Legal Analysis of User Personal Data Leak Cases at Tokopedia

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Abstract
Tokopedia is one of the biggest marketplaces. However, in 2020 Tokopedia experienced a personal data leakage problem, around 91 million Tokopedia user account data was hacked and sold on the dark web at a price of 5000 dollars. Regarding this incident, the Indonesian Consumer Community filed a lawsuit against PT Tokopedia and the Ministry of Communication and Informatics at the Central Jakarta District Court. Unfortunately, at that time Indonesia did not have a dispute resolution mechanism for cases like that and did not yet have a Personal Data Protection Act so it was very difficult to carry out the trial process. Therefore, the problem in this paper is: How is the Legal Analysis of Leakage Cases of Users’ Personal Data on Tokopedia? This paper is normative research that uses primary and secondary legal sources. Data collection was carried out through literature study and all data collected was then analyzed qualitatively. In the end, the Judge through Interlocutory Decision has decided to reject the lawsuit and declare that the District Court has no authority to try the case.

Keywords: Personal Data Leakage, Personal Data Protection, Tokopedia

INTRODUCTION
Information can be categorized as a commodity that never has obsolete value for those who really need it and is a commodity that is quite expensive because not all parties can process it into raw data that can be processed by those who need it. In addition, along with the growing awareness of information, the spirit of communication globalization will naturally grow which is highly correlated with a free and open trade system so that economic actors seek to develop organizations that are increasingly broad and worldwide in order to excel in global competition and gain huge profits.¹

One example of advances in information and communication technology that has been highlighted in recent years is the trading mechanism that utilizes marketplace information technology. Marketplace is an online forum or platform that provides a means to bring together many sellers and buyers to transact with each other. Conceptually, marketplaces can be said to be similar to virtual traditional markets.² Some examples of marketplaces in Indonesia are Tokopedia, Bukalapak, Blibli, and Shopee.

PT. Tokopedia (Tokopedia) currently has the position as the marketplace with the largest value in Indonesia with a total transaction of USD 5.9 billion in 2018. This value is projected

to increase to USD 37.45 billion in 2023.\textsuperscript{3} Tokopedia is an Indonesian technology-based company founded by William Tanuwijaya and Leontinus Alpha Edison on February 6, 2009 under the name PT. Tokopedia.\textsuperscript{4} As a startup company, Tokopedia's initial funding was obtained from shares of PT. Indonusa Dwitama, East Ventures, Cyber Agent Ventures, Netprice, and Soft Bank Ventures.\textsuperscript{5} Then in 2018 Tokopedia received funding of up to 1.1 billion dollars from the Alibaba Group and Softbank Vision Fund.\textsuperscript{6}

The high growth and transaction value of Tokopedia compared to various other marketplaces clearly raises certain legal issues that must be considered, one of which is regarding the security of personal data protection of its users. According to Jerry Kang, personal data in principle describes information that is closely related to individuals who will distinguish characteristics from one another. Basically, the form of protection for personal data is divided into two categories: First, the form of data protection is in the form of securing the physical data, both visible data and invisible data. Second, the form of data protection is the formation of regulations governing the use of data by parties who do not have authority, misuse of data for certain purposes, and destruction of the data itself.\textsuperscript{7}

Data is often defined as information that is processed through equipment that functions automatically in response to instructions given for its purpose and stored with the intention of being processed. Data also includes information that is a defined part of health, social work, educational records, or that is kept as part of a relevant and adequate repository system.\textsuperscript{8} In carrying out electronic transactions, the marketplace platform collects personal data of its users such as names, dates of birth, personal contracts, e-mail addresses, etc. In addition, the marketplace platform also records traces of user activity such as shopping locations, interest in an item, shopping preferences, communication data to residential address.\textsuperscript{9} Obviously, this activity is carried out because basically personal data is an asset or commodity that has high economic value.\textsuperscript{10}

The potential use of personal data collected and managed by marketplaces is often used for ad targeting purposes in the form of activities carried out by industry and businesses to market a product or service by targeting potential consumers.\textsuperscript{11} However, today's massive technological development is like a double-edged sword, on the one hand it provides convenience and contributes to improving human welfare, progress and civilization, but on the other hand it is a very effective means of committing acts against the law.\textsuperscript{12}

\textsuperscript{5} Ibid.
\textsuperscript{6} Profil Tokopedia, Terdapat dalam https://www.tokopedia.com/about/our-story/, Diakses pada 05 Januari 2023.
\textsuperscript{10} Edmon Makarim, Komplisasi Hukum Telematika, Raja Grafindo Perkasa, Jakarta, 2003, pg. 3.
\textsuperscript{11} Masithoh Indriyani, dkk., Loc.Cit.
\textsuperscript{12} Ahmad M. Ramli, Cyber Law dan HAKI dalam Sistem Hukum Indonesia, Refika Aditama, Bandung, 2004, pg. 1.
One of the acts against the law by means of the internet is the leakage of personal data. The Indonesian public certainly still remembers when in 2020 there was a case of leakage of personal data on one of the marketplaces in Indonesia, namely Tokopedia. About 91 million Tokopedia user account data was hacked and sold on the dark web at a price of 5000 dollars. This case began when Whysodang’s hacking activities occurred on March 20 2020 and then leaked the hack on May 2 2020 through the Raif Forum. On the same day, the @underthebreach account, which claims to be a monitoring and prevention service for personal data, provided information about hacking at Tokopedia. In his tweet, @underthebreach stated that there are around 15 million accounts which contain a user ID, email, full name, date of birth, gender, cellphone number, and hashed or encrypted passwords.\(^{13}\)

On May 3, 2020, Whysodang publicly announced that he had managed to sell 91 million personal data of Tokopedia user accounts that he had hacked on a darkweb forum called EmpireMarket. The response from Tokopedia through the VP of Corporate Communications, Nuraini Razak, acknowledged that there was a leak of personal data on the Tokopedia account. However, his party ensures that important personal data such as passwords and user payment data through the debit card, credit card, account and OVO systems remain safe. CEO of Tokopedia, William Tanuwijaya, has also sent an email blast to the owner of the Tokopedia account informing him that personal data theft has occurred by a third party. Apart from that, William also explained that Tokopedia had carried out an investigation process to ensure accounts were kept safe and transactions were maintained and Tokopedia would work together to carry out the investigation process.\(^{14}\)

Basically, through the Tokopedia data leak case, there is the potential for personal data to be misused. According to the Lembaga Riset Siber Indonesia Pratama Persadha, this personal data can be used to commit fraud and take over accounts on the internet, such as sending phishing links or other social engineering efforts. Meanwhile, passwords that are still hashed can possibly be decrypted by hackers because the password data is widely distributed on dark web sites. The goal of hackers to share encrypted passwords is to make a kind of challenge or contest to anyone who can successfully decrypt the password. Obviously, this is something that is very dangerous for marketplace users if the password data is successfully broken into.\(^{15}\) The personal data leak case at Tokopedia has also been brought to justice. Through the Komunitas Konsumen Indonesia (KKI), David Tobing as chairman then filed a lawsuit against the Menkominfo and PT. Tokopedia at the Central Jakarta District Court with Number: 235/PDT.G/2020/PN/JKT.PST.\(^{16}\)

Based on the background above, the authors are interested in conducting an analysis of legal cases regarding the leakage of users' personal data that occurred at Tokopedia. Furthermore, based on the brief description of the background above, the formulation of the problem in this paper is: What is the Legal Analysis of User Personal Data Leakage Cases on Tokopedia? While the purpose of this writing is to carry out a legal analysis of cases of personal data leakage of Tokopedia users as an effort to examine various principles, theories, related regulations, and dispute resolution. Especially in today's digital era, the existence of personal


\(^{14}\) Ibid.


data protection is very important as a means of continuing business activities. This of course must be based on a sense of consumer trust in the security and protection of personal data.

METHODOLOGY

Research Type

This type of research is normative legal research which examines law from an internal perspective with the object of research being legal norms. On the other hand, normative legal research serves to provide juridical arguments when there is a vacuum, ambiguity, and conflict of norms.

Sources of Legal Materials

The data used in this study is secondary data, namely data obtained from:  

1. Primary Legal Materials, covering a series of laws and regulations and court decisions.  
2. Secondary Legal Materials, in the form of literature related to the issues studied, can come from books, opinions of legal experts from the point of view of literature, journals, and internet articles.

Data Collection Technique

Data collection is done through literature study. The purpose and use of literature study are basically to show the way of solving research problems. Literature study is useful as a theoretical basis for research problems so that the research carried out is not a trial-and-error activity.

Data Analysis

All data that was successfully collected was then inventoried, classified, and analyzed using qualitative analysis supported by deductive logic as follows:  

1. Determining the concepts contained in legal materials (conceptualization) which is done by providing an interpretation of the legal materials.  
2. Grouping similar or related concepts or regulations.  
3. Determine the relationship between the various categories or regulations which are then processed.  
4. Explain and describe the relationship between various laws and regulations, then analyzed descriptively qualitatively, so as to reveal the expected results as a conclusion to the problem.

RESULT AND DISCUSSION

Today, the Indonesian public is no stranger to the term Information and Communication Technology (ICT). It's clear because the development and use of ICT has become part of social life in society. Initially the term ICT was used for data processing or what is commonly known as management information systems (Management Information System-MIS). The term ICT can be understood as the whole of equipment, processes, procedures and systems used to provide and support information systems within an organization that are intended for customers and producers. In the era of ICT which is developing so rapidly today, the existence of information has meaning and an important role for all lines of human life and is a necessity of

life for all people, both individually and in organizations. So, it can be said that information functions like blood flow in the human body (*information is the lifeblood that sustains political social and business decision*).²⁰

It is obvious that the era of ICT is felt throughout the world, especially in Indonesia. With the increasingly massive arrival of ICT in all lines of human life, it has also increased Indonesian society in a sustainable manner to continue using and utilizing ICT as a form of national development progress and answering global challenges. The implications of the rapid advancement of ICT have caused changes in behavior and mindset in people's lives which are marked by the presence of unlimited connections, meaning that everyone can access whatever they need through a network called the internet.²¹

Satjipto Rahardjo stated that one of the developments in society that needs penetration and discourse from a legal standpoint is the field of modern technology and medicine. It is clear that technological change is then manifested through a change in the pattern of human behavior in the ways of the arts, industrial sciences, transportation, and the extraction of minerals.²² The form of the various technological changes that are happening at this time is the way and patterns of humans in carrying out their activities and economic activities by utilizing the internet network. With the massive activity via the internet, it also invites the activity of collecting and processing very large amounts of personal data by technology companies. Based on his opinion, it is necessary to make legal adjustments through law enforcement and enforce them in accordance with the fundamental concept of the right to privacy in the internet realm.

Regarding this case, basically the data leak experienced by Tokopedia falls within the scope of Electronic System Operations. This has been explained through Article 3 of Government Regulation Number 71 of 2019 concerning the Implementation of Electronic Systems and Transactions which explains that it has the responsibility to implement electronic systems reliably and safely and is responsible for the proper operation of electronic systems, then PSE is also responsible law on the operation of the electronic system.

**Act against the law by Tokopedia**

If analyzed against the elements of Unlawful Acts, the following results can be found:²³

1. **Elements of Action**
   In this case the legal event that occurred was part of Tokopedia's negligence in maintaining the security and confidentiality of users' personal data.

2. **Elements of Unlawful Acts**
   In this case when personal data leakage occurs, it is a violation of Tokopedia's obligations regarding the principles of personal data protection, especially in terms of maintaining the security and confidentiality of data owners as regulated in:
   a. Article 16 paragraph (1) letter b, the ITE Law, the PSE is required to operate an Electronic System that meets several minimum requirements, one of which is to protect the confidentiality of Electronic System Information, part of which is the user's personal data;
   b. Article 59 paragraph (2) letter g, PP PMSE which explains the obligation to have an appropriate security system and responsibility for unexpected losses in any unlawful processing of personal data;

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c. Article 14 paragraph (1) letter e, PP PTSE explains that PSE is obligated to protect
the security of personal data from loss, misuse of access and unauthorized
disclosure, as well as alteration or destruction of personal data;

d. Article 26 of the Minister of Communication and Informatics 20 of 2016 concerning
the Rights of Personal Data Owners, one of which explains that the rights of data
owners to the confidentiality of their personal data.

3. Element of Error
The element of error describes negligence. Unlawful acts on the grounds of negligence
are contained in Article 1366 of the Civil Code. A data act is considered negligence if
it fulfills the following elements:

a. There is an act or neglect of something that should be done.

b. The existence of a prudential obligation.

c. Failure to carry out the obligation of prudence.

d. There is a loss for others.

e. There is a causal relationship between the act and the losses incurred.

Based on the analysis above, Tokopedia does not carry out the obligations contained in
the precautionary principle in protecting users' personal data. The precautionary principle is one
of the important principles in the use of ICT. By prioritizing the precautionary principle, it
should pay attention to all potentials that can bring harm to both Tokopedia and its users in the
use of Electronic Information and Transactions. It is important for Tokopedia to maintain
personal data in accordance with statutory provisions, especially as a large company in
Indonesia.

Decision Number 235/PDT.G/2020/PN.JKT.PST
The chairman of KKI, David Tobing, at the time of filing the lawsuit was based on the weak
protection of personal data by Tokopedia. According to him, this case is a bad incident and at
the same time proves that Tokopedia is not serious about the security and protection of its users'
personal data. He also regretted Tokopedia for leading opinion as if this leak was a normal
thing, even though there was a big risk from the data leak. Obviously, this proves that the
guidance and supervision of online platforms in Indonesia is not optimal, especially at that time
Indonesia did not yet have statutory provisions governing the protection of personal data.24

In this case, KKI as the plaintiff stated that Tokopedia had been proven to have taken
legal action and caused immaterial losses to its users. In its petitum, KKI requested that the
Panel of Judges render a provisional decision and principal case decision and ordered Kominfo
as Defendant I and/or Tokopedia as Defendant II to temporarily suspend the implementation
of the Tokopedia electronic system while the case examination is taking place in Court until a
court decision has permanent legal force.25

The losses suffered by users due to the leakage of their personal data due to unlawful acts
committed by Tokopedia can be based on Article 1365 of the Civil Code which states "Any act
that violates the law and causes harm to others requires the person who caused the loss because
of his mistake to compensate for the loss." Furthermore, for an unlawful act, accountability can
be demanded if it fulfills the following elements:26

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24 Fitr Niawia Herian, “Kasus Tokopedia Bukti Pembinaan dan Pengawasan Platform di Indonesia Tak
Maksimal”, Terdapat dalam https://www.hukumonline.com/berita/a/kasus-tokopedia-bukti-pembinaan-dan-

25 Fitr Niawia Herian, “Kasus Bocornya Data Pribadi Konsumen Tokopedia Berujung ke Meja Hijau”,
Terdapat dalam https://www.hukumonline.com/berita/a/kasus-bocornya-data-pribadi-konsumen-tokopedia-

1. There is an element of action in the form of an act in the sense of being active (doing something), and an act in the sense of being passive (not doing something) even though the legal subject has obligations born of law.

2. There is an element against the law. In fact, the notion of "unlawful" is interpreted narrowly, namely only actions that violate a provision in the law. However, since the decision issued by the Hoge Raad of the Netherlands in the Lindenbaum case against Cohen, there has been an expansion of the meaning of 'unlawful', that is, in addition to acts that violate the law, the meaning of acts against the law also includes acts or omissions which violate propriety, prudence, and decency in relations between fellow citizens and other people.27

3. An act must be carried out accompanied by an error (schuld). The element of error consists of intentional or negligent, and there is no reason to justify or forgive as occurs in a state of overmacht, self-defense, legal competence, and others. An act can be said to be a mistake if it fulfills the conditions, namely the existence of awareness (state of mind) to do the action, the consequences of the action, and the awareness to do it, not only causing consequences but also believing that the action will certainly cause certain consequences.28

4. This action is accompanied by a loss (schade). Losses in this case are divided into two, namely material losses and immaterial losses. Material losses usually focus on assets such as debt payments with the agreed nominal, replacement of damaged goods, and buying and selling relationships. While immaterial losses focus on values other than money, such as decreased self-esteem due to humiliation, feelings of worry, disturbed sense of security and tranquility due to violations of privacy can also be categorized as part of immaterial losses.29

Even in its development, Munir Fuady explained that losses can also include losses that occur in the future (future lost). This is different from default where there is agreement from the victim to then bear all the consequences or later in PMH, the victim never feels intentionally to accept/give approval for PMH carried out by someone else. Compensation for losses in the future is carried out through awareness and can be reasonably and realistically imagined that the event causing the loss will occur, not just imagining or making up.30

Even though at the time of filing the lawsuit there were no specific regulations related to personal data protection, there were several regulations that contained personal data protection content and were sectoral in nature. Some of these regulations include Law Number 19 of 2016 concerning Information and Electronic Transactions; Government Regulation Number 80 of 2019 concerning Implementation of Electronic Systems and Transactions; Regulation of the Minister of Communication and Information of the Republic of Indonesia Number 20 of 2016 concerning Protection of Personal Data in Electronic Systems; and Circular of the Financial Services Authority Number 14/SEOJK.07/2014 concerning Confidentiality and Security of Data and/or Consumer Personal Information.

Moreover, Tokopedia is given responsibility as a business actor which is called responsibility based on negligence. This responsibility means the principle of responsibility that...

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29 Ibid.
30 Ibid.
is subjective, meaning that responsibility is born depending on the business actor concerned.\textsuperscript{31} This principle can then be found in the formulation of negligence theory which states “\textit{the failure to exercise the standard of care that reasonably prudent person would have exercised in a similar situation}.”\textsuperscript{32}

After the lawsuit was submitted to the Central Jakarta District Court on October 21, 2020 through an Interlocutory Decision, the Judge decided to reject the lawsuit because the court considered that he did not have the authority to adjudicate the case. In the interlocutory decision, the Judge decided on three matters, such as:

1. Declared that the exceptions of the Defendants were accepted and granted.
2. Declare that the District Court has no authority to try the “\textit{a quo}” case.
3. Ordering the Plaintiff to pay court costs in the amount of Rp 516,000.\textsuperscript{33}

Against this, the author has an opinion if the lawsuit filed by KKI is appropriate. This is based on the fact that consumers have the right to file a lawsuit and see what actually happened so that Tokopedia experienced such a large data leak that harmed its users. However, at that time, in 2020 Indonesia did not yet have specific regulations governing the protection of personal data in a comprehensive manner, so it was very difficult for consumers to demand that Tokopedia be held accountable for incidents of personal data leakage that occurred.

To answer various challenges to the development of ICT, including preventing unlawful acts in the cyber realm, Indonesia has actually passed Law Number 27 of 2022 concerning Personal Data Protection. This law is basically mandated by the Government of Indonesia to protect the entire nation and the entire homeland of Indonesia, to advance the general welfare, to educate the nation’s life, and to participate in implementing world order based on independence, lasting peace of mind, and social justice. This is in line with the 4th paragraph of the Preamble of the 1945 Constitution of the Republic of Indonesia. In the context of ICT, one of them is realized through the protection of personal data for all Indonesian citizens.\textsuperscript{34}

Act Number 27 of 2022 on Personal Data Protection is a regulation that can prevent potential privacy violations of personal data conducted online and carry out against the collection of personal data in bulk (digital dossier). A digital dossier is a technique of collecting individual personal data carried out in large quantities and massively using digital technology that began in 1970 by Western countries such as Europe and the United States. Today, digital dossier actions are also carried out by private parties that have the potential to violate a person’s right to privacy over their Personal Data.\textsuperscript{35}

Then in the aspect of personal data protection, various principles are known, namely restrictions on the collection, data quality, purpose specification, use restrictions, transparency, security measures, individual participation, and accountability. The various principles are given the following definitions\textsuperscript{36}:

1. Limitation of collection: this principle requires that there must be limits to the collection of personal data. The data obtained must then be processed and used using

\textsuperscript{31} Insosentius Samsul, \textit{Perlindungan Konsumen}, Universitas Indonesia, Jakarta, 2004, pg. 46.
\textsuperscript{34} Naskah Akademik Rancangan Undang-Undang Pelindungan Data Pribadi, 2021, pg. 01.
lawful and fair means, and where necessary with the knowledge and consent of the person or party concerned;
2. Specification of purpose: this principle requires that the purpose of data collection should be clear and specific, and subsequent use of the data should be limited to the specification of that purpose;
3. Use restriction: this principle requires that the data collected should not be disclosed, made available to the public, or used for purposes other than the specific purpose for which it was collected unless based on the purpose of the data owner or the consent of a valid and authorized legal authority;
4. Openness: this principle requires that there should be a general policy on openness to personal data;
5. Security measures: this principle requires that personal data should be protected by appropriate safeguards with a view to protecting it from loss, destruction, use, alteration and disclosure;
6. Individual participation: this principle requires that every unique human being has the right to be informed about their data and the right to delete and correct incorrect data;
7. Accountability: this principle places an obligation on responsible personal data managers to comply with the principles.

However, currently Indonesia has Law Number 27 of 2022 concerning the Personal Data Protection Act. Through Article 62 which contains rules and concepts of dispute resolution and personal data protection procedural law, it is stated that if the settlement of personal data protection disputes is carried out through arbitration, courts, or other alternative dispute resolution institutions in accordance with statutory provisions and using the applicable procedural law in the dispute resolution process. In this case the trial of the personal data protection dispute is conducted in a closed manner so that if in the future there is another case of leakage of personal data as happened with Tokopedia, then Indonesia has opened space for the parties to resolve the dispute through the provisions contained in the law.

Thus, the settlement of personal data protection disputes that are realized through law must be in harmony with the ideals of the law. Rudolf Stammmler argues that the ideals of law or rechtsidee are like a lantern that directs the law to what it aspires to. It is from these principles that legal concepts and politics are formulated in a country. The ideal of the law is something that is normative and constitutive. Normative means that the ideals of law function as transcendental prerequisites that underlie various dignified positive laws, and are the moral foundation of law and at the same time for the positive legal system.\(^{37}\)

Meanwhile, a constitutive legal ideal means that the rechtsidee functions as a legal guide to the goals to be achieved. Gustav Radbruch said that rechtsidee also serves as a constitutive basis for positive law and gives meaning to law. Rechtsidee is also a regulatory benchmark, such as testing whether positive law applies fairly or not. Basically, legal ideals will influence and function as a general principle that provides guiding principles, critical norms (rules of evaluation), and motivating factors in administering law (formation, discovery, application of law, and legal behavior).\(^{38}\)

The issue of security and confidentiality of personal data is principally based on Pancasila values as a legal ideal which is also one of the most important aspects of a technology system, this is related to the importance of sending and receiving personal data to interested persons. Personal data is no longer useful if in the middle of the road it is intercepted or hijacked


\(^{38}\) *Ibid.*, pg. 101
by an unauthorized person. Therefore, securing and protecting personal data and resolving disputes has become a discourse in Indonesia.

CONCLUSION
Based on the analysis above, it can be concluded that in the case of data leakage that occurred at Tokopedia, it was a form of unlawful act. Tokopedia as a business actor is unable to carry out its obligations in protecting and protecting consumer personal data. Then the lawsuit submitted by KKI to Tokopedia is correct, it's just that in 2020 Indonesia does not yet have a dispute settlement mechanism for cases of leakage of personal data protection and does not yet have a Personal Data Protection Act so it is very difficult to prove and hold a trial. In 2022, Indonesia already has Law Number 27 of 2022 concerning Protection of Personal Data which also regulates dispute resolution which can be carried out through arbitration mechanisms, courts, or other dispute resolution institutions.

The advice that can be given by the author is for business actors engaged in information and communication technology to always carry out their obligations as personal data controllers and not violate regulatory signs contained in Law Number 27 of 2022 concerning Personal Data Protection. The second suggestion is for the public and business people, if in the future there are cases of leakage of personal data, they can be resolved through arbitration, courts, or other dispute resolution mechanisms so that space for solving cases and proving them can work properly.

REFERENCES
BOOKS
Abdulkadir Muhammad, Hukum Perusahaan Indonesia, Citra Aditya Bakti, Bandung, 2010.
Insosentius Samsul, Perlindungan Konsumen, Universitas Indonesia, Jakarta, 2004.
JOURNAL

INTERNET
SENTENCE
Decision on Case Number: 235/PDT.G/2020/PN/JKT.PST.

REGULATION
Kitab Undang-Undang Hukum Perdata.
Undang-Undang Nomor 27 Tahun 2022 tentang Perlindungan Data Pribadi.
Undang-Undang Nomor 19 Tahun 2016 tentang Informasi dan Transaksi Elektronik.
Naskah Akademik Rancangan Undang-Undang Pelindungan Data Pribadi, 2021.
Peraturan Pemerintah Nomor 71 Tahun 2019 tentang Penyelenggaraan Sistem dan Transaksi Elektronik.
Peraturan Pemerintah Nomor 80 Tahun 2019 tentang Penyelenggaraan Sistem dan Transaksi Elektronik.