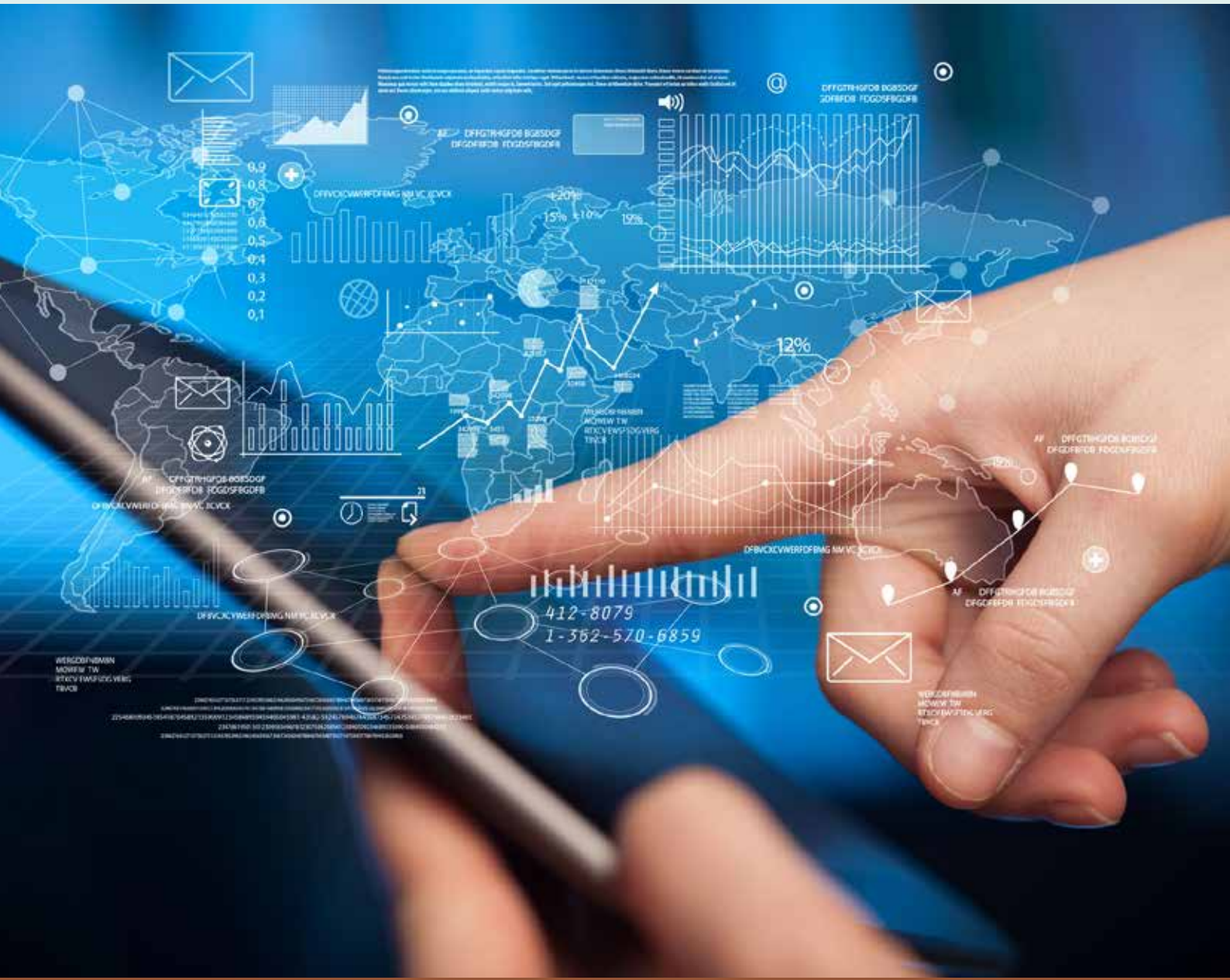

Rich-Interactive-Applications (RIA) in Indonesia:

Value to the Society and the Importance of an Enabling Regulatory Framework

CENTRE FOR STRATEGIC AND INTERNATIONAL STUDIES

ASIA INTERNET COALITION

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List of Abbreviations

APBN	Anggaran Pendapatan Belanja Negara (Central Government Budget)
APJII	Asosiasi Penyedia Jasa Internet Indonesia
ASEAN	Association of South East Asian Nations
BPS	Bada Pusat Statistik (Central Statistics Agency)
GDP	Gross Domestic Product
GDRP	Gross Domestic Regional Product
JKN KIS	Jaminan Kesehatan Nasional Kartu Indonesia Sehat
KK	Kartu Keluarga (Family Card)
MK	Mahkamah Konstitusi
MoCI	Ministry of Communication and Information
OTT	Over-the-Top
Podes	Potensi Desa (Village Potential)
Posbindu	Pos Pembinaan Terpadu
PPIM	*Pusat Pengkajian Islam dan Masyarakat*
RIA	Rich-Interactive-Application
SME	Small-Medium Enterprise
Susenas	Survei Sosial Ekonomi Nasional (Socio-Economic National Survey)
UNWTO	United Nations of World Tourism Organization
WHO	World Health Organization

Executive Summary

DIGITALIZATION AND DISRUPTIVE technology are transforming society at an unprecedented scale and pace. They have also altered the way people interact with other people and as well as with businesses. Specifically, the popularity of internet based-services have benefited society through more efficient, innovative, and affordable means of communications. Over-the-Top (OTT) services, also known as Rich-Interactive-Application (RIA) (e.g. iMessage, Facebook, Twitter, KakaoTalk, LINE, Signal, Skype, Snapchat, Threema, Viber, WhatsApp and WeChat), are becoming increasingly popular, generating tremendous benefits for consumers, small and medium business owners, and content creators. Globally, a large number of homegrown applications have also emerged to cater to specific needs in local markets such as Hike and Ola in India, Jongla in Nigeria, Gojek, Infoesia, and Daily Social in Indonesia. **In all these cases, RIAs offer opportunities for businesses and people by enabling a more productive society.**

Based on the national economic census (Susenas), almost 86% of Indonesia's internet users are using social media, and 80% of social media users are within the 16 – 45 years age group. Close to 45% of the users have high school education, while another 30% are university graduates (diploma or higher). In order to effectively support the growth of RIAs and digitalization in Indonesia, a sufficient level of broadband infrastructure quality must be attained. **Using regional and village level data, our econometric estimations found that a 10% increase in network coverage is associated with a 0.92% increase in Gross Domestic Regional Product (GDRP) growth.** In other words, an improvement in the accessibility of internet will benefit the country. In terms of economic impact, this report has identified three potential areas: commerce and SMEs, tourism, and jobs.

RIA is vital for Indonesian SMEs' commercial engagement. In 2016, SMEs contributed approximately 60% of Indonesia's GDP and 97% of total employment. Furthermore, due to the increased mobile internet penetration and internet usage, online platform has become an essential commercial instrument for businesses. A survey by Indonesia's e-commerce association, iDEA, in 2017, reveals that Indonesian SMEs utilize social media such as Facebook and Instagram

for their operations, while others maintain online presence through websites. Finally, social media and RIAs can also facilitate SMEs to connect and communicate with customers, suppliers and other members of the business chain.

In line with the government's focus on the tourism sector, RIAs play significant roles in achieving various government targets, such as reaching 20 million arrivals of international tourists and IDR 240 trillion of foreign exchange income in 2019. RIAs provide a platform for Indonesia's tourism industry, especially local businesses and SMEs, to tap into this opportunity. Based on the Travel and Tourism Competitiveness Index by the World Tourism Organization (UNWTO), Indonesia was ranked 42nd out of 136 countries in 2017, with poor ICT readiness as the major constraint. **Our team found that more than 700,000 users follow the top 20 Instagram accounts related to ticketing promotions and online reservations.** Almost all accounts provide their contacts and information in the form of messaging apps such as WhatsApp, Line, and BBM.

Several RIAs have begun to introduce and promote job marketplace to connect employees with employers and also to create additional jobs. In Indonesia, LinkedIn connects around 8 million users and lists Greater Jakarta as the fourth most connected city in the world. It also contributes to the emergence of the "online work" enabling people to earn money by performing a job remotely through the internet. One prime example is found in Tunjungmuli village in Central Java, where a person has transformed the employment prospect of hundreds of local residents by involving them in the online business services sector. This is made possible by conducting capacity building programs for local residents that are specifically designed to upgrade their customer service skills.

Given the currently unequal access to health services, RIAs have an important role in improving accessibility of health services across Indonesia. In a field survey in Yogyakarta, we found that WhatsApp groups were used by health practitioners to deliver health services and capacity building activities, such as direct consultation with patients/community and discussions of various policies and standard operating procedures among colleagues. In Kudus, Central Java, the local government has been utilizing WhatsApp to assist the registration for National Health Insurance-Indonesia Health Card (JKN-KIS). As a result, now local citizens only need to send photos of their ID and Family Card (KK) via WhatsApp to register.

The development of RIAs and applications enable more educators and students to experience a more interactive learning process. Our interview in Yogyakarta found that RIAs are among the most efficient tools to facilitate optimal two-way communications between teachers and students. The rise

of digital technology has also created more opportunities for Indonesian start-ups and non-profit movements to provide innovative solutions for Indonesia's education problems, as demonstrated by examples of *Ruangguru, Quipper, Kelase* and *Akademi Berbagi*.

RIAs provide an efficient tool for civic engagement and political aspiration processes. Constituents can now directly communicate with their representatives and express their political aspirations. Political elites are also more engaged with their constituents at a much lower cost. One prime example for this is the usefulness of social media platforms such as Facebook, Twitter, Instagram, or YouTube to support their political campaigns. In addition to being more cost-efficient than conventional campaigns, social media applications prove to be a more effective means for influencing millennial voters who have access to social media. This is echoed by CSIS Millennials Survey in 2017, which found that as much as 54.3% of millennials consume online media on a daily basis, compared to only 11.9% of non-millennials.

From a regulatory perspective, at this early stage of development, we conclude that Indonesia needs to make more room for RIAs to grow and should avoid restrictive regulation which could potentially hinder society from enjoying the benefits, while also creating barriers to entry especially for SMEs and local innovators. We also find that elements of the proposed regulation have already been addressed in various other existing regulations, while others are either inconsistent or lacking clarity. Additionally, requirements such as commercial presence in the country could potentially violate Indonesia's commitment in international treaties. In lieu of local presence requirement, other countries have adopted a VAT digital tax system that conforms to OECD and EU guidelines to ensure sufficient clarity in enforcement and ease of administration for taxpayers. Lastly, the Bank of Indonesia (BI) regulation on National Payment Gateway (NPG) creates misunderstanding and imposes high cost restrictions, as consumers and service providers should be able to use the most efficient and secure payment mechanisms.

Some of our suggestions for moving the debate forward in the country are:

- First, improve digital literacy among users. Better understanding of the use of RIAs would help the public in making their own judgment and selection of content and applications, while facilitating better decisions regarding inappropriate content. Increasing digital literacy would also create greater economic opportunity by facilitating the use of RIAs and other online platforms for more productive activities and for the purpose of reaching new markets and costumers.

- Second, improve telecommunication infrastructure that allow for quicker and more affordable internet connection. While greater connectivity depends on investments in infrastructure and services development, the Government, with the support of private sector, might also encourage innovative collaborations between telecom operators and RIAs to bring more people online. It can also be complemented with other initiatives that nurture new local talents, skills, and entrepreneurship.
- Finally, promote an enabling regulatory environment - based on higher digital literacy, improved connectivity, and a greater pool of talents and skills – to ensure that all members of society benefit from digital technology.

1. Introduction

TECHNOLOGICAL DEVELOPMENT AND innovation are driving the use of internet-based services worldwide and increasing the demand for data and cheaper and faster internet connectivity. In Indonesia, with the increasing mobile penetration, the OTT services, also known as RIA[1], such as iMessage, KakaoTalk, LINE, Signal, Skype, Snapchat, Threema, Viber, WhatsApp and WeChat, are becoming increasingly popular, generating tremendous benefits for consumers, small and medium business owners and content creators. Globally, many homegrown applications have also emerged to cater to specific needs in local markets such as Hike and Ola in India, Jongla in Nigeria, Gojek, Infoesia, and Daily Social among others in Indonesia

Clearly, RIA services have changed the way people transact, connect and interact, transcending geographical boundaries, distance and time. These changes have generated positive impacts on job creation and economic growth, in Indonesia and globally. **In 2017, a report by WIK found that each 10% increase in RIA usage leads to an average increase of US$5.6 trillion in global GDP (0.33% of GDP) from 2000 to 2015.[2] A 2014 report by the McKinsey Global Institute identifies digital innovations as a key driver for growth in ASEAN with a potential economic impact of between US$220 billion to US$625 billion by 2030. OTTs that make up the "app economy" support an estimated 22,000 jobs in Indonesia. This digital technology can boost growth for Indonesian labor and productivity by an estimated US$150 billion and can potentially create 3.7 million additional jobs in Indonesia by 2025.**

While still considered nascent, digitalization is catching up in Indonesia (Pangestu & Dewi, 2017). Supported by the rapid growth of mobile penetration, improved telecommunication infrastructure quality and better internet literacy, Indonesia has the potential to be a digital leader in the region. In 2000, only two out of 100 people had mobile phones in Indonesia. 15 years later, 80% of adults had at least one mobile phone. Currently the number of SIM cards is reported to

1 http://www.wik.org/fileadmin/Studien/2017/CCIA_RIA_Report.pdf

2 http://www.wik.org/fileadmin/Studien/2017/CCIA_RIA_Report.pdf (page 5)

have surpassed the number of population. Most Indonesians use the internet for social media and news. Unsurprisingly, Indonesia has become the world's Twitter capital and among the countries with most Facebook users, at over 115 million.

A high level of investment coupled with an effective digital strategy from the government will add 1.8% GDP growth by 2025 (Huawei, 2017). However, there are challenges ahead. According to the 2018 Internet Inclusiveness report by the Economist Intelligence Unit, Indonesia currently ranks 49th out of the 86 countries observed, below Thailand and Vietnam. Major improvements are needed, particularly given the lack of relevant content and due to poor digital literacy.[3]

The government's vision to establish Indonesia as the largest digital economy in Southeast Asia --worth US$130 billion and involves the emergence of 1,000 Indonesian *technopreneurs* by 2020-- should be appreciated. To this end, the Government indicates that it's willing to support development of digital services. On various occasions, President Jokowi and his cabinet members enthusiastically assured greater support from the Government in developing Indonesia's digital economy. We see that the development of the digital economy should be encouraged by ensuring a favorable investment climate and a predictable, yet appropriately flexible, policy and regulatory environment that recognizes the nature of technological developments and provides opportunities for innovation.

There are two general objectives of this study. First, to identify the impacts of the development of digital economy, especially RIA, in Indonesia. There are two aspects explored: economic and socio-political and cultural impacts. Second, our study analyzes various regulatory aspects of the draft OTT regulation. To answer our research questions both qualitative and quantitative methods were employed. For the quantitative analysis, we constructed an econometric model for Indonesia. In-depth interviews and focus group discussions (FGDs) were also conducted to gather information from a wide range of stakeholders, including the government and private sector. Lastly, field research was conducted in Yogyakarta and Banten (see Annex 1).

We note that there is no single definition of RIA. One of the possible reasons is that the types of services offered by the providers are very diverse, ranging from communications, social media, TV/video streaming, music, to commerce platforms. They also include applications that facilitate rich interaction, such as photo/video sharing, location sharing, payments, and chat among individuals, groups, or enterprises. However, based on their functionality, this study differentiates RIA services into four categories as presented in the table below.

3 https://theinclusiveinternet.eiu.com/

Table 1. Types of RIA Services in Indonesia

No	Type	Description	Examples
1	Communications	Deliver audio, video and other media	Skype, WhatsApp, Line, Blackberry Messenger, Signal, Viber, Google Hangouts, Google Allo, WeChat, IM+, Snapchat[4]
2	Social media	Social networking platform	Facebook, Twitter Instagram, Path, Weibo
3	Media and entertainment	Movie streaming, TV on-demand, news/discussion	YouTube, Netflix, Iflix, Spotify, Deezer
4	Commerce	Marketplace, fintech, transportation	Amazon, Alibaba

Source: Compiled by author

This report is structured in the following order. Chapter 1 provides an introduction and the background of the study. Chapter 2 analyzes the impact of RIA services to the economy in three different aspects: commerce, tourism and jobs. Next, Chapter 3 emphasizes the social and civic dimension of the RIA. Some critical issues related to the draft OTT regulation will be addressed in Chapter 4. Finally, Chapter 5 provides a summary and key recommendations to support the growth of Indonesia's digital economy.

The second and third chapters of this study analyze RIAs that are communications and social media platforms. Meanwhile, discussions on regulatory environment in Chapter 4 include all platforms, including RIA, media, entertainment and commercial platforms, since the draft OTT regulation (2017) covers all internet platforms.

4 https://www.digitaltrends.com/mobile/best-messaging-apps-for-android-and-ios/

2. Economic Impact of RIA

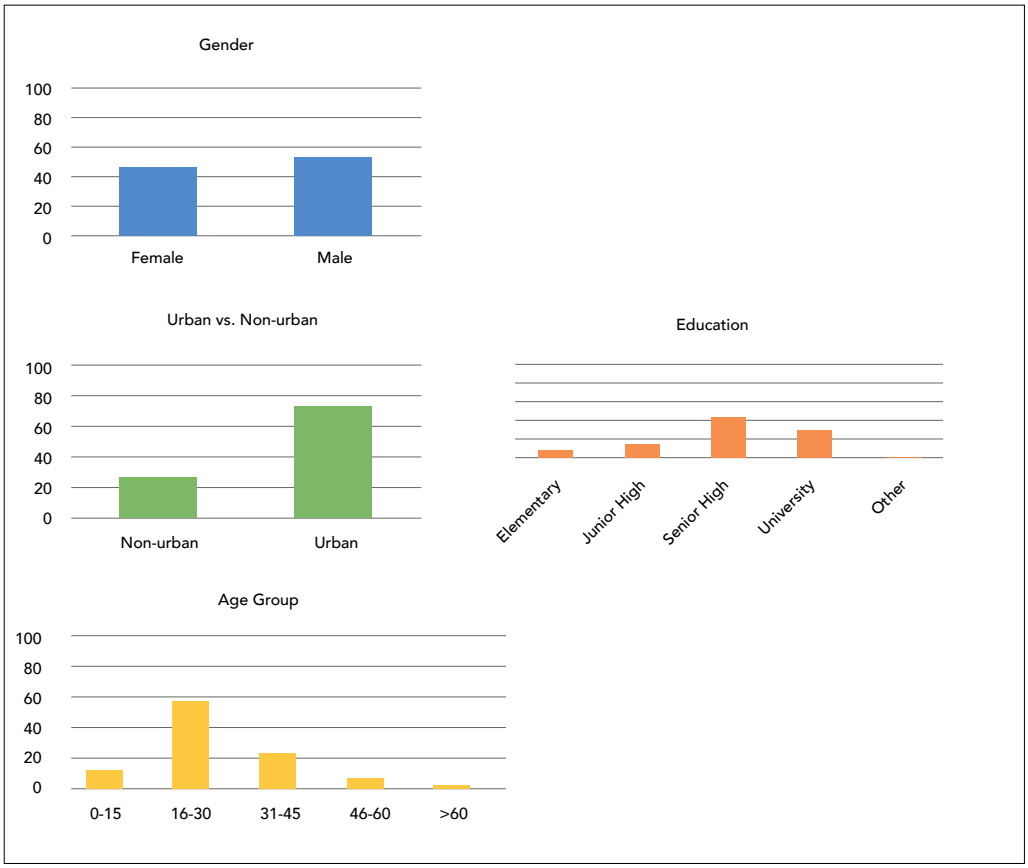
SEVERAL STUDIES ANALYZE the economic impacts of digitalization, RIAs and mobile internet penetration on a country's economy. For example, Gruber et al. (2011) assesses the contribution of mobile telecommunications to annual GDP growth and finds a positive 0.11% growth for low-income countries and 0.20% for high-income countries. In low- and middle-income countries, a World Bank study finds that a 10% increase in broadband penetration accelerates economic growth by 1.38% — more than the impact in high-income countries and for other telecommunications services. In a similar study, McKinsey & Company estimates that a 10% increase in broadband household penetration boosts a country's GDP ranging from 0.1% to 1.4%. Oxford Economics (2016) predicts that each one percentage point increase in mobile internet penetration would create an additional US$58.1 billion in GDP and one million new job opportunities by 2020 in Southeast Asia. Lastly, on RIA in India, Honnef (2017) argues that RIA improves efficiency at work. Approximately, it saves 803.9 minutes per week which translates into US$98 billion consumer surplus in 2017.

For the Indonesian context, a survey by APJII (2017) reveals that almost 90% of internet users in Indonesia use the internet for chatting and social media purposes. This suggests that most of them are active users, and are therefore familiar with the RIA services. Another source of RIA-related data, such as utilization of internet and social media[1] in Indonesia can be retrieved from the National Socioeconomic Survey or Susenas. Indonesia's Central Bureau of Statistics (*BPS*) began to collect data on internet usage in 2015. Figure 1 shows the breakdown of social media users in 2016 by gender, educational background, type of regions, and age group.

In 2016, almost 86% of internet users have social media accounts. The proportion of men that use social media is slightly higher than that of women. Based on educational background, almost 45% of users have high school education, while around 30% are university graduates (diploma or higher). Social media users are more likely to be living in urban areas (80%). Finally, 80% of social media users are within the 16 – 45 year age group.v

1 Susenas defined social media as Facebook, Twitter, BBM, Whatsapp, Skype, etc.

Figure 1. Social Media User's Profile in Indonesia, 2016



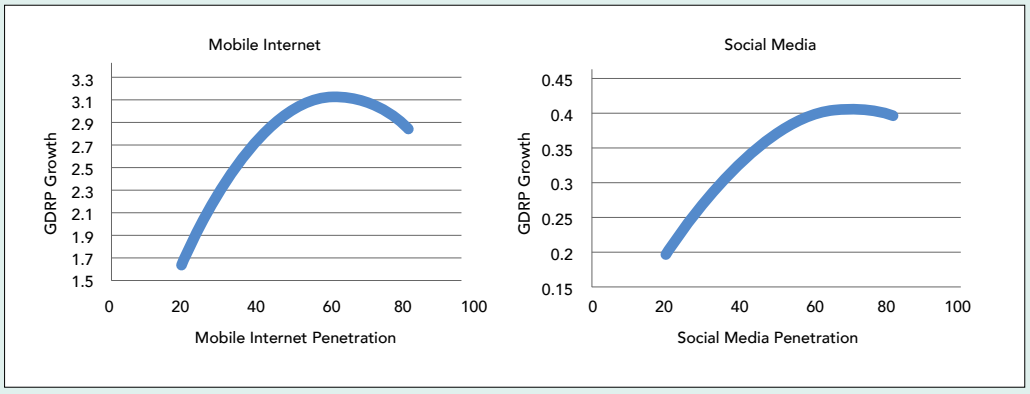
Source: Susenas, 2016

To assess the quantitative impact of RIA to the local economy, our team developed an econometric model using regional data in Indonesia, to compare the impacts of RIA to the economic outputs of different regions. We estimate that a 10% increase in network coverage is associated with 0.92% increase in GDRP (regional GDP) growth. Social media has proved to bring positive effect to the economy, as a 10% increase in social media penetration is also associated with an increased GDRP growth by 0.11%. Regions with higher mobile internet and social media penetration rate perform significantly better in terms of economic growth. A region with 50% level of mobile internet penetration, has a higher GDRP growth by 3%. Similarly, regions with 50% social media penetration also grow more quickly by as much as 0.4%. Box 1 below provides a more comprehensive discussion on the model specification and the data used.

Box 1. Estimating the Impact of Mobile Internet and Social Media: Econometrics Model

Given the definition of RIA, we will focus on the mobile-based RIA in this study. The argument is that most people who access the internet use mobile phones. The best way to quantify the impact of RIAs is by obtaining the data from all the RIA providers. However, given the limited availability of data, we decided to employ another strategy, which relies on two factors: mobile internet penetration and social media penetration. We thereby examine the impact of mobile internet and social media penetration to the local economy.

The distinct feature of our study is that we explore the regional economic diversity in Indonesia. From Village Potential statistics (*Podes*), we extract the Base Transceiver Station (BTS) coverage data in 2014 from 73,709 villages with district/city as the observation unit. Mobile internet and social media penetration are retrieved from Susenas 2015. Finally, we use the GDRP to measure the economic output of the district/city from BPS, which comprises more than 500 districts/cities. Using quadratic function, our model[2] demonstrates a strong correlation between mobile and social media penetration and GDRP growth.



Source: Authors' calculation

2 Econometric model:

$GDRP=\alpha+\beta_1 BTS+\beta_2 MIP+\beta_3 MIP^2+z$ (1)

$GDRP=\alpha+\beta_4 BTS+\beta_5 SOC+\beta_6 SOC^2+z$ (2)

Variables:

GDRP : GDRP in a district/city

BTS : Base Transceiver Station coverage per district/city

MIP : the mobile internet users in a district/city

SOC : social media users in a district/city

Z : control variables i.e. labor force, basic infrastructure access

In the following section, we argue through case studies and literature review, how RIA could potentially bring significant impact to the economy in three areas: commerce platform, tourism and job creation and marketplace.

2.1 Commercial and Marketing Platforms

The adoption of digital technology has changed the way businesses operate. According to Google Temasek report (2016), Indonesia's internet economy is forecasted to be worth approximately US$197 billion by 2025, equivalent to 40% of the Southeast Asia's economy. The internet is increasingly becoming an enabling tool for growth, productivity boost and job creation, particularly for small and medium enterprises (SMEs).

SMEs play a major role in economic development and growth in Indonesia. Nearly 99% of business entities in the country are SMEs, amounting to approximately 56 million enterprises. In 2016, SMEs contributed around 60% of Indonesia's GDP and 97% of total employment. Furthermore, due to the increased mobile internet penetration and internet usage[3], online platform has become an essential commercial instrument for businesses.

However, most Indonesian SMEs still face many challenges, such as limited access to the market and information due to limited knowledge and expertise. Indonesian SMEs also have low digital engagement; around 37 % of SMEs operate totally offline, and only 10% have full online presence (Deloitte, 2015). Consequently, this often prevents them from enhancing their productivity and growth.

Box 2. Buy and Sell Facebook Page: Indonesia's new e-commerce platform?

'Jual Beli Kota Jogja' is a local community page in the city of Yogyakarta. The page was established in 2015 by community members who wanted to buy and sell items in the local area. Currently, the community has more than 100, 000 active members.

For many local businesses, this social media marketplace is preferred compared to conventional online marketplace (e.g. e-commerce marketplaces and websites). This is because businesses, particularly individual SMEs, have a stronger sense of trust towards the local community members. This trust can be established due to

3 According to APJII (2017), internet users have grown from 88.1 million in 2014 to 143.26 million in 2017. Similarly, mobile internet penetration rose from 24 % to nearly 30 %.

the fact that the platform allows people to people interaction that goes beyond commercial transactions (e.g. profile viewing).

'Jual Beli Kota Jogja' is becoming one of the most go-to online marketplaces in Yogyakarta. This phenomenon is gaining popularity in other cities in Indonesia such as Palu, Malang, and Medan. With more than hundred thousands of members, businesses may consider tapping into such platforms' potential.

Online platforms such as social media and RIAs can help SMEs overcome these challenges and tap into digital opportunities to gain wider market access[4]. Globally, there are over 70 million small and medium businesses that actively use Facebook Pages since they are free, easy to use, and offer flexiblity on mobile platforms. A study by APJII (2017) reveals that most Indonesians use internet for two main purposes: social media (87%) and search (74%). Such internet platforms can help SMEs reach out to potential customers (B2C), as well as connect them to prospective business partners within the integrated value chain (B2B) both locally and globally.

One example of such platforms is Facebook. Currently, more than 115 millions of Indonesians are monthly active users on Facebook. People in many cities use groups or pages to exchange, buy and sell goods. Local SMEs have also been using this platform to sell and promote their products and find potential buyers in their community (see Case Study in Box 2 above). In 2017, iDEA survey found that Indonesian SMEs mainly use social media to market their product such as Facebook (43%), Instagram (11%), while others use websites (7%). In Indonesia, social media is the most effective digital marketing strategy (GetCRAFT, 2017). With the presence of platforms such as social media and RIAs, SMEs can lower the costs of traditional advertising and logistics. A study by McKinsey in 2016 indicates that Facebook usage generates positive impact on non-financial performance of SMEs in terms of cost reductions for marketing and customer services.

In addition, the use of these interactive online platforms can help SMEs to engage with customers for marketing, sales promotion and building branding awareness (Oxera. 2016). Given the interactive nature of these platforms, social media and RIAs can help SMEs to connect and communicate with customers, suppliers and other members of the business chain. They enable real-time communications and flow of information between SMEs and customers.

4 Several studies have shown online platforms such as web technologies help small medium business to grow and export twice as much (McKinsey, 2011), and that social media and other e-commerce platforms lead to an 80% higher growth of SMEs' revenues. In addition, SMEs that use such platforms are 1.5 times more likely to increase employment and 17 times more likely to be innovative (Deloitte, 2015)

Box 4. Promoting Indonesia's Cultural Heritage and Empowering Disabled Community through Facebook Business Page

'Batik Kultur Dea' is an online boutique which specializes in selling modern and fashionable batik clothing– Indonesian hand-dyed artisan fabric. Established in 2011, the founder of business, Dea Valencia Budiarto, realized that she could use her social network to promote her batik. With just one employee and her mother, Dea started the business using personal Facebook page, until one day she decided to switch to Facebook Business Page. As soon as she started using Facebook Business Page, Batik Kultur experienced a 60% sales increase in ten months and a 70% increase in customer base.

Dea's experience with Facebook Business page has helped the business immensely in reaching out to customers outside of her local market, as indicated by the fact that more than 95% of its sales came from Facebook platform. Today, Batik Kultur employs 66 employees; 24 of whom are disabled. Dea is more determined than ever to continue empowering communities by expanding her Facebook presence in larger communities.

2.2 Tourism promotion

As a country with diverse ethnicity and culture, Indonesia is blessed to become one of the favorite tourist destinations in the world. In 2017, Indonesia posted a 22% growth in foreign tourist arrival, although it failed to meet the target of 15 million arrivals. This achievement is possible, to some extent, due to the government's efforts and commitment in promoting its tourism with "Wonderful Indonesia" slogan.

The government realizes that tourism is one of the main drivers of economic growth and therefore, designates it as one of the priority sectors for development. It targets as much as 20 million international tourist arrivals in 2019, along with IDR240 trillion worth of generated income in foreign exchange. According to UNWTO Report (2016), Indonesia's tourism sector contributes around US$17 billion to the economy, as well as adds 1.9 million direct jobs in 2016. It is projected to grow by 5.6% p.a. until 2027 to reach an economic contribution of US$ 30.5 billion and create 2.5 million direct jobs.

RIA provides platforms for Indonesia's tourism industry, especially local business and SMEs, to tap into this opportunity. On the Travel and Tourism Competitiveness Index by World Tourism Organization (UNWTO), Indonesia ranked 42nd out of

136 countries in 2017, constrained by lack of ICT readiness. This is vital because 82% of travelers use digital platform to find information related to tourism spots, and 73% of them are active users in social media while traveling.

Instagram—home to 45 million Indonesian active users (the largest in Asia[5]), is one of the platforms playing a major role in the rapid growth of the tour and travel sector. "Instagrammable" and "insta-worthy" pictures and videos are effective marketing tools especially for millennial customers. One indicator of popularity in Instagram is the number of public posts using the related tags. In Indonesia, *#Bali* is the most popular tag with 35 million public posts. As comparison, *#Phuket* and *#Pattaya* in Thailand each has around 6.5 million and 2.7 million tags in public posts, respectively. However, emerging tourism spots, or known as "the new Bali", such as *#Bromo*, *#RajaAmpat* and *#Labuanbajo* are still relatively less popular, with under 1 million tags for each tags.

Box 4. The Rise of Digital Travel in Indonesia through Instagram

CV Persada Nusantara Utama or "Piknik Nusantara" is a tour and travel company located in Bekasi, West Java. It offers 36 open trip destinations, ranging from Labuan Bajo to Mount Everest, with more than 20 trips each month. The company also provides other services such as private trip, ticket booking, and car hiring services. The company extensively uses RIAs, such as Whatsapp, Line, Facebook, and Messenger, to communicate with their customers. It currently has 40,800 followers in Instagram, having posted 18,319 posts with #pikniknusantara hashtag.

The local tourism sector, including SMEs, is receiving substantial benefits from the RIA advancement as it reduces communication cost and supports broader customer reach. It also facilitates more responsive delivery of services, enabling the customers to benefit from real-time services in a more convenient way at minimum cost. For example, *Promo Trip*—a tour and travel company – posted their first Instagram post in 2015. Now, it has 119,000 followers, compared with 54,000 followers of *Panorama Tour*'s account, a publicly-listed company founded in 1972. Our team found that around 700,000+ users follow top 20 Instagram accounts related to ticketing promotion and online reservation. Almost all accounts provide their contacts and information through RIA platform such as WhatsApp, Line, and BBM.

5 http://jakartaglobe.id/news/instagram-45-million-users-indonesia-largest-asia-pacific/

Lastly, the rapid development of tourism sector has created large spillover effects to many other sectors, such as tour and travel, hotel and accommodation, ticket booking/reservation, and restaurant and culinary. According to the Ministry of Tourism (2017), tourism sector contributes Rp 495,739.8 billion to the economy in 2017, or 4.13% of the total GDP, mainly from accommodation sub-sector (IDR 60,365.7 billion or 69.2%), food and beverages sub-sector (IDR 41,2796 billion or 14.76%) and railways transport (IDR 992 billion or 14.36%).

2.3 Job Creation and Marketplace

Digital technology is reconstructing the workforce and the job roles in the market, urging people to upgrade their skills and employ entrepreneurial and innovative thinking (McKendrick, 2016). Several RIAs have begun to promote job marketplace applications connecting employees with potential employers. These include platforms such as Jobstreet.com, Neuvoo, Indeed.com, Monster.com, Glassdoor, and many more. In Indonesia, LinkedIn connects around 8 million users, with the Greater Jakarta listed as the fourth most connected city in the world on LinkedIn.[6]

Table 2. Several popular global and national job sites/online platforms

Company Name	Year of establishment	Scope	Headquarter	Jobs available in Indonesia
ROBERT WALTERS	1985	Global	London, UK	Not specified
JobStreet.com	1997	Southeast Asia	Kuala Lumpur, Malaysia	25,000-30,000
jobsDB.com	1998	Asia	Hong Kong	5,000-6,000
karir	1999	Indonesia	Jakarta, Indonesia	500-1,000
monster	1999	Global	New York, US	Not specified
JAC Recruitment	2002	Indonesia	Jakarta, Indonesia	Not specified
LinkedIn	2002	Global	California, US	20,000-25,000
indeed	2004	Global	Texas and Connecticut, US	5,000-8,000
glassdoor	2007	Global	California, US	Not specified
HATARAKO Indonesia.com	2009	Indonesia	Jakarta, Indonesia	100-300
neuvoo	2010	Global	Montreal, Canada	30,000-40,000

Source: companies' website

6 http://www.thejakartapost.com/life/2017/04/25/greater-jakarta-ranked-fourth-most-connected-city-on-linkedin.html

The data and trends identified by these platforms also serve to help professionals to understand which types of knowledge and skills that are in high demand.

The two-way interaction offered by some RIAs like Skype, WhatsApp, and Line, reduces transaction costs, such as promotion and follow-up related costs, allowing potential employees and employers to communicate during the application and selection process. Facebook Messenger also provides an interesting example of this phenomenon, as described in Box 5. Lastly, RIAs also encourage closer relationships and deeper professional networks, regardless of geographical locations. For efficiency and productivity reasons, this feature has been beneficial in linking the demand for labor with the supply of labor, especially in light of a freer labor mobility under the ASEAN Economic Community (AEC) framework.

Box 5. The ease of linking stakeholders in the labor market through Linkedin and WhatsApp

Bambang, who has just finished his Ph.D degree from a prestigious university in Australia is looking for academic jobs at several universities in Indonesia. Bambang utilizes a number of popular OTT service applications, that are commonly used by job seekers in Indonesia to find work.

Bambang recently applied for a position as a part-time teaching staff at one of the best public policy schools in Jakarta through LinkedIn by providing his profile and up to date CV that was written and saved on his LinkedIn account. "The process was so easy and I saved a lot of time," he said.

The ideal combination between OTT and RIA is best described in this story since Bambang was successfully reached by his future employer through a communications service. In addition to email notification, he was contacted by the human resources department of the school via WhatsApp. Since Bambang has a smartphone that is connected to the internet 24 hours per day, the notification through Whatsapp is the most effective and efficient way to link him with his future employer.

The trend of remote "online work" is also growing in popularity in Indonesia and all over the world, allowing people to land new jobs or complement a current one with additional works. Online outsourcing or freelancing platforms have changed the way people find jobs and work. Imaizumi and Santos (2016)

mentioned two types of platforms on which people can perform online works: microwork and online freelancing. By 2013, there were around 145 online outsourcing marketplaces or platforms identified globally (Karpie and Nurthen, 2014). The United States, the United Kingdom, France, Germany and Israel are the leading countries with the most number of people hired to perform remote work online. Meanwhile, the United States, Philippines, Russia, Bangladesh and the United Kingdom are among the countries widely known to boast a great number of providers of the online workers.

Box 6. Tunjungmuli village as an online and marketer village in Central Java, Indonesia

Nofi Darmawan is the initiator of the Marketer Village program in Tunjungmuli. He quit his job as a government official in 2013 to establish the Marketer Village by developing and improving human resources in Tunjungmuli village and increasing their knowledge and awareness of online business processes. More and more clients from businesses of various sizes are interested in recruiting the villagers to carry out their customer services functions, as they offer more competitive labor costs compared to urban workers. This allows the villagers to earn between IDR 1-4 million with flexible working hours.

Nofi successfully trained hundreds of people in the village and involve them in online business services sector by creating a capacity building program to improve/upgrade their skills to become customer services officers. The villagers no longer have to rely on farming activities and instead have increased their capacity to engage by providing services on line.

Nofi has six offices in two different villages and employs almost 200 people. The roles of his employees vary, including online business customer service, advertising, content writing and customer service leader. He recruited his employees from eight different villages surrounding Tunjungmuli village. His clients are also varied, from dropshippers to brand owners. His objective is to reduce unemployment in the village by educating and empowering villagers with the knowledge related to digital technology.

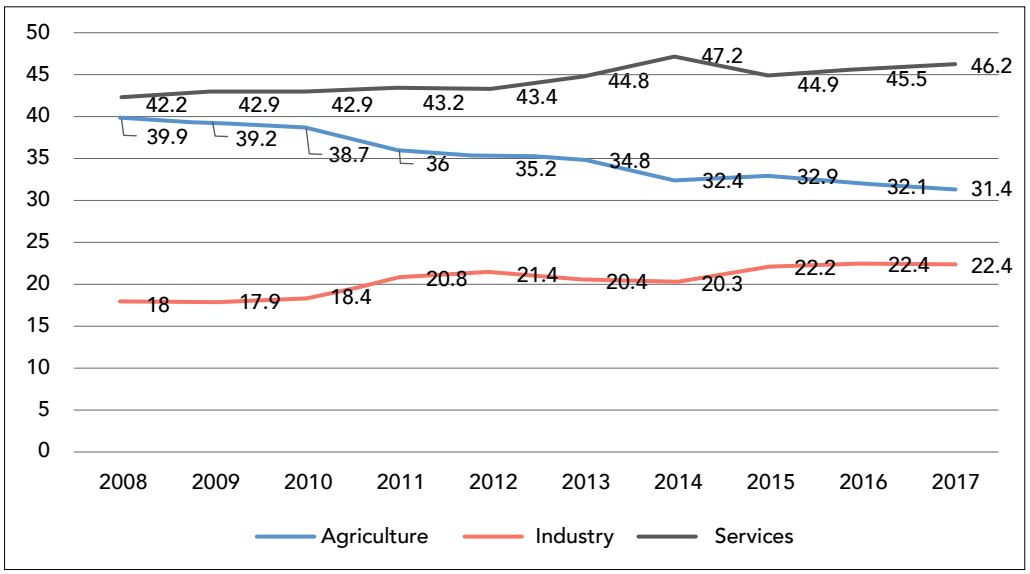
This phenomenon also exists in Indonesia. One prominent example is found in Purbalingga Regency of Central Java where hundreds of people are working in the services sectors despite living in their villages. They primarily work as customer services (CS) officers for online business across Indonesia, using only

their smartphones (Box 6). Many of them could earn hundreds of million of Rupiah a year from marketing online business products from all over Indonesia.

There are several other cases in which online job marketplaces, provided through RIAs, have offered greater opportunities for the Indonesian job seekers, particularly in rural areas. One of them is a story of designer village in Kaliabu, Magelang Regency of Central Java, whose residents are involved in designing the logo of various companies across the world. They actively use RIAs to promote their services, as well as to communicate with their customers.

From a macro perspective, as a country that is undergoing a structural transformation from an agricultural economy to a services-based economy, ICTs in general and RIAs in particular have major roles to play in the economy. In the last decade, the employment share of the agricultural sector in Indonesia has been continuously decreasing from 39.9% in 2008 to 31.4% in 2017 (Figure 2). On the other hand, the employment share in services sectors have surged from 42.2% in 2008 to 46.2% in 2017. The rise of digital technology is likely to support the development of services sectors in Indonesia further, as it enables people to work in the services sector even from the remote areas.

Figure 2. Employment by Sector as %age of Total Employment in Indonesia, 2008-2017



Source: ILO

3. Social and Civic Impact

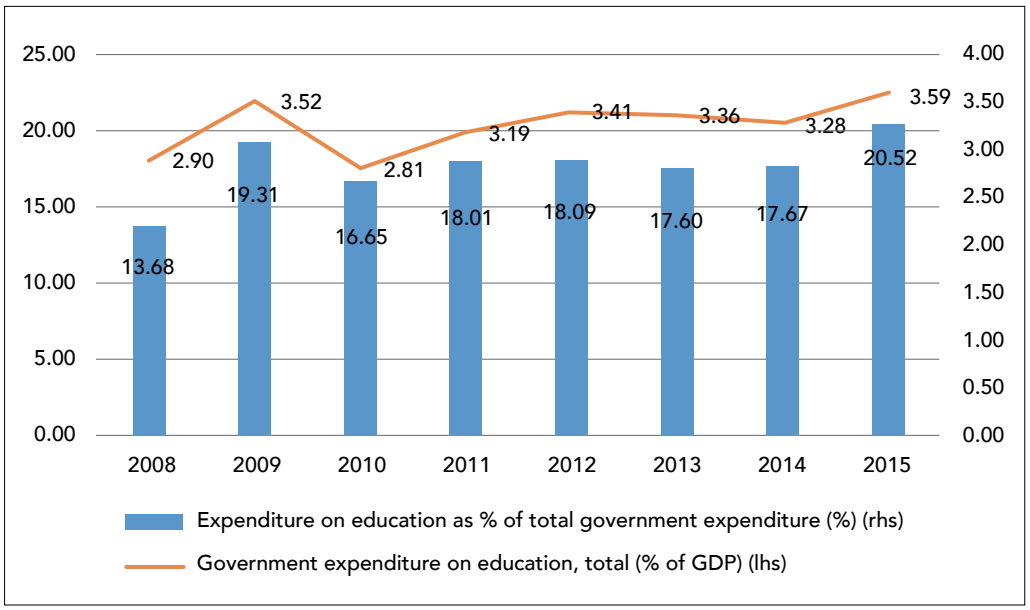
THE SIGNIFICANT GROWTH of information and communication technology in Indonesia, especially internet and social media technology, bring substantial impacts in terms of distribution of knowledge on various sectors, including health, education, and civic engagement. Moreover, it also has given Indonesian citizens unparalleled opportunities to freely express their opinion and engaget in public debates (Hamid, 2017). We further this argument in the sections below, with analysis and examples.

To further illustrate our data and bibliography findings, we conducted a field survey and a series of interviews in two provinces: the Special Region of Yogyakarta and Banten. The selection of these two provinces corresponds to the assumptions that Yogyakarta boasts higher digital literacy due to rising local expenditure in ICTs, while on the contrary, Banten is still relatively vulnerable to poverty. Our objective is to compare and contrast the two, while assessing the benefits of digitalization. Our sample of interviewees were chosen randomly; they include midwives, medical doctors, lawmakers, priests, religious leaders, school teachers, pregnant women, and students. Using this sample, we analyze the impacts brought by RIA to their livelihoods and how they value those impacts.

3.1 Education

Since 2009, Indonesia has allocated 20% of its national budget (*Anggaran Pendapatan dan Belanja Negara* (APBN)) to education. Nevertheless, Indonesia is still working to improve its budget effectiveness and management. The national budget on education started to increase under Susilo Bambang Yudhoyono (SBY) presidency, from only 13.68% in 2008 to 19.31% in 2009 (Figure 3), after the Constitutional Court (*Mahkamah Konstitusi* (MK)) issued its decision on August 2008, stipulating that budget allocation for the education sector should be in accordance with 1945 constitution and Law No. 20/2003 on national education system. Since then, the government expenditure on education hovers between 13-20%, or around 2.8-3.6% of the total GDP (Figure 3). In 2017, the government spent IDR 416.1 trillion on the education sector.

Figure 3. Government Expenditure on Education, 2008-2015 (%)



Source: World Bank

Despite the increased spending, many problems related to education in Indonesia persist. The issues of low skilled teachers and monotonous learning process inside the classroom, as well as limited communications between educators and students, obstruct the achievement of the objectives of the national education system. Digital technology appears as a core element within these efforts to further support the improvement of educational activities in Indonesia.

RIAs and online platforms have the potential to improve both the ease of learning and the quality of materials delivered inside and beyond the classroom. RIAs can also bridge infrastructure and cultural gaps as they allow teachers and students in remote areas to access learning materials.

Applications such as Ruangguru, Quipper, and Kelase are some of the currently available RIAs in the education sector (Table 3). Those applications provide educational modules and services that can be accessed online from anywhere and at anytime. They specifically focus on teachers-students interaction and skill developments[1]. A teacher we interviewed in Yogyakarta said that most teachers were actually aware of these applications, but they were reluctant to utilize these applications because they had to register and, in some cases, pay in order to gain access to most of the materials provided in the applications.

1 Ruangguru (https://ruangguru.com/), Quipper (https://video.quipper.com/id/), Kelase (http://www.kelase.net/).

Table 3. Several popular education platforms in Indonesia

Education platform	Year of establishment	Main objective	Headquarter	Number of users
ruang guru	2014	Online education and learning services	Jakarta, Indonesia	6 million (up to January 2018)
Quipper	2014	Social media learning	Jakarta, Indonesia	4 million (up to February 2018)
kelase	2014	Social media learning, collaboration and knowledge exchange	Jakarta, Indonesia	200,000-250,000 (up to December 2017)

Source: companies' website

We also found that WhatsApp, Facebook Messenger, Line, and Skype are used by both teachers and students to communicate and further discuss educational topics, enriching the learning process. Such applications enhance the productivity of teachers/lecturers and improve the relationships between teachers and students (see Box 7). Some teachers and students also use Google Drive and Dropbox to share and review learning materials, allowing both simultaneous interaction and more personalized attention. In general, the interviewees believe that the use of digital technology has been successful in improving students' attention during the learning process inside and beyond the classroom.

Box. 7. WhatsApp as the practical application to facilicate communication and to bridge cultural gaps

Yogyakarta is one of the prominent study destinations in Java and well-known as the students' city (Kota Pelajar). Students from all over Indonesia pursue studies of various levels and majors in Yogyakarta. As Yogyakarta is a multicultural city with a diverse range of cultural background, RIAs could accommodate and bridge the gap among various cultures that might appear during the learning process both between educators and students, as well as among educators or among students.

An instance is where a lecturer at one of the private universities in Yogyakarta is using WhatsApp to communicate with her students and to interact with other lecturers within and outside of the university. She and her students are intensively

discussing the topics of her lectures using WhatsApp. She considers WhatsApp as the most effective and efficient media or application, beyond the classroom, that could provide an optimal two- way communication. She can perform voice call or video call with her students if there are some misunderstandings or unclear explanations during her lectures.

Furthermore, the rise of such technologies also encourages and provides greater opportunities for Indonesian start-ups and non-profit movements in education sector, such as *Akademi Berbagi* (sharing academy). This sharing academy offers free capacity building programs in almost all major cities in Indonesia with the objective of upgrading its participants' skills and knowledge. In summary, the digital technology, especially in the form of RIAs, is a beneficial tool for communication, for gathering information, and upgrading skills of both educators and students during the learning process inside and beyond the classroom.

Box 8. *Akademi Berbagi* (Sharing Academy) as the media for learning

Akademi Berbagi (Sharing Academy) was established in 2010. This non-profit movement has branches in 23 cities in Indonesia. Out of those 23 cities, more than 100 volunteers 1,000 members are involved. It offers various learning topics and welcomes anyone who is interested to join the programs. For more information, go to https://akademiberbagi.org/.

3.2 Health Sector

Despite steady improvement, the Indonesian healthcare system still suffers from structural issues such as underfinancing, low supply of care providers and hospitals, limited access to medicines in rural and remote areas, and overall inaccessibility and inequity of care provision. The World Health Organization (WHO) finds that the state of health and health services accesses in Indonesia are still characterized by inequality. According to the data from the Indonesia's Doctors Association in August 2017, there are approximately 186,856 doctors in Indonesia, half of whom are concentrated in Java. Further, 'limited connectivity' between patients and medical staffs has constrained the efforts to prevent and cure diseases through the transfer of knowledge. The socio-economic and cultural

backgrounds of some communities also play parts in contributing to their limited understanding of health issues.

In this context, the role of digital technology is significant for improving Indonesia's health system and services. With the development of digital technology and e-health services, including digital health literacy[2], more Indonesians will reap the benefit in a variety of ways, including: (a) better-informed decision making and enhanced quality of health care; (b) remote consultations, whether urgent or diagnostic, a more efficient, convenient, and potentially cost-effective method of health care delivery; (c) earlier and more accurate diagnoses; (d) greater and quicker access to a patients' medical history, and therefore reduced risks of negative drug interactions or poor responses to a course of treatments; (e) administrative efficiency and coordination; (f) rural residents can receive expert diagnoses and treatments from distant medical centers; (g) increased timeliness of treatments and decreased transfer rates while reducing medical costs through video technology; (h) supported real-time treatments by first responders through the use of wireless devices; and (i) enhanced senior wellness and preventative care through telemedicine and remote in-home monitoring.[3]

Additionally, both patients and health staff could benefit from this digital health technology. Now they are able to access and understand different online health information through various multimedia formats. They can also participate in online communities to discuss health issues, as well as to disseminate health information to colleagues, and create more user-friendly health information online. In broad terms, the digital health applications can be classified into four main functions[4] :

a) Education and awareness,
b) Diagnostic, communication, and training for healthcare workers,
c) Disease surveillance, remote data collection, and
d) Treatment support and medication compliance for patients.

In Indonesia, the Ministry of Health currently has a Facebook account with 67,368 followers and 64,319 likes. This account is the official channel for sharing health-related information and events. It is also a platform on which citizens can clarify questions, interact with the Ministry of Health, and share their health-related issues and experiences. This account is also interactive, as it allows its

2 Digital health literacy could be defined as the capability to access, understand, compare, evaluate, distribute and provide digital health information to support the effort to promote health individually and in the society.

3 10 Benefits of Telemedicine, eHealth and Health IT https://internetinnovation.org/press-releases/10-benefits-of-telemedicine-ehealth-and-health-it/

4 http://fiki2015.org/2015/08/aplikasi-mhealth/

members to send inquiries and suggestions to the Ministry, e.g. related to the national health insurance system (BPJS). This account also provides the public with information on programs conducted by the Ministry of Health.

Another official account in Facebook is managed by Yayasan Jantung Indonesia (@Yayasan JantungIndonesia). This account allows its members to share information of heart-related health issues. It also socializes various programs that are organized by the Yayasan Jantung Indonesia. Furthermore, this account also serves as a support group for heart patients. Apart from the official account of the Ministry of Health, the community and civil society groups are also active in initiating health-related Facebook accounts. One of them is 'Indonesia Health Volunteer Account'. This account is managed by volunteers, which include medical doctors working in the field of community services, health, and education.

The lack of digital literacy is still considered a major obstacle. Despite the availability of various Facebook accounts discussing health issues, some respondents in our field research are reluctant to use the application as the means to share, disseminate, or even search for health-related information. A medical doctor in Serang, Banten, stated that most of her patients have no Facebook account. Therefore, she prefers face-to-face interactions with them, as they are more effective. She also argued that patients with low educational background may easily be misled by various health disinformation.

A teacher and expectant mother in Cilegon, Banten, explained in the interview that she benefits from digital technology as it has enhances her knowledge on pregnancy-related issues. Technology supports a more efficient learning process, since all the information she needs is accessible through her smartphone.

Digital technology also supports better interactions between doctors and patients. There are various applications in which patients can directly consult medical experts, or track their symptoms or progresses, without needing to go to a hospital or clinic. For example, Dokter.id helps patients to find information about certain diseases online. In this platform, doctors guide the patients to identify their illnesses and provide diagnoses. In addition to conventional websites, most of these services also offer smartphone apps.

In Kudus, Central Java, the local government utilizes WhatsApp to make it easier for the locals to register for the National Health Insurance-Indonesia Health Card (JKN-KIS). The procedure is simple, as citizens only need to send the photographs of their ID and Family Card (KK) via WhatsApp to register.

A midwife in Yogyakarta uses WhatsApp to support her patients. She created seven WhatsApp groups for communications with her patients, with the village community, with the midwifes association, as well as with hospital staffs. She uses

WhatsApp groups to discuss cases and diseases with doctors and other midwives, and to disseminate knowledge and guidance to her patients and colleagues.

A doctor in Yogyakarta has four WhatsApp groups: Doctor Sleman Forum (non-civil servant), Doctors in Sleman, Group Alumni from Udayana University, and Chronic Disease Group. Each WhatsApp group is used for different purposes, i.e. discussing various policies and SOP related to health, updating knowledge through information sharing (for example by sending presentation materials from seminars or sending seminar/workshop invitations), performing a consultation among doctors in discussing a patient' health condition, and sharing health information with her patients. She maintains personal contact with her patients through private messages to ensure their privacy. She also believes that the apps establish trust between her and her patients as well as facilitate the education process during the pregnancy.

Box 8: Practical Benefits of RIAs to a Midwife in Yogyakarta

- Providing greater opportunities to access information. The midwife ordinarily relies on textbooks to acquire new knowledge. Internet enables her to search for more information
- Making knowledge sharing easier. She used to gain knowledge through a conventional method, by attending seminars. The presence of RIAs, however, allows a more practical method of knowledge sharing, for example by sending seminar presentations/materials through WhatsApp or email.
- Correcting medical disinformation
- Increasing the awareness of people, especially pregnant mothers, to check their health conditions. Technology is useful to assist the continual dissemination of information.
- Increasing the 'coverage' of patients, compared to the conventional method of meeting them. Sometimes her patients do not attend consultation due to their demanding work schedules. The presence of such technology removes the constraint of physical absence in knowledge sharing activities.

In another example, a study by the Faculty of Medicine, Gadjah Mada University explores the use of WhatsApp to increase the level of knowledge among community health workers on type 2 diabetes disease. The research proves that both promotion and health education using picture messages on WhatsApp effectively increases the level of knowledge and learning satisfaction. (See Box 9).

Box 9: Promoting Health Using Picture and Text Messages in WhatsApp

Method: This study is experimental research on a group consisting of 33 respondents. The study conducted two stages of intervention by sending educational text messages about diabetes in the first week, and picture messages in the second week. The instruments used in this study include knowledge questionnaires and learning satisfaction questionnaires. The study is conducted on *Posbindu* health workers, with the messages delivered through WhatsApp.
Findings: It finds evidence for a significant change between the mean pre-test and post intervention (using text messaging and educational images) on respondents' knowledge level of Type 2 diabetes variables. Meanwhile, the effect of delivery of picture messages is most tangible from the highest mean value of learning satisfaction.
Practical implications: This study suggests that promotion and health education programs conducted using picture messages on WhatsApp applications effectively increase the level of knowledge and learning satisfaction. The result of this study affirms our argument that WhatsApp has potentials to become an educational media that provides an interactive platform between senders and recipients of the messages.

Source: Nopryan Ekadinata and Doni Widyandana
Journal of Community Medicine and Public Health, Vol 33 No 11, 2017

The examples above serve as evidence of the benefits from RIAs utilization in Indonesia. Such applications provide the society with a better access to information and knowledge on various health issues. The applications also enhance trust and intensify communications between medical professionals and patients.

3.3 Civic Engagement and People Representation

There has been a drastic increase in the use of internet-based applications in civic engagement processes, especially among younger generation (millennials) (see Box 13). Parties and candidates have been using social media such as Facebook, Twitter, Instagram, Youtube, or similar applications for campaign purposes, to win the support from the public. In addition to being more cost effective than conventional campaign methods, social media applications are also widely seen as effective platforms to influence millennial voters, most of which

have social media presence. Such a rapid growth in the usee of social media for political purposes corresponds with the major increase in the number of internet users throughout the last decade.

Box 10. Millennials and Social Media

The 2017 CSIS Millenials Survey[5] conducted in 34 Indonesian provinces, found a significant difference in how the millennials (age 17-29) and non-millenials (age 30 or older) gain access to information. 54.3% of millenials find information online on a daily basis, significantly higher than non-millenials' 11.9%. In other words, millenials comprise the largest consumer group of online media, despite the fact that television is still considered popular in Indonesia. Furthermore, online platforms allow millenials to contribute and engage with others in addressing the most pressing issues faced by the country. An example is the emergence of Indonesian Solidarity Party (PSI), which labels itself as the millenials' party[6]. The party will participate for the first time in an election in 2019. In the process, its main strategy is to target the millenials by extensively using social media.

In preparation for the forthcoming presidential election in 2019, two presidential candidates, Joko Widodo and Prabowo Subianto, already initiated informal campaigns in social media platforms by uploading their recent activities. In Instagram, currently, Joko Widodo boasts 9.7 million followers in his account @jokowi, while Prabowo Subianto's social media account has 1.3 million followers. We note that the characteristics of the localities influence the degree and pattern of internet usage for the campaign purposes. Internet-based applications are frequently used by candidates only in urban areas, instead of rural areas. Some mayors are actively engaged in social media, and they tend to possess a high number of followers. For example, Ridwan Kamil from Bandung has 3 million followers on Twitter, while Bima Arya (Mayor of Bogor) has 410,000 followers.

While social media are mostly used in urban areas, the situation in rural areas is different. In an interview with a local candidate in Sleman District, he admits that he does not use social media applications to gather votes. In his opinion, social media is not an effective way to obtain more votes due to the fact that his

5 https://www.csis.or.id/uploaded_file/event/ada_apa_dengan_milenial____paparan_survei_nasional_csis_mengenai_orientasi_ekonomi__sosial_dan_politik_generasi_milenial_indonesia__notulen.pdf

6 https://www.reuters.com/article/us-indonesia-politics-youth/a-millennials-party-dares-to-break-indonesias-political-mould-idUSKBN1GX00P

electoral districts are occupied with people that are aged over 40 and neither fluent with the internet usage, nor having social media accounts.

APJII survey shows that only 4.2% voters that are aged over 54 have access to the internet. The low number of internet users in rural areas are also shown in the 2017 APJII survey. 72.41% citizens in urban areas admit to have been surfing the internet, as opposed to only 48.49% in combined rural-urban areas and 48.25% in rural areas.

4. RIA Regulatory Environment

THIS CHAPTER EXAMINES the regulatory environment for RIA in Indonesia. One of the objectives of this report is to analyze the regulation proposed by the Ministry of Communication and Informatics of Indonesia (hereafter: MoCI) under the 2017 Draft Regulation on the Provision of Application Service and/or Content through Internet (OTT) (hereafter: 2017 Draft OTT Regulation). In the draft, OTT services are defined as follows:

- Application service via internet:
  Application Services via the Internet is the utilization of softwares which allow communication services in form of short messages, voice calls, video calls, electronic mails and online conversations (chatting/instant messagings), as well as financial transaction services, commercial transactions, digital platform, data storage and mining, search engines, games, social networkings and media, including their derivatives by utilizing internet access services through telecommunication network operators
- Content service via internet:
  Content Service via the Internet is the provision of digital information in the form of text, sound, image, animation, music, video, movie, game, or combination of some and/or all, including streaming or download by utilizing internet access service through telecommunication network operator.

It is worth noting that the definition above is proposed by the MoCI and may not necessarily represent the view of authors or any relevant stakeholders.

4.1 Background of Indonesia's Draft RIA Services Regulation Proposal

The debate over regulation of RIA services in Indonesia came to light following the controversial blocking of Netflix – a US video streaming service – by the state-owned telecommunication company PT Telkom due to the alleged lack of compliance with respect to local content and business permits.[1]

According to MoCI, the government aimed to regulate the RIA services following the global launch of Netflix and the emergence of other RIA services in Indonesia.[2] The MoCI issued a Circular Letter No. 3 of 2016 on the Provision of Content and/or Application Services through Internet (OTT) (hereafter: the "2016 Circular"). Since that issuance, the MoCI has held several public consultations and received inputs and comments from relevant stakeholders such as private sector participants, associations and chambers of commerce.[3]

In 2017, the MoCI issued the 2017 Draft OTT Regulation¬. Among the stated purposes of the 2017 Draft OTT Regulation are to "protect public interest, telecommunication operators and national interest" and to "support level playing field in the area of fair business competition as well as to provide legal certainty." Some obligations proposed in the 2016 Circular were removed or revised in the 2017 Draft OTT regulation, such as data localization and permanent establishment requirements.

This section provides an analysis of MoCI's regulatory proposals, which consists of three main parts: regulation overview, impact of unnecessary regulatory burden and the discussion of concerning issues. The analysis synthesizes all information gathered from primary findings such as focus group discussion (FGD) and in-depth interviews and secondary findings such as literature review and desk study.

4.2 Regulatory Overview

In the 2017 Draft OTT Regulation, which is currently under review, MoCI proposes to subject OTT service providers – both domestic and foreign – to a variety of regulatory requirements, some of which are discussed below.

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1 https://kominfo.go.id/index.php/content/detail/6640/Menkominfo+Bicara+Soal+Penutupan+Akses+Netflix/0/berita_satker

2 https://kominfo.go.id/index.php/content/detail/6697/Kominfo+Siapkan+Draft+Permen+untuk+Netflix+dan+Semua+Pemain+OTT/0/sorotan_media

3 https://www.amcham.or.id/fe/5610-next-step-for-app-based-services-in-indonesia

Table 3. Summary of Certain Proposed Obligations in the 2017 Draft OTT Regulation

Article #	Content of Draft Regulation	Summary of Issues
1	General provisions and definitions	
3	Local venue, employees or agent	Foreign OTT service providers must establish a permanent local venue, employees or agent
4	Registration requirement	OTT service providers are obliged to submit an application to the MoCI before providing service in Indonesia
5	Conduct content filtering and censorship mechanism and comply with local rules and regulations	OTT service providers must conduct content filtering and censor mechanism and comply with local rules and regulations
5	Compliance to data protection and privacy	OTT service providers must comply to data protection and data privacy
5	Guarantee access for lawful interception	OTT service providers must comply to guarantee access for lawful interception and extracting evidence for investigative purpose or crime investigations by law enforcers
5	List information and guidance of service in Bahasa Indonesia	Quote information and service guidelines must be provided in Bahasa Indonesia (local language)
5	Provision of Letter of Information if Requested	Provide Letter of Information in OTT Service Provision if requested by Minister
9	Data recording	OTT service providers are obliged to keep transaction and traffic of data recording for at least three months
13	Reporting requirement to the ministry	OTT service providers must submit annual report of number of subscribers, statistics of service traffic
18	Sanction	Bandwidth management (i.e. throttling) and blocking sanctions may be levied for violations of the regulation

Source: 2017 Draft OTT Regulation

4.3 Impact of Unnecessary Regulatory and Burden on Innovation

The general objectives of any regulation are ordinarily to protect the public interest and address market failures. However, an unwarranted regulation can impose substantial burden and cost both for private and public actors (e.g. implementation and enforcement costs) if it is inadequately designed to

serve such purposes. Ill-devised regulations might create high barriers to entry that would hurt competition and the delivery of innovative and quality services, ultimately at the expense of consumers. Unnecessary regulations might also increase uncertainty in the industry and economy, restricting investment and activities that large foreign enterprises as well as small and medium enterprises (SMEs) would otherwise perform.

Foreign investors see that unnecessary regulations would increase their cost of investment as well as their risks. The enactment of poorly designed regulations gives signals that the regulations can be modified or even revoked at any time in the future. That would increase business risks and escalate the cost of doing business in the future due to the possibility that the new regulations might involve different kinds of requirements. Most importantly, however, uncertain and inadequate regulations are even more harmful to local SMEs, the backbone of most economies.

Regulations disproportionately affect smaller and local businesses. Unlike larger companies that have the resources to hire professionals to keep up with the regulatory requirements, small businesses may lack the resources to comply. The cost of complying with and managing regulatory obligations can become high, since information on regulations and law is often not easily accessible or understandable. If SMEs have to find and allocate resources to comply with ever-changing regulations, they will have less resources left for innovative and experimental activities.

In addition, SMEs are market-based businesses. They need to quickly respond to customers' needs and market changes. Unnecessary regulations would make them less responsive and unable to keep up with the changes in business environment. Regulations on Indonesia's RIA services would affect at least two aspects: (i) the development of digital platforms in Indonesia, (ii) the potential use of digital platforms to support more inclusive and equitable economic development, especially for SMEs.

As discussed above, digital platforms and the apps-based industry in Indonesia are growing rapidly. There is a lot of potential to support the development of digital-based economy in the country. Building regulatory walls and barriers will minimize their opportunity to capture the value and deliver it to consumers. Any new rules for RIA services should not hamper innovation for start-ups and other tech-companies. Rather, they should promote greater consumer choice and competition in the technology and communication sectors.

Moreover, such regulations might hamper the use of digital platforms by SMEs. As discussed in the previous section, e-commerce platforms as well as

RIAs such as social media have been used to expand SMEs' transactions to wider consumers from different parts of the country. For example, 58% of SMEs on Facebook in Asia Pacific built their business on Facebook and 74% of SMEs on Facebook in Asia Pacific were able to increase sales because of Facebook.[4] RIAs have also enabled people to communicate more efficiently and to disseminate information more effectively. Those apps have also helped Indonesian society in terms of addressing some of education and health issues.

4.4 Contentious Issues on RIA Services Regulation

The 2017 Draft Regulation contains several issues that can potentially hamper the development of RIAs services and might downgrade the potential benefits of digital-platforms in Indonesia. To identify some of these issues, we conducted a series of Focus Group Discussions (FGD) with associations, local and foreign RIA companies, several ministries, researchers and analysts. From the discussion, we identified some of the most concerning issues as:

1. Definition and scope of regulations
2. Relationship with other existing regulations
3. Taxing new services and the establishment requirement
4. National Payment Gateway (NPG) system

4.4.1 Definition and Scope of Regulations

The 2017 Draft OTT Regulation defines RIA services as any application and/or content services provided through the Internet. Based on the proposed definition, this would include virtually everything available via the Internet and on mobile networks, from online commercial and financial services, health and education content websites, to disaster relief services. This will include approximately 5 million apps available on Android devices and the Apple app store.

Given such a broad definition, the proposed regulation will be burdensome not only for all large RIA companies, but also for small and medium enterprises ("SMEs") and individual entrepreneurs, which can lead to unintended consequences including high barriers to entry, business and legal uncertainty. Creating regulatory uncertainty can discourage RIA service providers, particularly foreign companies, from developing and investing in innovations and new products in Indonesia and for its market. In addition, as mentioned above, it can particularly hamper innovation within small start-ups.

4 https://facebook.morningconsultintelligence.com/countries/apac/#Stories

To minimize the unintended consequences, the government should consider limiting the scope and legal definition of RIA services according to the main objective of regulating such services. However, more importantly, it is imperative that policymakers understand the ways in which RIAs are different from telecommunication, broadcasting and other internet-based business and thus should not be regulated as such. Each of them requires different kinds of regulations, since they serve different types of functionalities for different users and a diverse range of public interest.

One way of doing this is by defining RIA services based on their functions, which still is a fairly difficult thing to do given the ever-evolving set of functionalities they offer[5]. RIAs are sometimes misunderstood as a "free calling application" or "improved SMS", but this does not reflect the fundamental nature of these applications, that essentially enables a full suite of interactive functionalities.

Although no country in Asia has actually introduced RIA regulation per se, the table above summarizes some of the proposed definitions of RIA services in other countries.

5 WIK 2017 identified an average of 9 functionalities within the 139 RIAs that are currently most used worldwide, ranging from general purpose applications such as WhatsApp, Facebook Messenger, Skype or Snapchat, to RIAs that aim at specific usage situations such as Slack, Disney MIX or Care Messenger, to locally relevant RIAs such as Hike (India), Jongla (Nigeria) and 2go (South Africa). WeChat features 23 functions. Thirty % of the sample features ten or more functions, and the average RIA has almost nine functions.

Table 4. Proposed/Drafted Definitions of RIA Services in Other Countries

Country	Proposed Definition of RIA services	Regulations/Act	Enforcing agency	Description of issue
Malaysia	The delivery of video, audio and other media over the Internet without the direct involvement of system or Network operators in the control or distribution of the content.	Communications and Multimedia Act (CMA) 1998	Malaysian Communications and Multimedia Commission (MCMC)	"Internet content applications services" are explicitly exempt/ unlicensed under the CMA
Vietnam	The delivery of content/ services over Internet access network, which: 1) Bypass the traditional network service provider/ISP 2) Compete with services offered by the telecom operators and/or 3) Affect to quality of networks and services	A drafted circular on managing Internet-based on Over-the-top (OTT) calling and messaging applications	Viet Nam Telecommunica-tions Authority (VNTA) -	The proposed draft is still under review and has not been officially enacted
Thailand[6]	"Sound broadcasting services or television services through other networks that are not sound broadcasting networks or television networks."	Telecom Business Act, Broadcasting Business Act Frequencies and Allocation Act	National Broad-casting and Tele-communications Commission	At present, there is no official regulations that govern RIA service business in Thailand

4.4.2 Relationship with Other Existing Regulations

In its current form, the 2017 Draft OTT Regulation still has a lot of ambiguities and inconsistency with other existing regulations. Some elements of the draft are already described in various regulations, while some others are either inconsistent or lacking clarity. The following table captures some of these inconsistencies.

6 At present, there is no official regulation and definition that define OTT services. This refers to the latest drafted definition proposed by the NBTC of Thailand, accessed on http://brslawyers.com/news/deadline-ott-providers-register-nbtc-postponed/.

Table 5. Current Overlaps and Intersections with Existing Regulations

Content of Regulation	Regulations / Act		Main Issue
Definition of OTT services	Law, Draft Regulation and Circular Letter	EIT LAW NO. 11 OF 2008 (AMENDED BY NO. 19 OF 2016), CIRCULAR LETTER NO. 3/ 2016, President's Regulation No 74 of 2017 on E Commerce Roadmap 2017-2019	- Overlapping definition of E-commerce in both the OTT regulation and E-commerce roadmap. - OTT definition is too broad, covering everything online, from websites, steaming services, social media, e-commerce, etc.
National payment gateway (NPG) system	2017 Draft Regulation	- Bank Indonesia Regulation No. 19/8/ PBI/2017 (LEGAL BASIS FOR NPG) - Bank Indonesia Board of Governor Regulation No.19/10/PADG/2017 on National Payment Gateway (NPG) (IMPLEMENTING REGULATION OF NPG REG)	- The regulations were issued in July 2017 and came into effect immediately with a timeline for gradual implementation of NPG. - Under the timeline, The NPG will have full operation on 1 January 2022. - Government is planning to force all electronic transactions to use NPG, curbing out foreign players such as Visa and MasterCard.
Content-filtering and censor mechanism	Law and Ministerial Regulation	EIT law No. 11 of 2008 (amended by No. 19 of 2016) and Minister of ICT Regulation No 19/2014 on Negative Content	- Overlapping with existing regulations of EIT law on data protection and privacy. - All content-filtering and blockings of negative contents on social media/ internet are based on the Ministerial Regulation, which is the implementing regulation of EIT Law.
Safe harbor policy	CI of MoCI No.5 of 2016	EIT law No. 11 of 2008 (amended by No. 19 of 2016)	Regulation on Limitations and Responsibilities of Platform Providers and Merchants in E-Commerce Using User-Generated Content Platforms overlap with existing regulation of EIT Law.
E-commerce business registration	Ministerial Regulation	E-Commerce Roadmap No 74 of 2017, Minister of ICT Regulation No. 36/2014	- The existing regulation of E-commerce Roadmap states all E-commerce businesses should register to the Ministry of Trade whereas all OTT companies including e-commerce must register to the MoCI. - Currently, EIT Law and Ministerial Regulations require companies that have electronic/ digital platform (applications, e-commerce) to register their electronic systems to MCIT/ Kominfo.

Source: Various sources compiled by authors

From an economic perspective, overlapping and inconsistent regulation will not only add unnecessary regulatory burdens for RIA companies, but also additional costs due to legal uncertainty and inefficient/duplicative regulatory compliance and enforcement, putting RIA companies – big or small, national or multinational - in Indonesia at a competitive disadvantage. A healthy market system that promotes economic growth and innovation depends on a consistent regulatory framework in order to ensure legal certainty for both businesses and consumers.

In addition, policymakers should also pay more attention to Indonesia's international commitments and agreements. These international norms provide certainty and principles on how to govern various related aspects of digital technology and telecommunication, since many of these aspects require coordination at regional or even global level. Failure to comply with international rules-of-the-game would not only harm Indonesia's credibility, but might also trigger retaliation from other countries that would put the Indonesian economy in a disadvantaged position.

Table 6. List of Indonesia's International Commitments and Agreements

No	**International Framework**	**Description of Commitment/Agreement**
1	The ASEAN ICT Master Plan Aim 2020 and ASEAN E-Commerce	As one of the members of ASEAN, Indonesia has been involved in the development of ASEAN ICT Master Plan Aim 2020 and ASEAN E-Commerce Framework. One of the projects is the creation of OTT guideline: "Management of Policy for AMS". It discusses the definition of RIA and offers recommendations with respect to content development and partnership between RIA providers and telecom operators. Similarly, the ASEAN e-Commerce framework also encompasses a similar concept for e-Commerce and aims to ensure harmonization of ICT standards and regulatory approaches particularly for new emerging services.
2	Framework General Agreement on Trade in Services (GATS) in the WTO	Indonesia as one of the members of WTO is also committed to the General Agreement on Trade in Services (GATS) in the WTO. Under the current agreement, Indonesia is committed to allow largely unrestricted cross-border supply of data and online information services.
3	OECD Base Erosion and Profit Shifting (BEPS) Action 1 Initiative	As a member of the G-20, Indonesia as the largest economy in Southeast Asia has been active in participating in the OECD BEPS initiative, including the recent Inclusive Framework in 2016. The BEPS Actions initiative aims to address global international tax issue by forming a complete and cohesive approach under the OECD model tax treaty guidelines. Under Action 1, Indonesia is committed to address tax challenges of the digital economy through the implementation of VAT on business to customer (B2C)'s digital services under the category of 'Common Approach'.

Source: Compiled by authors

4.4.3 Taxing new services and permanent venue requirement[6]

For the purpose of tax collection, the 2017 Draft Regulation requires foreign companies to maintain a permanent local venue, employees or agent. It also requires the companies to register their services by submitting an Indonesian Tax Identification Number (*Nomor Pokok Wajib Pajak*), details of services and a contact center. This draft aims to promote equal tax treatment for foreign e-commerce companies, as described in other regulations such as E-Commerce Roadmap 2017-2019.

However, the requirement for permanent venue is not in line with the existing local as well as international tax law. Requiring foreign companies to establish a fixed commercial presence in the country can potentially violate Indonesia's commitment to international treaties such as OECD BEPS Action Plan 1 initiative.[7]

In lieu of a venue requirement, other countries like New Zealand and Japan (because of clarifty, easy for them to enforce and for taxpayers to administer) have adopted a VAT digital tax system that conforms to OECD and EU guidelines (see table below). Other countries in the region have also adopted similar tax systems (see table below). Ultimately, any VAT system should ensure business definitions focus on substance over form. This ensures sufficient clarity in enforcement and ease of administration for taxpayers. In that regard, the government of Indonesia should consider alternative ways in adopting digital tax system such as a VAT digital tax system, that are not contrary to existing OECD standards and remain in line with the updated international tax norms and principles. Should Indonesia move toward a VAT system, sufficient transition time and clear guidlelines should be provided for companies to appropriately implement any new regime.

7 The OECD BEPS Action Plan 1 recommends countries to collect Value-added Tax (VAT) on cross-border B2C supplies of digital goods and services.

Table 7. Country Comparison of Digital Tax System

Country	Digital tax system	Regulation/Policy Descriptions
South Korea	Value-added tax (VAT)	- VAT standard rate 10% - Broadly-applied tax - No registration threshold
New Zealand	Goods and services tax (GST)	- GST rate of 15% - Register for sales above NZD $60,000 over 12 months period
Japan	Consumption tax	- Consumption tax rate of 8% - Annual threshold JPY10 million - Foreign companies register and designate tax agent in Japan - "Reverse charge" mechanism
Thailand	Local corporate taxes for OTT and Value-added tax	- Imposing special tax requirements for RIA service providers - RIA service providers are required to establish country offices and pay local corporate taxes - RIA service providers are required to pay value-added service tax for transactions by local merchants
Vietnam[8]	Local corporate taxes for OTT and Value-added tax	- 3% rate for value-added tax (VAT) - 2% rate for corporate income tax

Source: OECD and ITU Report 2015, Information compiled by author

On a positive note, the requirement to have a permanent venue for foreign RIA service providers is softened somewhat from the previously circulated draft. In the previous version of the draft, the government proposed to require OTT services providers to have permanent establishment (*Badan Usaha Tetap, BUT*) in Indonesia.

This change is important for several reasons. First, the *BUT* requirement is contrary to the global business model of most RIA service providers as their services are inherently global and the business models of most RIA service providers cannot accommodate a legal/physical presence in every country where services are available online (sometimes 200 or more countries). While for some big RIA companies the cost associated with establishing a *BUT* may be negligible, it may not be the case for small and medium companies. Secondly, different local requirements would raise cost and barriers to entry which can cause hindrances for business and innovation development.

It is also important to note that the objective of regulatory framework for RIA

8 In the case for Vietnam, it is still unclear how RIA services are being taxed. This tax system was only applied for a special case of Uber which was issued by the Ministry of Finance. Source: http://www.loc.gov/law/foreign-news/article/vietnam-document-on-taxation-of-uber-services-issued/

services in Indonesia should not only be to provide support for digital industry in the country but should also look at wider economic interests. Unnecessary regulatory burden would only hinder RIA services from reaching consumers and business in the farthest areas and prevent them from using and developing their business on these digital platforms and from fully benefitting from internet-based services with global reach. Instead, Indonesia should focus on deregulating or amending any regulations that could potentially deter Indonesia's ease of doing business in order to attract foreign RIA investments to the country.

4.4.4 National Payment Gateway System

The current 2017 Draft OTT Regulation requires RIA companies to use the National Payment Gateway (NPG) system in accordance to Bank of Indonesia's Regulation (PBI) No.19/8/PBI/2017. Payment system is an integral part of the digital economy, particularly for e-commerce and market place platforms. But it is also important for many other activities outside e-commerce since many social media and RIA facilities are now being used for economic transactions as discussed in detail in other parts of this report.

There are some concerns to be emphasized, particularly on the inconsistency between the 2017 Draft OTT Regulation and the BI regulation. According to the BI regulation, only domestic transactions must be routed through a single NPG system, whereas the 2017 Draft OTT Regulation requires all companies that provide services in Indonesia to use the single NPG system. While these requirements are meant to ensure every payment transaction is recorded in the national system, it creates confusion as consumers and service providers should be able to use the most efficient and most secure payment mechanism.

Requiring all RIA service providers to use a single payment gateway could lead to a single point of failure for all payment transactions. Given that most RIA service providers currently associate payment with entities not in Indonesia, transactions of this nature should be considered cross border. Hence, the 2017 Draft OTT Regulation should re-consider the obligatory use of NPG system according to the BI regulation instead of expanding the coverage.

5. Conclusion and Recommendation

THIS STUDY SUMMARIZES the value of internet-based applications to various aspects of Indonesian society's livelihood. Special focus is given to the impact of Rich Interactive Applications (RIA), another name given to OTTs, such as social media and communication apps.

RIAs have been used intensively to support local economic and social activities, ranging from marketing of products, promoting domestic tourism, job facilitating, job searching and connecting employers with potential employees, vice versa. Some of the lesser known internet-based applications are related to various functions within the society, such as health, education, local politics and governance, as well as religious affairs. Our quantitative estimation also finds evidence of positive association between the use of internet and social media to the economic size at the district level in Indonesia. Gross Domestic Regional Product of regions with 50% level of mobile internet penetration are 3% higher compared to that without internet use. Similarly, regions with 50% social media penetration also achieve higher economic level.

Given this rapid development of various internet platforms, the Indonesian government may have felt the need to come up with some new regulations. However, it is important to understand that a new regulation is justified when the benefits from implementing it exceed its costs. In many cases, regulation might not be needed, either because the regulation may potentially create unnecessary burdens or because self-regulatory practices have already been developed among users or providers. If necessary, a regulation should be targeting specific issues with a specific area of implementation, rather than leaving it too broad in an attempt to govern everything in an industry.

Despite its rapid development, the digital industry in Indonesia is still at the early stage. Instead of trying to develop an all-encompassing set of regulations, more attention should be given to support the growth of digital economy by allowing experimentation and innovation to happen. According to the data from Annual Socio-Economic Survey (Susenas), in 2016 around 74% of social media users lived in urban area, with particularly high concentration in Java and Sumatera, while less than 25% of rural population had access to social media.

The government should therefore consider focusing its efforts on connecting people and ensuring they have the adequate tools, access and knowledge to benefit from the connectivity, both in rural areas and urban areas, rather than presenting unnecessary burdens for the industry through hastily designed regulations.

The Ministry of Communication and Informatics of the Republic of Indonesia is currently preparing to launch a regulation governing services over the internet. As discussed in this report, common concerns over this proposed regulation are related to the possibility that it might hamper the development of the relevant industries and may ultimately deprive Indonesians of access to the benefits of the digital revolution. Given the importance of placing a highly supportive regulatory framework, we recommend that regulatory formulation be based on good regulatory principles, which include the following aspects:

- The objectives of a regulation must be well-defined. While a regulation can have multiple objectives, it may become less effective when pursuing too many objectives at the same time. Obviously, disruptive innovation poses many challenges and issues, ranging from competition within or across sectors, consumer protection, security, investment, content management and others. It may be necessary to address these issues using specific measures and hence, cannot be lumped together under one single regulation such as the draft regulation currently proposed by MoCI.
- It is crucial to assess the capability of a new regulation to really achieve its proposed objectives. It is possible that there has not been any pressing need to have a new regulation targeting certain relevant issues. This is owing to two possible explanations, either because the existing regulations are adequate to effectively address perceived problems, or just simply because the cost of producing a new regulation far exceeds its benefits.
- Another important considerartion is to ensure and maintain consistency with other regulations, both those related to digital technology as well as other sectoral regulations. Since delivery of these digital-based services involve a lot of other economic sectors beyond communication, good coordination is required to avoid overlapping, or even worse, contradictory and inconsistent regulations.
- The regulation needs to be communicated and consulted to stakeholders at the early stage of conception. Any government agency that is trying to supervise internet-based services is simply entering an uncharted territory, where few examples and regulatory experimentation exist. The concept of regulatory sandbox, where all stakeholders can test their products, services,

and business models in a more controlled environment under the regulator's supervision, might prove to be a good approach for regulatory formulation. While this approach has been used in financial technology, to one extent or another it can also be used in many other types of internet-based services.

- Finally, the Government of Indonesia should examine best practices and experiences in other countries, in addition to considering Indonesia's commitments in various international fora. Having a harmonized regulatory framework with international best practices would enhance Indonesia's competitiveness in the development of internet-based services and produce higher regulatory credibility. It would also facilitate more appropriate regulatory formulation that is aimed to improve the situation without imposing additional burden to the industry. The government can devise a better regulatory framework in a more efficient manner, without lengthy and costly experimentation, if it learns from other countries' experiences.

Regulatory environment is just one of many factors that influence the distribution of benefits from internet platforms, including the benefits of RIAs. There are many other essential aspects that are responsible for transforming a country's digital sector into one that benefits society and generates economic growth. Both government and private sector should work together to create a more conducive environment for the use and development of digital technology in Indonesia. Specifically, there are two suggestions that the government can consider in order to move forward in the digital era.

First, improve digital literacy among users. Better understanding the use of RIAs would help the public in making reasonable judgment and selection of content, while facilitating better decisions regarding inappropriate content. Increasing digital literacy would also create greater economic opportunity by facilitating the use of RIAs and other online platforms for more productive activities. This also would provide opportunities for professional training in order to support a new generation of talent.

Second, improve telecommunication infrastructure that allows for more reliable and affordable internet connectivity. While access to internet has been improving rapidly for the last few years, internet quality in Indonesia is still lagging behind many neighboring countries. In order to realize the optimum benefits of digital technology, the existence of better telecommunication infrastructure is necessary. While greater connectivity depends on investments in infrastructure and services development, the Government, with the support of private sector, might also encourage innovative collaborations between telecom operators and RIAs to

bring more people online. It can also be complemented with other initiatives that nurture new talents, skills and entrepreneurship in digital applications, such as the establishment of working space for potential startups.

Finally, with a conducive regulatory environment, higher digital literacy, better connectivity and greater pools of talents and skills, the digital technology would bring significant benefits to Indonesia, not only to the economy, but also for supporting the society in general.

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Annex

List of activities and stakeholders during the report study

No	Event	Description	Date	Location	Stakeholders
1	Small focus group discussion	• To gather information on the regulation proposal. • To receive some preliminary input and comments on the study.	November 2017	CSIS, Jakarta	• Government agencies: Ministry of Communication and Informatics, Coordinating Ministry of Economic Affairs • Private sectors • Associations
2	Main focus group discussion	• To gather information on the regulation proposal • To facilitate discussion between the government and relevant stakeholders • To receive some preliminary input and comments on the study.	November 2017	CSIS, Jakarta	• Government agencies: Ministry of Communication and Informatics, Financial Service Authority, Ministry of SMEs and Cooperative • Private sectors • Associations
3	In-depth interview	• To gather insights on the regulation proposal from the perspective of Telecommunication sector	November 2017	Jakarta	• Domestic telecommunication company
4	In-depth Interview(s)	To gather information on the usage and benefits of using RIA in social sectors	November 2017	Jogjakarta	• Health sector: midwives, medical doctor, pregnant patient • Education sector: lecture, school teacher, students • Others: digital activist, priest, religious organizations, law maker
5	In-depth Interview(s)	To gather information on the usage and benefits of using RIA in social sectors	January 2018	Banten	• Government officials and BAPPEDA • Health sector:, medical doctor, pregnant patient • Education sector: school teacher

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