

The Implementation of Consent Principle in QRIS-Based E-Payment

Ariyanto*

Faculty of Law Universitas Islam Indonesia, Yogyakarta, Indonesia,
204101306@uii.ac.id, ORCID ID 0000-0002-1841-8275

Faghlaifi Naim

Faculty of Law Universitas Gadjah Mada, Yogyakarta, Indonesia,
faghlaifinaim@ugm.ac.id, ORCID ID 0009-0008-2238-8647

Adnan Qubbaja

Faculty of Administrative and Financial Sciences, Palestine Ahliya University, Bethlehem, Palestine,
aqubbaja@paluniv.edu.ps, ORCID ID 0009-0009-2958-8163

Abstract. QRIS-based e-Payment has changed the way of modern payments with its convenience and efficiency. However, concerns have arisen about the protection of personal data and the principle of consent in these transactions. The principle of consent on the other hand is a major concern as it requires clear and voluntary consent in data collection and processing, but QRIS-based transactions often do not meet this standard since the information provided is less transparent to users. Current legal regulations such as the Civil Code have not been fully able to address the protection of personal data and electronic transactions that are increasingly common. In response to these existing issues, this study examines the protection of the principle of consent in transactions using QRIS and voices the need for legal adaptation that is more relevant to the latest technology. The formulation of the problem contained in this study is: First, What information is transmitted by the payment method through QRIS generally in digital transactions? Second, How is the Application of the Principle of Consent in the Agreement on Information Given in QR-Code Transactions. The research method used is the normative juridical method with a statutory approach by examining relevant regulations. Research results: First, the transmitted data such as user identity, payment amount, date and time, transaction reference number, transaction description, merchant code, merchant name and identity, and payment account information. Second, from the perspective of the principle of consent, it emphasizes the existence of an agreement or meeting of mind between the parties which is implemented through the offer and acceptance of QR codes, approval of information, intention to be bound by the transaction and have the same understanding to carry out the transaction.

Keywords: E-Payment, QRIS, principle of consent

Abstrak. E-Payment berbasis QRIS telah mengubah cara pembayaran modern dengan kemudahan dan efisiensinya. Namun, muncul perhatian tentang perlindungan data pribadi dan asas konsensualisme dalam transaksi ini. Asas konsensualisme di sisi lain juga menjadi perhatian utama karena memerlukan persetujuan jelas dan suka rela dalam pengumpulan dan pengolahan data, namun transaksi berbasis QRIS sering tidak memenuhi standar ini dengan informasi yang kurang transparan bagi pengguna. Aturan hukum saat ini seperti KUHPerdara belum sepenuhnya mampu mengatasi perlindungan data pribadi dan transaksi elektronik yang semakin umum terjadi. Dalam menyikapi isu yang ada, penelitian ini mengkaji perlindungan asas konsensualisme dalam transaksi menggunakan QRIS serta menyuarakan perlunya adaptasi hukum yang lebih relevan dengan teknologi mutakhir. Rumusan masalah dalam penelitian ini adalah: Pertama, Apa saja informasi yang ditransmisikan oleh metode pembayaran melalui QRIS umumnya pada transaksi digital? Kedua, Bagaimana Penerapan Asas Konsualisme Dalam Kesepakatan Informasi Yang Diberikan Dalam Transaksi QR-Code. Metode penelitian yang digunakan adalah metode yuridis normatif dengan pendekatan perundang-undangan dengan mengkaji peraturan-peraturan yang relevan. Hasil penelitian: Pertama, data yang ditransmisikan seperti identitas pengguna, jumlah pembayaran, tanggal dan waktu, nomor referensi transaksi, deskripsi transaksi, kode *merchant*, nama dan identitas *merchant*, serta informasi rekening pembayaran. Kedua, pada perspektif asas konsensualisme, menekankan pada adanya kesepakatan atau *meeting of mind* antara para pihak yang diterapkan melalui penawaran dan penerimaan QR code, persetujuan atas informasi, niat untuk terikat dalam transaksi dan memiliki kesepakatan yang sama untuk melakukan transaksi.

Kata Kunci: E-Payment, QRIS, asas konsensualisme

Submitted: 19 April 2024 | Reviewed: 22 Mei 2024 | Revised: 5 December 2024 | Accepted: 24 January 2025

INTRODUCTION

The practicality and convenience offered by QRIS as a payment system has raised issues on users personal data protection.¹ Within this context, the principle of consent becomes relevant. One of the important principles in the law of contracts is the consent principle, along with the binding power principle and the freedom of contract principle.

The consent principle in a contract is met when there is an agreement, a meeting of mind, as the core of the law of contracts. The consent principle is the “soul” of a contract. This can be concluded from the agreement between the contracting parties. However, in certain situations, there are some contracts which do not reflect true consent. In such matters, the collection, usage and processing of private data must be based on a valid agreement which is given voluntarily by the individual in question. In practice, there are still some concerns on how such consent can be obtained clearly and transparently in regards to contract simplification.² In a QRIS transaction, the information within QRIS must be clear and free from fraudulent mechanisms.³

There are many legal transactions conducted by two or more parties through a contract on a daily basis. Such manual transaction, in regards to contract compliance, is inefficient, which therefore created trust issues and conflicts.⁴ Normally, users establish a contract within the open system scope, which means that anyone can create any type of contract, whether such type already exists within the law or yet to be regulated. Since the physical distancing policy a few years ago, QR Code usage has become the normal mode of payment for daily transactions.⁵

¹ Moh Hamzah Hisbulloh, “Urgensi Rancangan Undang-Undang (RUU) Perlindungan Data Pribadi,” *Jurnal Hukum* 37, no. 2 (December 4, 2021): 119, <https://doi.org/10.26532/jh.v37i2.16272>.

² Boltayeva S. Bebudovna and Mirkhodjayev M.F. Ugli, “Legal Regime of Smartcontract In Foreign Economy Activity, International Scientific-Online Conference,” in *International Scientific-Online Conference*, 2020.

³ dkk Tingda Shen, “An Information Transmission Scheme Based on Secure QR Code in IoT,” *International Journal of Wireless and Mobile Computing*, 2023.

⁴ Wouter van Groesen and Pieter Pauwels, “Tracking Prefabricated Assets and Compliance Using Quick Response (QR) Codes, Blockchain and Smart Contract Technology,” *Automation in Construction* 141 (September 2022): 104420, <https://doi.org/10.1016/j.autcon.2022.104420>.

⁵ Xuan Cu Le, “The Diffusion of Mobile QR-Code Payment: An Empirical Evaluation for a Pandemic,” *Asia-Pacific Journal of Business Administration* 14, no. 4 (November 22, 2022): 617–36, <https://doi.org/10.1108/APJBA-07-2021-0329>.

Users tend to be insufficiently informed on what type of data that is being transmitted and how such data will be used by the data receiver. The relevant information on data use is often hidden in a lengthy terms and conditions policy which is difficult to read for most users,⁶ and in turn resulted in users limited awareness of possible consequences. Such situation shows that the principle of consent has not been implemented properly.

In reality, there remain irrelevant laws that regulate electronic transactions such as QRIS. The Indonesian Civil Code, which has been in force since the Dutch colonization, does not fully accommodate the development of modern technology, especially in terms of private data protection and electronic transactions. Through a similar study which was conducted by Radi P. Romansky and Irina S. Noninska, it indicated that there were cases of information submitted to QRIS without the consent of users, underscoring the necessity of a firmer legal protection on private data and transparency of data use⁷ in a QRIS-based e-Payment. Therefore, improved regulations, adjusted to the reality of technology and data protection, are needed. Considering the development of technology that has not been balanced with the appropriate regulations, the Author finds it interesting to study further on the protection of private data as well as the implementation of the consent principle in the QRIS-based e-Payment.

The primary focus, which is also the problem statement of this study, are: *First*, what types of information are being transmitted by the payment method through QRIS, generally in digital transactions? *Second*, how is the consent principle being implemented in the information agreement given in the qr-code transaction? Subsequently, based on the problem statement above, the objective of this study is as follows: *First*, to analyze the types of information being transmitted by the payment

⁶ Peng-Cheng Huang et al., "Efficient QR Code Secret Embedding Mechanism Based on Hamming Code," *IEEE Access* 8 (2020): 86706–14, <https://doi.org/10.1109/ACCESS.2020.2992694>. Sigit Wibowo, "Tender Conspiracy In Electronic Procurement Of Goods And Services (A Study Of Case Number 04/KPPU-L/2015)". *Prophetic Law Review*, 3(1) (2021): 59–77. <https://doi.org/10.20885/PLR.vol3.iss1.art4>

⁷ Radi P. Romansky and Irina S. Noninska, "Challenges of the Digital Age for Privacy and Personal Data Protection," *Mathematical Biosciences and Engineering* 17, no. 5 (2020): 5288–5303, <https://doi.org/10.3934/mbe.2020286>. Budi Agus Riswandi dan Alif Muhammad Gultom, "Protecting Our Mosts Valuable Personal Data: A Comparison Of Transborder Data Flow Laws In The European Union, United Kingdom, And Indonesia". *Prophetic Law Review*, 5(2) (2024): 179–206. <https://doi.org/10.20885/PLR.vol5.iss2.art3>

method through QRIS generally in digital transactions. *Second*, to study the implementation of the consent principle in the information agreement given in the qr-code transaction.

RESEARCH METHODOLOGY

The research methodology of this study was the normative method. This research was based on secondary data. The normative research was used in this study with the aim to develop an in-depth conceptual analysis on the problem at hand, with QRIS as the research object and the consent principle as the touchstone. The sources used in this study were the legally-binding primary sources, such as the Civil Code which was used to describe the consent principle, as well as regulations on e-commerce and the use of QRIS. Subsequently, the secondary sources included literature such as books and scientific articles relevant to this study in order to support analysis. This study was described by analyzing relevant legal sources and examining relevant regulations.

RESEARCH RESULT AND DISCUSSION

The Development of E-Payment and Covid-19

Since the spread of Covid-19 around the world, there are many business actors in Indonesia that are starting new businesses by using electronic platforms. This was encouraged by the development of electronic payment systems such as QRIS, which has seen significant growth in the Indonesian online market. Currently, the total amount of e-commerce transactions has reached its highest number around 36% and is predicted to reach 81 million US Dollar in 2025.⁸ In 2022, according to Statista, the number of online customers in Indonesia was around 65 million, while in 2017 it was only 20 million. Based on that data, Indonesia is considered as the global online market.

⁸ Alibaba, "How Alibaba Is Fighting IP Infringement on Two Fronts," *World Trademark Review*, June 2019.

Based on the data from Rully R. Ramli, the total value of transactions in February 2022 reached 30.8 trillion.⁹ In 2024, Bank of Indonesia reported that the users of Quick Response Code Indonesia Standard (QRIS) had reached 54.1 million users, with 34.7 million merchants and had grown 183.9% in October.¹⁰ In 2025, Bank of Indonesia is targeting a 6.5 million growth in QRIS transaction volume, as well as expecting an increase of 58 million users and 40 million merchants who participate in the payment ecosystem.¹¹ This projection provides opportunities for business actors to develop their businesses through digital platforms and easier access to enter new markets through other countries.

Another challenging legal issue is the potential risk of contract non-performance or breach of contract due to violations committed by business entities and electronic operators. E-commerce is a business transaction with the largest potential of such risk, especially in regards to the conditions set within e-commerce agreements.¹² Post Covid-19, economic transactions that involved e-commerce had increased rapidly as a consequence of digital marketing development. Both buyers and sellers are currently utilizing e-commerce transactions through digital payment, mostly influenced by the cashless infrastructure which pushed the formation of a cashless society.¹³ In the early 2020, people who make use of the internet and smartphones around the world were predicted to increase significantly. In 2020, a prediction from Pew Research Center was dominated by mobile users or mobile devices.¹⁴ Moreover, smartphones have transformed itself into a personal assistant, an entertainment device and an information portal. Indonesia has become the country with the highest level of

⁹ Rully R. Ramli, "Nilai Transaksi E-Commerce RI Tembus Rp 30,8 Triliun Per Februari 2022," <https://money.kompas.com/read/2022/04/05/120000126/Nilai-Transaksi-e-Commerce-Ri-Tembus-Rp-30-8-Triliun-per-Februari-2022>, 2022.

¹⁰ CNN Indonesia, "Pengguna QRIS Naik Jadi 54 Juta per Oktober 2024 Baca Artikel CNN Indonesia 'Pengguna QRIS Naik Jadi 54 Juta per Oktober 2024' More, here: <https://www.cnnindonesia.com/ekonomi/20241120174948-78-1168824/Pengguna-Qris-Naik-Jadi-54-Juta-per-Oktober-2024>. Download Apps CNN Indonesia Sekarang <https://app.cnnindonesia.com/>," 2024.

¹¹ Tempo, "Mengenal QRIS Tap, Solusi Pembayaran Terkini Yang Dihadirkan Bank Indonesia," <https://www.tempo.co/ekonomi/mengenal-qris-tap-solusi-pembayaran-terkini-yang-dihadirkan-bank-indonesia-1214032>, 2025.

¹² Edy Santoso, "Opportunities and Challenges: E-Commerce in Indonesia from a Legal Perspective," *Jurnal Penelitian Hukum De Jure* 22, no. 3 (September 30, 2022): 395, <https://doi.org/10.30641/dejure.2022.V22.395-410>.

¹³ Ni Putu Ani Karniawati et al., "COMMUNITY PERCEPTION OF USING QR CODE PAYMENT IN ERA NEW NORMAL," *PalArch's Journal of Archaeology of Egypt* 18, no. 1 (2021).

¹⁴ Andreas M. Kaplan and Michael Haenlein, "Users of the World, Unite! The Challenges and Opportunities of Social Media," *Business Horizons* 53, no. 1 (January 2010): 59–68, <https://doi.org/10.1016/j.bushor.2009.09.003>.

internet and mobile device penetration. The use of smartphones and personal computers in Indonesia is related to the ability of administering information on a daily basis.¹⁵ In terms of internet users, Indonesia is ranked as the fourth country with the largest internet users globally, third in Asia and first in ASEAN.¹⁶

Such potential as described above is not without the risk of legal issues. There are many legal gaps and challenges in the use of information and communication technology within e-commerce. Various issues in the digital world have become so common that according to a survey conducted by the Federal Trade Commission, it was revealed that there are many victims of identity theft.¹⁷ Challenges of electronic payment systems remain varied in regards to boundaries, regulations, awareness and cultures of societies.¹⁸

The electronic payment system is also being managed by Bank of Indonesia with two goals in mind. First, to achieve the targeted objective with as little use of national resources as possible, and second, with the support of a national-scale strategy.¹⁹ Consequently, each payment system services by a business entity must first obtain an approval from the Bank of Indonesia.²⁰ This is consistent with the Bank of Indonesia Regulation Number 18/40/PBI/2016 of 2016 on the Implementation of Payment Transaction Processing. According to that regulation, payment system operators and e-wallet operators must have a permit from the Bank of Indonesia in order to operate.²¹

¹⁵ Kementerian Komunikasi dan Informatika Republik Indonesia, "Survei Penggunaan TIK 2023: Penggunaan Internet Dan Smartphone Di Indonesia," 2023.

¹⁶ The Department Of Trade And Industry The Commision On Information And Communications Technology And Superius Corporation, "The Asean E-Commerce Database Project," 2010.

¹⁷ Santoso, "Opportunities and Challenges: E-Commerce in Indonesia from a Legal Perspective."

¹⁸ Mohammad Hassan Nasr, Mohammad Farrag, and Mona Mohamed Nasr, "E-Payment System Risks, Opportunities And Challenges For Improved Results in E-Business," *International Journal of Intelligent Computing and Information Science* 1 (2020): 20.

¹⁹ Ayatulloh Michael Musyaffi et al., "Digital Payment During Pandemic: An Extension of The Unified Model of QR Code," *Academic Journal of Interdisciplinary Studies* 10, no. 6 (November 5, 2021): 213, <https://doi.org/10.36941/ajis-2021-0166>.

²⁰ Erwin Asmadi, "ASPEK PERLINDUNGAN HUKUM BAGI KONSUMEN DALAM PENGGUNAAN APLIKASI PEMBAYARAN ELEKTRONIK (ELECTRONIC PAYMENT)," *DOKTRINA: JOURNAL OF LAW* 1, no. 2 (October 22, 2018): 90, <https://doi.org/10.31289/doktrina.v1i2.1923>.

²¹ Nur Anisa Febri and Fitika Andraini, "Perlindungan Hukum Terhadap Konsumen Dalam Menggunakan Sistem Pembayaran Berbasis QR Code Indonesia Standard," *Jurnal Cahaya Mandalika*, 2021, 910.

During the Covid-19 pandemic, transactions that used digital payment systems increased significantly.²² Such transactions were settled through different types of applications, such as mobile banking (m-banking), QRIS and other financial applications. Additionally, the increase of digital payment users in Indonesia is higher compared to bank accounts.²³ This means that the digital payment potential is growing. Digital payment is a payment system based on an online system.

Issues in such online systems tend to happen, such as identity theft and hacking. Thus, in the midst of uncertainty, trust is one of the many solutions to that particular problem. As much as 22% of digital payment data respondents and 18% of digital loan data had encountered failed systems and cyber attacks. This, in consequence, resulted in users' concerns on the security of digital payment applications through QR code.²⁴ During 2019, the main complaints from customers include lengthy registration process, system error and postponed transaction.²⁵

According to a survey from e-marketer, Indonesia has a moderate level of digital payment adoption, which is 19.8%. Meanwhile, China has adopted 81.1% of digital payment. This gap is due to the low access to digital financial literacy in Indonesia, which is only 31.26%.²⁶

There are many developing cases pertaining to digital transactions, one of them is the *Gutierrez v. FriendFinder Networks Inc.*, which is an adult dating company.²⁷ The Plaintiff sued the company because of negligence, breach of contract and data violation. The Plaintiff used arbitration according to the website's policy. The Plaintiff argued that he had never agreed to the requirements. That particular term can be accessed through "browsewrap", which means that users can access and read the requirements by clicking a hyperlink but are not obligated to do so. However, the Plaintiff indeed communicated with a customer service representative of the Defendant after he lost access to the site. According to the call log, the customer service

²² PT Bank Mandiri (Persero), "Melanjutkan Transformasi Digital & Inovasi Perbankan," 2021.

²³ J. Agusta and K. Hutabarat, "Mobile Payment In Indonesia: Race to Big Data Domination." (Jakarta, 2018).

²⁴ Musyaffi et al., "Digital Payment During Pandemic: An Extension of The Unified Model of QR Code."

²⁵ Musyaffi et al.

²⁶ Musyaffi et al.

²⁷ Kim and Nancy S, "Digital Contracts," *The Business Lawyer*, 2020.

representative and the Plaintiff discussed the service policy. The representative explained that the Plaintiff had to agree in order to continue using the website.

That case is only one out of many cases related to digital transactions that were done without paying attention to the applied policy. Such a similar issue may also happen in QR Code-based payment transactions. QR Code is a form of encrypted visualization by the user data. Those codes, in its development, are not only used for digital transactions, but are also utilized in the health sector. For instance, the patient education program on smartphones, which can be accessed by scanning a QR code, can be an effective and convenient approach to reduce anxiety and increase compliance among Chinese coronary angiography patients. Hospitals and doctors should consider investing in and developing such patient education programs and to encourage e-health literacy.²⁸

The Development of Digital Transaction and Payment Mechanism Through QR Code

QR Code was first developed in Japan in 1994 by Denso Wave.²⁹ A transaction by using QR code is proven more effective compared to conventional transactions by using cash. Customers can make transactions just by scanning a QR code. This particular type of payment has become trending because it is considered easier and more convenient to use. In practice, Indonesia has its own system that uses QR codes, namely QRIS (Quick Response Code Indonesia Standard). QRIS is a QR code developed by the Bank of Indonesia in collaboration with the Indonesian Payment System Association (ASPI) which was officially used on the 17th of August 2019, in the form of a GPN application (National Payment Gateway).³⁰ Quick response code or QR Code is a two dimension image which displays data in text form with quick response. As a result, it is easier for customers to see and read the scanned data.

²⁸ Jingwen Hu et al., "A Quasi-Experimental Study Examining QR Code-Based Video Education Program on Anxiety, Adherence, and Satisfaction in Coronary Angiography Patients," *Contemporary Nurse* 56, no. 5–6 (November 1, 2020): 428–40, <https://doi.org/10.1080/10376178.2020.1813043>.

²⁹ Hendra Waskitha and Yeni Dwi Rahayu, "SISTEM NAVIGASI DI DALAM RUANG BERBASIS QR CODE TAG," *Jurnal Universitas Muhammadiyah Jember*, 2017.

³⁰ Junaidi. Abdullah, "Analisis Asas Konsensualisme Di Lembaga Keuangan Syariah.," *Jurnal Kajian Ekonomi Dan Bisnis Islam STAIN Kudus* 8, no. 2 (2015).

The emergence of QR-Code is the result of barcode model development, which are lines with different levels of density (thickness) in a one dimension form. In terms of data storage, QR Code has a larger capacity compared to barcode. Until now, the Bank of Indonesia still has its own authority to develop payment systems in Indonesia. This is because it is necessary to ensure the stability of the transaction system mechanism in Indonesia for both cash and non-cash.³¹ In recent years, the Bank of Indonesia has improved the digital financial economic environment to maintain business continuity. The Indonesian Government, with the Bank of Indonesia, created a national payment system called QR Code, specifically QRIS, in order to support swift transactions in Indonesia. The Regulation of the Members of the Board of Governor Number 21/18/PADG/2019 on the Implementation of National Standard Rapid Code as Transaction, which was enacted by the Bank of Indonesia to the Members of the Board of Governor,³² aims to facilitate digital payments by using server-based cryptocurrency applications, mobile banking and e-wallet. With the implementation of such standard, the same QR Code can be utilized as a payment system by different goods and service providers.

There are several steps to settle a payment through QRIS. First, when entering the payment page, customers have to choose the preferred payment method. In this case, customers should choose the “Electronic Money” option, followed by the “QRIS” option, and eventually the “Pay Now” button will appear. After clicking on it, customers are being brought to the transaction amount confirmation page. Customers then can use e-money or e-wallet applications to scan the QR code, such as LinkAja, Gopay, OVO, DANA, ShopeePay, Bukalapak and other m-banking services. Finally, customers can use the provided QR code to settle the payment.³³ The complete method

³¹ I Putu Rasmadi Arsha Putra and Dewa Gede Pradnya Yustiawan, “Aspek Perlindungan Hukum Terhadap Nasabah Atas Penyelenggaraan E-Payment Berbasis QR-Code,” *KERTHA WICAKSANA* 16, no. 2 (July 26, 2022): 99–107, <https://doi.org/10.22225/kw.16.2.2022.99-107>. Jihyun Park dan Dodik Setiawan Nur Heriyanto, “In Favor Of An Immigration Data Protection Law In Indonesia And Its Utilization For Contact Tracing,” *Prophetic Law Review*, 4(1) (2022): 1–21. <https://doi.org/10.20885/PLR.vol4.iss1.art1>

³² Fatimah Az-Zahra, *Tinjauan Yuridis Penggunaan Quick Response Code Indonesian Standard (QRIS) Dari Perspektif Hukum Perdata* (Skripsi, Universitas Lampung, 2016).

³³ Zalika Fauja, Muhammad Lathief Ilhamy Nasution, and Budi Dharma, “THE IMPLEMENTATION OF CASHLESS PAYMENT SYSTEM IN THE MSMEs SECTOR IN THE PERSPECTIVE OF ISLAMIC ECONOMICS TO ENCOURAGE THE DEVELOPMENT OF THE DIGITAL ECONOMY (CASE STUDY OF POSBLOC MEDAN CITY),” *Istinbath* 22, no. 1 (May 21, 2023): 57–74, <https://doi.org/10.20414/ijhi.v22i1.580>.

of payment via QRIS is as follows: *First*, open the available financial or banking software, *two*, use the scan mark or barcode image, *third*, scan or copy the merchant's QRIS, *fourth*, put the intended payment amount, *fifth*, enter Personal Identification Number or PIN, and *sixth*, click the payment button and finish.³⁴ Quick Response Code Indonesian Standard (QRIS) (it is pronounced KRIS, though most people usually pronounce it kiris) is a systemized QR from various QR Code-based Payment System Service Providers.

In a QRIS transaction, there are many types of data that are being transmitted, such as user identity, payment amount, date and time, transaction reference number, transaction description, merchant code, merchant name and identity, and payment account information or the account or e-wallet of the merchant that receives the payment. These data are only being processed in the back-end system and are not shown to the users.³⁵ According to the Regulation of Members of the Board of Governor Number 21/18/PADG/2019 on the Implementation of National Standard Rapid Code as Transaction, which was launched by the Bank of Indonesia, the parties that are involved in a QRIS transaction process include:

- a. Payment System Service Provider;
- b. Switching Agency;
- c. Merchant Aggregator; and
- d. NMR Administrator.

In a QRIS transaction process, Payment System Service Providers and Switching Agencies must first obtain an approval from the Bank of Indonesia. Meanwhile, Merchant Aggregators must have a partnership with a Payment System Service Provider that has already obtained approval from the Bank of Indonesia.

The Development of QRIS (Indonesia QR Code)

QRIS was developed by an industry that had worked together with the Bank of Indonesia in order to make transactions more practical, secure, and swift by using QR Code. All Payment Service Operators who use QR Code are obligated to accommodate

³⁴ Fatimah Az-Zahra, *Tinjauan Yuridis Penggunaan Quick Response Code Indonesian Standard (QRIS) Dari Perspektif Hukum Perdata*.

³⁵ Tri Cahyo Nugroho, Eduard Hotman Pubra, and Rayhan Mustafa Kamal Helwani, "Analisis Pengalaman Penggunaan Dompot Digital (Studi Kasus : Shopeepay)," *IJACC* 3, no. 1 (2022): 26–31.

QRIS. Through QRIS, all payment applications from all banks and non-banks can be used in all shops, stalls, parking spaces, travel vouchers, and donations (shop) used by the customers. This has a QRIS logo. Even though merchants are also QRIS providers, there is a distinction with application providers that are commonly used. QR Code uses the two-factor authentication system, which is a series of characters planted in the QR Code and phones equipped with a camera to scan QR Codes. QR Code is a matrix code that saves information vertically or horizontally, hence it is called two dimension. Users will scan the QR Code immediately after receiving it and will submit the scanned code. Users will also solve the digital watermark code within the QR Code and then enter the translated string. The entered scanned string and the translated string will be examined by the database bank. If it matches, only the user will be able to settle the transaction.

1. First of all, users will put all the details, including name, account number, amount, etc (either in the Desktop-based or the web-based application)
2. The received user information will then be processed to create the QR Code.
3. The server (bank) will produce the QR Code by using the Zxing library in java and will randomly create the string alphanumeric and digital watermark and attach them in the QR Code.
4. Subsequently, it will be connected to the database to store the received information.
5. The QR Code will then be scanned and the watermark translated by using an Android phone application.
6. The transaction is settled.

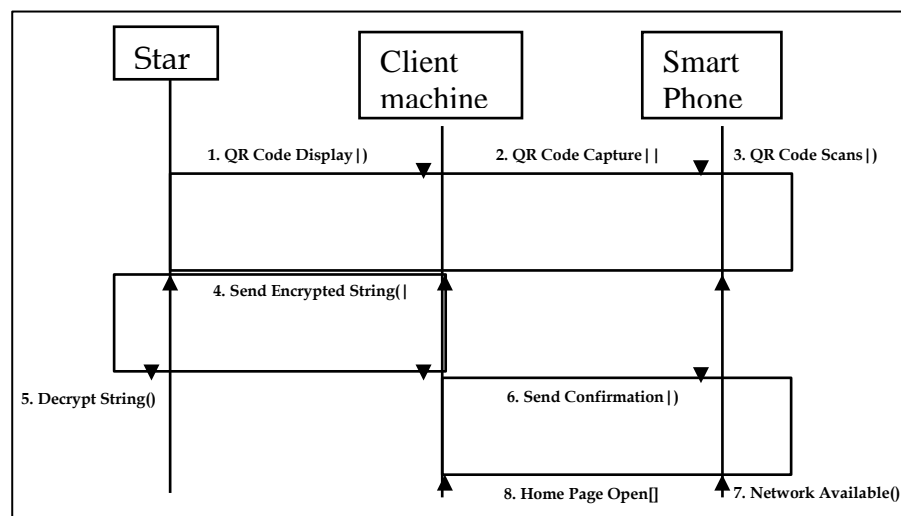
QR Code allows the potential opportunity to increase interactions in various applications.³⁶ QRIS supports two payment models that use QR Code: Merchant Presentation Mode (MPM) and Customer Presentation Mode (CPM). However, this operation is based on the QRIS standard regulated by the Bank of Indonesia. The parties that process the QRIS transaction include the payment system service provider (PJSP), intermediary, merchant aggregator, and the National Trader Warehouse Manager. QRIS transactions can be processed by payment system service providers that are joined in a provider group through the front-end payment system, such as

³⁶ Rubén Hernando and José A. Macías, "Development of Usable Applications Featuring QR Codes for Enhancing Interaction and Acceptance: A Case Study," *Behaviour & Information Technology* 42, no. 4 (March 12, 2023): 360–78, <https://doi.org/10.1080/0144929X.2021.2022209>.

issuer and acquirer. The PJSP and the market who do the QRIS process must first obtain a permit from the Bank of Indonesia.

QRIS is considered easy to use because it only needs to scan the QR Code and does not need many payment applications.³⁷ An extended technology acceptance model has been proposed to explain the adoption of QR Code by MPS.

The result shows that the most important factor that determines the intent to use is the perception of trust.³⁸



A QR Code Simple Process³⁹

Legal Analysis on the Regulation Related to QRIS.

The regulation pertaining to QRIS is the Regulation of the Members of the Board of Governor Number 24/1/PADG/2022 on the Second Amendment of the PAGD Number 21/18/PADG/2019 about QR Code in payment.⁴⁰ The inception of this regulation started in 2019 when the Bank of Indonesia established that the National Quick Response Code for payment (Quick Response Code Indonesian Standard) has become prevalent in digital transactions in Indonesia which is facilitated with the

³⁷ Ni Putu Ani Karniawati et al., "COMMUNITY PERCEPTION OF USING QR CODE PAYMENT IN ERA NEW NORMAL."

³⁸ Cansu Türker, Burak Can Altay, and Abdullah Okumuş, "Understanding User Acceptance of QR Code Mobile Payment Systems in Turkey: An Extended TAM," *Technological Forecasting and Social Change* 184 (November 2022): 121968, <https://doi.org/10.1016/j.techfore.2022.121968>.

³⁹ Aayushi Mishra dan Manish Mathuria, "Multilevel security feature for online transaction using QR code & digital watermarking," *Proceedings of the International Conference on Electronics, Communication and Aerospace Technology, ICECA 2017* 2017-January (2017): 48–51, <https://doi.org/10.1109/ICECA.2017.8212709>.

⁴⁰ Bank Indonesia, "Bahan Sosialisasi QRIS," Bank Indonesia, "Bahan Sosialisasi QRIS," <https://www.bi.go.id/id/edukasi/Documents/Bahan-Sosialisasi-QRIS.pdf>, 2022.

Quick Response Code for payment.⁴¹ Transactions that use QR Code have gone through rapid development. Such development was initiated with the goal to create financial inclusivity (including the increased role of small and medium enterprises), and to achieve economic recovery.⁴² The use of the QR Code transaction model has risen.⁴³

On the other hand, there is an urgency to increase the nominal limit. The purpose of this is to accommodate, among other things, the purchase of artisan products, service transactions such as transportation and tourism, as well as tax payment.⁴⁴ Socialization of the QRIS regulation through the digital economic and financial acceleration needs to be done comprehensively and effectively to expedite the national economic recovery. It is also important to make adjustments on the nominal limit for every transaction through QRIS, while also considering the potential of management risk. The substance of this regulation is as follows: the previous QRIS transaction nominal amount was Rp5.000.000 (five million rupiah), this was then increased to Rp10.000.000 (ten million rupiah) per transaction. Moreover, the publisher has the authority to limit the national cumulative for each period of the used QRIS transaction, while also paying attention to the prevailing law. The amendment of the PADG QRIS⁴⁵ come into effect on March 1st 2022. The previous QRIS regulation was the PADG Number 21/18/PADG/2019 on the Implementation of National Standard Rapid Code as Transaction. The gist of this regulation is as follows:⁴⁶

1. The PADG Number 21/18/PADG/2019 on Implementation of National Standard Rapid Code as Transaction (PADG QRIS) was enacted with a couple of considerations:

⁴¹ Bank Indonesia.

⁴² Bank Indonesia.

⁴³ Rina Mayanti, "FAKTOR-FAKTOR YANG MEMPENGARUHI PENERIMAAN USER TERHADAP PENERAPAN QUICK RESPONSE INDONESIA STANDARD SEBAGAI TEKNOLOGI PEMBAYARAN PADA DOMPET DIGITAL," *Jurnal Ilmiah Ekonomi Bisnis* 25, no. 2 (August 4, 2020): 123–35, <https://doi.org/10.35760/eb.2020.v25i2.2413>.

⁴⁴ Mayanti.

⁴⁵ Gabriella Junita Tobing, Lastuti Abubakar, and Tri Handayani, "Analisis Peraturan Penggunaan QRIS Sebagai Kanal Pembayaran Pada Praktik UMKM Dalam Rangka Mendorong Perkembangan Ekonomi Digital," *Acta Comitas* 6, no. 03 (December 1, 2021): 491, <https://doi.org/10.24843/AC.2021.v06.i03.p3>.

⁴⁶ Tobing, Abubakar, and Handayani.

- a. The digitalization via payment system must be developed for the integration of the national financial and digital economy. However, it must be accomplished while maintaining the sustainability of healthy business practices and to ensure national interest.
 - b. In order for the quick response code to be properly integrated within the ecosystem, the QR Code Indonesia Standard is needed to act as a national-level payment standardization. The existence of QRIS allows certainty of efficiency and minimizes fragmentation in the use of QR Code for payment.
2. The scope of PADG QRIS regulation include, among others:
 QRIS implementation through national standardization in relation to document copying process in QRIS, QRIS users' obligation for each QR-based payment transaction in Indonesia, source of fund and/or payment tool, QRIS transaction limit, and QRIS transaction processing fee pattern.
 - a. The implementation of QRIS is related to, among others:
 - 1) Parties within the QRIS transaction process;
 - 2) Approval from the Bank of Indonesia;
 - 3) Obligations that must be met during the QRIS processing, if the process employs foreign instruments.
 - b. Reporting and Supervision regulates the duty of PJSP to report on the QRIS transaction processing and other types of transaction provided by the Bank of Indonesia.
3. The amount of QRIS transactions becomes Rp2.000.000,00 (two million rupiah) per transaction, etc.
4. The obligation of QRIS users in all payment flows is also applied to other payment flows in Indonesia that are activated with QR Code. Payment through payment flows and/or payment tools outside the territory of the Republic of Indonesia. Party who controls the source of fund and/or publishes foreign payment tools is required to cooperate with Indonesian publisher and/or acquirer which is Bank BUKU 4.
5. Parties who, before the enactment of this regulation on management members, use certain forms of QR Code payment in the QRIS standard, are required to

match with the payment QR Code that are used based on QRIS standard, no later than December 31st of 2019.

The Position of Consent Principle in Contracts

The laws applied to smart contracts are determined by general principles. Meaning, the principles of contract is a binding legal norm which allows the substance of the contract to be adjusted towards the end goal of the contract itself.⁴⁷ Whether the goal of a contract is achieved or not depends on the prevailing law or if a contract needs certain formality.⁴⁸ In respect to classical theory of contract, a contract in general has at least five principles that are prevalent in the rules of civil law. Those five principles are: freedom of contract, consensualism in contract, legal certainty of contract or commonly known as *pacta sunt servanda*, good faith, and contract personality. However, in this study, the main principle on which this study is based is the principle of consent.⁴⁹

The principle of consent is related/influenced by the previous laws adopted by the Romans and Germans. The German Civil Code does not recognize the term consent, instead it is known as real agreement and formal agreement. Real agreement is an agreement which is formed and then immediately implemented (in indigenous law term: in cash). Formal agreement, on the other hand, is an agreement whose format has been determined beforehand (whether in authentic form or in underhand form). In the Roman law, the terms *contractus verbis literis* and *contractus innominate* exist.⁵⁰ Those terms mean that an obligation occurs if the determined form of the contract is met.

Burgerlijk Wetboek (BW), as translated by R. Subekti and R. Tjitrosudibio,⁵¹ turned into the Indonesian Civil Code. The Code regulates contracts in the Third Book, which

⁴⁷ Ammar K Al-Bsherawy and Wathiq K Al-Ibrahemy, "The Psychological Grounding of the Guiding Principles of the Contract: A Comparative Study," *Information Technology and E-Commerce Law*, 2019.

⁴⁸ Maren K. Woebbeking, "The Impact of Smart Contracts on Traditional Concepts of Contract Law," *JIPITEC – Journal of Intellectual Property, Information Technology and E-Commerce Law*, 2019, 107.

⁴⁹ M. Muhtarom, "Asas-Asas Hukum Perjanjian: Suatu Landasan Dalam Pembuatan Kontrak," *SUHUF* 26, 2014, 48–56.

⁵⁰ Juliati Br Ginting, "Juliati Br Ginting Kekuatan Mengikat Perjanjian Secara Lisan," *THE JURIS VI* (n.d.).

⁵¹ R. Subekti and R. Tjitrosudibio, *Kitab Undang-Undang Hukum Perdata = Burgerlijk Wtboek* (Jakarta: Pradnya Paramita, 2009).

contains laws on properties related to rights and obligations of parties or stakeholders. The existence of a contract is closely connected with the valid conditions of contract as stipulated in Article 1320 of the Indonesian Civil Code which are: (1) mutual consent from the contracting parties; (2) the contracting parties have the legal capacity to enter into such agreement; (3) the agreement must regulate a specific subject matter, and (4) the aim of the agreement shall not violate prevailing law, morality or public order. These four conditions are divided into two types of conditions: the subjective conditions and the objective conditions. The former include the consent and legal capacity conditions, while the latter include the specific subject matter and lawful conditions. If these four conditions are met, therefore the contract is valid and legally binding for the contracting parties. An agreement or contract is a consent between the contracting parties that have agreed on certain rights and duties stipulated in the agreement or contract. Furthermore, the contracting parties are required to have the legal capacity to enter the agreement, such capacity refers to legal age and independence (not under conservatorship or guardianship).⁵² The word consent determines the interests of the contracting parties which indicates the meeting of mind.

The consent principle can be found in Article 1320 of the Indonesian Civil Code. That article states that one of the conditions of a valid agreement is the consent of the contracting parties. The consent principle governs that an agreement does not necessarily have to be established formally; consent from the contracting parties is sufficient. Consent itself can be defined as the meeting of mind and statement between the contracting parties.⁵³ Consent is then manifested when a statement of agreement occurs from the parties. The prevailing contract law in Indonesia recognizes the consent principle. The word consent comes from the Latin word *consensus* which means agreement.⁵⁴

⁵² Advensi Simangunsong and Eli Kartika Sari, *Hukum Dalam Ekonomi* (Jakarta: Grassindo, 2004).

⁵³ Lilies Anisah, "Penerapan Asas Konsensualisme Dalam Perjanjian Mudharabah," *Lex Librum* 8, no. 1 (2021): 125.

⁵⁴ HFA Volmar, *Pengantar Studi Hukum Perdata* (Jakarta: CV Rajawali, 1983).

Mechanism and Issues Related to Data Information sent by QRIS & The Consent Principle Perspective in the Indonesian Civil Code

There is several information needed to fulfill the requirement of consent in order to be accommodated by QRIS. One of the elements of consent is the meeting of mind of the contracting parties. The consent principle can be defined as the contracting parties who have agreed or consented on the substantive matters within the contract or agreement in question.⁵⁵

The consent principle is one of the conditions of a valid contract as stipulated in Article 1320 of the Indonesian Civil Code, where a contract is considered valid if the contracting parties have agreed or consented. According to the theory of Van Dunne, there are three stages in contract drafting: the pre-contractual stage, the contractual stage and the post-contractual stage.⁵⁶ According to Van Dunne, the word consent from the contracting parties, which creates legal consequences, is not limited to the contract itself, but it can also be determined from prior actions.⁵⁷ Dunne also argued, as mentioned in the Salim H.S. book,⁵⁸ the three stages of contract drafting according to the new theory are as follow:

1. The pre-contractual stage where the offer and acceptance occur;
 2. The contractual stage where the statement of consent of the contracting parties happens;
 3. The post-contractual stage where the contracting parties perform the contract.
- Charles L. Knapp and Nathan M. Crystal have a concrete description on contract:⁵⁹

"An agreement between two or more persons is not merely a shared belief, but common understanding as to something that is to be done in the future by one or both of them."

⁵⁵ Erizka Permatasari, "Asas-Asas Yang Berlaku Dalam Hukum Kontrak," <https://Www.Hukumonline.Com/Klinik/a/Asas-Asas-Hukum-Kontrak-Lt617a88d958bb9/>, 2023.

⁵⁶ Antari Innaka, Sa'ida Rusdiana, dan Mr. Sularto, "Penerapan Asas Itikad Baik Tahap Prakontraktual Pada Perjanjian Jual Beli Perumahan," *Mimbar Hukum - Fakultas Hukum Universitas Gadjah Mada* 24, no. 3 (2013): 504, <https://doi.org/10.22146/jmh.16122>.

⁵⁷ J E Warouw, "Pembuktian Perjanjian Tidak Tertulis di Hadapan Pengadilan Ditinjau dari Kitab Undang-Undang Hukum Perdata dan Rechtreglement Voor De Butengewesten," *Lex Privatum* IX, no. 10 (2021): 104–12, <https://ejournal.unsrat.ac.id/index.php/lexprivatum/article/view/36728%0Ahttps://ejournal.unsrat.ac.id/index.php/lexprivatum/article/viewFile/36728/34149>.

⁵⁸ H S Salim, *Hukum kontrak: Teori dan teknik penyusunan kontrak*, 2021.

⁵⁹ Salim.

In other words, a contract is an agreement between two or more people who trust each other and have the mutual understanding that each party will perform the contract in the future.⁶⁰

In a QRIS transaction, the element of consent is not necessarily reflected explicitly. In other words, consent is not always verbally pronounced or written, but it can be expressed through affirmative actions.⁶¹ For example, a pre-contractual stage starts when a buyer shows his/her intention to buy a product or services by giving a sign to pay through QRIS. This sign given by the buyer was done consciously and without any coercion after listening to the purchase details. Another example of an affirmative action by the buyer is the act of accessing his/her e-wallet application as a payment instrument. Subsequently, during the contractual stage, the buyer may make a payment by scanning QRIS and giving access to transfer his/her fund to the merchant's account which is connected to QRIS.

Pursuant to Article 7 paragraph (1) of the Regulation of Members of the Board of Governor Number 3 of 2025 about the Third Amendment of the Regulation of Members of the Board of Governor Number 21/18/PADG/2019 about the Implementation of Quick Response Code National Standard (QRIS), the execution of QRIS transaction payment can use funding sources such as savings and credit facilities, payment instruments in the form of debit cards, credit cards, and electronic money using server-based storage media, and/or electronic services that enable the storage of funding sources data and/or payment instruments. Accordingly, in the post-contractual of a QRIS payment mechanism, the merchant is obligated to provide proof of payment in the form of a receipt, invoice, or purchase slip to the buyer, where all these stages are based on the principle of consent.

In the context of QRIS transactions, the consent principle emphasizes the meeting of minds between the contracting parties. Although the agreement is not always stated explicitly, actions such as QR Code scanning and making a payment can be considered a form of acceptance, where the offer and acceptance in a QRIS transaction reflect the

⁶⁰ Salim.

⁶¹ ICO, "What is valid consent?," *Website* 4, no. 11 (2020): 1–14, <https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/consent/what-is-valid-consent/>.

agreement on information, the intent to be bound by the transaction, and a mutual understanding to proceed with the transaction. This can be related to the case of *Adams v Lindsell* (1818). This case introduced the post acceptance theory which stated that the acceptance of a contract occurs at the moment the acceptance letter is sent by the offeree, not when it is received by the offeror.⁶² Thus, the consent principle underscores the meeting of minds between the contracting parties in a QRIS transaction that happens when the seller and buyer have mutual understanding and approve the transaction in question.

Information related to additional fee, offeree identity, or the legal consequence of the transaction is rarely disclosed transparently. This causes skepticism on the substantial fulfillment of the consent principle in digital transactions. The information that is being transmitted through the QRIS mechanism is not exactly transparent as the transaction is processed by using codes which, until the payment is settled, stays unknown. Except general information such as name, bank origin, transaction amount and identity of the recipient. This very issue is also confirmed by the large number of merchants who requested confirmation on QRIS transactions which they conduct with their own consent.

In reality, QRIS is supposed to ease transaction in the digital era. However, the aforementioned issue occurs because of, among other things, the amount of fee charged to a QRIS transaction that has different banks. Additionally, some merchants charge different prices if the transaction is done through QRIS due to administrative costs imposed to merchants. It is suggested that those fees should be disclosed completely in a QRIS payment transaction, so merchants and consumers do not incur possible losses.⁶³

Digital transactions through QRIS should include detailed information about the types of information that is being transmitted. If the relevant information is not being disclosed clearly and completely, then the consent of the transaction cannot be

⁶² NW Sage, "The Significance of *Adams v Lindsell*", *London School of Economics and Political Science Library*, 2020

⁶³ Aulia Damayanti, "Viral Pedagang Naikkan Harga Jika Bayar Pakai QRIS, BI Buka Suara," <https://finance.detik.com/moneter/d-6822684/viral-pedagang-naikkan-harga-jika-bayar-pakai-qr-is-bi-buka-suara>, 2023.

considered as a result of a mutual understanding or meeting of mind. In such cases, the consent is considered legally flawed due to elements of errors or even implicit coercion resulting from ignorance. As a consequence, the consent does not reflect actual agreement

The principle of consent is stipulated in Article 1338 of the Indonesian Civil Code which stated that all valid contracts apply as law to the contracting parties. In the case of payment using QRIS, this can be a strong legal basis for both parties to perform their duties according to the agreement through QRIS. Article 1338 stated that the contract applies as a binding law. In sum, the consent principle is not merely based on the word consent, but also on the valid conditions of contract as regulated in Article 1320 of the Indonesian Civil Code.

The universal character of the consent principle underscores that the formation of a contract must be based on the 'consent' element (which is formed by offer and acceptance). In this regard, QRIS becomes the tool that confirms and validates the agreement of the contracting parties. If one of the parties fails to perform their obligation (for example: the buyer cancels the transaction or the seller fails to deliver the product or service), the party that incurs losses may cancel the contract due to defect of intent, and demand compensation. In order to solve the problems of QRIS as a tool of transaction, it is necessary for the Bank of Indonesia or other bodies to implement the informed consent principle which requires explicit confirmation before a transaction is being processed; to require the QRIS system to provide a cancel feature to avoid payment error, and to add an automatic report feature within the application if users feel disadvantaged by the lack of information transparency.

CONCLUSION

Some of the transmitted information in the QRIS system, which is done through all the payment flow and are activated with QR Codes, include: user identity, payment amount, date and time, transaction reference number, transaction description, merchant code, merchant name and identity, and payment account information or the bank account or e-wallet of the merchant that receives the payment. This information

is only being processed in the back-end system and shown indirectly to the users. Therefore, the Bank of Indonesia and other related agencies must initiate standardization by applying informed consent before the transaction process.

In the perspective of consent, especially in a QRIS transaction, Article 1320 and Article 1338 of the Indonesian Civil Code can be a strong legal basis for the contracting parties to perform their contract obligations. If one of the parties fails to deliver his/her duty, by cancelling the transaction or not delivering the product or service, then the party that incur the losses may claim their rights. The consent principle underscores the existence of mutual understanding or the meeting of mind between the contracting parties which is implemented through the offer and acceptance of QR Code, the approval of information, the intention to be bound by the transaction, and the mutual understanding to do transaction. In order to avoid such issues, it is necessary to include clear and complete information such as the merchant name, the types of products/services, the payment amount, additional fees and the destination account. All this information must be visible to the users before continuing their transactions.

BIBLIOGRAPHY

- Abdullah, Junaidi. "Analisis Asas Konsensualisme Di Lembaga Keuangan Syariah." *Jurnal Kajian Ekonomi Dan Bisnis Islam STAIN Kudus* 8, no. 2 (2015).
- Agusta, J., and K. Hutabarat. "Mobile Payment In Indonesia: Race to Big Data Domination. ." Jakarta, 2018.
- Alibaba. "How Alibaba Is Fighting IP Infringement on Two Fronts." *World Trademark Review*, June 2019.
- Ammar K Al-Bshrawy, and Wathiq K Al-Ibrahemy. "The Psychological Grounding of the Guiding Principles of the Contract: A Comparative Study." *Information Technology and E-Commerce Law*, 2019.
- Arsha Putra, I Putu Rasmadi, and Dewa Gede Pradnya Yustiawan. "Aspek Perlindungan Hukum Terhadap Nasabah Atas Penyelenggaraan E-Payment Berbasis QR-Code." *KERTHA WICAKSANA* 16, no. 2 (July 26, 2022): 99-107. <https://doi.org/10.22225/kw.16.2.2022.99-107>.
- Asmadi, Erwin. "ASPEK PERLINDUNGAN HUKUM BAGI KONSUMEN DALAM PENGGUNAAN APLIKASI PEMBAYARAN ELEKTRONIK (ELECTRONIC PAYMENT)." *DOKTRINA: JOURNAL OF LAW* 1, no. 2 (October 22, 2018): 90. <https://doi.org/10.31289/doktrina.v1i2.1923>.

- Aulia Damayanti. "Viral Pedagang Naikkan Harga Jika Bayar Pakai QRIS, BI Buka Suara." <https://Finance.Detik.Com/Moneter/d-6822684/Viral-Pedagang-Naikkan-Harga-Jika-Bayar-Pakai-Qris-Bi-Buka-Suara>, 2023.
- Bank Indonesia. "Bahan Sosialisasi QRIS," Bank Indonesia, "Bahan Sosialisasi QRIS," <https://www.bi.go.id/id/edukasi/Documents/Bahan-Sosialisasi-QRIS.pdf>, 2022.
- Bebudovnma, Boltayeva S., and Mirkhodjayev M.F. Ugli. "Legal Regime of Smartcontract In Foreign Economy Activity, International Scientific-Online Conference." In *International Scientific-Online Conference*, 2020.
- CNN Indonesia. "Pengguna QRIS Naik Jadi 54 Juta per Oktober 2024 Baca Artikel CNN Indonesia 'Pengguna QRIS Naik Jadi 54 Juta per Oktober 2024' Selengkapnya Di Sini: <https://Www.Cnnindonesia.Com/Ekonomi/20241120174948-78-1168824/Pengguna-Qris-Naik-Jadi-54-Juta-per-Oktober-2024>. Download Apps CNN Indonesia Sekarang [https:// App.Cnnindonesia.Com/](https://App.Cnnindonesia.Com/)," 2024.
- Erizka Permatasari. "Asas-Asas Yang Berlaku Dalam Hukum Kontrak." <https://Www.Hukumonline.Com/Klinik/a/Asas-Asas-Hukum-Kontrak-Lt617a88d958bb9/>, 2023.
- Fatimah Az-Zahra. *Tinjauan Yuridis Penggunaan Quick Response Code Indonesian Standard (QRIS) Dari Perspektif Hukum Perdata*. Skripsi, Universitas Lampung, 2016.
- Fauja, Zalika, Muhammad Lathief Ilhamy Nasution, and Budi Dharma. "THE IMPLEMENTATION OF CASHLESS PAYMENT SYSTEM IN THE MSMES SECTOR IN THE PERSPECTIVE OF ISLAMIC ECONOMICS TO ENCOURAGE THE DEVELOPMENT OF THE DIGITAL ECONOMY (CASE STUDY OF POSBLOC MEDAN CITY)." *Istinbath* 22, no. 1 (May 21, 2023): 57-74. <https://doi.org/10.20414/ijhi.v22i1.580>.
- Groesen, Wouter van, and Pieter Pauwels. "Tracking Prefabricated Assets and Compliance Using Quick Response (QR) Codes, Blockchain and Smart Contract Technology." *Automation in Construction* 141 (September 2022): 104420. <https://doi.org/10.1016/j.autcon.2022.104420>.
- Hendra Waskitha, and Yeni Dwi Rahayu. "SISTEM NAVIGASI DI DALAM RUANGAN BERBASIS QR CODE TAG ." *Jurnal Universitas Muhammadiyah Jember*, 2017.
- Hernando, Rubén, and José A. Macías. "Development of Usable Applications Featuring QR Codes for Enhancing Interaction and Acceptance: A Case Study." *Behaviour & Information Technology* 42, no. 4 (March 12, 2023): 360-78. <https://doi.org/10.1080/0144929X.2021.2022209>.
- HFA Volmar. *Pengantar Studi Hukum Perdata*. Jakarta: CV Rajawali, 1983.
- Hisbulloh, Moh Hamzah. "Urgensi Rancangan Undang-Undang (RUU) Perlindungan Data Pribadi." *Jurnal Hukum* 37, no. 2 (December 4, 2021): 119. <https://doi.org/10.26532/jh.v37i2.16272>.

- Hu, Jingwen, Jie Ren, Jie Zheng, Zhijian Li, and Xianghua Xiao. "A Quasi-Experimental Study Examining QR Code-Based Video Education Program on Anxiety, Adherence, and Satisfaction in Coronary Angiography Patients." *Contemporary Nurse* 56, no. 5-6 (November 1, 2020): 428-40. <https://doi.org/10.1080/10376178.2020.1813043>.
- Huang, Peng-Cheng, Chin-Chen Chang, Yung-Hui Li, and Yanjun Liu. "Efficient QR Code Secret Embedding Mechanism Based on Hamming Code." *IEEE Access* 8 (2020): 86706-14. <https://doi.org/10.1109/ACCESS.2020.2992694>.
- Juliati Br Ginting. "Juliati Br Ginting Kekuatan Mengikat Perjanjian Secara Lisan." *THE JURIS VI* (n.d.).
- Kaplan, Andreas M., and Michael Haenlein. "Users of the World, Unite! The Challenges and Opportunities of Social Media." *Business Horizons* 53, no. 1 (January 2010): 59-68. <https://doi.org/10.1016/j.bushor.2009.09.003>.
- Kementerian Komunikasi dan Informatika Republik Indonesia. "Survei Penggunaan TIK 2023: Penggunaan Internet Dan Smartphone Di Indonesia," 2023.
- Kim, and Nancy S. "Digital Contracts." *The Business Lawyer*, 2020.
- Le, Xuan Cu. "The Diffusion of Mobile QR-Code Payment: An Empirical Evaluation for a Pandemic." *Asia-Pacific Journal of Business Administration* 14, no. 4 (November 22, 2022): 617-36. <https://doi.org/10.1108/APJBA-07-2021-0329>.
- Lilies Anisah. "Penerapan Asas Konsensualisme Dalam Perjanjian Mudharabah." *Lex Librum* 8, no. 1 (2021): 125.
- M. Muhtarom. "Asas-Asas Hukum Perjanjian : Suatu Landasan Dalam Pembuatan Kontrak." *SUHUF* 26, 2014, 48-56.
- Maren K. Woebbeking. "The Impact of Smart Contracts on Traditional Concepts of Contract Law." *JIPITEC - Journal of Intellectual Property, Information Technology and E-Commerce Law*, 2019, 107.
- Mayanti, Rina. "FAKTOR-FAKTOR YANG MEMPENGARUHI PENERIMAAN USER TERHADAP PENERAPAN QUICK RESPONSE INDONESIA STANDARD SEBAGAI TEKNOLOGI PEMBAYARAN PADA DOMPET DIGITAL." *Jurnal Ilmiah Ekonomi Bisnis* 25, no. 2 (August 4, 2020): 123-35. <https://doi.org/10.35760/eb.2020.v25i2.2413>.
- Mohammad Hassan Nasr, Mohammad Farrag, and Mona Mohamed Nasr. "E-Payment System Risks, Opportunities And Challenges For Improved Results in E-Business." *International Journal of Intelligent Computing and Information Science* 1 (2020): 20.
- Musyaffi, Ayatulloh Michael, Razana Juhaida Johari, Ida Rosnidah, Dewi Agustin Pratama Sari, Muhammad Ihlashul Amal, Innaka Tasyrifania, Sekar Ayu Pertiwia, and Febe Dwi Sutanti. "Digital Payment During Pandemic: An Extension of The Unified Model of QR Code." *Academic Journal of Interdisciplinary Studies* 10, no. 6 (November 5, 2021): 213.

<https://doi.org/10.36941/ajis-2021-0166>.

- Ni Putu Ani Karniawati, Gede Sri Darma, Luh Putu Mahyuni, and I Gede Sanica. "COMMUNITY PERCEPTION OF USING QR CODE PAYMENT IN ERA NEW NORMAL." *PalArch's Journal of Archaeology of Egypt* 18, no. 1 (2021).
- Nur Anisa Febri, and Fitika Andraini. "Perlindungan Hukum Terhadap Konsumen Dalam Menggunakan Sistem Pembayaran Berbasis QR Code Indonesia Standard." *Jurnal Cahaya Mandalika*, 2021, 910.
- NW Sage, "The Significance of Adams v Lindsell", *London School of Economics and Political Science Library*, 2020.
- Park, Jihyun dan Dodik Setiawan Nur Heriyanto, "In Favor Of An Immigration Data Protection Law In Indonesia And Its Utilization For Contact Tracing", *Prophetic Law Review*, 4(1) (2022): 1–21. <https://doi.org/10.20885/PLR.vol4.iss1.art1>
- P. Romansky, Radi, and Irina S. Noninska. "Challenges of the Digital Age for Privacy and Personal Data Protection." *Mathematical Biosciences and Engineering* 17, no. 5 (2020): 5288–5303. <https://doi.org/10.3934/mbe.2020286>.
- PT Bank Mandiri (Persero). "Melanjutkan Transformasi Digital & Inovasi Perbankan," 2021.
- R. Subekti, and R. Tjitrosudibio. *Kitab Undang-Undang Hukum Perdata = Burgerlijk Wetboek*. Jakarta: Pradnya Paramita, 2009.
- Riswandi, Budi Agus, dan Alif Muhammad Gultom, "Protecting Our Mosts Valuable Personal Data: A Comparison Of Transborder Data Flow Laws In The European Union, United Kingdom, And Indonesia". *Prophetic Law Review*, 5(2) (2024): 179–206. <https://doi.org/10.20885/PLR.vol5.iss2.art3>
- Rully R. Ramli. "Nilai Transaksi E-Commerce RI Tembus Rp 30,8 Triliun Per Februari 2022." <https://Money.Kompas.Com/Read/2022/04/05/120000126/Nilai-Transaksi-e-Commerce-Ri-Tembus-Rp-30-8-Triliun-per-Februari-2022>, 2022.
- Santoso, Edy. "Opportunities and Challenges: E-Commerce in Indonesia from a Legal Perspective." *Jurnal Penelitian Hukum De Jure* 22, no. 3 (September 30, 2022): 395. <https://doi.org/10.30641/dejure.2022.V22.395-410>.
- Simangunsong, Advensi, and Eli Kartika Sari. *Hukum Dalam Ekonomi*. Jakarta: Grassindo, 2004.
- Statista. "Countries with the Largest Digital Populations in the World as of January 2023." <https://www.statista.com/statistics/262966/number-of-internet-users-in-selected-countries/>, n.d.
- Tempo. "Mengenal QRIS Tap, Solusi Pembayaran Terkini Yang Dihadirkan Bank Indonesia." <https://Www.Tempo.Co/Ekonomi/Mengenal-Qris-Tap-Solusi-Pembayaran-Terkini-Yang-Dihadirkan-Bank-Indonesia-1214032>, 2025.
- The Department Of Trade And Industry The Commision On Information And Communications Technology And Superius Corporation. "The Asean E-Commerce Database Project," 2010.

- Tingda Shen, dkk. "An Information Transmission Scheme Based on Secure QR Code in IoT." *International Journal of Wireless and Mobile Computing*, 2023.
- Tobing, Gabriella Junita, Lastuti Abubakar, and Tri Handayani. "Analisis Peraturan Penggunaan QRIS Sebagai Kanal Pembayaran Pada Praktik UMKM Dalam Rangka Mendorong Perkembangan Ekonomi Digital." *Acta Comitatus* 6, no. 03 (December 1, 2021): 491. <https://doi.org/10.24843/AC.2021.v06.i03.p3>.
- Tri Cahyo Nugroho, Eduard Hotman Pubra, and Rayhan Mustafa Kamal Helwani. "Analisis Pengalaman Penggunaan Dompot Digital (Studi Kasus: ShopeePay)." *IJACC* 3, no. 1 (2022): 26–31.
- Türker, Cansu, Burak Can Altay, and Abdullah Okumuş. "Understanding User Acceptance of QR Code Mobile Payment Systems in Turkey: An Extended TAM." *Technological Forecasting and Social Change* 184 (November 2022): 121968. <https://doi.org/10.1016/j.techfore.2022.121968>.
- Wibowo, Sigit, "Tender Conspiracy In Electronic Procurement Of Goods And Services (A Study Of Case Number 04/KPPU-L/2015)". *Prophetic Law Review*, 3(1) (2021): 59–77. <https://doi.org/10.20885/PLR.vol3.iss1.art4>



This page intentionally left blank.



This page intentionally left blank.