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From Dezan Shira & Associates

Opportunities for Foreign Investors in Indonesia's Digital Economy

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Introduction

ALBERTO VETTORETTI
Managing Partner

Indonesia's digital economy has seen exponential growth over the last few years and is expected to be valued at US$124 billion by 2025.

An increasingly prosperous, tech-savvy consumer demographic is reshaping the way the nation consumes, creating a wealth of opportunities for foreign investors.

The e-commerce industry will be the main driver of the digital economy, which is set to be worth over US$83 billion by 2025. In addition, there are other untapped, scalable opportunities, bringing the government closer to its target of building the largest digital economy in Southeast Asia.

An array of foreign tech giants, from Google to Amazon to Facebook, have already invested in Indonesia's digital landscape, attracted not only by the long-term potential, but the government's ongoing efforts to develop much needed regulatory framework.

In this issue of the ASEAN Briefing magazine, we provide an overview of Indonesia's digital economy, its vibrant startup scene, and how investors can utilize Singapore as a base for expansion into the country. We then analyze Indonesia's new laws for digital tax and the process for foreign companies to stay compliant. Finally, we focus on the investment opportunities in Indonesia's digital economy in areas, such as e-commerce, fintech, and the Internet of Things.

With offices located in the ASEAN region and years of experience helping foreign enterprises set up operations, Dezan Shira & Associates is well positioned to assist your company in entering ASEAN markets. For more information, please email us at **asia@dezshira.com**.

With kind regards,

Alberto Vettoretti

ASIA BRIEFING
www.asiabriefing.com

Asia Briefing Ltd. Unit 507, 5/F, Chinachem Golden Plaza, 77 Mody Road, Tsim Sha Tsui East Kowloon, Hong Kong.

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For queries regarding the content of this magazine, please contact: editor@asiabriefing.com

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Editor / Ayman Falak Medina
Designer / Aparajita Zadoo

This Issue's Topic

Opportunities for Foreign Investors in Indonesia's Digital Economy

Table of Contents

Understanding the Potential of Indonesia's Digital Economy

Author: Ayman Falak Medina

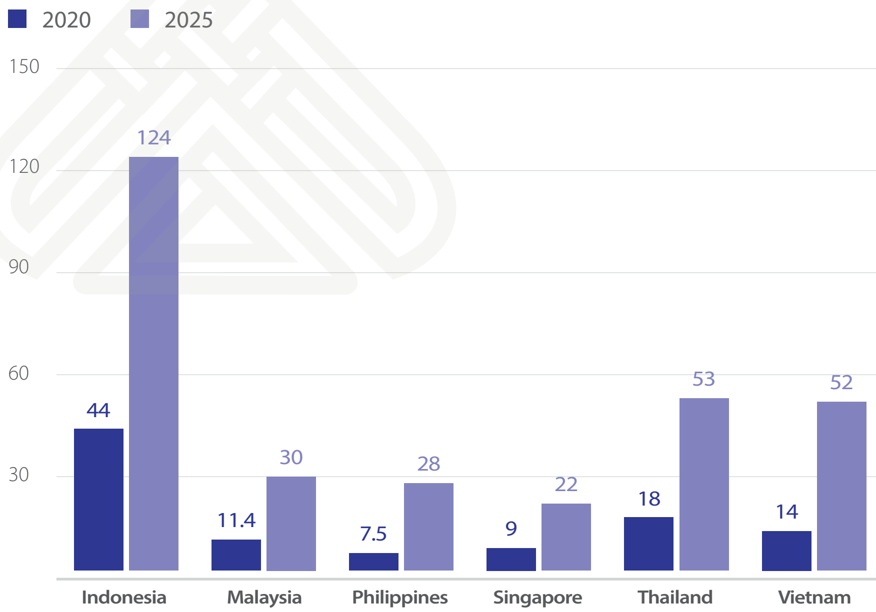
A 2020 report conducted by Google, Temasek Holdings, and Bain & Company concluded that Indonesia's digital economy is expected to be valued at US$124 billion by 2025, largely powered by e-commerce, online travel, ride hailing, and online media. This will be facilitated by the country's vibrant technology sector, supported by one of the highest concentration of startups in the world.

There are currently over 2,100 startups in Indonesia, which is preceded only by the US, India, UK, and Canada. From this large number, five have achieved unicorn status and one is a decacorn.

Indonesia is Southeast Asia's largest and fastest-growing internet economy – more than 170 million Indonesians had access to the internet in 2020, with 10 percent engaging in online shopping. E-commerce is the driving force behind the transformation of Indonesia's retail landscape, and the country's gross merchandise value (GMV) was the third highest in the world at US$40 billion, beating India at US$38 billion.

Indonesia thus presents ample and scalable digital opportunities for foreign investors, particularly in e-commerce, fintech, and the Internet of Things (IoT). In trying to fully capitalize on this growth potential, Indonesia's government issued new digital and e-commerce tax laws in 2020, a sign of the improving regulatory landscape.

Value of the Internet Economy of ASEAN-6 (US$ billion)



Source: e-Conomy Report 2020, Google, Temasek Holdings, and Bain & Co

The growth of Indonesia's technology unicorns

The country's home-grown major technology unicorns have seen exceptional growth in recent years, with some such as GoJek claiming to process 8 million orders per day.

- Gojek — an on-demand multi service platforms and digital payment company, valued at US$10 billion;
- Tokopedia — a technology company specializing in e-commerce, valued between US$8 to US$10 billion;
- Bukalapak — an e-commerce platform, valued between US$2.5 to US$3 billion;
- OVO — a digital payment and financial services platform, valued at US$2.9 billion;
- Traveloka — a company providing airline ticketing and hotel booking services, valued at US$2.75 billion; and
- JD.ID — an e-commerce platform valued at US$1 billion.

Indonesia's large market also means big competition and so many of the country's successful technology unicorns are constantly innovating new ways to grow.

Gojek, for instance, originally started as an online motorbike taxi service in 2010 but has since developed into a 'super app' offering over 20 services ranging from food and grocery delivery, e-payments, ticketing, and even on-demand make-up-artists. Traveloka has also expanded its services to include car rentals, attraction tickets, and restaurant vouchers.

Tokopedia — the country's largest e-commerce platform — provides digital products, such as credit cards, utility payments, game vouchers, and healthcare payments, in addition to its main consumer-to-consumer (C2C) business platform. There are now more than 7 million merchants on Tokopedia and more than 200 million curated products.

Further, the success of Indonesia's unicorns lies in building brands that are local, accessible, and familiar. Many of the services are for products and services that Indonesians are used to. For example, motorbike taxis have been a staple of urban transportation in the country for decades, and Gojek capitalized on this industry through digitalization.

Grab, despite being a foreign brand, has developed local-friendly business models that enabled them to grow substantially in Indonesia. Thus, foreign companies that have the perception of being local will find success.

Utilizing local SMEs

Indonesia's unicorns have managed to tap into the potential of the country's SMEs who make up 99 percent of businesses, and the majority of jobs.

However, many of these are in the informal sector, and so digitalization has enabled them to join the greater supply chain value in the country. Tokopedia and Bukalapak's C2C business model means goods and services are delivered directly by the SMEs, as well as in collaboration with local logistics firms. Gojek and Grab have strong food delivery arms that connect with SMEs as well as major restaurant outlets. Grab's on-demand food delivery service GrabFood has 600,000 food merchants throughout the region, whereas GoFood has 500,000 in the region — the majority of these being SMEs.

Singapore as a base for tech companies expanding into Indonesia

Long known as a global financial center, Singapore is also set to become the 'Silicon Valley of Asia'. Major internet and tech giants, such as Google, Amazon, Facebook, Salesforce, and Grab, already have their headquarters in the city-state.

Underpinning this activity is Singapore's location at the crossroads between three of the world's growth engines — Southeast Asia, China, and India.

The country's thriving tech sector is a product of a range of factors – from low taxes for business (corporate tax rate is 17 percent and is one of the world's lowest) a well-developed IT infrastructure, a vast free trade agreement network (over 22 FTAs), a highly-skilled workforce, and a robust regulatory regime.

Over the last few decades, Singapore has established itself as a hub for research and development (R&D) and innovation, offering companies a platform from which they can grow their business in the region. The country was ranked eighth in the world for innovation and number one among Asian countries, according to the Global Innovation Index 2020.

Furthermore, Singapore was ranked third globally in the global index of strength of protection across intellectual and property rights. The country has a specialized IP legal system, and the Intellectual Property Office of Singapore (IPOS) has partnered with the other nine IP offices of ASEAN to accelerate IP protection in areas such as fintech, cybersecurity, and other industry 4.0 technologies.

Recent measures

Throughout 2020, Singapore issued several new initiatives that further increase its standing as a hub for technology companies looking to expand in the region.

The government issued digital banking licenses in early December 2020, which offer the same banking services as traditional banks, but operate without a physical setup – enabling customers to control their finances from their computers or smartphones. Their low-cost structure and efficient set up and operating systems could enable digital banks to quickly expand in ASEAN, and in particular, Indonesia.

Digital banks will make financial services more accessible to underserved segments, such as millennials and SMEs. Indonesia's market potential comprises of some 42 million underbanked and 92 million unbanked adults.

Aside from digital banking licenses, the government also launched the world's first digital only trade agreement, or digital economy agreement (DEA), with New Zealand and Chile.

This agreement, named the Digital Economy Partnership Agreement (DEPA), represents a new form of economic engagement at a time when many business activities have gone online.

Through DEPA, Singapore aims to develop international frameworks to support businesses engaging in cross-border digital trade and e-commerce.

Moreover, in late 2020, Singapore issued a new work permit, named Tech.Pass, to entice accomplished technology entrepreneurs, experts, and business leaders. Tech.Pass, unlike the Employment Pass, does not require the sponsorship of a local employer, giving the professional greater flexibility in their activities, such as being an employer, investor, starting a business, or becoming a director or consulting in one or more Singapore-based tech companies.

Legal Provisions Regulating Indonesia's Digital Economy

Author: Ayman Falak Medina

In 2019 and throughout 2020, Indonesia issued various new and important regulations that will impact its digital economy. This includes *Reg 48/2020* and *Reg 12/2020*, which pertain to the new value-added tax (VAT) on digital services, starting July 2020.

The government issued *GR 80, 2019* and its implementing regulation *Reg 50/2020*, which sets out the legal guidelines for e-commerce businesses. These laws are a first for Indonesia, making the country one of 22 to pass or have implemented direct tax on the digital economy.

In addition, *PBI 22/2020* was introduced that pertains to the restructuring of the regulatory framework of payment systems, including the reclassification of the activities of payment service operators.

The new tax regime is part of the government's move to mitigate the economic impact of the COVID-19 pandemic, especially as the country saw significant spikes in local usage rates of e-commerce platforms, video conference systems, entertainment, and music streaming sites.

Understanding these legal provisions will help foreign investors keep compliant and capitalize on Indonesia's lucrative digital economy.

Indonesia's digital tax

Indonesia's Ministry of Finance issued Regulation No. 48/PMK.03/2020 *(Reg 48/2020)* in May 2020, which imposes a 10 percent value-added tax (VAT) on digital services on non-resident companies, starting July 1, 2020.

The tax will apply to companies that have 'significant economic presence' in Indonesia operating in sectors, such as big data, multimedia, and software.

Proceeds from the tax revenue will be used to support the economy as it battles the impact of the pandemic.

The country is following a trend seen with other ASEAN members who have begun taxing foreign digital service providers.

Singapore issued the Overseas Vendor Registration regime in January 2020, which obligates foreign digital service providers to register and pay for goods and services tax (GST) rate of seven percent.

Malaysia has obligated providers to pay the six percent digital service tax rate whereas Thailand's government has approved draft legislation to impose VAT of seven percent.

Digital intangible goods and services subject to VAT

The following digital intangible goods will now be subject to VAT:

- The use or the right to use copyrights material in the field of art, science, and literature, such as e-books, magazines, software;
- The right to use recorded images or sounds, which are distributed via fiber optics, satellite, or cable, among others;
- Image recordings or sound recordings used in television broadcasts, radio broadcasts, which are distributed via fiber optics, satellite, or cable, among others; and
- Motion-picture films or videotapes used as television broadcasts.

Collection of tax

Digital products and services providers are obligated to charge VAT if:

- They are international merchants who sell digital products to Indonesian customers;
- They are international online marketplaces who sell digital products to Indonesian consumers; or
- Indonesian operators of online marketplaces that sell foreign digital products to local consumers.

International digital service providers should note that under the regulation, an Indonesian customer is classified as:

- Someone who provides an Indonesian billing and mailing address;
- Utilizes credit or debit cards provided by Indonesian financial institutions; and
- Orders the product or service using an Indonesian IP address.

Appointed VAT collector

Digital products and service providers are obligated to charge VAT if:

- They are foreign merchants who sell digital products to Indonesian customers;
- They are international online marketplaces who sell digital products to Indonesian consumers; or
- Are Indonesian operators of online marketplaces that sell foreign digital products to local consumers.

Reg 12/2020 states that for the aforementioned businesses to be classified as VAT collectors, they must fall under on these following categories:

- Must have total transactions in Indonesia worth more than 600 million rupiah (US$41,500) per year or 50 million rupiah (US$3,400) per month; or
- Have total web traffic in Indonesia that exceeds 12,000 visitors per year or 1,000 per month.

Once a company is deemed a VAT collector, they are expected to start collecting taxes as of August 2020.

Reporting obligations

VAT collectors are subject to quarterly reporting periods, which are:

- January to March;
- April to June;
- July to September; and
- October to December

The tax returns should contain information regarding the total number of recipients, the amount of tax collected, and the amount of tax paid.

The government has allowed businesses to pay their VAT deposits in several currencies namely:

- Rupiah;
- US dollar; and
- Other foreign currencies to be determined by the Director-General of Tax.

The new e-commerce laws

The country issued its first law on e-commerce in late November 2019, which was issued to ensure tax compliance among domestic and international e-commerce businesses as well as improve governance on electronic trading activities.

On May 19, 2020, Indonesia's Ministry of Trade issued Regulation 50 of 2020 *(Reg 50/2020)*, which sets out the legal guidelines for domestic and international businesses engaging in trade through electronic systems (e-commerce). *Reg 50/2020* serves as an implementing regulation to *Reg 80/2019*.

GR 80, 2019 was issued to improve the governance of internet-based and electronic trading activities in addition to ensuring tax compliance among e-commerce businesses. The regulation, which will apply to domestic and international internet companies, defines the type of entities that can engage in e-commerce. Additionally, the regulation addresses the specific set up requirements businesses will need to comply with, as well as the framework for online contracts and transactions, and the provisions for consumer right protection. Businesses will have until November 2021 to adhere to the new provisions.

In line with *Reg 80/2019, Reg 50/2020* describes the three types of e-commerce entities or internet companies that will be subject to tax laws and business licensing regulations, namely merchants, e-commerce organizers, and intermediary service organizers. Additionally, the regulation also sets out the criteria for foreign e-commerce players to be obligated to establish a foreign representative office in Indonesia.

While *Reg 80/2019* and *Reg 50/2020* are not tax regulations, the potential tax impacts would be far-reaching, considering Indonesia's e-commerce sector is set to be valued at US$83 billion in 2025, according to a report by Google, Temasek Holdings, and Bain & Co.

Businesses have been given until November 2021 to adjust their operations and adhere to the new provisions.

What are the business entities described in the regulations?

Both regulations describe three e-commerce entities based on their business activities. These are:

- Merchants (sellers): Businesses or individuals that conduct electronic offerings through electronic systems either managed or owned by themselves or through an e-commerce organizer.
- E-commerce organizers (PPMSE): Businesses or individuals that provide electronic systems to facilitate e-commerce transactions. These include business models, such as online streaming platforms, online marketplaces, online classified advertisements, and price comparison platforms, among others.
- Intermediary Service Organizers (PSP): These are businesses or individuals that provide search system facilities (for example, Google, Bing) or those that provide information storage services (hosting and caching).

The aforementioned entities can be either domestic or foreign businesses and the legal requirements for each type will also differ.

Domestic merchants

Domestic merchants must obtain a business license from the government's Online Single Submission (OSS) Agency. Under the country's Standard Classification of Business Fields, businesses carrying out trading via the internet need to comply with KBLI classification 4791.

Domestic e-commerce organizers

Businesses who operate their own e-commerce facilities are classified as PPMSEs and must obtain a special license named *Surat Izin Usaha Perdagangan melalui Sistem Elektronik* (business license for trading through an electronic system (SIUPMSE).

The SIUPMSE can be applied through the OSS system and businesses will need to adhere to certain criteria to be eligible. These are:

- Obtaining an Electronic System Provider certificate within 14 days after the SIUPMSE is issued;
- Must provide a website and/or application name to the government;
- Must establish a consumer complaints section on their website/application,

which includes e-mail address and contact number in addition to the details of the Directorate-General of Consumer Protection and Trade Compliance;
- The PPMSE must provide facilities that inform or link customers to the OSS Agency's website; and
- The business must submit its transaction data (subscribers, payments, complaints, contracts, shipments etc.) to Statistics Indonesia (BPS), the government agency responsible for conducting statistical surveys.

Foreign merchants

Foreign merchants must provide a valid business license issued in the country where they are established to the domestic PPSME company, which provides their electronic communication facilities. The domestic PPSME will then need to report all the transactional activities (subscribers, payments, complaints, contracts, shipments etc.) of the foreign merchant to the BPS.

Foreign e-commerce organizers

Foreign PPSMEs are obligated to establish a representative office in Indonesia; however, this would only apply if:

- The PPSME has completed over 1,000 transactions with Indonesian consumers within a year; or
- Has delivered over 1,000 packages to Indonesian consumers with a year.

The PPSME will need to establish a specific type of representative office, namely, a representative office for a foreign trading company (KP3A).

The KP3A is divided into the following categories:

- Can act as a buying/or selling agent for the parent company, performing liaising, or promotional activities; or
- Act as a manufacturing agent with its activities also limited to market research and liaising.

To establish a KP3A, the company will first need to obtain a Foreign Company Trade Representative license (SIUP3A), which can be done through the OSS system. There are several requirements for this, which are:

- Evidence that the company is being appointed as a representative of the parent company. This must be legalized by a notary and should be accompanied by a clarification letter issued by the trade attaché of the Indonesian embassy in their country of origin;
- Must provide evidence of the Article of Association/incorporation of the company which will need to be legalized by a notary and officially translated to the Indonesian language;
- Provide proof of identity of who will be managing the representative office; and
- Provide the number and details of local workers to be hired along with their employment certificates/contracts.

As with the other types of e-commerce entities, the PPSME must submit their data to the BPS as well as provide a link that informs and connects their website to the OSS Agency's own website. Further, the PPSME must establish a consumer complaints service, which includes contact details that customers can use in addition to the contact details of the Directorate-General of Consumer Protection and Trade Compliance.

Intermediary service organizers

Reg 50/2020 does not differentiate between domestic and foreign PSPs and both must secure a SIUPMSE license from the OSS Agency.

They have to adhere to the following conditions:

- They must not be direct beneficiaries of e-commerce transitions; and
- Are not allowed to be involved in any contractual obligations between parties engaging in e-commerce activities.

Online advertisements

E-commerce businesses are permitted to distribute online advertisements provided they comply to applicable laws and regulations in Indonesia. The regulation does state several requirements that online advertisements should satisfy. These include:

- Must not deceive consumers on the quality, prices, materials, and quantity, or other false and incorrect information for the goods/ service being provided;
- Must not provide false claims with regards to warranties or guarantees;
- The company must provide the usage risks for the said goods/services being advertised; and
- All electronic advertisements should have an exit function, such as through a 'skip' or 'close' button to close the advertisement.

Consumers can make complaints for ads that are not incompliance with the relevant laws and regulations through the Director-General of Consumer Protection and Trade Compliance.

Indonesia's new law on payment systems

On December 29, 2020, Indonesia's central bank, Bank Indonesia (BI), issued regulation No.22/23/PBI/2020 *(PBI 22/2020)* pertaining to the restructuring of the regulatory framework of payment systems, including the reclassification of the activities of payment service operators.

This 'umbrella' regulation shifts the regulatory framework from an entity-based approach to activity and risk-based approach, enabling BI to better mitigate potential risks in the country's financial system.

The regulation also issues new requirements with regards to share ownership and capital, which could impact foreign investors in the payment services industry. The regulation will be applicable from July 1, 2021.

New Investment Opportunities in Indonesia

Author: Ayman Falak Medina

Southeast Asia's internet economy is expected to reach US$300 billion by 2025, with the majority of this share (US$124 billion) being dominated by Indonesia alone, due to robust domestic demand from the country's 200 million internet users.

As such, foreign investors will find new scalable opportunities in areas such as e-commerce, 4G and 5G systems, the Internet of Things, cloud technology, financial technology (fintech), and 'big data' analytics. Digital technology will play a leading role in Indonesia in reforming key sectors like healthcare and manufacturing in addition to improving the country's resilience to disasters like the COVID-19 pandemic.

Indonesia's government is eager to better incorporate digital technologies to boost productivity across all sectors as well as expand participation to the economy to more segments of its population.

E-commerce

E-commerce will be the main driving force in the growth of Indonesia's digital economy, with over 10 percent of the country's 270 million population already engaging in online shopping. Sales reached more than US$40 billion by the end of 2020, an increase of 54 percent y-o-y from 2019 (US$21 billion) and projected to grow to US$83 billion by 2025. This presents unique opportunities for foreign businesses in entering the country's retail market, in particular. Notable foreign e-commerce platforms that have taken advantage of Indonesia's large consumer market are Singapore's Lazada and Shopee, who garner over 140 million monthly visits between them.

Indonesian e-commerce giant, Tokopedia, saw an average 86 million monthly visitors in 2020, and is planning a dual listing in the country as well as the US as it aims to go public in 2021. The firm could be valued at US$10 billion or more through the IPO.

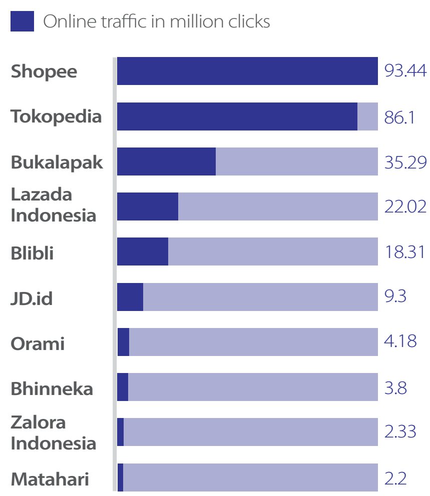
Collaborating with local platforms, such as Tokopedia, could provide a route for international e-commerce brands or retailers to penetrate Indonesia's retail market.

There are also digital and physical infrastructure barriers that can hinder the e-commerce experience in the country. Thus, in addition to joint ventures, the best way to gain access to the Indonesian consumer is for foreign players to develop their own mobile app, along with a high-quality online payment and delivery systems. Known as Asia's foremost mobile-first e-commerce market, 58 percent of e-commerce transactions are done through mobile shopping services.

Open to foreign ownership

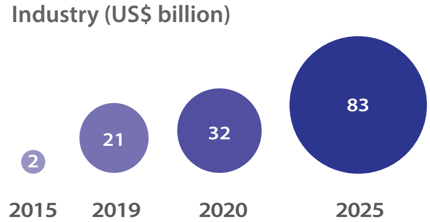
Under Indonesia's new Positive Investment List, most e-commerce business activities are now open to 100 percent foreign ownership, without the need to invest 100 billion rupiah (US$7 million) set under the previous regulations.

Online Monthly Traffic for E-commerce Operators in Indonesia



Source: Statista

Value of Indonesia's E-commerce Industry (US$ billion)



Source: e-Conomy Report 2020, Google, Temasek Holdings, and Bain & Co

Financial technology

Indonesia's fintech industry is one of the most competitive and dynamic in ASEAN as evidenced by the emergence of four unicorns and one decacorn in the industry. The country is home to 20 percent of all fintech companies in the Southeast Asian bloc, which is expected to generate US$8.6 billion in revenues over the next five years, despite its infancy.

The fintech industry is one of the most funded sectors — along with e-commerce — and is dominated by peer-to-peer (P2P) lending (50 percent) and e-payment (23 percent) platforms. Despite having more than 300 fintech companies operating in Indonesia, foreign investors will find the industry has yet to fulfil its potential. One of the factors is that 60 percent of the country's workforce is in the informal sector, and many micro, small, and medium sized enterprises (MSMEs) have little access to financing from banks, as they too are mostly operating in the informal sector.

P2P lending

Many local MSMEs have business models that are not compatible with the characteristics of the banks' financial products. That includes aspects such as payment terms for loans schemes, forms of collateral, and credit quality, among others.

Foreign fintech firms can plug this gap through new financing models that have the potential to serve Indonesia's 47 million underbanked and 92 million unbanked adults. As of 2020, P2P lending reached US$7.7 billion from 160 fintech companies officially listed by the Financial Services Authority (OJK). This covered over 26 million borrowers throughout the country.

These microloans are popular because of their convenience as it normally takes just 24 hours for the funds to be disbursed, and the terms and maturity are small and short – with borrowers typically receiving not more than US$100. These are normally returned within a few weeks as there are often huge interest charges.

The government has now allowed P2P firms to be foreign-owned by up to 85 percent.

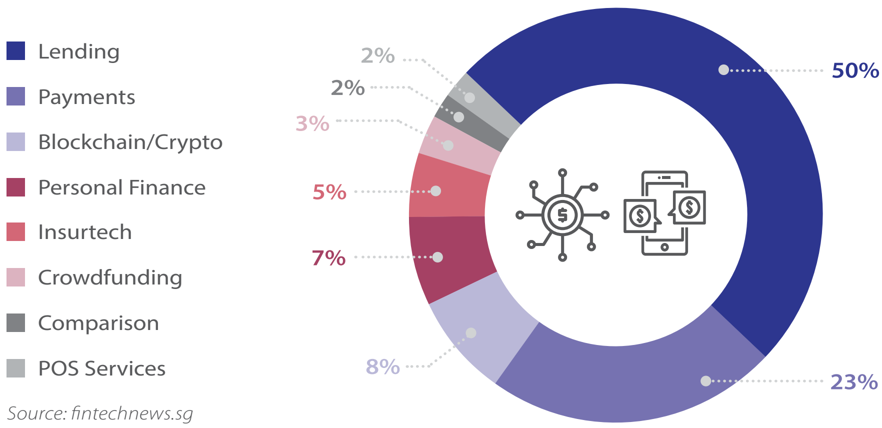
E-wallets

Electronic money transactions rose by 173 percent in 2020 and have become indispensable to Indonesian consumers. The country is predicted to be the next battleground for digital payment apps, with Indonesia possessing many of the key characteristics that are critical for the adoption of digital payment systems.

Local players still dominate the market (numbered over 30), with GoPay, OVO, Dana, and LinkAja being some of the frontrunners in the industry. 58 percent of consumers used GoPay, an e-wallet developed by local decacorn Gojek. The company partnered with Bank Jago to develop its e-wallet services, which saw gross transactional value of US$12 billion in 2020. Gojek is also currently in talks with local e-commerce giant Tokopedia in a possible US$18 billion merger.

Grab also has ambitious plans for Indonesia and the region. It owns shares in Indonesian digital payment platform OVO and is used in more than 115 million devices in over 300 cities. OVO has plans to merge with another local digital payment platform, DANA, which is backed by Ant Financial. If completed, the deal would help Grab in its battle for market share with Gojek.

Composition of Indonesia's Fintech Industry



Source: fintechnews.sg

Since it loosened investment rules in 2016, foreign investors from SoftBank to Alibaba have entered Indonesia's domestic market and are competing with local firms like Tokopedia, thus providing consumers with a wider variety of services at competitive prices.

For foreign investors in the e-wallet industry, it is essential that they deliver a customer-centric experience to allow customers to pay with the local payment method of their choice, ranging from mobile banking to payments via convenience stores. This is because while Indonesia has a high smartphone penetration rate, a sizeable portion of its population are unbanked.

Internet of Things

Indonesia's Internet of Things market (IoT) is expected to reach US$30 billion by 2022, and the sector's impact will be significant in reducing healthcare costs, enhancing industrial productivity, and reducing operational costs for businesses. IoTs real potential will be applying the technology to major sectors of Indonesia's economy, such as manufacturing sector, agriculture, and natural resources.

IoT is slowly being implemented across more sub-sectors of Indonesia's manufacturing landscape, transforming the traditional linear supply chains into interconnected digital systems that improve efficiency. The government aims to shift the country's manufacturing capabilities to more high-value and complex products with IoT at the heart of this transformation.

Telehealth

The integration of information and communication technology (ICT) into healthcare will also accelerate the sector's reforms. Healthcare apps are seeing huge increases in active users during the pandemic, and could transform the way hospitals and doctors collect, store, and share patient data.

Indonesian-based healthcare app Alodokter recorded more than 30 million active users since March 2020 (one and a half times higher than pre-COVID-19 traffic). Such apps have helped reduce burden on clinics and hospitals and are becoming increasingly important in a country where there are only 0.4 doctors per 1,000 population, and 300,000 hospital beds. There is huge demand in all aspects of healthcare in Indonesia — from pharmaceuticals to medical devices — due to the introduction of universal healthcare in 2014, considered the world's largest, covering over 200 million people.

Healthcare apps have also partnered with ride-hailing apps, such as Gojek and Grab, to assist in the delivery of prescription medicine, and app customers can pay out of pocket, through the app's own insurance program, or through private insurance from other partner companies.

Online education

The onset of the COVID-19 pandemic has accelerated the adoption of educational technology (edtech) in Indonesia's education sector. Over 530,000 schools have been forced to close, impacting over 68 million students ranging from pre-primary to tertiary levels. The past year has seen the growth of local platforms, such as Ruangguru (an e-learning platform for K12 students), Harukaedu (a platform offering online university degrees), and Cakap (a platform for language learning), but the sector is still in its infancy.

Indonesia's edtech sector currently lacks the capacity to scale up as many lower-income students lack access to devices needed to use edtech tools and download speeds in rural regions are not as high as in urban areas.

Foreign edtech firms can address these constraints through partnerships with local academia and the government to establish standards for e-learning. There is inconsistent education quality, even prior to the pandemic, which drove many students (especially in the more affluent middle-class) to seek online extracurricular courses and tuitions. International edtech providers can also focus on specific niches and a more personalized service within the education industry. This includes providing language courses or focusing on a target age group.

Furthermore, there is relatively untapped opportunities in providing edtech for corporations. Some 40 million people will join the production demographic by 2040, meaning a total working population of 190 million. This large workforce will need new skills and retraining to remain relevant for the future. Foreign companies can provide corporate training programs through e-learning deliveries that help save travel time from training venues.

Cloud technology and big data analytics

Indonesia is embracing cloud technology at speed and scale and has attracted investments from the world's largest tech companies. In a report compiled by the Boston Consulting Group, Indonesia's public cloud market is projected to see compound annual growth rate of 25 percent — to reach US$800 million by 2023.

Alibaba gained a first-mover advantage over rivals Google, Amazon Web Services (AWS), and Microsoft, having launched its second hyperscale data center in January 2019. Google Cloud was launched in Jakarta in June 2020, and AWS will invest US$2.85 billion to build data centers in Indonesia's West Java province by end of 2021. Microsoft revealed plans that it would also build data centers in the country.

The management of big data will be key to maximizing the future of Indonesia's cloud technology industry. Big data will be of great importance in understanding consumer trends in the country, particularly in recording digital footprints through social media platforms. Many MSMEs are using Facebook and Instagram to reach their consumer base. These platforms have 140 million and 77 million users, respectively, as of 2020. It is estimated that the total number of social network users will reach 256 million by 2025.

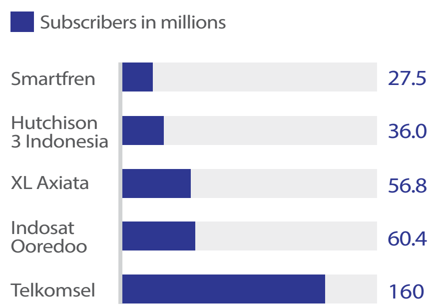
Telecommunications, 4G rollout, and 5G potential

Indonesia completed the Palapa Ring project in late 2019, providing 4G internet access to more than 500 cities and regencies across the archipelago. The project is estimated to have cost US$1.5 billion and comprises of 35,000km (21,747 miles) of undersea fiber-optic cables and 21,000km (13,000 miles) of land cables, stretching from the westernmost city in Indonesia, Sabang, to the easternmost town, Merauke.

Through the Palapa Ring, the government can facilitate a network capacity of up to 100 Gbps in even the most outlying regions of the country. The government hopes that the improved internet connectivity can significantly impact industries across the country and encourage economic development.

Indonesia is also the fourth largest cellular market with more than 330 million subscribers. However, the market is controlled by five providers, meaning there is room for competition, with 45 percent of subscriptions being dominated by 2G technology. Operators are continuing to expand their 4G network coverage to more rural areas.

Top 5 Mobile Subscription Providers in Indonesia 2020



Under the country's 2020-2024 National Medium-Term Development Plan, the government plans to increase development of 5G. The technology has the potential to add revenues of Indonesian telecom companies by between US$1.3 billion and US$1.8 billion by 2025.

Indonesia, however, does not have enough available spectrum for 5G — only recording 737 MHz of spectrum available. Indonesia needs at least 2,042 MHz by 2024 to meet domestic demand.