy and data leaks, such as:

- Reduce the use of online loans if they are not really needed.
- Issuing regulations governing the security of online loan data.
- Increase knowledge of online loans among the public.

Then, this method is not necessarily successful in preventing online loan data breaches. So, online loan users must be careful when using the application, always making sure that the online loan they use has been registered and monitored by the relevant authority (OJK). Here's how to prevent violations of user data privacy in irresponsible online loan applications:

- Use online loan services registered and supervised by OJK.
- Read and understand the terms and conditions of the loan carefully before applying.
- Does not give online loan parties access to our sensitive data.
- Use strong and unique passwords for your online loan accounts.
- Enable two-factor authentication (2FA) for your online loan accounts.
- Regularly update your online loan application.

#### A. Analysis of the Results

The selected journals for analysis encompassed articles specifically addressing the theme of Online Loan Data Privacy, along with additional publications chosen for inclusion. The utilization of VOSviewer facilitated the identification of predominant topics within the selected articles. The principal research themes were discerned through an examination of keyword co-occurrence patterns.

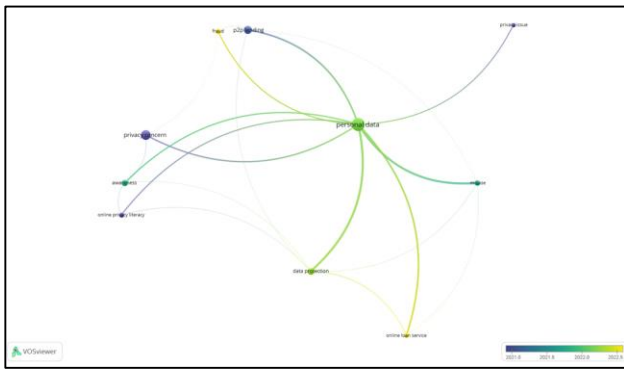


Fig. 3. Mapping of peer-to-peer lending.

Using VOSviewer, Fig. 3 illustrates the visualization of keywords commonly linked with this topic. It shows journal keyword lists typically associated with the topic of peer-to-peer lending. Fig. 3 indicates that there is a close connection between peer-to-peer lending, data protection, personal data, fraud, misuse and privacy concern. The keyword Online loan service and fraud increase in the recent year. Online loan service needs the user to fill in their personal data and that personal data can be misused to do fraud. Therefore, users need to be aware of the importance of their personal data so that it will decrease the likeliness of misuse and fraud. It can be done with online privacy literacy.

## V. CONCLUSION AND RECOMMENDATION

### A. Conclusion

In conclusion, the era of digitalization has made a significant evolution in many sectors of human life, starting from communication, the way we work, as well as aspects of society. The presence of financial technology, in the context of online loans, has had a huge impact on many people, especially in Indonesia. However, despite its enormous impact, it has enormous risks that cannot be ruled out, especially in the context of violating user data privacy. The large number of online loan applications in circulation has resulted in anxiety about protecting user data privacy, with the possibility of breaches of user data privacy which will result in risks such as reputation damage and various frauds.

It can be seen that data privacy is the right of all people regardless of economic status in this computerized era, but on the other hand, it can be seen that in the field this is often a trivial matter for some groups, data privacy violations have become a mainstream thing. The presence of relevant officials / OJK who should be the police in the digital era in the context of financial technology, but is still very lacking, data privacy violations remain a big problem for online loan users, therefore, it is highly recommended not to use online loans used as an initial solution, but rather becomes the last solution in one of everyone's financial solutions.

Overall, the peer to peer (P2P) lending industry in Indonesia faces serious challenges in terms of data privacy and security. A lack of clarity in regulations about how data is collected, used and stored has raised concerns about the risk of misuse and privacy violations. Without a clear regulatory structure, this could become an obstacle to the development of the P2P lending

industry and reduce the trust of users, potential users and investors in this ecosystem. Therefore, there is a need for immediate action from the central government to develop appropriate regulations to protect users in terms of data privacy and security from peer to peer (P2P) lending in Indonesia. So as to create an environment that is safe and has integrity that can be trusted for all parties involved. Related work stated that it is recommended for the government to regulate the security of user's personal data in a specific regulation regarding the protection of personal data in online loans [24].

From this it can be concluded that education regarding potential violations of online loan data privacy needs to be promoted by all parties, especially the relevant authorities / OJK, because of the large risks that lie ahead. Everyone needs to be aware of the risk of data privacy violations, where if users experience delays in paying, the risk of user data being leaked will be at stake. By making this issue an important topic, policy makers can be more assertive towards online loan providers.

Thus, the systematic literature review in this paper can provide an overview of user data privacy in online loan applications circulating in Indonesia. By discussing the issues discussed in this paper, and providing suggestions that can be used to reduce risks, this paper aims to provide the wider community with information about the risks that can be incurred if someone plans to use an online loan, and ultimately will restore the basic rights of online loan user's data privacy.

### B. Recommendation

Previous research with related topic has a discussion of financial technology regarding their fundamental elements and their challenges that are attach to it. For further research, it is recommended to conduct the research with the topic that's need more attention such as a development of an effective regulation regarding the protection of user's data privacy to ensure a better protection. The key point is to create or improve regulations that can address new challenges in data privacy and can keep up with the current technology development.

Other than that, future research can also focus on developing security system that can immediately anticipate and respond to threat regarding user's personal data. By improving regulation and security systems, it is hoped for a safer and more reliable digital environment will be develop for all users.

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