ANALYSIS OF DIGITAL SIGNATURE RULE IN THE ELECTRONIC COMMERCE LAW OF INDONESIA

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Abstract
The Indonesian legislature has enacted the Information and Electronic Transaction Bill (the Bill) in 2003, in which digital signature as a technology specific electronic (e) commerce has been promoted. The promotion of digital signature is still problematic, since there is an uncertainty whether Indonesia can develop well a required viable technology of digital signature. Moreover, there is a gap between the actual use of digital signature and the projections of future utilization of digital signature by interested parties on e-commerce.

This paper will discuss the reason of the Indonesian legislature promotes digital signature. It will then analyse the gap between the actual use of digital signature and the projections of future utilization of digital signature by interested parties on e-commerce. This paper will finally argue whether the promotion of digital signature of the Bill is useful for the growth of e-commerce in Indonesia.

Keywords: e-commerce, digital signature, the Indonesian Bill

A. Introduction

Both developed and developing countries in the world have implemented business activities using media based on internet technology. Indonesia has been applying e-commerce since in the middle of 1990s. However, two problems have arisen related to doing business online in Indonesia. First is the absence of e-commerce law specific to activities through the internet. Second is the lack of trust and confidence of people in doing business online. These problems remain tasks for Indonesian government to set up a legislation regarding e-commerce, and to build up a type of security technology that will enable data authentication.

Subsequently, Indonesian government passed the Bill in 2003, which promotes digital signature as the data authentication method. However, the promotion of the digital signature may not succeed, because the Indonesian government has to provide a required viable technology to run digital signature. It seems

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1. The original version of this paper was submitted as the assessment of Electronic Commerce Law subject at Graduate Program of The University of Melbourne. The author is grateful to Professor Jane K. Winn for her comments on the original version, and to Dr. Issac Miller for his language assistance on the original version.

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uncertain that Indonesia as a developing country can do this.

This paper, therefore, will discuss the reason of the Indonesian legislature promotes digital signature. It will then analyse the gap between the actual use of digital signature and the projections of future utilization of digital signature by interested parties on e-commerce. It will finally argue whether the promotion of digital signature of the Bill is useful for the growth of e-commerce in Indonesia.

B. The Need of E-Commerce Law in Indonesia

Computer network and internet were first introduced in Indonesia in 1994 through academic institutions.6 Since 1995 until now, the use of internet in Indonesia has grown fast and has applied both as communication and business media.7 However, most government institutions in Indonesia use their website as communication media, although theoretically e-government can be a medium to make transactions among government institutions (G2G), between government and society (G2C), and between government and business community (G2B).8 With a compound annual growth rate of about 105%, Indonesia has the highest growth among Asia countries after China.9 This number is predicted to jump drastically up to USD 1.200 million.10

E-commerce in Indonesia is basically divided into three categories. First is a merchant or an online seller or e-tailing. Second is called the payment gateway, which is usually a bank or a company affiliated with financing companies. Third is the technology provider, which includes companies that provide technology, required for e-commerce such as hosting, shopping carts, designing and security.11

Samur online bookstore website, at www.samur.co.id, is the pioneer merchant transacting using internet in Indonesia.12 Another player is Indonesia Interactive or I2 (http://www.i2.co.id), which has been developed as a portal and provides a virtual shopping mall.13 Other big companies then followed to make online business by implementing e-commerce B2B.14 Since 1998, Makro Indonesia has introduced E-Data Interchange to interconnect information with its suppliers. It then developed B2B commerce.15

Since 1980s, the payment gateway in Indonesia was known from the use of credit card, ATM, and internet banking.16 Internet banking is trend of e-commerce popular in Indonesia. Internet banking in Indonesia has already become a need.17 However, the services of banking transaction still tend to be limited and to be applied only for internal bank transaction or B2C.18 Not only big enterprises, but also many small and medium enterprises in Indonesia have used internet banking services. Most of them use the service of Central Bank of Asia and International Bank of Indonesia.19

Techscape.com, indoglobal.com and indosite.com are some of the leading companies in the technology provider category.20 In the development of this category, several merchants collaborate with bank institutions and providers to give better services to their consumers and business partners. For example, Adam Air collaborates with Niaga Bank through an e-delivery channel facility for selling ticket to the consumers,21 and Indonesian Muaamalat Bank has introduced Shar-E, an e-debit card that can be used to draw cash or transfer funds through ATM network.22

Conducting business through internet gives several advantages. The B2B type can reduce companies’ administration cost of supplying goods to create business efficiency.23 A supply cost savings usually results in a price reduction for customers.24 E-commerce, therefore, can increase profits; it increases sales and decreases cost.25

Even though e-commerce in Indonesia has a quick progress, some people still reluctant to doing business online.26 The main reason of this issue is the security of transaction.27 Many cases related to the abuse of internet technology have happened in Indonesia. Indonesian Police Headquarters released data of crime facilitated by internet that conducted in the period of January to September 2002. The data illustrates, in that period there are 104 cases, which are committed by 128 criminals, which 98% of them is Indonesian.28 These crimes include hacking and carding,29 tapping of e-mail and PIN of internet banking, privacy right infringement, and domain name fraudulent.30 This criminal facts influence the image people have of online transaction. Therefore, it is a nature that people hope providers will guarantee a safe transaction through their sites.31

This security issue causes the lack of trust and confidence of people transaction online.32 It is important for all businesses to establish trusting relationships with their customers.33 Globally, the lack of privacy protections is a major barrier to consumer participation in e-commerce. Businesses are beginning by the
existence of trust of privacy protection between parties. People may acknowledge that the internet can satisfy them in some ways, such as information and communication. However, not many of them agree that the internet can also be safe media for business and making commercial transactions. Commerce depends on confidence. Buyers and sellers, in the e-marketplace, alike must have at least the level of confidence in the outcome of e-commerce as they have in more traditional kinds of transactions. People are not quick to enter into contracts that they do not have any certainty will be enforced in courts. This difficulties in establishing trust relationships between parties, increases the need for mechanisms, which lend security to transactions.

C. Efforts to Establish E-Commerce Law in Indonesia

There are two essential tasks of states legislation in the field of e-commerce. First is to remove all legal obstacles regarding e-commerce, and second is to establish a standardised framework to provide secure online transactions. The Indonesian government realized the importance of this information revolution of the internet. It then made several efforts to develop this type of information technology more seriously. In the infrastructure aspect, the government permits many internet service providers to be established, to enable people to access the internet and to obtain the possible benefits from it. The Ministry of Communication and Information of Indonesia initiated to grant Indonesia Information and Communication Business Community E-award in 2002 in order to encourage the development of e-commerce in Indonesia. The award was granted to companies, organisations, and institutions, which conduct business or social activities that have positive impact for the information communication and technology development in Indonesia.

In legislation factor, the government enacted a number of legislations that give authority to it to establish several bodies, which have the main role to investigate the use of internet, and to propose recommendations to the government. These legislations are: the Presidential Decree Number 50 of 2000 regarding the Indonesian Telecommunication and Information Coordination Team, the Presidential Instruction Number 1 of 2001 in regard to Information Centre for Information Technology Based at Kemayoran Fairground, the Presidential Instruction Number 6 of 2001 concerning Telecommunication and Information Development and Productivity in Indonesia, and the Presidential Instruction Number 3 of 2003 concerning National Policy and Strategy of E-Government Development.

The Indonesian Telecommunication and Information Coordination Team have worked under the direction of the Indonesian State Department of Communication and Information. The members of the team are lecturers of Padjadjaran University and The University of Indonesia (UI) who proposed their legal framework regarding internet technology to the government. The University of Padjadjaran that was assisted by The Institute of Technology Bandung, and promoted by the Directorate General of Post and Telecommunication of the Indonesian Department of Communication formed the Exploitation of Information Technology Legal Framework. The Research Institute of Law and Technology of the UI, and was promoted by The Indonesian Department of Industrial and Trade created the E-Signature and E-Transaction Legal Framework. Since March 2003 the team has analysed the two proposals, then combined them into the Information, Communication and E-Transaction Bill. It was then revised and called the Bill.

The President of Indonesia signed the Bill on 3 September 2004. Up to this paper is written, the Bill is still on the hearing process in the House of Representative of Indonesia. Based on Program Legislasi Nasional or Prolegnas (The National Legislate Program) of 2005-2009, the Bill has been projected to be enacted in that period. Many people hope that the Bill will be issued immediately as a law. However, it still remains uncertain when the Bill will be issued. This indicates that the Indonesian legislature is too slow in the hearing process of the Bill. This reality just strengthens the claim that Indonesian law is always behind the fact. In fact, technology continues to develop ahead of the law. Law is impossible to lead, but to

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47 The Indonesian Presidential Decree Number 50 of 2000.
48 The Indonesian Presidential Instruction Number 1 of 2001.
49 The Indonesian Presidential Instruction Number 6 of 2001.
52 eBizAsia, 2003 Vol. 1 No. 9, Loc. Cit.
53 "Presiden Sudah Teken RUU ITE", Loc. Cit.
on e-commerce aims to harmonise and unify the law applicable to international trade in an e-environment. A business that operates on the web must comply with the same laws and regulations that govern the operation of all businesses in order to prevent difficulties. Differences and uncertainty about national legal regimes governing the use of such communication techniques could limit the extent to which businesses could access international markets. The UNCITRAL Model Law purports to reduce the obstacles posed to international trade by inconsistencies in national legislation through general principles that should be applied.

Although Indonesia had referred to the UNCITRAL Model Law in establishing the Bill, there is a main distinction between the Model Law and the Bill concerning the authentication method. The UNCITRAL Model Law does not promote a certain method of data authentication. The UNCITRAL Model Law approves the utilization of e-signatures. It states that e-signatures remained technologically neutral; it did not mandate the utilization of any specific type of technology. UNCITRAL Model Law on E-Signature gives equal treatment of signatures technology. It is mentioned that nothing in the model law restrict or deprive of legal effect any method of creating an e-signature that satisfy the requirements referred to in article 6, or otherwise meets the requirements of applicable law.

The Bill, in contrast, promotes digital signature as data authentication method. Indeed, it is a technology specific legislation. The provisions of digital signature are articles 11 to 16 of the Bill. Techniques, tools, or the making process of e-signature are valid if it fulfills the requirement mentioned in the Bill. The promotion of digital signature as data authentication method is because the legislature viewed digital signature as the best way to make e-commerce secure. Online transaction is assumed much safer by using digital signature method.

E. The Nature of Digital Signature

Parties in e-commerce should consider establishing an adequate level of security when entering into contractual relationships via internet to limit the risk of fraud. The whole procedure of certifying the existence and modalities of the legal act can be described as authentication. In essence, authentication is the ability to determine that a particular party sent a particular message. A good authentication tool is linked to the content of the legal act, easy to verify and difficult to forge, and
use of digital signatures, however, depends on an infrastructure of trusted entities, PKI, upon whose certificates recipients can rely. In order to ensure reliable use and legal validity, and to combat fraud and misuse, digital signatures require adequate products for key generation, key storage, certificate storage and retrieval, signature generation and verification.

F. The Gap between Digital Signature in Theory and Practice

The digital signature certification business holds great promise because certification authorities, or some variation thereof, will likely play a crucial role in the marketplace. However, there are gaps between the hope of digital signature and what happens in practice. Regardless, digital signatures and certification authorities remain in a nascent stage with many issues and problems yet to be resolved.

The first gap is that it is very hard to establish digital signature as the most important form of online authentication in e-commerce. People hope that e-signatures have the same effect as ink signatures applied to paper. Creating and verifying e-signature is assumed parallels the legal effects of paper signatures; however, digital signature is poorly suited for use as a substitute for manual signatures. Digital signature responds to the same verification, but the actual value is different. The art of the private key created to a secure digital signature and the PKI do not fit the needs of transacting parties doing business online. The role of traditional signatures in traditional contracting practices is very difficult to map onto online security technology functions. It is just a metaphor to apply the term “signature” to the processes performed using asymmetric cryptography, certificates and a PKI, in which it is used to encrypt something, not to sign something. Digital signature may function as the equivalent of a traditional manual signature if it fulfills two additional steps required. First is the recipient must have the public key of the sender before it can start examining the message that it has received. Second is the system for controlling access to private keys must be reliable and secure, therefore only the authorising signer can use the private key to sign messages.

Due to the unfit analogous of digital signature and traditional signature, it is hard to make online transactions between parties who have no prior relationship by relying on digital signature. The assumption that parties can make transaction without prior relationship by relying on digital signature is too ambitious. Parties without prior relationship have no a reliable system of online identities in e-commerce. E-commerce is like any other form of commercial contracts, and is bound by the

84 Ibid., p. 78.
87 Ibid., p. 80.
107 Morgan, Deborah L., Ibid., p. 4.
108 Winn, Jane K., Ibid., p. 10.
same legal principles regarding pre-contractual behaviour. Nevertheless, some scholars agree that online commercial activity can be done between strangers.

The second gap is that no viable infrastructure to run digital signatures has been achieved at present. In order for a digital signature to function as the equivalent of a traditional manual signature, there must be a reliable, secure system that permits only the authorized signer to access the private key and affix the digital signature to a message. There is also little agreement on the mechanism to achieve this goal. Digital signature statutes, however, do not merely promote a specific technology; they also promote a specific standard for the use that technology. However, no major market participants have been able to promote widespread use of technology based on that standard. Thus, the promotion of digital signature in e-commerce legislations has created a misperception of digital signature for actual use in the marketplace.

G. The Impact of the Digital Signature Promotion to the Growth of E-Commerce in Indonesia

The Indonesian legislature and many business players rely their hope very much on the enactment of the Bill as a law, in which digital signature is promoted. Business people wish that the Bill could specifically be the basis of law to fight cyber crime. They hope that the promotion of digital signature will lure the public turn to the cyber marketplace. However, the hope is difficult to be realised. The usefulness of digital signatures may depend on whether the legislature has considered how those laws relate to the provision of government services through online media, and whether the laws creating them are crafted with the desire of businesses.

Indonesia as a developing country is hard to provide the viable technology to run digital signature. Infrastructure is the most important factor that does not support the growth of e-commerce in Indonesia. The difficulty in providing the infrastructure may be caused by the lack of Indonesian capability to develop technology, and the lack of budget that Indonesia has. Developing country, like Indonesia, is a technology consumer, rather than producer. Indonesia still depends on the technology produced by developed countries. Technological capacity of countries is frequently viewed as one of the most important determinants of the future economic growth and competitiveness of a nation in international trade. A country may have difficulties if it does not have the technology to access and use the e-commerce infrastructure. Inadequacies in infrastructure can be a big challenge of businesses.

Furthermore, Indonesian business market may refuse digital signature and prefer to choose other methods of data authentication. Digital signature is only one authentication method. Secure e-signature can be a digital signature or another kind of e-signature provided that it meets certain standards. In practical, just several e-commerce portals in Indonesia now use digital signature standard security systems, such as Secure Sockets Layer (SSL). The small number of transactions that rely on the digital signature may be caused by the lack of infrastructure.

By imposing technology specific requirements on e-contracts, not only would the legislature be unable to keep the legislation up to date, accounting for all the latest advancements in technology, but they would also be retarding the research and development of new technology. This will impact the business market, because the development of new radical technology would be less attractive to programmers and investors, they may introduce another technology into the market place. In fact, constant technological developments stimulate the development of market by reducing insecurity about future trends and inevitably, it will lead to an increase in commercial activities. Nevertheless, the promotion of digital signature as data authentication method probably impede in e-commerce growth in Indonesia.

H. Recommendation to the Indonesian Legislature

Refer to the above explanations, therefore, two recommendations are proposed here. First, Indonesian legislature should not promote certain method of data authentication, rather recognise the other. In regulating the use of digital signature, two levels of regulatory intervention generally can be made. First is the legal provision aiming at the recognition of e-signature, and second is the legal provision setting up a non-obligatory framework for the use of a secure digital signature. Indonesian government is lack of capability to provide a viable technology of digital signature, whereas, technology is an important factor in the development of e-commerce. Therefore, the legislature should not ignore the obstacle factors. It is wise to legislate e-commerce transaction suitable with the Indonesian circumstance.

Besides, promoting and giving preferential treatment to certain technologies inhibits the growth and expansion of new and more effective technologies. With the rapid changes in technology development, more secure, easier and cheaper methods become available in future. Legislation should allow for changes in technology and not restrict transactions to certain types of technologies, because overly restrictive regulations could stifle and retard
the development of innovation. Indonesian legislation should permit the advancement of technology. Advancement technology is greater than the need for legislative caution itself, and it is the cornerstone for the expansion of e-commerce.

Moreover, the Indonesian legislature should prefer to form a technology neutral legislation e-commerce. This is not limiting and allows for the development and use of new technologies, while preferences for one method or another, may impede the use of new and more efficient technologies. Additionally, this will enable parties in e-commerce to choose what method they approve. However, the success of the technology neutral legislation will need of the acceptance of authentication methods in the business market. A few use of SSL in online transaction in Indonesia indicates that the technology neutral legislation probably more effective than technology specific legislation.

Second, Indonesia should take a part of international collaboration in order to enable it in obtaining the maximum advantages of global transactions through internet. In the developing e-commerce, an internationally coordinated approach is needed because e-commerce is inherently global and transcends borders. International cooperation is necessary to avoid having national approaches fragment regional and global markets, and unduly restrict trade. Governments, business, consumers and academia must work collaboratively to create an environment in which e-commerce can maximize the social and economic benefits for all.

1. Conclusion

In the era of globalisation and digital technology, it is imperative for government to formulate a clear strategy to integrate e-commerce as a factor for economic development and competitiveness. Although it is too late, the Indonesian legislature has established the Bill, in which digital signature has been promoted, refers to the UNCITRAL Model Law. The legislature has viewed that digital signature is the best technology to make secure e-commerce transactions. By promoting this certain method of data authentication, the Indonesian legislature seems unaware of the gap between the actual use of a technology and the projections of future utilization by interested parties.

Developing countries like Indonesia face only bad choices. Technology neutral legislation works if there is already a market for e-commerce security products, whilst technology specific legislation only works if it requires the use of a required viable technology. The Bill may be ineffective, because as a developing country that is a consumer of technology Indonesia is hard to provide the required viable technology of digital signature.

Moreover, just a few business communities use digital signature. Subsequently, the Indonesian legislature may be better to recognize the use of technology neutral legislation than technology specific legislation on e-commerce. Indonesian participation in the global collaboration on e-commerce is also needed in order to make the Indonesian legislation on e-commerce become more effective, and to enhance the growth of e-commerce in Indonesia.

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