



CANTERBURY AMICUS CURIAE LAW JOURNAL

Volume 1, No. 2, 16-33

June 2017

**IMPACT OF GLOBALIZATION, INTERNATIONAL AGREEMENT AND
TECHNOLOGY CONVERGENCE ON TELECOMMUNICATIONS LAW REFORM
(The Case of Indonesia)**

Asril Sitompul*

Abstract

In the era of globalization telecommunications market is dominated by economic powerful countries. The concept is global capitalism where international entities operated and entered into developing countries, intervened domestic policies and facilitated the entrance of MNC supported by World Bank, IMF and WTO. The GATS Annex required Indonesia to open telecommunications sector. Indonesian telecommunications sector entered the global business competition by leaving the monopoly and control of the government through ownership. The new multilateral agreement related to telecommunications is the TPP Agreement, if Indonesia decided to join the TPP Agreement, it is necessary to consider all matters related to the benefit and loss of joining the agreement, so it will not only to open Indonesia as a big market of goods and services supplied by dominant member states. Development of technology in telecommunications, computer, and Internet. Convergence of telecommunications and information technology, computer and communications technology in the Internet, and of media (conduit) and content in cable television, resulted business convergence in regional boundaries and ownership aspect. It all should be concerned by the government in the reform the telecommunications law and regulation.

*Dr. Asril Sitompul, S.H., LL.M is lecturer at the Galunggung School of Law Tasikmalaya, West Java, Indonesia. He also gives a lecture at Magister of Notarial Program in the University of Jayabaya, Jakarta Indonesia. This paper is not reflected the view of both school and university.

1. Globalization, GATS and WTO

Globalization is something undeniable. However, there is something to be concerned: we have to ensure that globalization is not running toward the unexpected direction. If in original form globalization is directed to abolish poverty, so we have to be careful that it is not run to be the tool of structured impoverishment.

Meanwhile, globalization is running toward the openness of global market, where telecommunications market is dominated by economic powerful countries, so the formed concept is the global capitalism concept. Along with the global capitalism, international entities operated and entered into developing countries jurisdiction, they intervened to domestic policies and facilitated the entrance Multi National Corporation - MNC to developing countries supported by World Bank, International Monetary Fund (IMF) and the World Trade Organization (WTO).

The entrance of MNCs to developing countries like Indonesia may be a blessing, but the government have to be aware because even though the entrance of MNCs may support the acceleration of development in telecommunications sector, but it may also make the stronger monopoly followed by capital concentration to some domestic businesses as partner of the MNC by using the hand of the government apparatus. As stated by Milton Friedman that the final source of monopoly is private collusion,¹ it is the collusion between big domestic businesses and foreign companies.

One of global factor influenced telecommunications sector is the participation of Indonesia in the World Trade Organization as the international body that regulated the world trading matters. Indonesia is the member of the WTO and has already ratified the Agreement on the Establishment of WTO by the Law Number 7 Year 1994. The agreement that entered into the Agreement on the Establishment of WTO consists of basic agreement and the annex.

Basic Agreement consists of:

- a. Goods (*General Agreement on Tariff and Trade/ GATT*)
- b. Services (*General Agreement on Trade in Services/ GATS*)
- c. Intellectual Property Right (*Trade-Related Aspects of Intellectual Properties/ TRIPS*)
- d. Dispute Settlements.

¹Milton Friedman. *Capitalism and Freedom. The 40th Anniversary Edition*. (Chicago and London: The University of Chicago Press, 2002), 131.

In the services GATS Annex includes:

- a. Movement of Labor Forces
- b. Air Transportation
- c. Financial Services
- d. Shipping
- e. Telecommunications.

From the *annex* we can see that the WTO Agreement contained all services including telecommunications, so it is difficult not to say that the Indonesia Telecommunications Law enacted in 1999, that is Law Number 36 Year 1999 along with implementation regulations are full with interest and pressure if the WTO Agreement, which among other is the liberalization of good and services trading, and it is undeniable that economic liberalization will take the victims.²

The GATS Annex in telecommunications required Indonesia to open telecommunications sector, and along with ratification by the Law Number Year 1994, Indonesian telecommunications sector entered into global business competition by leaving the monopoly structure of provision and control of the government through ownership. Competition in telecommunications brought broad impact to providers and also to the consumers of telecommunications services.

The commitment signed in the GATS and WTO may not be neglected even though it is already passed a long time. Violation or incompliance with the commitment may raise attention of other countries, for example: Regulation about data center in Indonesia that included in the Government Regulation Number 82 Year 2012 Regarding the Provision of Electronic System and Transaction, in Article 17:

- (1) *The provision of Electronic System for public services is required to place the data and disaster recovery center in the jurisdiction of Indonesia for the interest of law enforcement, protection, and the implementation of authority of the state to the citizen data.*

It raised the concern of the United States of America, it was the Office of the United States Trade Representative (USTR), which included in their Annual Report of

²Bonnie Setiawan. *At the End of Globalisation, We Are All Dead*. www.globaljust.org. Accessed 14 December 2005, 1.

2015 (2015 Section 1377 Review On Compliance with Telecommunications Trade Agreements) related to Cross-Border Data Flows, where USTR suggested that the US Government to pay attention to their finding related to the US trading partner as Indonesia, USTR among other stated that:

“Indonesia has adopted an Electronic Transactions Law and Presidential Regulation that requires providers of a “public service” to establish local data centers and disaster recovery centers in Indonesia (Article 17). Indonesian officials have that stated for purposes of the Electronic Transactions Law and Presidential Regulation; they will use the definition of a “public service” in the 2009 Public Service Law implementing regulations, which define a public service as any activity that provides a service by a public service provider. ... A local data center requirement could prevent providers from fully leveraging the economies of scale from existing data centers and discourage future investment in Indonesia. ... This measure raises questions in connection with Indonesia’s commitments to permit the cross-border supply of data processing and value-added telecommunications services (e.g., email services).”³

Development of Over The Top (OTT) services regulation in other country is also become concern of the USTR, in its report included the special concern about the action had taken by other country regarding the OTT services, for example regulation enacted by the Vietnam government on the OTT services, stipulated in the USTR report:

“In October 2014, Vietnam’s Ministry of Information and Communications (MIC) released a draft “Circular on Managing the Provision and Use of Internet-based Voice and Text Services” (the Circular) for public comment.

Article 6 of the Circular requires that foreign providers of certain chargeable (i.e., not offered for free) OTT services, in particular voice and messaging services, enter into an undefined commercial relationship with a licensed telecommunications supplier as a condition of supplying the OTT services in Vietnam. ... Such a requirement might make sense with respect to interconnection arrangements for traditional, circuit-switched networks and services, which require physical interconnection arrangements, negotiated under contract or set by tariff; however, the nature of OTT services is that they can be provided over the Internet completely independent of any underlying transmission provider. ... Articles 10 and 15 of the Circular also raise concerns. Article 10 would limit competition

³Office of the United States Trade Representative (USTR). 2015 Section 1377 Review On Compliance with Telecommunications Trade Agreements.

in the provision of voice services, by preventing non-chargeable (i.e., free) services from connecting to a consumer in Vietnam through that consumer's phone number. ... This would eliminate a whole new set of potential competitors in the voice service market. Article 15 conditions the provision of both chargeable and non-chargeable OTT services on suppliers maintaining a server system in Vietnam.”⁴

USTR encourage the MIC to pay attention on the Circular and focused to the policy that may support the continued development of ICT services. USTR paid attention that the proposal included in the Circular may influence the trade commitment of Vietnam and disturbing development of ICT sector in Vietnam, where competition may bring more advantage.

Even though in Indonesia there is no regulation regarding the OTT services, but there is the important thing to be considered in the USTR report, that in enactment of a new law or regulation related to telecommunications services including OTT services regulation, the law and regulation maker cannot be free from the binding of international agreement which had already entered into, the law and regulation maker need to consider all commitment that has given in international agreement such as GATS and WTO.

2. Trans Pacific Partnership Agreement

Trans-Pacific Partnership (TPP) Agreement is an agreement regarding trade and investment that newly signed on February 4th, 2016 among twelve countries in the Pacific Rim, that are: Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, Vietnam and the USA.

The purpose of the TPP Agreement is to create *free trade area* which consistent with Article XXIV of GATT 1994 and Article V of GATS as stipulated in Article 1.1 TPP Agreement:

Article 1.1: Establishment of a Free Trade Area
The Parties, consistent with Article XXIV of GATT 1994 and Article V of GATS, hereby establish a free trade area in accordance with the provisions of this Agreement.

⁴*Ibid.*

In the TPP Agreement it is admitted that there is intention of all parties to be consistent to apply international agreement that has already signed before by the parties including the WTO Agreement and all rights and obligations stipulated in the agreement, as stipulated in Article 1.2 TPP Agreement:

Article 1.2: Relation to Other Agreements

1. *Recognizing the Parties' intention for this Agreement to coexist with their existing international agreements, each Party affirms:*
 - (a) *in relation to existing international agreements to which all Parties are party, including the WTO Agreement, its existing rights and obligations with respect to the other Parties; and*
 - (b) *in relation to existing international agreements to which that Party and at least one other Party are party, its existing rights and obligations with respect to that other Party or Parties, as the case may be.*
2. *If a Party considers that a provision of this Agreement is inconsistent with a provision of another agreement to which it and at least one other Party are party, on request, the relevant Parties to the other agreement shall consult with a view to reaching a mutually satisfactory solution. This paragraph is without prejudice to a Party's rights and obligations under Chapter 28 (Dispute Settlement).*

Provision in the TPP Agreement stated that in implementation of the Agreement, the member countries agreed that if in fact any other agreement give better treatment in goods, services, investment and individual than given by the TPP Agreement it is not mean that there is any inconsistency as stated in Paragraph above.

According to its supporters, the TPP will bring economic improvement in entire region of member states by eliminating of tariffs and other barriers in international trade and investment. But it is also analysts, according to their study, stated that the estimate improvement will not completely fulfill, even for the US, there will be only an insignificant increase of economy development.⁵

In the US, the main problem face by the Congress in its role related to the TPP are: (1) how strong the weight of implication of geo-politics of the TPP; (2) potential

⁵Jeronim Capaldo and Alex Izurieta with Jomo Kwame Sundaram. Trading Down: Unemployment, Inequality and Other Risks of the Trans-Pacific Partnership Agreement. Global Development And Environment Institute Working Paper No. 16-01. Tufts University, Medford, MA, USA, January 2016.

impact of TPP to multilateral trading system and other trade and economic institution; and (3) probability of expansion of the TPP Agreement to include additional members.⁶

Agreement related to telecommunications stated in Chapter 13 which include, some activities as stipulated in Article 13.2:

Article 13.2: Scope

1. *This Chapter shall apply to:*
 - (a) *any measure relating to access to and use of public telecommunications services;*
 - (b) *any measure relating to obligations regarding suppliers of public telecommunications services; and*
 - (c) *any other measure relating to telecommunications services.*

One thing that may be raise question mark in the TPP Agreement, considering that the Agreement is signed not long ago which is on February 4th, 2016, but the Agreement do not cited the potential of fast change in information and communication in day to day life such as development of the Internet generally and development of OTT services and the Internet of Things (IoT) specifically. Is it because the telecommunications services provided through the Internet has already included in Article 13.2, or in Paragraph 2? As follows:

1. *This Chapter shall not apply to any measure relating to broadcast or cable distribution of radio or television programming, except that:*
 - (a) *Article 13.4.1 (Access to and Use of Public Telecommunications Services) shall apply with respect to a cable or broadcast service supplier's access to and use of public telecommunications services; and*
 - (b) *Article 13.22 (Transparency) shall apply to any technical measure to the extent that the measure also affects public telecommunications services.*

In Article 13.4 stipulated the agreement of access to public telecommunications services, that is:

Article 13.4: Access to and Use of Public Telecommunications Services

1. *Each Party shall ensure that any enterprise of another Party has access to and use of any public telecommunications service,*

⁶Congressional Research Service. Brock R. Williams, Coordinator. *The Trans-Pacific Partnership: Strategic Implications*. CRS Report, Prepared for Members and Committees of Congress. February 3, 2016.

including leased circuits, offered in its territory or across its borders, on reasonable and non-discriminatory terms and conditions.

2. *Each Party shall ensure that any service supplier of another Party is permitted to:*
 - (a) *purchase or lease, and attach terminal or other equipment that interfaces with a public telecommunications network;*
 - (b) *provide services to individual or multiple end-users over leased or owned circuits;*
 - (c) *connect leased or owned circuits with public telecommunications networks and services or with circuits leased or owned by another enterprise*
 - (d) *perform switching, signaling, processing and conversion functions; and*
 - (e) *use operating protocols of their choice.*

If we look carefully it will be seen that Article 13 TPP Agreement regarding telecommunications is almost similar with the GATS Annex on Telecommunications, so there is no new matter included and there is no consideration about technical improvement and development in telecommunications sector.

The matters related to trading via the Internet (*E-Commerce*) stipulated in Chapter 14 TPP Agreement, however, the matters included to the Agreement is only matters of the Internet related to trading, not include the use of the Internet for telecommunications provisions as rapidly developed in the form of OTT services and the concept of IoT.

Nevertheless, if Indonesia decided to join the TPP Agreement, it is necessary to carefully consider all matter related to the benefit and loss of joining the agreement, so it will not only to open Indonesia as a big market of goods and services supplied by other dominant member states such as Australia, Canada, Japan, and the US, and furthermore in the making of new law and regulation related to telecommunications, the TPP Agreement has to be considered.

3. Liberalization of Telecommunications Sector

On February 15th, 1997, there were sixty nine countries signed the agreement to liberalize world telecommunications market. Telecommunications market is a market which according to Renato Ruggiero, Director General of World Trade Organization (WTO), has a value more than half trillion dollars annually. According to Ruggiero, the

sixty-nine country made commitment that raised more than 90% of world telecommunications sector revenue. In his statement on February 17th, 1997, Ruggerio congratulated the government of the countries for the “decision and view in bring about the negotiation to the successful agreement.”⁷

Even though it is admitted that there were delays to reach the agreement, Ruggiero stated that not all decision was an easy thing, but at the end the member states had already put their confident in the multilateral process in the WTO and WTO has implemented it.⁸

The signed of the WTO Agreement show that member states agreed to open their telecommunications market and allowed the entrance of outsider into telecommunications sector in their country. Many of the view that the signed was a sign that the global war of competition is begin in the world telecommunications market. Many put hope and optimism and many view of pessimism.

Indonesia as a country that undeveloped in economy, but quite developed in telecommunications technology, have no choice in the process of negotiation. Indonesia had tried to protect its telecommunications sector with the reason that it already given the exclusive rights to voice based telecommunications services operators (*voice telephone*) for public services and already given commitment to review the grant of license to other operators to enter into domestic and international telecommunications after the end of the exclusive rights no longer than 2006, but in fact Indonesia have opened its telecommunications sector in 2004, by giving compensation to operators that have exclusive rights for domestic and international telecommunications services. For Indonesia the WTO Agreement is a challenge and, at the same time, an opportunity. The WTO Agreement may become opportunity for Indonesian telecommunications businesses to broaden their business to other countries, even though according to some parties it yet necessary because domestic market in Indonesia is still very attractive and not be controlled by Indonesian domestic players.

The challenge is that if foreign telecommunications business come with their big capital and sophisticated technology, it will be no choice for Indonesian telecommunications players that they have to be well prepared to face the challenge or they may be loss in a very tough competition. Although it will not happen

⁷Eric Senunas. The 1997 GATS Agreement on Basic Telecommunications: A Triumph For Multilateralism, or the Market? *B.C. Intell. Prop. & Tech. F.* 111401, 1997.

⁸*Ibid.*

automatically, because there are many things to be considered by foreign business to enter Indonesian market, among others, unsoundness of investment climate, lower level of law enforcement, procedural inflexibility and license costs, and other unpredictable costs, and many other considerations, nevertheless, Indonesia is still an attractive market for telecommunications services providers.

4. Privatization and Competition in Telecommunications Sector

To the question about when the privatization in telecommunications sector in Indonesia began, there are so many answers may be submitted. Some parties said that the privatization in this sector began when PT Indosat conducted an *Initial Public Offering* (IPO) in 1994, by selling part of the government shares to private parties inside and outside the country, and other said that it was began when PT Indosat was established in 1967, because PT Indosat was a joint venture company established by the Government of Indonesia to operate the Satellite Earth Station owned by *International Telecommunications Satellite Organization* (Intelsat), located in Indonesia in order to access Intelsat satellite located in Indian Ocean region by the concept of *Built, Transfer and Operate* (BTO) for 20 years for the provision of international telecommunications services.⁹

Before the establishment of PT Indosat, international telecommunications services were provided by Perumtel as the only provider of telecommunications in Indonesia. Then the government (through Perumtel) established a *joint venture* to provide international telecommunications services.¹⁰

Practically, competition in telecommunications in Indonesia has already started since the grant of license to fixed cellular operator in some region to other company than PT Telekomunikasi Indonesia, for example to PT Ratelindo for the region of West Java and DKI Jakarta and since the grant of license to PT Indosat and PT Satelindo as providers of international telecommunications.

Privatization in telecommunications sector is not ended by the sold of shares of PT Indosat in the domestic and foreign stock exchanges, but it is followed by the IPO conducted by PT Telkom in 1995 by offered the shares in the US, England, Japan and

⁹PT Indosat. Annual Report 2005, 23.

¹⁰Directorate General of Post and Telecommunications, Department of Transport, Communications and Tourism. *History of Post and Telecommunications in Indonesia, Volume V New Order Era*, Jakarta, 151.

Indonesian stock exchanges. Meanwhile, competition has already entered all part of telecommunications sector.¹¹

Privatization is the government action to give opportunity to the private sector to enter into a field of business that formerly held and controlled by the government, whether it was provided by the state owned corporation or by other companies which was given an exclusive right by the government to control certain field of business. There are some important things to be considered in the matter of privatization:

a. Privatization must be with a clear reason

Before privatization, the government should have a clear reason, so there would no suspicion by people about the purpose and intention of the government in privatizing a state owned company. All reason should be organized in accordance with the goal that will be achieved by government by the privatization.

b. Privatization must be with a clear goal

There are many goals of privatization, among others:

1) To fill government need of cash

The simplest goal of privatization is to fill the need of cash of the government. This will be done for some purposes, i.e. to fill a deficit of government budget, seeking money for development or to continue development of related sector and it may also to pay government debt.

2) To improve the government performance and services

By the entrance of private party especially foreigner brought their new capital and management, it can be expected that related sector will be more efficient and may improve their performance and services.

3) To accelerate development of related sector

By privatization, it may be expected that foreign capital and technology will come and may accelerate development in the related sector.

c. Privatization should be followed by deregulation

Privatization that not followed by deregulation may resulted the transfer of government monopoly to be a private monopoly. It is better that privatization is followed by the policy that will stop monopoly and open the competition. By

¹¹Rajat Kathuria. *Measuring the Impact of Decline in Leased Line Prices for the Indonesian Economy*. 2009, 5.

competition it may be expected that performance of businesses will be improved and services may become better.

5. Impact of Technology in Telecommunications Regulation

Telecommunications is generally a *technology driven industry* therefore the impact that caused by technology development will influence telecommunications sector heavily. The development of telecommunications technology in ten years period (1989-1999)¹² was very rapid and it make the Telecommunications Law of 1989 became obsolete only in relatively short period of time. Now, at the time of the Telecommunications Law of 1999 applicable for almost eighteen, and the development of telecommunications technology is more rapid than the period of the Telecommunications Law of 1989 (1989—1999).

Development of the Internet, GSM cellular technology which is now entered the fourth generation (4G) and computer and internet technology increased rapidly, therefore so many things that not be covered by the Telecommunications Law of 1999, among others the usage of Voice over Internet Protocol (VoIP), convergence of voice and data technology, convergence of telecommunications services and cable television, and telecommunications and Internet.

The presence of services provided by Over the Top (OTT) providers, and it is also cannot be denied the use of Internet for every need that meanwhile known as the IoT (*Internet of Things*), which not covered in the applicable law and regulations regime. So it can be said that technology may make laws and regulations become obsolete faster.

Even though regulator may exist and function in accordance with law and regulation and the government of the state, however, the border where telecommunications services is provided has already changed to become something more relative and artificial. Regional and international cooperation in many fields became a challenge along with the development of developed and consolidated businesses.¹³

¹²It is referred to the old Telecommunications Law of Indonesia (Law Number 3 Year 1989) and the New Telecommunications Law (Law Number 36 Year 1999).

¹³Colin Blackman and Lara Srivastava (Ed.) Telecommunications Regulation Handbook. Tenth Anniversary Edition. (Washington, DC: The International Bank for Reconstruction and Development/The World Bank, InfoDev, and The International Telecommunication Union, 2011), 220.

One of the same themes existed in almost all regulatory trends and continues changing as the result of convergence and digital technology development is the globalization of ICT. The ICT may be a central of support of market globalization and integration of economy in the world, and as the result the policy issues become a global issues,¹⁴ therefore regulation that followed should be global in nature.

The increase of information traffics beyond the states border everyday through the link and landing point, which in principle connected the network of one country to the network of other country, actually cannot be seen by users. Mobile service particularly is not possible to cross artificial border of the states, and the users commonly *roaming* by using the network owned by neighboring country.

Many providers that have and invest in the telecommunications network commonly have *multiple licenses* within one region, and there are providers that tried to integrate the services in the markets in some different countries. Technology has moved beyond the national border and regulation has to follow.¹⁵ The government and regulator may not neglect the development of technology in the amendment of existing law or proposing the new regulation.

6. Convergence in Telecommunications Sector

Previously, voice based and data based telecommunications transmitted by network that planned by varied system and purposes. For example, traditional voice network is planned with available technology at the time that may be optimally used only to transmit voice signal. Convergence of telecommunications and information technology, for example convergence of computer technology and communications technology in the Internet, and convergence of media (conduit) and content in cable television, brought impact to business convergence in the aspect of regional boundaries and in the aspect of ownership.¹⁶

When data communications industry began around the end of 1950's, telephone companies charged a very expensive fees for the services. It was because functionally, the companies provided voice services not data services. Even operators said that they controlled communications data technology, however, they faced difficulties, among

¹⁴*Ibid.*

¹⁵*Ibid.*

¹⁶David N. Townsend. *Briefing Report on Regulatory Implications of Telecommunications Convergence*. ITU Regulatory Colloquium No.6, March 1997. ITU, Geneva, 1997, 6.

others: there were not so many experts in data telecommunications in telephone companies at the time, and many companies have difficulties when there were not change when the demand for data services started to increase.¹⁷

But now various services that separated last time may not be separated anymore and must be discussed simultaneously, because technologically services such as radio, television, telephone and Internet may be provided through the same network.

The regulator should be aware of this matter, whether in the enactment of technical regulation or in proposing business regulation, for with the convergence, the former relatively uncoordinated regulations, should be totally reconsidered as soon as possible in order to be able to be mutually implemented and not be overlapped each other.

There are some reasons why radio, television, cable, satellite, telephone, wire network, cellular telephone and Internet should be discussed in integrated manner like in services market as stated above, but the main concern of regulator is a doubt that competition may not be continued and also is not demanded by operators.

Since last time, the policy maker concern about the economic value of local telephone service is: there is only one operator will survive in the long term: in this case “competition will not evolved,” or there is only one operator that can provide a quality telephone service with lower tariff than its competitor: in this case “competition is not demanded.”

Therefore, regulator of telecommunications sector has to continue to ensure that regulation may not eliminate competition as a main framework in providing good quality services. The same argument that regulation may bring advantage than competition will rise in every telecommunication market, this is another reason that all field as stated above should be discussed at the same time.¹⁸

Every effort to separate types of telecommunications services may be hampered by technological convergence phenomena. Not only radio, cable, telephone and Internet that may be substituted and interconnected each other, but also the border between one service and another became more and more vanish. Not only substitution each other,

¹⁷Regis J. Bates. *Broadband Telecommunications Handbook, Second Edition*. (Phoenix, Az.: The McGraw-Hill Companies, Inc., 2002), 15.

¹⁸Stuart Minor Benyamin, et.al. *Telecommunications Law and Policy. Second Edition*. (Durham, North Carolina: Carolina Academic Press, 2006), xxii.

television, telephone and computer also more increased in the usage, this is also supported that the services have to be discussed together.¹⁹

Technological convergence is different with regulation regime that since last time existed in different region and separated where radio, television, telephone and Internet regulate by different and separate laws and regulations. In this case, even though technology has already convergent, but the law matters that bind them still separate significantly.

One reason is given to the discussion of telecommunications law at the moment is the statement that the people presently live in the middle of transformation process that will ended later on not only in the technological convergence but also in the convergence of law matters. However, nobody knows until when the convergence will last and how is the nature of the convergence of law and of technology at the end of time. But this time, it is not only convergence of technology that will be faced, but also the law that will regulate telecommunications sector, and certainly the participation of operators and regulator is demanded.

The increase of demand on data communications encourages the development of network for data services. Data network is planned to transmit data traffic with certain characteristic efficiently and to ensure the accuracy of data received by the receiver.

The decrease of digital technology price encourages the use of the technology in voice network, and this change make the voice network be more similar with data network, and this will further make possible the voice network convergent with the data network. The low price of digital technology followed by the availability of more effective *Digital Signal Processing* (DSP) technic, it make the price of digital equipment lower and make digital technology can be used to improve quality and capacity of telecommunications transmission and exchange with affordable price. Some other reasons that make digital technology is more interesting for investors in telecommunications sector are:

- a. Digital signal is more resistant to the *degrade* when transmitted in long distance compare to signal with analog technology, so the amplification can be reduced and signal quality increased;
- b. Maintenance of digital system is less than the analog system;

¹⁹*Ibid.*

- c. Digital network is more simple and the cost is lower; and
- d. Digital exchange is easy to automatizing and centralizing and can be effectively managed and controlled.

Even though many big telecommunications operators still separate data network with voice network, but in fact meanwhile data can be transmitted through voice network and also voice can be transmitted through data network vice versa. For example, user may send data through voice network by using a modem; low quality voice may also send through *backbone* data network like the Internet. But now there is a trend toward the convergence between data network and voice network. In practice, there has been invented an *integrated network* that may carry many kind of information such as voice, text, data and video.

To build and to develop the integrated network it is required to use a complete digital system where no part of the network is still using analog system. Moreover, it is needed the sufficient exchange and transmission capacity to transmit voice and picture, and it is necessary to develop a proper exchange system protocol and transmission. A standard protocol system is necessary to ensure that kinds of communications may be carried properly and efficiently.

Actually, there was convergence in the last time even only partly, for example was the use of equipment with the standard *Integrated Services Digital Network* (ISDN) on access network. ISDN was used by business subscribers as the tool to send data and voice through separated main network. Another example was the *frame relay protocol* that may carry voice, text and data communications through integrated data network.

In Australia, since 1998 telecommunications provider Telstra stated that to interconnect *Local Area Network* (LAN), they moved to the more integrated network.²⁰ The main benefit from integrated network is that the network make may possible to the operators to become more competitive in data transmission business and will have higher position when the *broadband multimedia* market increased, whether in the level of business subscriber or household subscriber.

Wireless technology is also developed significantly. At present the capacity of digital cellular network is more developed and many investors invest in *small low earth*

²⁰Industry Commission. *Telecommunications Equipment, Systems and Services. Report No. 61*, 9 April 1998. Commonwealth of Australia, 1998, 70.

orbiting satellites, which arranged to transmit voice and data communications to the whole world.

However, the development is not without obstruction. The main factor that hampers the development of interactive multimedia at present is the limited capacity of local network, and the less alternative available. But there are some new technologies that developed meanwhile that make possible to improve the network capacity with efficient cost without using expensive cable. The technology, among others, is compressing technology such as the sophisticated *Digital Signal Processing* (DSP) and mobile telecommunications system.

The development of technological convergence between telecommunications and information technology, such as the convergence between computer and communications technology in the Internet, and convergence of media (conduit) and content on cable television, bring the impact on business convergence in the aspect of regional border and ownership, should be concerned by the government and regulator, whether in proposing technical regulation or in business regulation. In this paper there is the hope that technical and business convergence will be followed by regulatory convergence.

7. Conclusion

The impact of international and regional agreement such GATS, WTO and TPP to telecommunications sector, particularly in the laws and regulations regime is undeniable. Beside the important of international and regional agreement, there is also happened the development of technology.

The development of technology in telecommunications sector supported the convergence of technology, business and services offered to the customers. Meanwhile there are so many kind of services entered telecommunications market. The new services such as OTT and IoT services have become day to day consumption. Unfortunately, the development and the convergence of technology, business and services do not followed by law and regulation.

Indonesia needs the reform in its telecommunications law and regulations. In the progress of the reform, the government and regulator have pay attention and aware and of all existing agreement which entered into by Indonesia. The government and

regulator also have to consider the development of technology and services following the technology so the new regulatory regime will not obsolete faster.

Bibliography

- Bates, Regis J.. *Broadband Telecommunications Handbook, Second Edition*. The McGraw–Hill Companies, Inc., Phoenix, Az, 2002.
- Benyamin, Stuart Minor, et. al. *Telecommunications Law and Policy. Second Edition*. Carolina Academic Press, Durham, North Carolina, 2006, xxii.
- Blackman, Colin and Srivastava, Lara (Ed.) *Telecommunications Regulation Handbook*. Tenth Anniversary Edition. Washington, DC: The International Bank for Reconstruction and Development/The World Bank, InfoDev, and The International Telecommunication Union, 2011.
- Capaldo, Jeronim and Izurieta, Alex with Sundaram, Jomo Kwame. *Trading Down: Unemployment, Inequality and Other Risks of the Trans-Pacific Partnership Agreement*. Global Development And Environment Institute Working Paper No. 16-01. Tufts University, Medford, MA, USA, January 2016.
- Congressional Research Service. Brock R. Williams, Coordinator. *The Trans-Pacific Partnership: Strategic Implications*. CRS Report, Prepared for Members and Committees of Congress. February 3, 2016.
- Directorate General of Post and Telecommunications, Department of Transport, Communications and Tourism. History of Post and Telecommunications in Indonesia, Volume V New Order Era*, Jakarta.
- Friedman, Milton. *Capitalism and Freedom. The 40th Anniversary Edition*. The University of Chicago Press, Chicago and London, 2002.
- Industry Commission. *Telecommunications Equipment, Systems and Services. Report No. 61, 9 April 1998*. Commonwealth of Australia, 1998.
- Kathuria, Rajat. *Measuring the Impact of Decline in Leased Line Prices for the Indonesian Economy*. 2009.
- Office of the United States Trade Representative (USTR). 2015 Section 1377 Review On Compliance with Telecommunications Trade Agreements*
- PT Indosat. Annual Report 2005.
- Senunas, Eric. *The 1997 GATS Agreement on Basic Telecommunications: A Triumph For Multilateralism, or the Market? B.C. Intell. Prop. & Tech. F. 111401, 1997*.
- Setiawan, Bonnie. *At the End of Globalisation, We Are All Dead*. www.globaljust.org. Accessed 14 December 2005.
- Townsend, David N.. *Briefing Report on Regulatory Implications of Telecommunications Convergence*. ITU Regulatory Colloquium No.6, March 1997. ITU, Geneva, 1997.