

The digital archipelago: How online commerce is driving Indonesia's economic development

August 2018



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Making digital Indonesia a reality



PREFACE



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Indonesians have embraced digital technology with enthusiasm and are among the world’s most avid users of social media such as Facebook, Instagram, Line, Twitter, and YouTube. At the same time, Indonesia has a growing digital ecosystem that includes online commerce, ride-sharing services, media distribution, and financial services. In addition to creating significant business opportunities, the rapid development of digital Indonesia is having a substantial impact on Indonesian citizens—in the form of new jobs, improved access to services, and greater connectivity with the global society.

McKinsey & Company has undertaken research to explore the impact of digitization on one of Indonesia’s largest and fastest-growing pillars—online commerce (defined as consumers buying and selling physical goods online), now an \$8 billion-a-year business. There is a surprising lack of reliable information about online commerce in Indonesia, especially about the impact it has on society. This report attempts to fill in the gaps so that public and private stakeholders can make more informed decisions about online commerce.

In the following pages, we review the state of online commerce in Indonesia and its social and economic impact. We then explore key success factors for online commerce and the challenges Indonesia faces in building this sector. Finally, we expand our findings to the country’s broader digital ecosystem and conclude with a set of initiatives to unlock its full growth potential.

Toshan Tamhane, a McKinsey senior partner based in Jakarta, Phillia Wibowo, a McKinsey partner and president director of McKinsey Indonesia, and Simon Wintels, a McKinsey partner based in Singapore, led this research with Kaushik Das, a senior partner and chairman of McKinsey Indonesia. Ben Vatterott, a consultant in Jakarta, oversaw the project team, which included Shilpa Aggarwal (alumni), Vincent Bachtiar, Gabriella Lestari, and Verry Musriana (alumni).

This independent initiative is based on proprietary research, the insights and experience of McKinsey colleagues around the world, and collaboration with a wide range of external players who make up the digital commerce ecosystem in Indonesia. We owe a debt of gratitude to the Tokopedia team, who were generous with their time and expertise. Our research was also enriched by insights from Google Indonesia.

We are grateful for the advice and input of many McKinsey colleagues, including Vania Anindiar, Sonia Barquin, Anton Bautista (alumni), Stephanie Chan, Dat Han Cheam, Michael Chui, Tuty Collyer, Eduardo Doryan, Emma Dudley (alumni), Filman Ferdian, Guillaume de Gantès, Brian Gregg, Martin Harrysson, Jan Hartmann, Daniel Hui, Vinayak HV, Fera Irawati, Ifti Izzaturrahman, Kapil Joshi, Hari Kanna, Mehmet Kocak, Vivek Lath, Evelyn Limanto, Diaan-Yi Lin, Anu Madgavkar, Paul McInerney, Carlos Molina, Ali Potia, Andy Pratomo, Rohit Razdan, Paul Roche, Fiksi Sastrakencana, Yuza Setiawan, Michael Shum, Priyanka Sudhir, Dina Sulistiyorini, Apung Sumengkar, Gregor Theisen, Syareza Tobing, Oliver Tonby, Akay Tuncak, Kevin Wei Wang, Christian Timothy Wijaya, Tyas Widyastuti (alumni), Budi Yanto, and Yanto Yanto.

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CEO, Pertamina; Eddi Santosa, CFO, PT Pos Indonesia; Jeremy Sim, CEO Retail Erajaya Group; Hariyadi Sukamdani, chairman, APINDO; George B. Sumantri, founder and CEO, Orori; Dharma Surjaputra, president-director, Star Cosmos Group; Lis Sutijati, special advisory staff to the minister of communication and information technology of the Republic of Indonesia; Catherine Sutjahyo, former CEO of Alfacart and chief of commercial expansion at Go-Jek; Edi Suwito, owner and director, L'Ambiance; Mira Tayyiba, deputy assistant for economic competitiveness of zones at the Coordinating Ministry for Economic Affairs of the Republic of Indonesia; Hermawan Thendean, senior EVP IT, Bank Central Asia; Fraser Thompson, cofounder and director, AlphaBeta Advisors; Hadi Wenas, CEO, Matahari Mall; Gati Wibawaningsih, director general of small and medium enterprise, Ministry of Industry of the Republic of Indonesia; Niaga Arief Wibisono, chief of change management officer, Central Transformation Office, Ministry of Finance of the Republic of Indonesia; Sri Widowati, country director, Facebook Indonesia; Indra Wiralaksana, country CEO, Ninja Van; and Helena Wongji, head of marketing export, PT Panjimas Textile.

This undertaking is part of a years-long effort to examine Indonesia's business and economic opportunities, including the reports *The archipelago economy: Unleashing Indonesia's potential* (2012) and *Unlocking Indonesia's digital opportunity* (2016). We hope that *The digital archipelago: How online commerce is driving Indonesia's economic development* contributes to the fact base, discussion, and continuing growth of online commerce in the country. ■



ABOUT THE RESEARCH

This report is the result of a four-month research effort. Our work drew on four sources of information:

Proprietary data and insights from leading digital companies in Indonesia, including:

- Tokopedia, the Indonesian online marketplace, which provided aggregated historical transactional data
- Google Indonesia, which provided expert input on market sizing and facilitated surveys of offline merchants seeking to go online

Expert interviews with more than 60 public- and private-sector figures, including ministers and heads of government agencies, executives at leading online commerce marketplaces, retailers, logistics companies, and financial institutions, as well as visits to more than micro, small, and medium size enterprises (MSMEs) across the archipelago

Surveys of more than 3,000 users, including 700 online merchants, 500 offline merchants, 2,000 online buyers, and 250 drop shippers

Country case studies of online commerce development across the countries that comprise the Association of Southeast Asian Nations (ASEAN), greater Asia, and developed economies

The research and views contained herein are those of McKinsey & Company and do not necessarily reflect the views of those who contributed to this report.

We have taken utmost care to abide by the data privacy regulations currently in force, and the data collected will not be used for any purpose other than for which it was collected.



EXECUTIVE SUMMARY



Indonesians have embraced digital technology with enthusiasm and are among the world’s most avid users of social media such as Facebook, Instagram, Line, Twitter, and YouTube. At the same time, Indonesia has a growing digital ecosystem featuring online commerce, ride-sharing services, media distribution, and financial services. Indonesia has the most billion-dollar tech startups in Southeast Asia, including Bukalapak, Go-Jek, Tokopedia, and Traveloka. In addition to creating significant business opportunities, the rapid development of digital Indonesia is having a substantial impact on citizens—in the form of new jobs, improved access to services, and greater connectivity with the global society.

While many reports have examined the recent growth of digital technology in Indonesia, none has offered a comprehensive, end-to-end look at its impact on the real sector—the part of the economy that produces goods and services—and on the country as a whole. McKinsey has undertaken research to explore the impact of digital on one of its largest and fastest-growing pillars—online commerce (defined as consumers buying and selling physical goods online), an \$8 billion-a-year business that affects local manufacturing directly.

In the first four chapters, we explore the dynamics of the digital economy through the lens of online commerce. Then, in chapter 5, we take a step back and reflect on the impact of our findings and spell out priority measures necessary to unlock Indonesia’s broader digital economy.

In chapter 1, we estimate the size of Indonesia’s online commerce market, a sector comprising about \$5 billion of formal e-tailing and more than \$3 billion of informal commerce. We estimate that Indonesia had about 30 million online shoppers in 2017 in a total population of about 260 million.

Chapter 2 examines the socioeconomic impact of online commerce in Indonesia, today and five years from now, through an evaluation of financial benefits, job creation, buyer benefits, and social equality. We forecast that online commerce sales will grow substantially, reaching up to \$65 billion by 2022—30 percent of which will be consumption that otherwise would not have occurred. In addition to increasing revenue, we believe, online commerce can unlock broader social impact. We found that online commerce can facilitate women’s participation in the economy—for example, 35 percent of online sales are generated by women. Also, online commerce has led to a savings of 11 to 25 percent for customers outside the main island of Java.

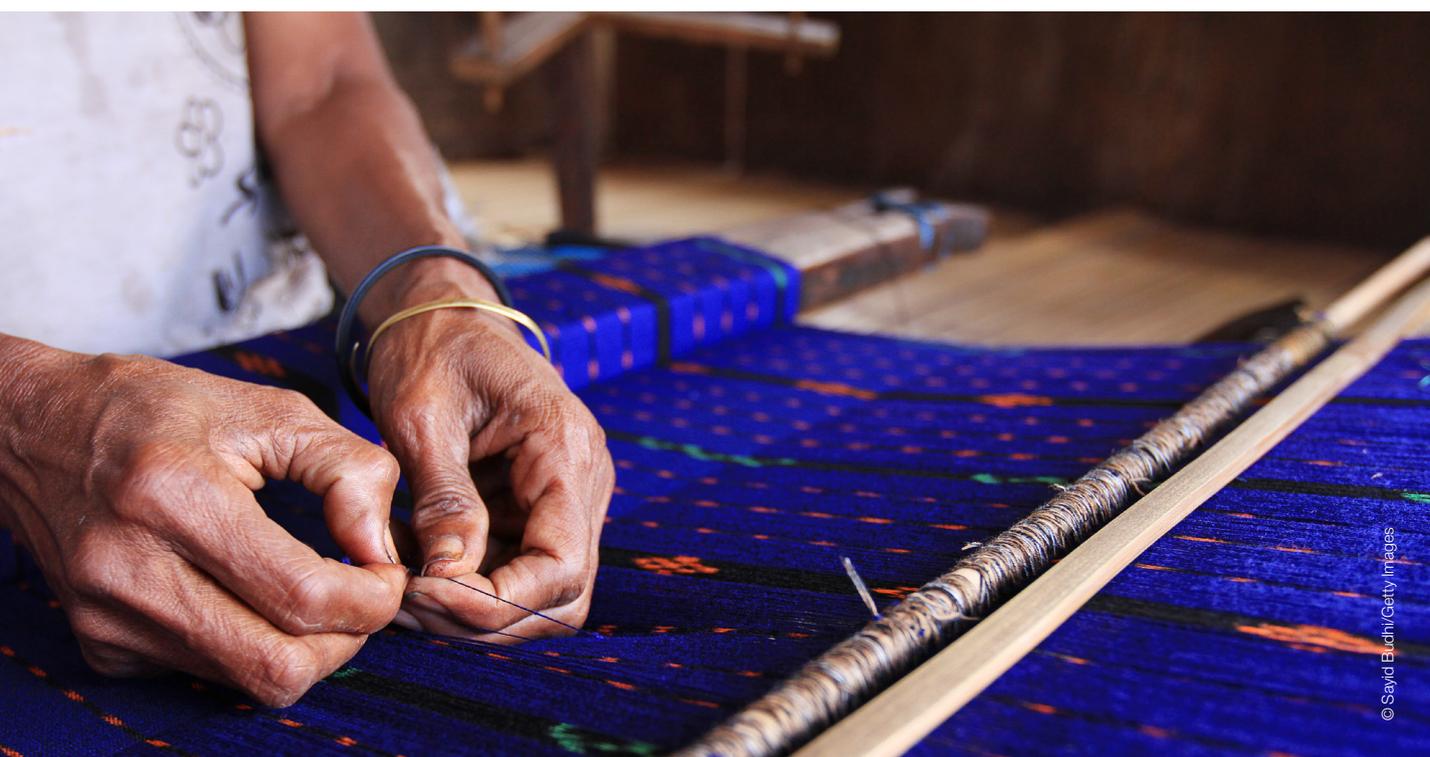
Chapter 3 explores five key success factors underpinning thriving online commerce ecosystems. Overall, we find that Indonesia has room for improvement in all areas: reliable logistics and infrastructure; seamless, secure, and scalable payment opportunities; a professional and digital commerce ecosystem comprising micro, small, and medium enterprises (MSMEs); a strong talent pool; and a healthy investment climate.

Chapter 4 focuses on ways to overcome the challenges facing Indonesia in online commerce. These include the priority actions required to resolve logistical bottlenecks, encouraging more cashless payments, and getting more MSMEs online.

In chapter 5, we examine how Indonesia can apply lessons learned from online commerce to its overall digital economy. Successful digitization of the Indonesian economy rests on the ability of the public and private sectors to fill the country's yawning talent gaps, bulk up midsize companies so that they can take better advantage of the global export opportunities offered by digital platforms, and encourage transparency in the digital arena, particularly through the creation of a digital impact index that could help measure the effectiveness of innovation and policies. Addressing these fundamental issues will enable Indonesia to truly harness the power of the digital economy.

CHAPTER 1: THE STATE OF ONLINE COMMERCE

We define online commerce as the online buying and selling of physical goods, a market in Indonesia comprising about \$5 billion of formal e-tailing and more than \$3 billion of informal commerce. We estimate that there were about 30 million online shoppers in 2017. Formal e-tailing means buying and selling physical goods through an online platform that facilitates transactions by displaying products and enabling payment and delivery. The more informal market—social commerce—involves the buying and selling of physical goods through a social



media platform. Goods may be listed for sale on the platform, but payment and delivery are handled elsewhere.

We identified five trends that help explain the rapid growth of online commerce in Indonesia: a “mobile-first” market; digitally savvy, young consumers; increasing MSME participation in online commerce; growing investment in online commerce; and supportive government policies.

Then we studied the evolution of e-tailing penetration in several other countries to better understand what direction Indonesia might take. Indonesia today appears to be most similar to China in 2010, with comparable e-tailing penetration, GDP per capita, internet penetration, retail spending, and urbanization.

The online commerce market is projected to grow up to eightfold from 2017 to 2022, from \$8 billion of spending in 2017 to \$55 to \$65 billion by 2022, based on our projections, similar to the trajectory experienced in China between 2010 and 2015. Online commerce penetration would rise to 83 percent of the internet users in 2022, from 74 percent today, with roughly one quarter of these users completing purchases. In parallel, average individual spending would increase from \$260 a year to \$620 a year in 2022 as consumer trust in the ecosystem improves and more MSMEs come online, providing an ever-wider variety of products and affordable, reliable delivery options.

CHAPTER 2: THE SOCIOECONOMIC IMPACT OF ONLINE COMMERCE

Online commerce has already had a significant impact on Indonesian society. For example, it has empowered women and broadened financial inclusion. Its continued growth will have favorable implications for MSMEs, the broader banked population, and the country’s exporting prospects.

Online commerce in Indonesia has socioeconomic impact in four areas: financial benefits, job creation, buyer benefits, and social equality. Every \$1 shifted from offline retailing to online commerce generates about 30 cents of new consumption and saves consumers 10 cents. In addition, in the next five years, we expect six times the number of parcels shipped by online businesses, nine times the number of cashless payments, six times the online-related service jobs, twice as many online MSMEs, and twice as many online buyers as in the entire history of Indonesia.

Financial benefits

Indonesia is the largest online commerce market in Southeast Asia, generating roughly \$2.5 billion in new consumption revenue today and a likely \$20 billion by 2022. Looking at it from a different angle, 30 percent of online commerce is new consumption, or purchases that would not have occurred in the absence of online commerce, and are likely to increase as online commerce proliferates in regions with untapped consumer demand.

Today, 55 percent of online commerce spending in Indonesia comes from greater Jakarta, where the online retail market is more mature than in other regions. Online spending in Jakarta, as a percentage of household spending, is four times higher than in the rest of Java and ten times what it is outside of Java. Provinces outside of Jakarta have about a ten-percentage-point higher rate of new spending than Jakarta does. As online commerce reaches beyond

greater Jakarta, offering better choices and prices, the rate of new consumption may grow beyond 30 percent.

Exports through online commerce are still low. However, rising exports of consumer goods (such as automotive, hobby, fashion, and health and beauty goods), coupled with significant numbers of overseas Google searches for such products, suggest that demand is increasing.

Job creation

Indonesia's online commerce sector has already had a major impact on the country's job market. We estimate that by 2022, online commerce will directly or indirectly support about 26 million jobs, compared with four million today. Direct support includes new jobs that would not have existed otherwise (for example, programmers at online commerce companies and positions at logistics companies). Indirect support includes positions that exist today but will be favorably influenced by online commerce revenue flows, such as MSME owners who shift from offline to online selling or payment providers that shift their services from physical stores to online sales.

Buyer benefits

Consumers are benefiting from savings in online commerce throughout the country, but there are interesting geographical variations. For example, consumers outside of Java who purchase goods online save 11 to 25 percent compared with traditional retail. In these locations, online commerce circumvents extremely high distributor inventory costs (low retail volumes spread over large geographies), but there is also substantial variability because of uneven development of local distributor networks and differing costs of parcel shipments (for example, to remote areas).

In the Java region, where savings range from 4 to 14 percent, distribution networks are already highly developed, so savings are lower than in other parts of the country. Still, savings are substantial in dense urban areas because physical retailers face higher costs for land and labor and parcel shipping costs are low because logistics hubs are nearby.

Social equality

One of the most important—and perhaps least known—benefits of online commerce in Indonesia is its impact on social issues, including gender parity, financial inclusion, and economic growth outside of Java.

Our research found that online commerce supports women empowerment in many ways, allowing women more equal access to the economy. Subsequently, the share of women-generated revenue in online commerce stands at more than twice that in traditional commerce.

We found that online commerce in rural areas, while starting from a small base, has grown substantially both in sales and spending. Rural consumers' buying habits are similar to those of their urban counterparts, though they spend relatively more on categories like phones and tablets. Regions with higher household expenditure and internet penetration also demonstrate higher online spending per capita. The largest four metropolitan areas in the country—the greater regions of Jakarta, Bandung, Surabaya, and Semarang—account for approximately 70 percent of all online spending in the country despite only accounting for roughly 20 percent of the total population.

We estimate that by 2022, online commerce will directly or indirectly support about 26 million jobs, compared with four million today.

Online spending is likely to increase in all provinces as the nation continues to develop. Internet penetration is projected to continue rising at 4.6 percentage points a year.¹ Household consumption, which grew at 5.2% per year in real terms from 2011 to 2017, is expected to continue growing.² As internet penetration and monthly incomes increase, so too will online spending and its attendant benefits.

CHAPTER 3: KEY SUCCESS FACTORS AND CHALLENGES

Our review of online commerce around the world identified five key success factors related to the expansion of a country's online commerce market.

1. Assuring reliable logistics and infrastructure. This success factor comprises quality of infrastructure, quality of logistics service providers, and ease of exporting. Indonesia's logistics infrastructure lags behind its regional peers, ranking 63rd of 160 globally in 2016, according to the World Bank.³ In addition, Indonesia's online commerce efforts suffer from both a lack of sufficiently large logistics coverage networks and inconsistent service quality.

2. Offering seamless, secure, and scalable payment opportunities. Online payment adoption and security are prerequisites for a sound and growing online commerce market. Only 49 percent of Indonesians have access to financial services, well below regional benchmarks such as those of Malaysia (85 percent) and Thailand (82 percent). Further holding back online commerce is that 99 percent of transactions, by volume, in Indonesia are cash-based. As a result, Indonesia lags behind most Asian countries in payments revenue per capita; in 2015, Indonesia recorded \$74 in payments revenue per capita, compared with \$271 in Malaysia. Point-of-sale card acceptance remains low, as do credit card and debit card ownership and use. Cybersecurity is a serious concern and a disincentive for additional online commerce.

3. Building a professional and digital MSME commerce ecosystem. Access to the internet and participation in online commerce are clearly the keys to a strong ecosystem. More than 60 percent of Indonesian MSMEs are online, but only about 15 percent have online ordering and payment systems.⁴ Indonesian MSMEs face various obstacles in the pursuit of online commerce, and only a few have succeeded in overcoming the barriers. Among the challenges are a lack of knowledge about online commerce (and a lack of time to learn about it), a limited pool of employees who are capable of engaging in online commerce, and the risk that competitors will copy an MSME's work.

1 Kaushik Das, Michael Gryseels, Priyanka Sudhir, and Khoon Tee Tan, *Unlocking Indonesia's digital opportunity*, October 2016 McKinsey.com.,

2 Calculated using the Households and NPISHs Final consumption expenditure (constant LCU), The World Bank, 2018, data.worldbank.org.

3 Numbers are aggregated from the Logistics Performance Index, World Bank, 2016, lpi.worldbank.org.

4 SMEs powering Indonesia's success, Deloitte, August 2015, 2.deloitte.com; and McKinsey analysis.

4. Encouraging a strong local talent pool. Indonesia faces great demand for technical talent but is far behind China and India in science, technology, engineering, and math (STEM) graduates and ranks low for math, reading, and science test scores. Indonesian tech company executives have expressed dissatisfaction with the quality of local talent.

5. Creating a healthy investment climate. One way to gauge the health of an online commerce market is to examine its funding and local investment. Indonesia has received about 38 percent of total Association of Southeast Asian Nations (ASEAN) venture capital funding over the past three years, exceeding its relative contribution to ASEAN's total GDP of 36 percent. E-tailing companies accounted for almost \$3 billion of the funding.⁵ But, for Indonesia, funding is not the primary challenge. More pressing issues include a relative lack of start-ups and the challenge of expanding those start-ups to qualify for at least Series A financing, a company's first sizable round of venture capital investment.

CHAPTER 4: HOW TO ENCOURAGE ONLINE COMMERCE

We identified several ways in which companies and government could support the expansion of online commerce. These ideas fall into three distinct themes.

1. Building a reliable logistics infrastructure. Indonesia may have difficulty achieving a vibrant, fast-growing online commerce sector without logistics improvements. By 2022, about 1.6 billion e-tailing parcels will be shipped per year—Indonesia is likely to ship more parcels in the next five years than in its entire history. To improve logistics, Indonesian companies could cater to urban centers, consider cross-border opportunities, enhance the efficiency of first-mile execution (pickups), invest in back-end efficiencies, and employ big data and digital technology to spur productivity. The government could help by stimulating investments in logistics and the surrounding infrastructure.

2. Spurring conversion to cashless payment. The growth in online commerce offers financial-services providers opportunities in two areas: noncash transactions, as consumers migrate to digital payment; and lending, especially to smaller enterprises. Indonesia will settle more noncash payments in the next five years than in its entire history. We estimate that in 2022, the number of online commerce transactions will be four times that of total credit card transactions in 2017.

3. Helping MSMEs to move online. Major participants in Indonesia's digital ecosystem, such as online marketplaces, could provide one-stop-shop merchant services to help MSMEs create an online presence, pursue online commerce, and use digital payments. Large players could also offer these entrants the tools they need to grow, such as marketing analytics, branding development, and digital storefront design.

CHAPTER 5: MAKING DIGITAL INDONESIA A REALITY

Developing online commerce is only one of the ways Indonesia can fulfill the promise of the digital economy. By 2025, digital technology could raise GDP by \$150 billion, equivalent to an average 1.2 percentage points of additional growth each year over the next seven years. This

⁵ *E-Economy SEA Spotlight 2017: Unprecedented growth for Southeast Asia's \$50B internet economy*, Google and Temasek, 2017, thinkwithgoogle.com.

would fulfill nearly 60 percent of the increase required to reach the Indonesia government's 2025 target of 7 percent annual GDP growth.⁶

An expansion of the digital economy in Indonesia would have benefits beyond its impact on GDP, such as creating jobs and formalizing informal ones, opening an export market that the International Trade Centre estimates could be worth as much as \$26 billion, and accelerating social development. Many influential Indonesian stakeholders are aware of the impact digitization could have on the economy and society and have pushed hard for its rapid adoption.

Our research found that Indonesia must address three fundamental challenges to develop its digital economy: extraordinary talent shortages in the digital arena, such as digital professionals, digital facilitators, and digital-savvy leaders; a shortfall of midsize to large companies that could capture domestic consumption or export opportunities if the digital economy were unleashed; and insufficient means of tracking the impact of digital on Indonesian society.

Dealing with these fundamental challenges will require collaboration between the public and private sectors. We offer three ideas designed to foster a better ecosystem for the digital Indonesia of the future:

- **Making Breakthroughs in the Talent Pipeline.** Develop a plan to rapidly fill the talent pipeline through several interventions, including attracting qualified workers from the Indonesian diaspora; improving the process of recruiting niche foreign professionals who could mentor local talent; retaining and employing more women in the workforce; and encouraging investment in reskilling workers, including wider use of vocational education.
- **Enhancing the Competitiveness of Midsize Companies.** Create a program to incubate 50 to 100 companies every year, providing them with resources such as business mentorship; information on how to gain access to new markets; help in obtaining financing; support related to infrastructure, such as aid in building warehouses and finding land for factories; and an introduction to management tools such as enterprise resource planning (ERP).
- **Measuring Digital Impact.** Establish a digital impact index with two sections. One section would report indicators reflecting what's happening in the consumer sector, MSMEs, and talent market. The other section would be a set of indexes that would focus on outcomes, including economic development, employment, and social development. Ideally, the main overall index would be published every year, along with its input values and calculation methodology, to serve as a compass for policy makers and to help other public and private stakeholders manage investment priorities.

Successful digitization of the Indonesian economy rests on the ability of the public and private sectors to lock arms to attract talent, incubate midsize companies, and encourage transparency. Addressing these three broad issues will accelerate Indonesia's progress in the digital economy in a more sustainable manner. ■

⁶ Kaushik Das, Michael Gryseels, Priyanka Sudhir, and Khoon Tee Tan, *Unlocking Indonesia's digital opportunity*, October 2016, McKinsey.com.

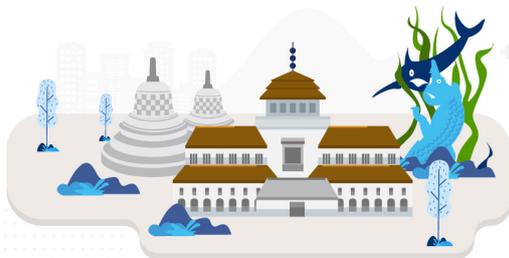
Indonesia's online commerce journey:

A growing market will unleash significant socioeconomic impact across the archipelago.

The online commerce market in Indonesia will grow eightfold over the next five years (2017–2022), which will have socioeconomic impact in four major areas:

Financial benefits

Impact of online commerce in 2017



Online sales growth in **24 out of 34 provinces** is outpacing online sales growth in Jakarta.

At least 30 percent of online commerce spending is **new consumption**, capturing previously untapped needs.

Impact of online commerce in 2022

More than **\$20 billion** in new retail revenue

2–3 percent of GDP supported—equal to Bali's GDP in 2018

1.6 billion parcels shipped



Job creation

Impact of online commerce in 2022

26 million jobs supported, primarily at micro, small, and medium enterprises (MSMEs)



Buyer benefits

Impact of online commerce in 2017

Consumers in non-Java regions are saving **from 11 to 25 percent** by shopping via online commerce.



Social equality

Impact of online commerce in 2017

Up to 35 percent of online revenue is generated by women, compared with 15 percent in offline retail.



Impact of online commerce in 2022

65 million citizens consuming via online commerce, compared with 20 million in 2017

Government and companies can encourage online commerce in three ways.

Build a **reliable logistic infrastructure** to cater to the 1.6 billion parcels expected to ship per year.



Spur a conversion to **cashless payments**, allowing financial-services providers to help migrate consumers to digital payment and provide lending to smaller enterprises.



Help MSMEs go online by creating a **one-stop shop for merchant services** that will be beneficial to entrepreneurs.



Chapter 1

THE STATE OF ONLINE COMMERCE



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The Republic of Indonesia is a rapidly digitizing country. It is expected to add 50 million new internet users between 2015 and 2020, reaching a penetration rate of 53 percent. Social media use in Indonesia is among the highest in the world—two of the top six Twitter-using cities in the world, Jakarta and Bandung, are in Indonesia.

The McKinsey Global Institute recently created an index assessing where countries stand on the road to digitization.¹ It analyzed 17 countries using 31 metrics across three categories: digital foundation, digital reach, and digital value. Indonesia's overall score in 2017 was 36 on a scale of 0 to 100, where 100 is the highest theoretical value. Indonesia's score remains well below those of more mature digital economies, such as Singapore and South Korea, and is closer to countries such as Brazil, China, and South Africa. However, Indonesia's absolute score obscures the tremendous growth in digitization it has achieved in the past three years; in fact, its growth rate was the fastest of the 17 countries in the index.

While many reports have discussed the recent growth of digital technology in Indonesia, none have offered a comprehensive, end-to-end look at its impact on the real sector—the part of the economy that produces goods and services—and the country. This report attempts to fill that knowledge gap by looking specifically into online commerce as one element of the digital economy that has direct impact on the real sector. In this chapter, we review the state of play of online commerce in Indonesia and look ahead to its development.

Spurred by a large and digital population, Indonesia's online commerce sector has grown quickly in recent years. The online commerce ecosystem is increasing in both number of players and complexity, and we forecast that consumer spending² in the sector will grow eightfold by 2022.

SIZING INDONESIA'S ONLINE COMMERCE MARKET

We define online commerce as the online buying and selling by consumers of physical goods, a market comprising about \$5 billion of formal e-tailing and more than \$3 billion of informal commerce. We estimate that Indonesia had about 30 million total online shoppers in 2017 (Exhibit 1) in a total population of about 260 million. (Our definition of online commerce excludes services such as Go-Jek or Traveloka, as well as B2B marketplaces such as IndoTrading.)

We define formal e-tailing as buying and selling physical goods through an online platform that facilitates transactions by displaying products and enabling payment and delivery. In Indonesia, that would mean marketplaces such as Bukalapak, Blibli, JD.ID, Lazada, Shopee,

¹ This analysis is from a forthcoming McKinsey report titled *Indonesia's trillion-dollar digital opportunity*.

² Defined as total annual gross merchandise value.

Exhibit 1

Driven by 30 million shoppers, Indonesia's online commerce market is at least \$8 billion gross merchandise value, including more than \$3 billion of social commerce.

Online commerce market size, 2017

GMV,¹ \$ billion

	Definition	Example platforms
>8		
>3	Social commerce Buying and selling goods through social media platforms	Facebook Instagram Line WhatsApp BlackBerry Messenger
5	E-tailing Facilitates transactions, including payments and delivery, via a common online marketplace	Blibli Bukalapak Lazada Tokopedia
	Excluded: • Online services • Online B2B sales	Go-Jek Traveloka IndoTrading

Online commerce population, 2017

million



¹ Gross merchandise value.

Source: App Annie; customer surveys; Google search data; Jakpat; Research partner; Statista; stakeholder interviews; McKinsey Global Institute

and Tokopedia, and niche or online brand players such as Ace Hardware, Erafone, Gramedia, and Tororo. The more informal market—social commerce—involves the buying and selling of physical goods through social media and messaging platforms such as BlackBerry Messenger, Facebook, Instagram, Line, and WhatsApp; goods may be listed for sale, but payment and delivery are handled elsewhere.

The formal market

Although it started from a low base, the formal e-tailing market is growing quickly (Exhibit 2). It represented 3 percent of total retail sales in 2017, compared with 10 percent in Singapore, where the online commerce market is more developed.

Regardless of the size of market, Indonesian consumers are gravitating toward the same kinds of products that their counterparts purchase in more developed online commerce markets, such as China and the United States. Electronics are particularly popular in Indonesia.

The informal market

We estimate the social-commerce market to be at least \$3 billion; some experts think it might be as much as \$5 billion (Exhibit 3). (See sidebar “What’s ahead for social commerce?”)

In social commerce, the platform facilitates communication and listing of products, and the seller holds the inventory. Logistics and payment are arranged separately. For example, a third-party service or the seller may deliver the goods, or the buyer will pick them up instead. Payment may be in cash, bank transfer, or another agreed-upon method. (See sidebar “What’s the role of drop shippers?”)

WHAT’S BEHIND THE GROWTH OF INDONESIAN ONLINE COMMERCE?

We identified five trends that help explain the rapid growth of online commerce in Indonesia.

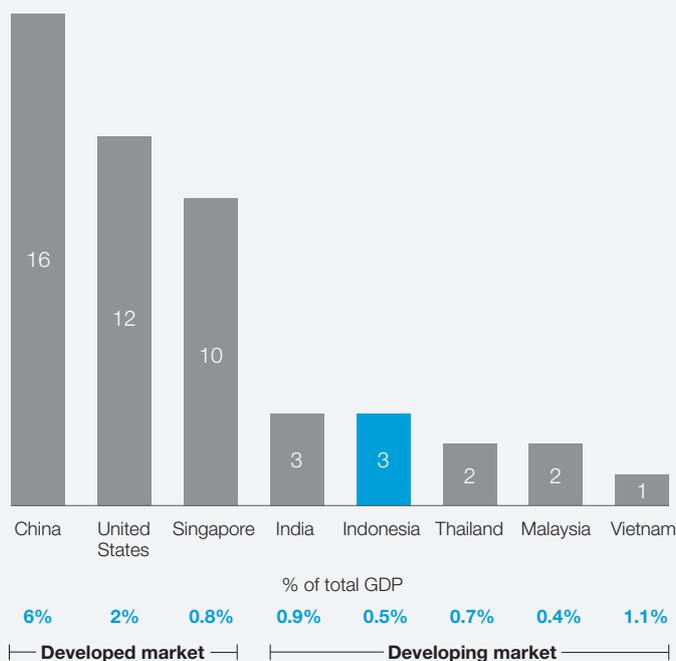
A mobile-first market

Almost three-quarters of online consumers in Indonesia are using mobile devices to shop, which is similar to markets such as China (77 percent) but higher than markets such as Malaysia (62 percent) and the United States (39 percent).

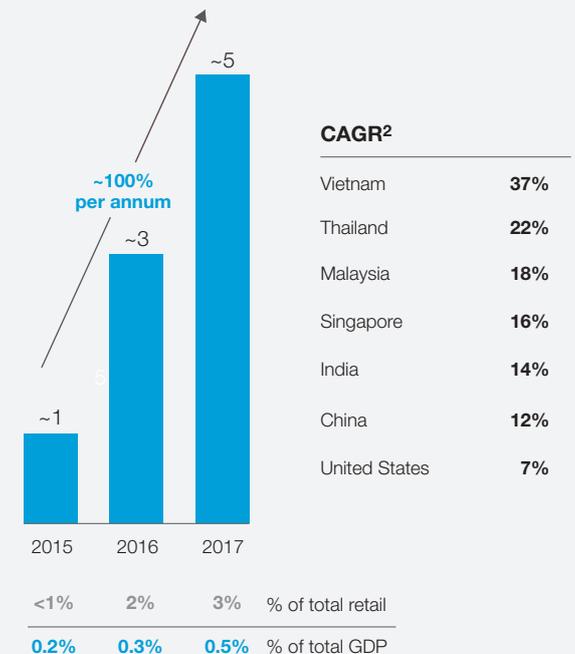
Exhibit 2

Indonesia’s e-tailing market, though still relatively small, doubled in size in 2016 and continues to rise.

E-tailing as a percentage of total retail,
%, 2017



Indonesia's e-tailing spending,
GMV,¹ \$ billion



¹ Gross merchandise value.

² Compound annual growth rate.

Source: eMarketer; eshopworlds; Forrester; Statista; research partners; McKinsey analysis

What's ahead for social commerce?

Social commerce is a significant contributor to today's online commerce market in Indonesia, accounting for roughly 40 percent of all sales. Small merchants often use it as a gateway to online selling, as well as a way to circumvent the prohibitively high costs of traditional media advertising, before migrating to formal marketplaces.

This subset of digital commerce will likely continue to grow, reaching between \$15 billion and \$25 billion by 2022 (Exhibit 3). However, we expect it to increase more slowly than formal e-tailing, for the following reasons:

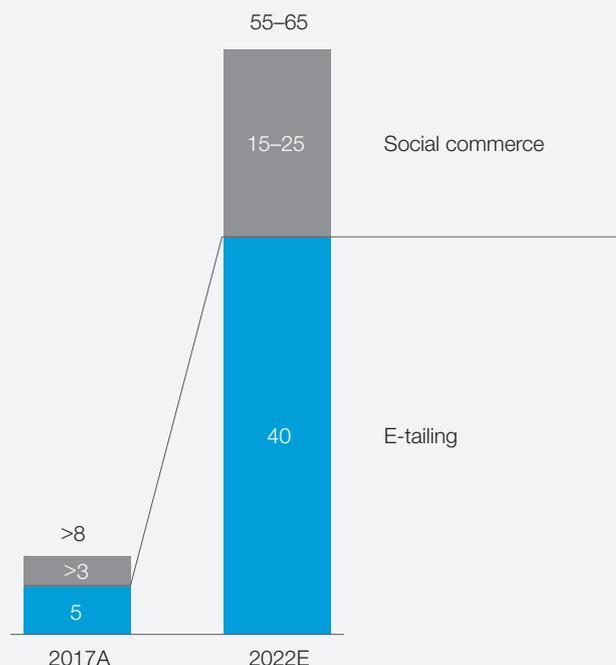
- Lower sales productivity for merchants.** Each order requires manual payment and logistics processing, with customers often requesting multiple price quotations for varying shipment options (such processes are usually automated on online commerce platforms).
- Poorer customer experience.** Social commerce uses fewer SKUs, making it harder for customers to compare pricing on products. Furthermore, payments typically occur via bank transfer, requiring manual verification by the merchant, while e-tailing platforms offer multiple digital payment options.

Social commerce platforms are capable of addressing these issues and may evolve into "hybrid" online commerce platforms in the future which offer both social aspects as well as formalized e-tailing. For example, Facebook has recently launched Facebook Marketplace which blends online social and shopping experiences.

Exhibit 3

Accounting for social commerce, the total online commerce market will rise to \$55 billion–\$65 billion by 2022.

Online commerce projections, GMV,¹ \$ billion



¹ Gross merchandise value.

Source: Stakeholder and expert interviews; research partners; McKinsey analysis

What's the role of drop shippers?

Indonesian online commerce benefits from digitally savvy intermediaries—drop shippers—who help both consumers and retailers use the internet to shop and sell. These drop shippers serve some 10 million “offline” consumers who may not trust online payment systems, don't yet have access to online commerce platforms, or find drop shipping more convenient than “standard” online commerce.

Here's how it works: a consumer identifies a product she likes by going online or visiting a drop shipper, who helps the consumer select a product using her phone or computer. The

drop shipper orders, and pays for, the product through an online platform. The consumer pays the drop shipper the price of the product, plus a commission of up to 10 percent, usually in cash.

The online platform arranges to ship the product to either the consumer's or the drop shipper's address. The same can also happen in reverse, with drop shippers identifying retail products not available online in their region, purchasing these items in bulk, and offering them online to consumers.

We estimate that Indonesia has as many as one million drop shippers, vastly outnumbering the country's estimated 16,000 convenience stores,

with the total growing 50 percent per year. Full-time drop shippers serve about 15 customers per month, 20 percent of whom are family and friends. The average drop shipper is 30 years old; 42 percent live in Jakarta.

More than 80 percent of drop shippers started their businesses to generate extra income on top of their regular jobs (43 percent of the part-timers are professional workers), but 30 percent of those part-timers are now drop shipping full time. Drop shippers are generating \$500 million of gross merchandise value for online platforms, or 10 percent of total e-tail sales.

Indonesians are mostly skipping the typical evolution from PCs to mobile devices that Europe and the United States experienced; instead, many consumers have turned directly to mobile devices. As a result, 70 to 80 percent of internet traffic runs through mobile connections. Mobile data, at half the cost of Southeast Asian peers and among the lowest in the world, is also affordable.

As a result, the country has a large mobile subscriber base: about 180 million people, with about 106 million (40 percent of the population) owning smartphones (Exhibit 4). Smartphone penetration is expected to continue rising as more households enter the banked population (roughly six million people a year, equivalent to the population of Singapore) and as device prices continue to fall—several products have approached the threshold of sub-\$100 prices.

Digitally savvy young consumers

Indonesians love social media. The country has 122 million Facebook users, the fourth-largest audience in the world. It also has one of the largest populations of Instagram users in the region, making Indonesia the largest Instagram story producer in the world. Jakarta is the most active city for Twitter in the world, while Bandung is the sixth. Behind this popularity is a young, digitally savvy population. One-third of Indonesians, or 87 million people, are from 16 to 35 years old.³

Indonesia also has an expanding banked population—about 100 million people—that is always connected (Exhibit 5). This population is increasingly comfortable with digital transactions, with the average bank account holder making 2.6 times more smartphone transactions today than three years ago (Exhibit 6). (See sidebar “Who are Indonesia's online buyers?”)

³ The World Factbook, Indonesia Central Intelligence Agency, updated August 14, 2018, cia.gov.

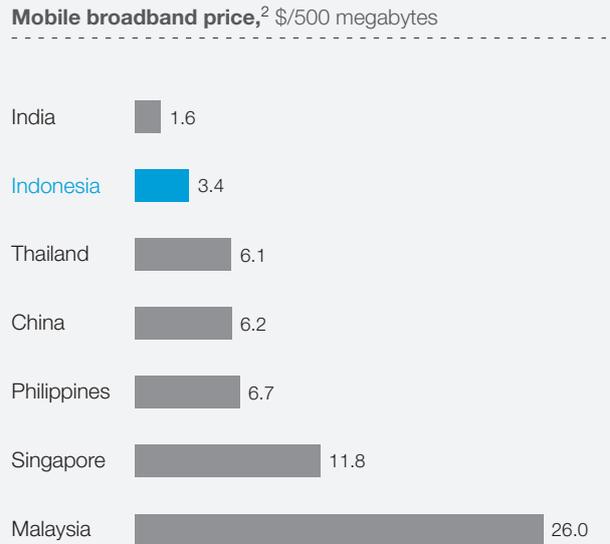
Exhibit 4

Indonesia's mobile-first e-tailing is driven by a large, rapidly increasing smartphone population and affordable mobile data.

Smartphone users steadily increasing, reaching approximately 105 million in 2017

Number of smartphone users, millions			
	2015	2017	CAGR ¹
China	822.6	988.1	10%
United States	200.9	296.6	27%
India	184.5	247.0	11%
Indonesia	74.8	105.6	19%
Vietnam	31.2	46.4	22%
Thailand	29.5	44.1	22%
Malaysia	13.8	20.2	21%
Singapore	3.6	3.9	5%

Mobile data is cheap, priced at just 50% of rates in peer ASEAN countries



¹ Compound annual growth rate.

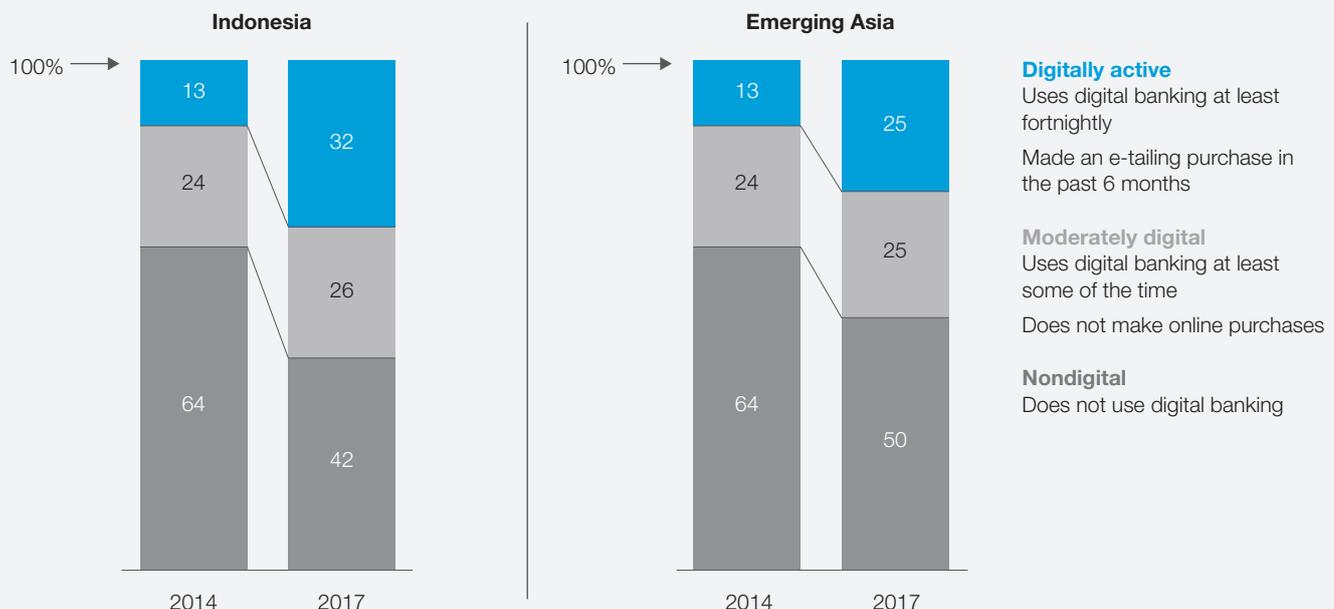
² Prepaid tariff for all countries except for China, where postpaid tariff is assessed based on handset use.

Source: Akami 2015; EIU; ITU (International Telecommunication Union) 2014; World Bank 2015

Exhibit 5

Indonesia's banked population is rapidly digitizing, with the share of digitally active consumers more than doubling in the past four years.

% of banked population



Note: Figures may not sum to 100%, because of rounding.

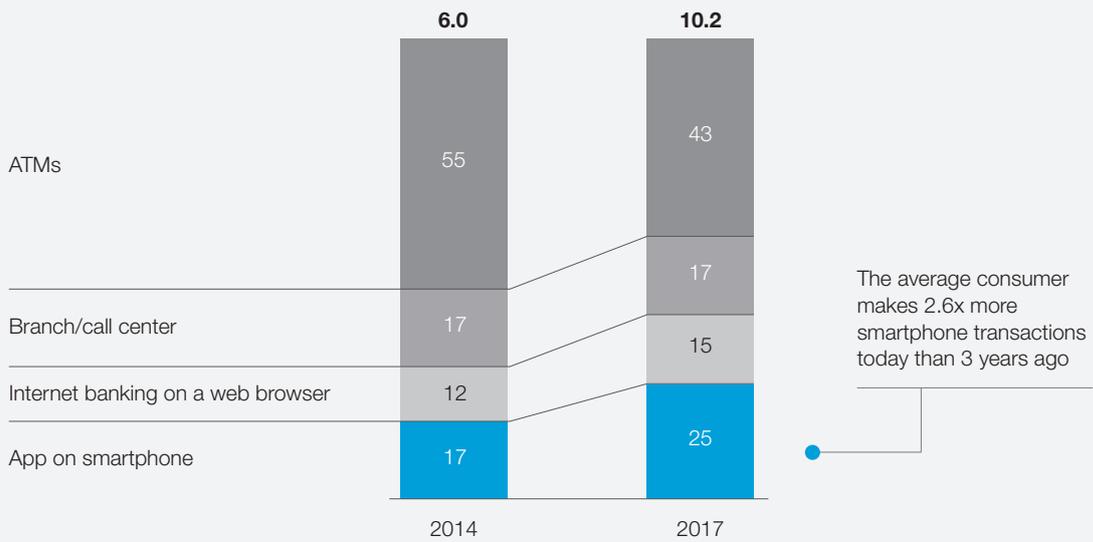
Source: McKinsey Asia PFS Survey 2017

Exhibit 6

Indonesia's banked population is increasingly comfortable with digital transactions, including e-tailing purchases.

Digital transactions are rapidly rising among the banked population

Average transactions per member of the banked population per month, %



Source: McKinsey Asia PFS Survey 2017; press search; research partners; Statista; McKinsey analysis



© Courtesy of Tokopecida

Indonesia accounted for \$5 billion, or 38 percent, of investments in internet companies made in Southeast Asia from 2015 to 2017.

Increasing MSME participation in online commerce

The number of online sellers in Indonesia has doubled each of the past three years to reach 4.5 million active sellers in 2017. Of these, 99 percent are microenterprises,⁴ while 50 percent are online-only businesses with no physical store presence. About 15 percent of all online merchants sell their own products, and the remaining 85 percent are resellers or distributors.

Three trends are spurring increased micro, small, and medium enterprise's participation: improving access to broadband, rising adoption of online platforms, and ownership transition to a younger, more digitally friendly generation. MSMEs are also getting help from online commerce companies like SIRCLO and aCommerce, which help MSMEs set up web stores, manage shipping, and market their services.

Growing investment in online commerce

Indonesia accounted for \$5 billion, or 38 percent, of investments in internet companies made in Southeast Asia from 2015 to 2017. Of that amount, online commerce platforms attracted the most money—about \$3 billion—led by companies such as Bukalapak, Matahari Mall, and Tokopedia. Investors are lured by a growing economy with a rapidly rising banked population and a young, digitally attuned population.⁵

Supportive government policies

The Indonesian government has offered its support for the development of the digital economy, including implementation of various programs and adjustment of corresponding regulations.

Government activities related to the digital economy include the following:

- **National broadband development (Palapa Ring).** This is a high-priority infrastructure program for the government, with three sections (west, central, and east) in construction and a budget of more than \$21 billion. It is scheduled to be completed in 2019.
- **Allowing foreign direct investment.** Indonesia's 2016 Negative List⁶ stated that online commerce (marketplaces) would be open to 100 percent foreign direct investment if the investment exceeded 100 billion Indonesian rupiah (about \$6.8 million).

4 Micro is defined as having up to 0.3 billion Indonesian rupiah (\$20,500) in revenue; small is defined as having more than 0.3 billion Indonesian rupiah and up to \$2.5 billion Indonesian rupiah (\$171,000) in revenue; medium is defined as having more than \$2.5 billion Indonesian rupiah and up to 50 billion Indonesian rupiah (\$3.4 million) in revenue.

5 Indonesia e-commerce association (iDEA), CLSA, Crunchbase, Google-Temasek, McKinsey analysis

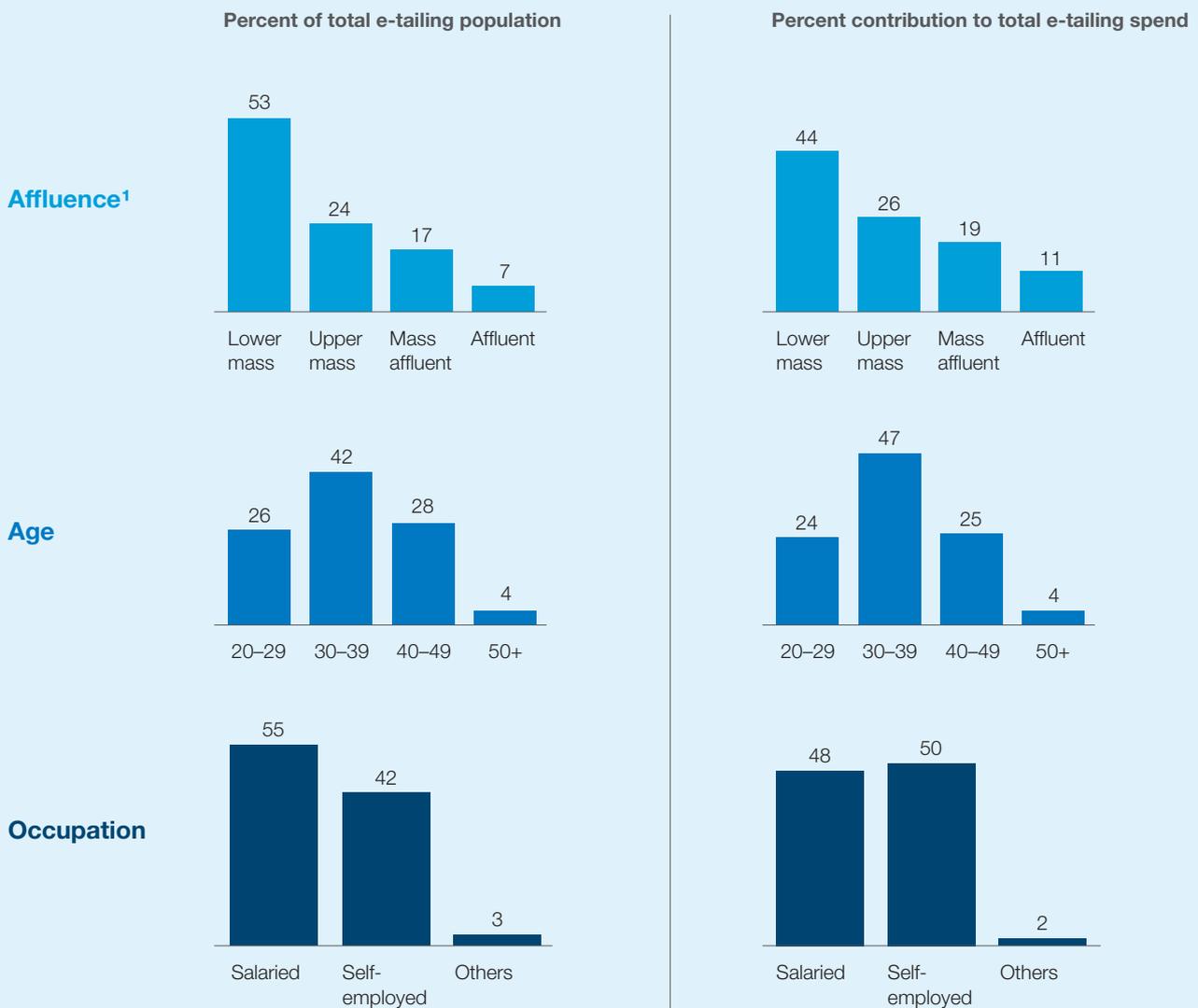
6 *Concerning lists of business fields that are closed to and business fields that are open with conditions*, Presidential Regulation of the Republic of Indonesia Number 4, May 2016, academia.edu; "Indonesia's e-commerce is open for foreign direct investment," CNPLaw, July 1, 2016, cnplaw.com.

Who are Indonesia's online buyers?

Affluent consumers account for 7 percent of the total online commerce population but 11 percent of spending. Nonetheless, the lower mass affluent population dominates spending. The 30- to 39-year-old cohort accounts for 47 percent of spending, more than any other age bracket, and

constitutes the largest proportion of the online commerce population. Self-employed shoppers spend more than people in other occupational categories, accounting for 50 percent of total spending (exhibit).

E-tailing buyers are aged 20 to 49, and 77 percent are from the lower and upper mass banked population.



Note: Figures may not sum to 100%, because of rounding.

¹ Defined by scoring of monthly spending, source of drinking water, energy used for cooking, and electricity at home.

Source: McKinsey Asia PFS Survey 2017



- **Implementation of e-procurement.** The government established the Lembaga Kebijakan Pengadaan Barang Jasa Pemerintah (LKPP), or Government Procurement of Goods and Services Agency, to develop an e-procurement program for goods and services. Total orders processed are estimated at \$3.7 billion a year.
- **Establishment of relevant associations and initiatives.** The government started or revamped several agencies to support the digital economy, including Bank Indonesia's fintech office in 2016, the IDX Incubator by BEI (Indonesia's stock exchange) in 2017, and BE KRAF (the Creative Economy Agency) in 2015.
- **Development of an online commerce road map.** The government launched its online commerce road map in 2017, with provisions covering funding, taxation, consumer protection, education and human resources, logistics, communication, cybersecurity, and implementation.

HOW FAST WILL ONLINE COMMERCE GROW?

We studied the evolution of e-tailing penetration in several countries to better understand the direction Indonesia might take (Exhibit 7).

We then examined each country's trajectory to identify similarities to Indonesia's current situation. China in 2010 offers the closest parallel, with comparable e-tailing penetration, GDP per capita, internet penetration, retail spending, and urbanization.

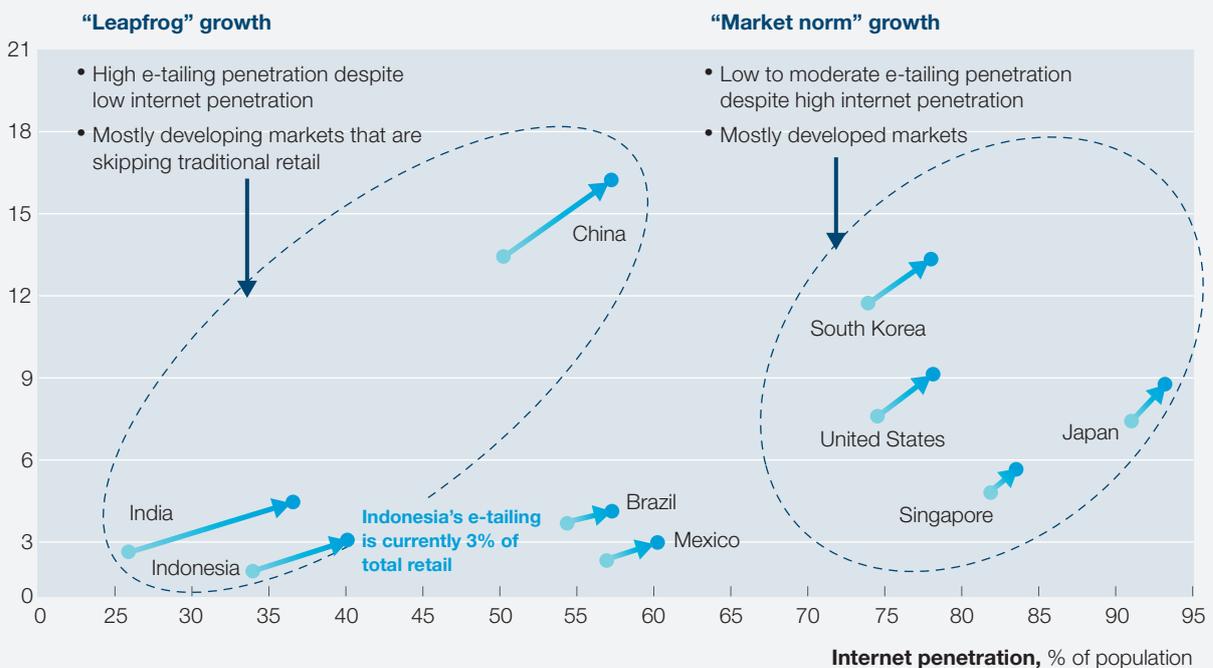
The Indonesian online commerce market is projected to grow up to eightfold from 2017 to 2022, from \$5 billion of formal e-tail spending up to \$40 billion, accompanied by an increase in social commerce spending from \$3 billion to \$15 to \$25 billion. (See sidebar "What's ahead for social commerce?") Online commerce penetration would rise to 83 percent of internet users in 2022, from 74 percent today. In parallel, average individual spending would increase from \$260 a year to \$620 a year in 2022 as consumers develop trust in the ecosystem and more MSMEs come online, providing an ever-wider variety of products and affordable, reliable delivery options. This rise in spending per buyer would be comparable to what China experienced from 2010 to 2015 (Exhibit 8).

Exhibit 7

Future growth may follow that of other emerging markets, where e-tailing growth rates are high despite lower internet penetration.

● 2015 ● 2017

E-tailing as % of retail, % of total retail sales



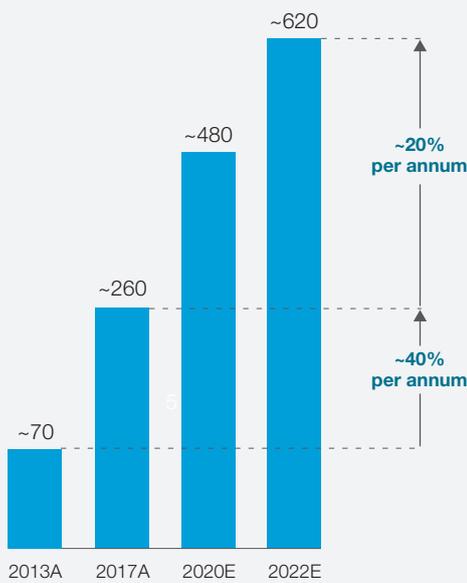
Source: App Annie; consumer surveys; research partners; stakeholder analysis; team analysis; McKinsey Global Institute

Exhibit 8

Online commerce spending per active buyer will rise at rates similar to China's historical growth before tapering off to rates similar to those of developed markets.

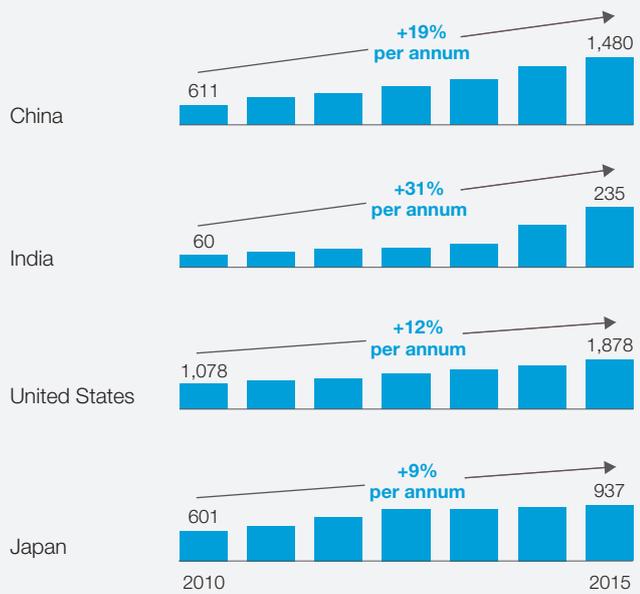
Projected e-tailing spend per active buyer will continue to rise but at a slowing rate ...

\$ per year per active buyer



... with short-term growth similar to China's and longer-term growth similar to that of the United States and Japan.

\$ per year per active buyer



Source: E-tailing Foundation; Forrester; McKinsey analysis

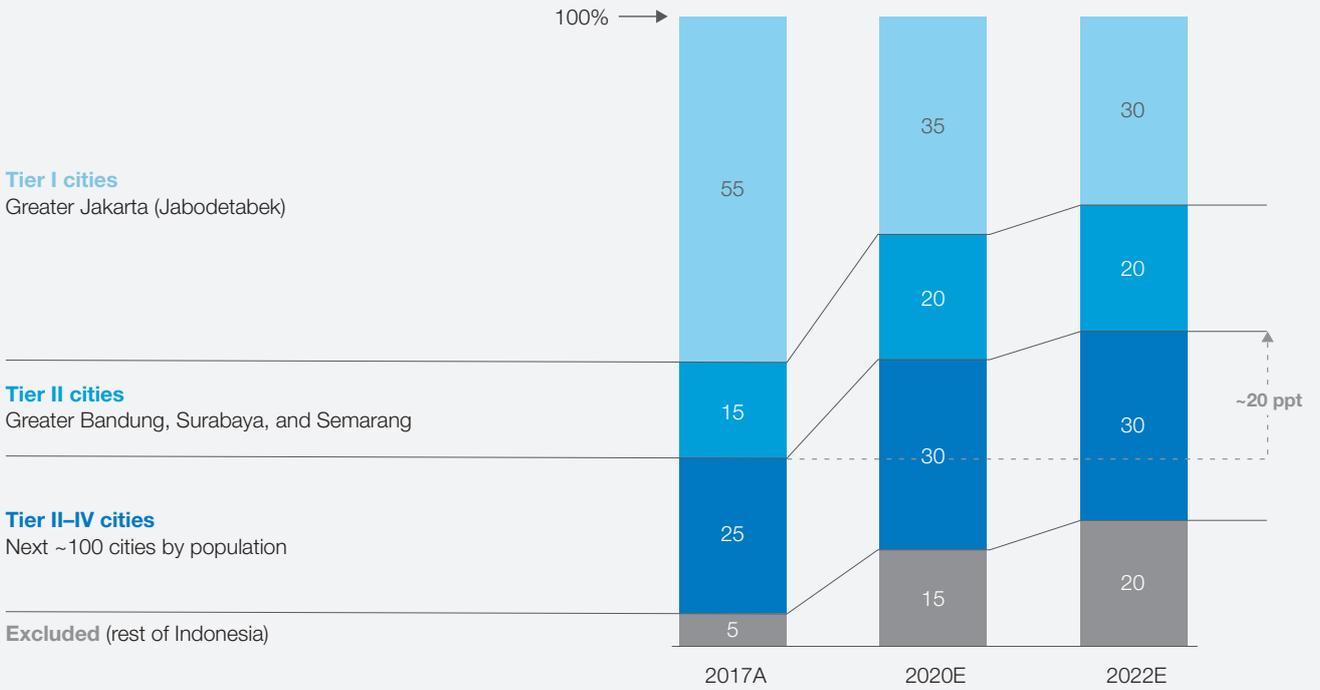


© Didier Manti/Getty Images

Exhibit 9

Growth will also be driven by increasing participation of Tier II–IV cities and rural areas: by 2022, two-thirds of spending will be from outside greater Jakarta.

Projected e-tailing spend by city tier, % of total GMV¹



¹ Gross merchandise value.
Source: BPS; research partners; World Bank; McKinsey analysis

Much of the projected growth would come from the increasing participation of consumers in Tier II, III, and IV cities as well as rural areas (Exhibit 9). By 2022, we expect that two-thirds of spending on online commerce will be from outside greater Jakarta.⁷ Tier II and III cities would account for about 50 percent, or \$18 billion, of online spending growth. In China, total spending in Tier III and IV cities caught up with Tier I and II cities in 2013.

Achieving this growth will require the kind of improvement described in chapter 3. If significant improvement is not achieved, Indonesia will likely follow the more moderate growth curves observed elsewhere. ■

⁷ Greater Jakarta (**Jabodetabek**) includes: **J**akarta, **B**ogor, **D**epok, **T**angerang and **B**ekasi.



Chapter 2

THE SOCIOECONOMIC IMPACT OF ONLINE COMMERCE



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Online commerce has already had a significant impact on Indonesian society; for example, it has empowered women and broadened financial inclusion. Its continued growth will have favorable implications for MSMEs, the broader banked population, and the country’s exporting prospects.

In this chapter, we look at the socioeconomic impact of online commerce in Indonesia today and the anticipated impact five years from now. Impact can be broadly categorized into four areas: financial benefits, job creation, buyer benefits, and social equality. In summary, we forecast that online commerce sales will grow eightfold by 2022. Every \$1 shifted from offline retailing to online commerce will generate about 30 cents of new consumption and save consumers 10 cents. In addition, in the next five years we expect online businesses to ship six times the number of parcels being shipped today. In addition, we expect the number of cashless payments to increase ninefold, the number of jobs related to online services to increase sixfold, and the number of online MSMEs to double. We expect that there will be twice as many online buyers that have existed in the entire history of Indonesia. (See sidebar “Success stories: Using an online commerce platform.”)

Success stories: Using an online commerce platform

Many Indonesian MSMEs have used online commerce platforms to build their businesses. Following are examples of this trend from several of the country’s leading platforms:

- Om Botak, a seller of books, umbrellas, and rainwear, opened an online shop in 2011 that has developed into a \$140,000-per-year business that receives more than 450 orders a day. This growth has led the company to hire 12 workers, rent a warehouse, and launch a proprietary umbrella brand.
- Bellio Shoes opened in 2011. Today, it partners with enterprises in Bogor to produce as many as 2,000 pairs of shoes a day and ships them to more than 400 cities in Indonesia. Its warehouse in Tangerang employs about 25 workers.

Source: Bukalapak, Lazada, and Tokopedia

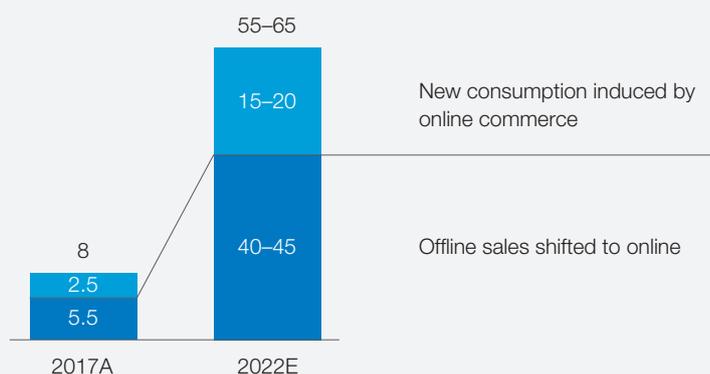
FINANCIAL BENEFITS

Indonesia is the largest online commerce market in Southeast Asia, generating roughly \$3 billion in new consumption revenue today and a likely \$20 billion by 2022 (Exhibit 10), according to our estimates. Looking at it from a different angle, 30 percent of current online commerce is new consumption, or purchases that would not have occurred in the absence of online commerce (see sidebar “How online commerce affects traditional retailers—and what they should do”). This amount will likely increase as online commerce proliferates in regions with untapped consumption needs. The new spending generated by online commerce

Exhibit 10

Thirty percent of Indonesia's online commerce spending is new consumption that would not have occurred otherwise.

Projected sources of online commerce spending, GMV,¹ \$ billion



¹ Gross merchandise value.

Source: BPS; Nielsen; stakeholder and expert interviews; McKinsey analysis

is possibly due to Indonesia's high savings rate relative to peer economies, with national savings reaching 32 percent of GDP, compared with 30 percent in Vietnam, 28 percent in Malaysia, and 22 percent on average across the Organization for Economic Co-operation and Development (OECD) countries.¹

Today, 55 percent of online spending in Indonesia happens in greater Jakarta, where the online retail market is more mature than in other regions. Online spending in Jakarta, as a percentage of household spending, is four times higher than in the rest of Java and ten times what it is outside of Java. Provinces outside of Jakarta have a new-spending rate that is about 10 percent higher than Jakarta's, a trend also observed in China, where Tier III and IV cities have more new consumption than the national average (57 percent versus 39 percent). As online commerce reaches beyond greater Jakarta, offering much better choices and prices, the rate of new consumption may grow beyond 30 percent.

Export prospects

Exports, and their attendant financial benefits, via online commerce are still low in Indonesia, with few merchants targeting overseas markets and limited support from platforms. However, rising exports of consumer goods (such as automotive, and hobby, fashion, and health and beauty products), coupled with significant overseas Google searches for such products, suggest that overseas demand is increasing (Exhibit 11). (See sidebars "Exporting and the power of online commerce" and "Bamboo crafts seller goes global.")

¹ World Development Indicators, World Bank, December 2017, data.worldbank.org.

How online commerce affects traditional retailers—and what they should do

E-tailing currently represents roughly 3 percent of retail sales in Indonesia. While relative growth has been high—it has quadrupled over the past two years and is projected to grow eightfold over the next five years—the absolute growth of online commerce is less than the overall growth of the retail sector. In other words, offline retail is projected to continue growing in the near future despite some sales shifting to online.

Traditional retailers in Indonesia should reflect on the shopping trends we see in other parts of the world. A key point is that consumer engagement is evolving. Only 6 percent of global retail customers are purely offline, with the remaining 94 percent engaging in at least one online channel as part of their shopping journey (exhibit). We see the start of similar trends in Indonesia, where 20 percent of consumers say that they research products online before making an offline purchase, and 30 percent say that they view or test products in offline stores before purchasing online. Offline Indonesian retailers should prepare for

increases in both online sales and online engagement with their customers.

Traditional retailers should consider taking the following four actions to prepare for online commerce:

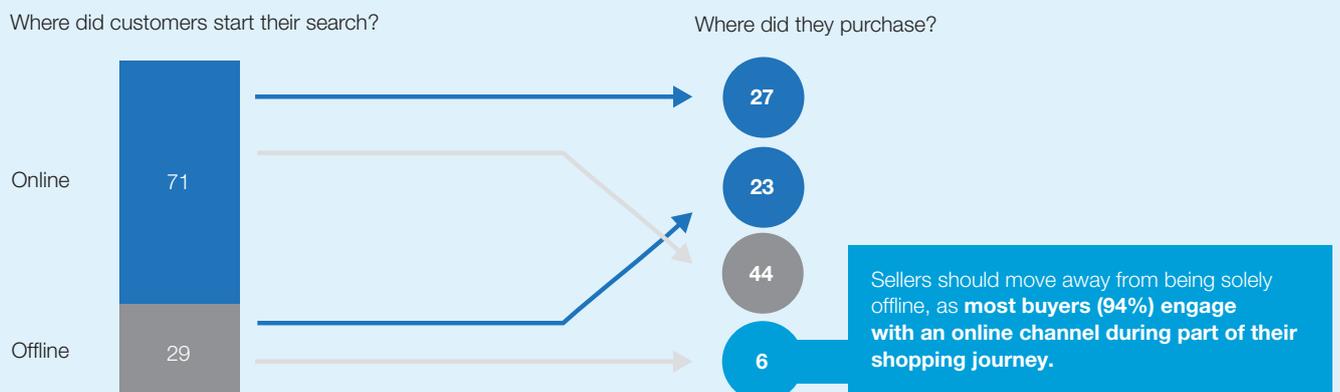
- Pick their battles.** This includes identifying which categories, geographies, and go-to-market models represent the greatest profit pools and determining priority partners (if any) for online commerce and digital channels.
- Create an omnichannel game plan.** Players should consider how the offerings on their digital channels may differ from (and complement) their offline channels. For example, online channels may offer exclusive products, an extensive assortment, or special bundles, while a bricks-and-mortar shop may carry a narrower selection that's more relevant to local consumers.
- Experiment with new models.** They must develop the test-and-learn mindset necessary to create disruptive online experiences and offerings.
- Consider how digital technology can help them reinvent their core business.** Investments in analytics can help turbocharge the performance of supply chain, customer insights, talent retention, and other core capabilities.

The experience of the Japanese retailer Uniqlo in China offers an example of a way forward. Uniqlo integrated its online and offline shopping experiences, positioning online as an important sales channel but treating offline as a critical branding and customer-engagement asset. Uniqlo's approach, rolled out at 400 stores across China, synchronizes prices in online and offline stores to maximize customer reach and allows shoppers to order online and pick up purchases in nearby stores. Doing so reduces delivery backups and potentially saves money on deliveries. Uniqlo became the first online store to exceed the 100-million-renminbi sales mark on Singles' Day in November 2017.

What should offline retailers do? Develop an omnichannel experience to accommodate digitally savvy consumers.

Customers are becoming multichannel—globally, only 6% of all buyers have no online touchpoints.

Global customer breakdown by shopping journey, %



Note: Figures may not sum to 100%, because of rounding.

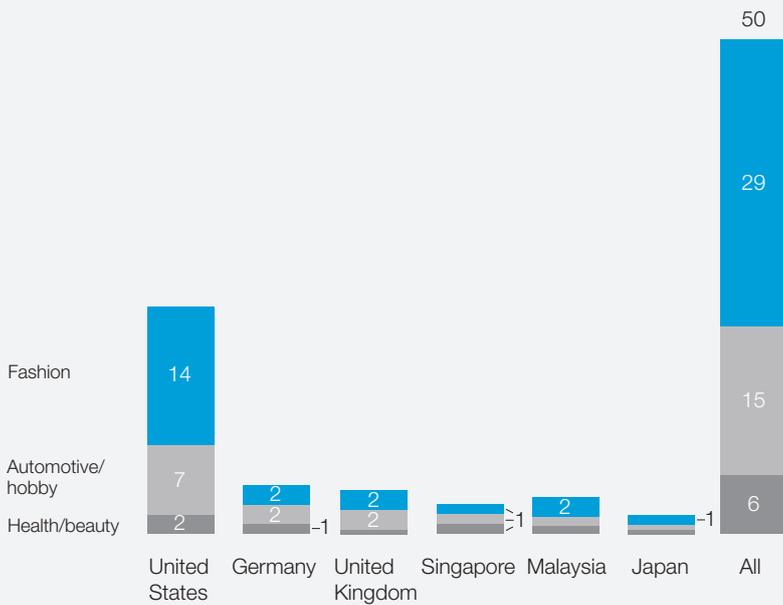
Source: McKinsey iConsumer 2014

Exhibit 11

Exports of Indonesian-produced consumer goods have risen, in part due to online commerce—and have the potential to expand further.

Indonesian fashion, household, automotive, and hobby products have the most international demand, with 50% of the share . . .

Searches for Indonesian consumer goods, 3 most searched categories, % of total online searches, 2017

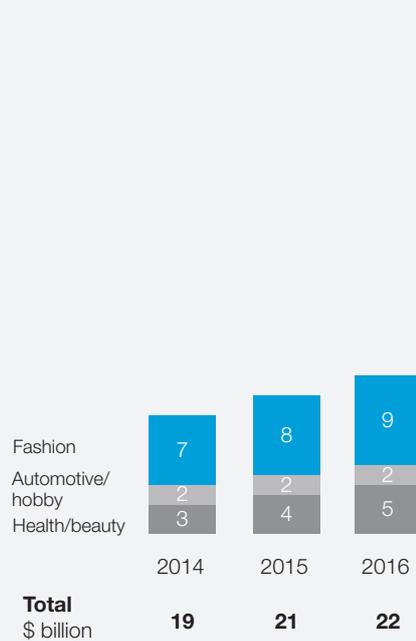


~80% of Google searches for Indonesian consumer goods originate from six countries.

Source: Google Indonesia; Trade Map, International Trade Centre

. . . and are being exported more, in part due to online commerce.

Indonesian exports of consumer goods, top 3 categories, % of total exports



Volume of categories is steadily increasing even as Indonesia's total exports have been declining (-9% per annum).

Exporting and the power of online commerce

In 2003, PT Panjimas opened its doors in Gresik, East Java, as a manufacturer of wicks for traditional stoves. When the market for traditional stoves slowed, the company applied its expertise in the recycling of textile scraps to a new venture, mop manufacturing.

In 2010, Panjimas began using Google and Alibaba to identify overseas customers for its mops. It started to customize orders to match customer

preferences; for example, it started to make mops in different colors for different countries. Later, the company received working capital loans from Indonesia's Eximbank, enabling it to export first and collect payments afterward.

By 2017, Panjimas had grown to 800 employees, half of whom worked in digital sales. Production had expanded to 30 tons of yarn a day—half of which

is exported to more than 30 countries. The company uses trade databases to identify specific customers of competitors' products and markets to them. The company's website attracts new customers, including the retailer H&M, which requested prototypes of sweaters made from recycled textiles.

Bamboo crafts seller goes global

Starting with a rudimentary blog post, Bagas Bebek, a seller of bamboo handicrafts, has used digital-commerce tools to grow tenfold and to reach international buyers.

In 2002, a husband-and-wife team opened a roadside stall in Notorejo, Klaten, to sell handicrafts made from bamboo roots. Business was unpredictable—some days they sold a few items, other days nothing.

Then, in 2010, their 21-year-old nephew launched a blog about the bamboo handicraft that attracted a broader base of customers—especially those traveling between Solo and Yogyakarta. The couple eventually started marketing through applications such as BlackBerry Messenger, WhatsApp, and Facebook as well.

By 2017, Bagas Bebek was shipping about 5,000 items abroad every two months. More than 90 percent of its customers had found the company online, while the remaining 10 percent were repeat customers who had visited the physical location. By embracing online commerce, the company has expanded its customer base substantially and achieved a stable income.

One sector that appears to have benefited from the growth of online commerce is jewelry. Exports have risen in the past few years from low levels to \$4 billion in 2016, comparable in value to Indonesia's exports of copper and brown coal. Our research shows that the increase has been fueled by local artisans, who often rely on online platforms to reach buyers (see sidebar "Using an online platform for jewelry sales").

Bali offers a good example of the impact of online commerce on exports: jewelry exports from the island increased 20 percent from October to November 2017, and interviewees said that online commerce was the main source of growth (see sidebar "For sale online: Balinese jewelry"). Online commerce platforms have democratized access to the jewelry market, benefiting the whole supply chain (Exhibit 12).

JOB CREATION

Indonesia's online commerce sector has already had a major impact on the country's job market. We estimate that by 2022, online commerce will directly or indirectly support about 26 million jobs, compared with four million today (Exhibit 13). Direct support includes new jobs that would not have existed otherwise (for example, programmers at online commerce companies and positions at logistics companies). Indirect support includes positions that already exist but will become supported by online commerce revenue flows, such as MSME owners who shift from offline to online selling or payment providers who shift their services from physical stores to online sales. (See sidebar "JNE expansion due to online commerce.")

One sector that appears to have benefited from the growth of online commerce is jewelry. Exports have risen in the past few years from low levels to \$4 billion in 2016, comparable in value to Indonesia's exports of copper and rubber.

Using an online platform for jewelry sales

Online commerce is giving a boost to Indonesia's jewelry sector. Artisans in traditional production centers such as Bali and Yogyakarta sell their products to digitally savvy local aggregators, who then resell to overseas retailers, often in Europe and the United States.

Some artisans have used online platforms to circumvent resellers and sell directly to overseas customers. For example, the online platform Novica supports more than 19,000 artisans worldwide, providing access to international markets and microfinance. There have been more than \$80 million in payments to artisans to date.

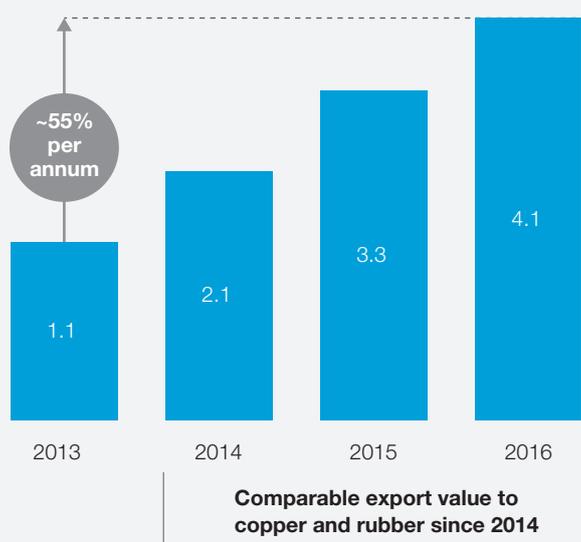
Buana, who runs a Bali jewelry business that employs 28 people, generates nearly all of his sales through Novica and other online platforms.

Exhibit 12

Jewelry exports are rapidly increasing, likely due in part to local artisans using the internet to connect with buyers.

Jewelry exports have increased fourfold in the past 4 years . . .

Indonesian jewelry exports, \$ billion



. . . fueled by local artisans and resellers leveraging online platforms to reach global audiences.



Artisans

focus on making products, and don't always have time or skill to sell (offline or online).



Resellers

who are digitally savvy and connected will leverage online platforms to resell products both domestically and globally.



Buyers

from around the world purchase via online marketplaces.

Source: BPS press search; seller interviews; team analysis

For sale online: Balinese jewelry

Budiana Silver is a family business in Celuk, Bali, that dates back to the 1970s. For years, Budiana merchants sold silver jewelry out of their homes, mostly to tourists. But the business experienced a sharp drop in sales in 2010, as prices for raw materials increased and tourists began to frequent larger shops.

Budi, the son of the founder, started selling online through Bukalapak in 2015. He started mostly out of curiosity but soon realized that it was a good way to reach new buyers. Today, he sells on Bukalapak, Qlapa, Tokopedia,

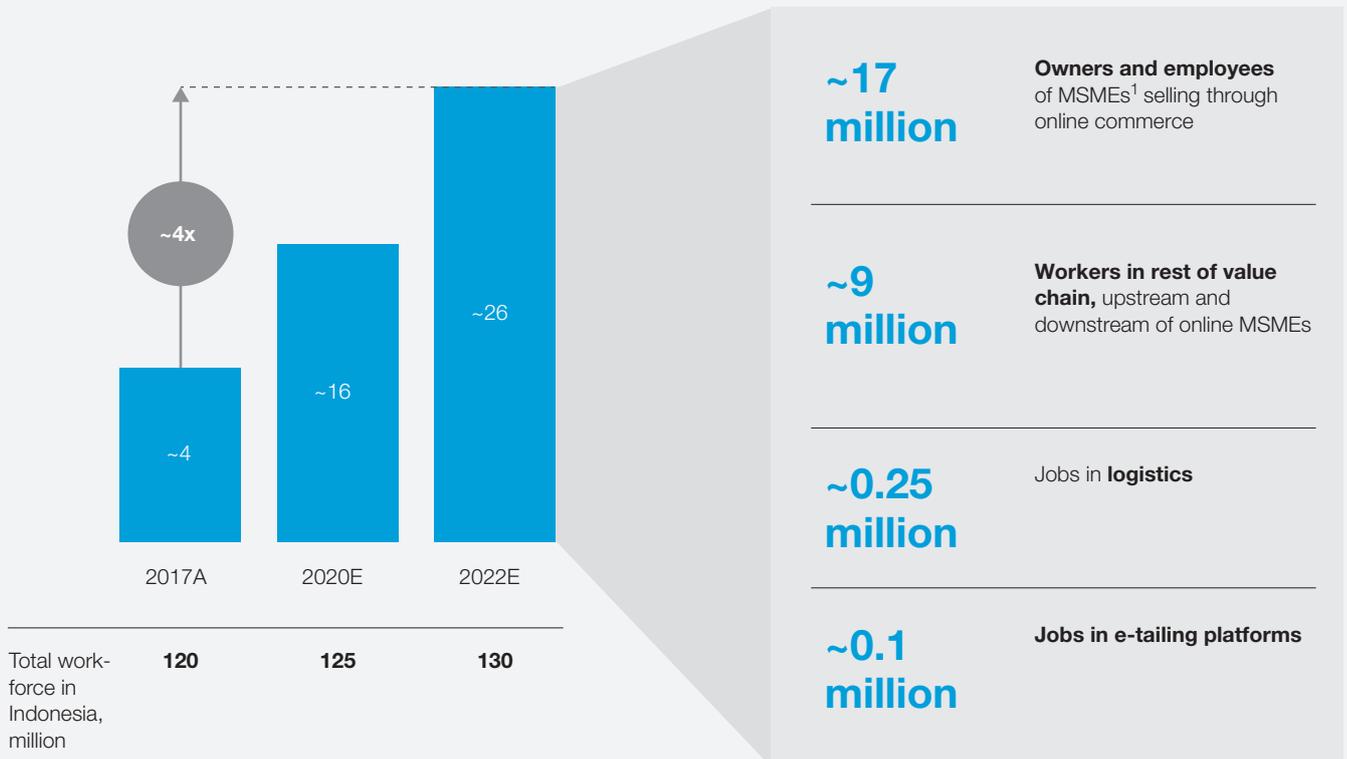
and other platforms—and 95 percent of the company’s sales are online. Most of the buyers are from Java, especially Jakarta, but he has started to explore exports as well.



Exhibit 13

By 2022, online commerce can directly or indirectly support up to 26 million jobs, representing approximately 20 percent of the total workforce in Indonesia.

Jobs supported, full-time equivalent, millions



¹ Micro, small, and medium sized enterprises.

Source: BPS; press search; research partners; survey of e-tailing sellers, n = 758; McKinsey analysis

JNE expansion due to online commerce

JNE, one of Indonesia's largest logistics companies, offers an example of how the country's enterprises are creating jobs in response to the growth of the online commerce sector. In 2016, JNE opened a warehouse in Wangon to accommodate the rapid growth of online commerce and to provide

a logistics gateway from Jakarta to the rest of Java. Wangon is a town of 80,000 people located in central Java, roughly halfway between Bandung and Yogyakarta, with a GDP per capita of about \$1,000. The new facility created thousands of jobs—while improving delivery speeds in Java,

helping JNE trim operational expenses, and leading to savings on deliveries for its customers, including outgoing shipments from local merchants in rural areas of central Java.

BUYER BENEFITS

Millions of Indonesians will become online consumers in the next few years (Exhibit 14). They will be increasingly attracted by wider product choices, cheaper prices, and convenience. For example, our research shows that online buyers can save 10 to 60 minutes per transaction compared with offline shopping, which was a savings of 1.5 to 9 hours a year in 2017. In addition, consumers can shop during their downtime; for example, online marketplaces often see a surge of activity during commuting hours.

Consumers are benefiting from savings via online commerce throughout the country, but we found some interesting geographical variations (Exhibits 15 and 16). For example, consumers outside of Java who purchase goods online save 11 to 25 percent compared with purchasing via traditional retail. In these locations, online commerce circumvents extremely high distributor inventory costs (low retail volumes spread over large geographies), but there's also substantial variability because of uneven development of local distributor networks and differing costs of parcel shipments (for example, to remote areas).

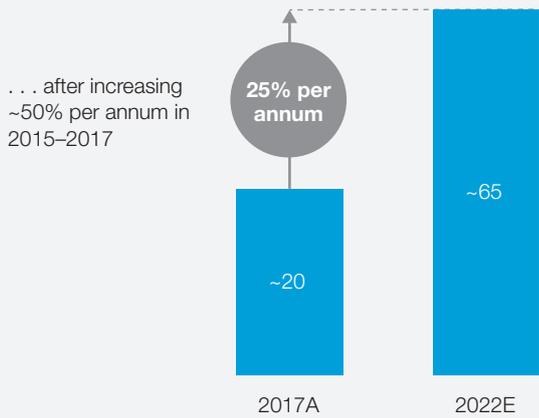


Exhibit 14

Drawn primarily by better product choice and comparison, the population of e-tailing buyers will reach approximately 60 percent of the banked population by 2022.

The number of customers will increase by ~25% per annum into 2022 . . .

Unique online buyers, millions



% of total internet population	19	43
% of banked population	27	63

. . . with most customers preferring online shopping because it is easier to find the right product.

What are the top reasons you buy on e-tailing platforms?, %



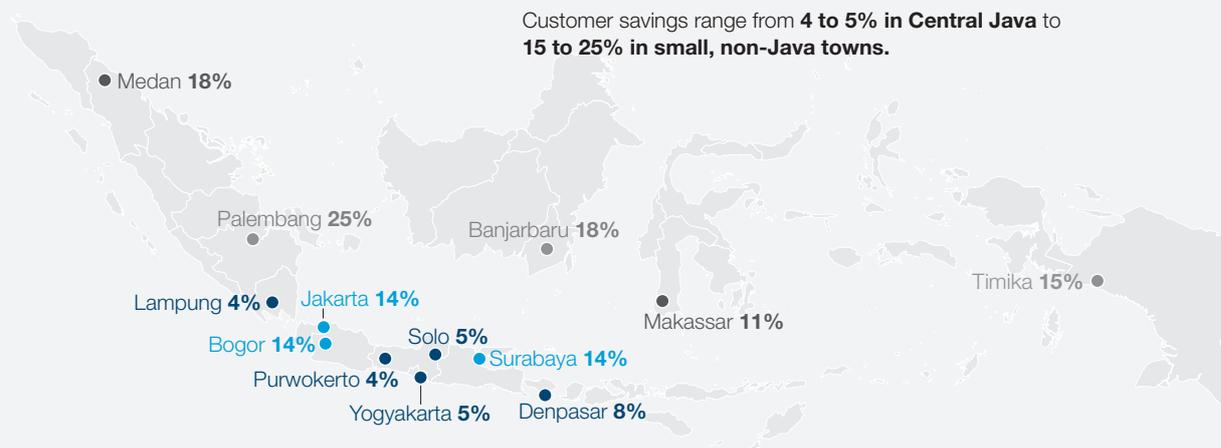
Source: CLSA; research partners; survey of e-tailing buyers, n = 318; McKinsey analysis

Exhibit 15

E-tailing is creating savings for consumers across the archipelago.

Average percent savings purchasing basket of goods online vs offline

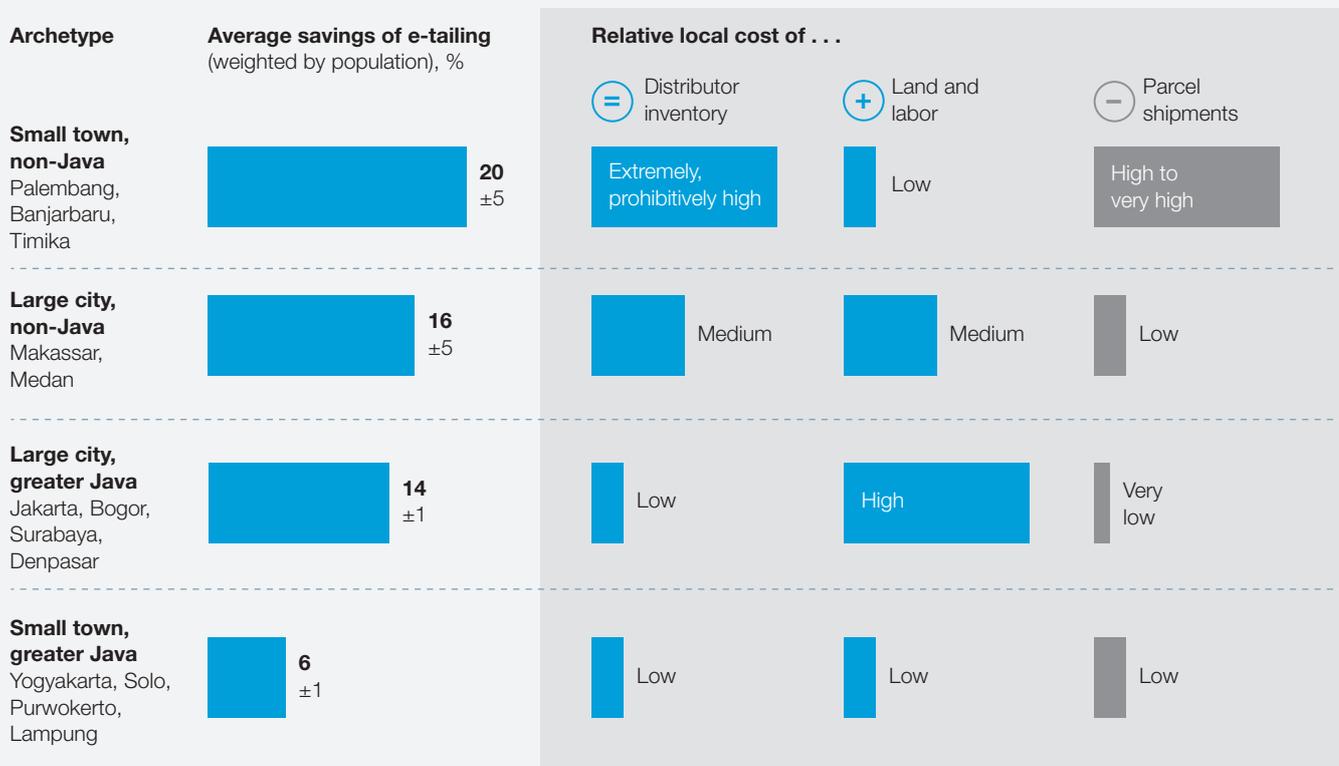
● Small town, greater Java ● Large city, greater Java ● Small town, non-Java ● Large city, non-Java



Source: Survey of comparable goods sold by online platforms and offline retailers, n = 1,400

Exhibit 16

Four urban archetypes yield varying potential savings for customers.



Source: Survey of comparable goods sold by online platforms and offline retailers, n=1,400

In the Java region, savings ranged from 4 to 14 percent. In this area, distribution networks are already highly developed, so savings are lower than in other parts of the country. Still, savings are substantial in dense urban areas because physical retailers face higher costs for land and labor and because shipping costs are low due to proximity to well-developed logistics hubs. Savings variability is low because of a consistent level of distributor network development.

The relative cost of shipping affects online commerce savings (Exhibit 17). Shipping costs to small towns outside of Java account for 40 to 50 percent of an order’s total cost (item price plus shipping fee), about 2.5 times higher than shipping costs to large Java cities such as Jakarta or Surabaya. Electronic items are high-value-density items (that is, they combine high prices with smaller size and weight) and thus generally incur lower relative shipping costs to any region. As previously noted, shipping costs are consistent across Java, regardless of town or city size, thanks to the region’s well-established logistics networks.

Exhibit 17

A significant driver of online price savings is the relative cost of shipping, with the “value density” of products determining the relative savings.

Average shipping costs as a percent of total purchase cost, %



Source: Survey of comparable goods sold in online platforms and offline retailers, n = 1,400; McKinsey analysis



© A Rey/Getty Images

SOCIAL EQUALITY

One of the most important—and perhaps least known—benefits of online commerce in Indonesia is its impact on social issues, including gender parity (see sidebar “How online commerce spurred the growth of one woman-led small business”), financial inclusion, and economic growth outside of Java (Exhibit 18).

Exhibit 18

E-tailing has helped increase gender parity, financial inclusion, and expansion outside of Java.

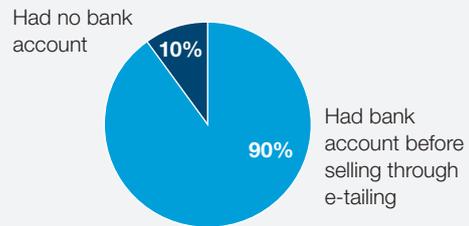
Woman-led MSME¹ revenue contribution in e-tailing is >2x that of offline MSMEs.

MSME revenue by owner gender, %



300,000 sellers are banked because of e-tailing, compared with ~2 million accounts from Laku Pandai.²

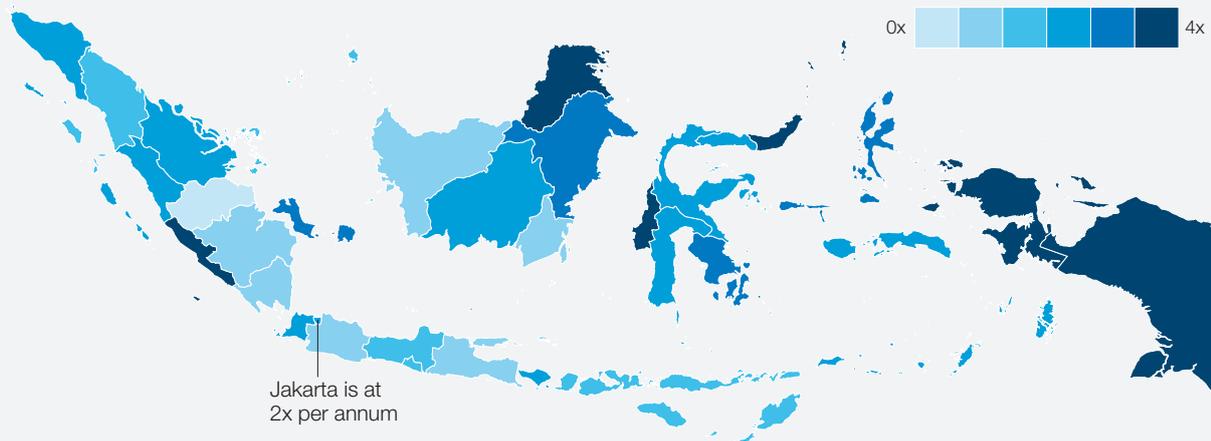
Number of sellers in e-tailing by bank account ownership, %



300,000 sellers newly banked
~15% of that achieved by Laku Pandai program

24 out of 34 provinces exceeding growth rate of Jakarta in sales.

E-tailing sales growth per annum, 2013–2017



There is net flow of goods to outside of Jakarta, providing more regions with access to goods.

Total spend minus total sales by location, \$ billion, 2017



Jakarta is the origin of 4 of the top 10 routes for parcel shipments . . . and not a destination in any of them (excluding Jakarta to Jakarta).

¹ Micro, small, and medium enterprise.

² Laku Pandai is a nationwide financial inclusion program launched in March 2015 by the Financial Services Authority (OJK).

Source: Press search; research partners; McKinsey analysis

How online commerce spurred the growth of one woman-led small business

Online channels are facilitating the creation and growth of businesses run by Indonesian women. One prominent example is Erto's Skincare, a cosmetics company based in Duren Sawit, East Jakarta. Founded by Rina Busri in 2010, the company has grown from a one-woman shop to a 100-person operation that works with 500 resellers. Ninety percent of its employees are women.

The company has expanded its offerings from one product to 40, all made in Indonesia. In 2013, Erto's experimented with offline selling and conventional advertising channels, but cash flow suffered.

Subsequently, the company relaunched with a back-to-basics, online-only platform using Facebook and WhatsApp, the former of which is intended for creating presence and the latter for communication. Today, Erto's generates \$450,000 in sales a month, handles 700 to 800 orders a day, and recently opened a beauty clinic. The company plans to expand to more physical locations in 2018.

Here's how Erto's ordering process works:

- 1** A customer contacts Erto's via WhatsApp, Facebook, LINE, or BlackBerry Messenger. (Customers typically get this information from the company's website, social media such as Instagram, or a friend.) Through the app, the customer asks questions about the products, including customization options and how customization affects price.
- 2** An Erto's agent or salesperson sends the customer a price list in the form of a picture via the chat app.
- 3** The customer may also inquire about shipping options, just as she might do with online marketplaces—for example, price differences for various types of shipping and different order sizes. Erto's is staffed to handle extensive back-and-forth exchanges.
- 4** The customer types out her order and shipping address and submits them via chat.
- 5** Erto's responds with its bank account information, so that the customer can transfer funds to the company.
- 6** The customer uses online banking or goes to an ATM to transfer money to the Erto's account (or that of the reseller).
- 7** The customer takes a snapshot of the transfer receipt and sends it back to Erto's.
- 8** Erto's processes and ships the product.



© Courtesy of Erto's Skincare

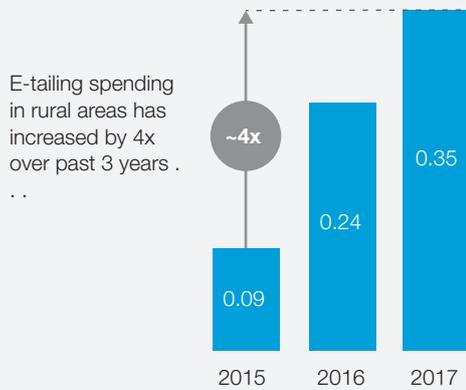
We found that online commerce in rural areas has experienced substantial growth, even though it started from a low base. Rural consumers' buying habits are similar to those of their urban counterparts. One exception is that they spend relatively more on categories like phones and tablets (Exhibit 19).

Exhibit 19

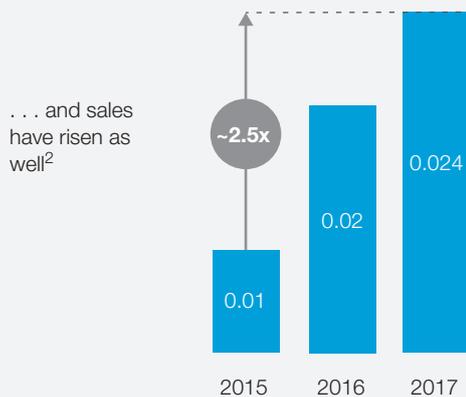
E-tailing in rural regions is expanding quickly, with rural buyers spending relatively more on mobile phones, tablets, and accessories.

Spending and sales in rural areas have increased significantly. . .

Consumer e-tailing spending in rural areas, \$ billion

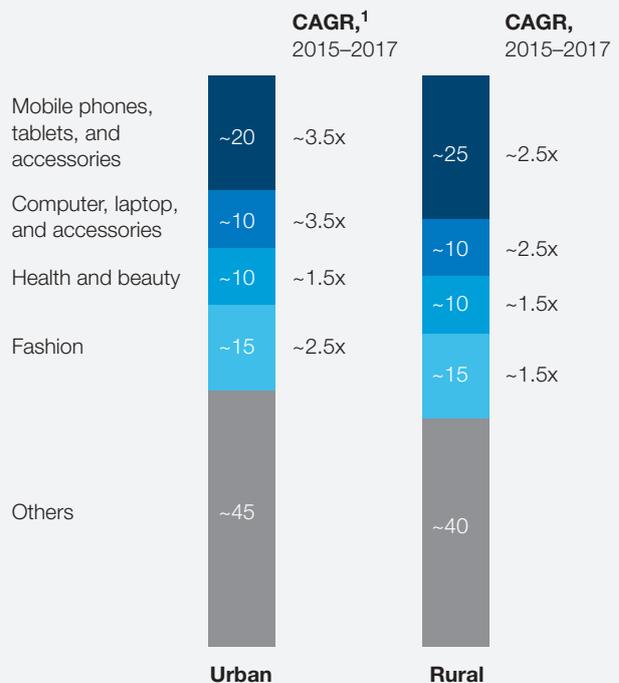


Merchant e-tailing sales in rural areas, \$ billion



. . . and spending is similar to urban areas in terms of product category mix.

E-tailing spending by product category, 2017, % of total



¹Compound annual growth rate.

²Absolute sales figures might not exactly match the cited growth rate due to rounding

Source: Research partners; McKinsey analysis

The 12 wealthiest and most tech-savvy of Indonesia's 34 provinces account for more than 50 percent of the country's total online spending.

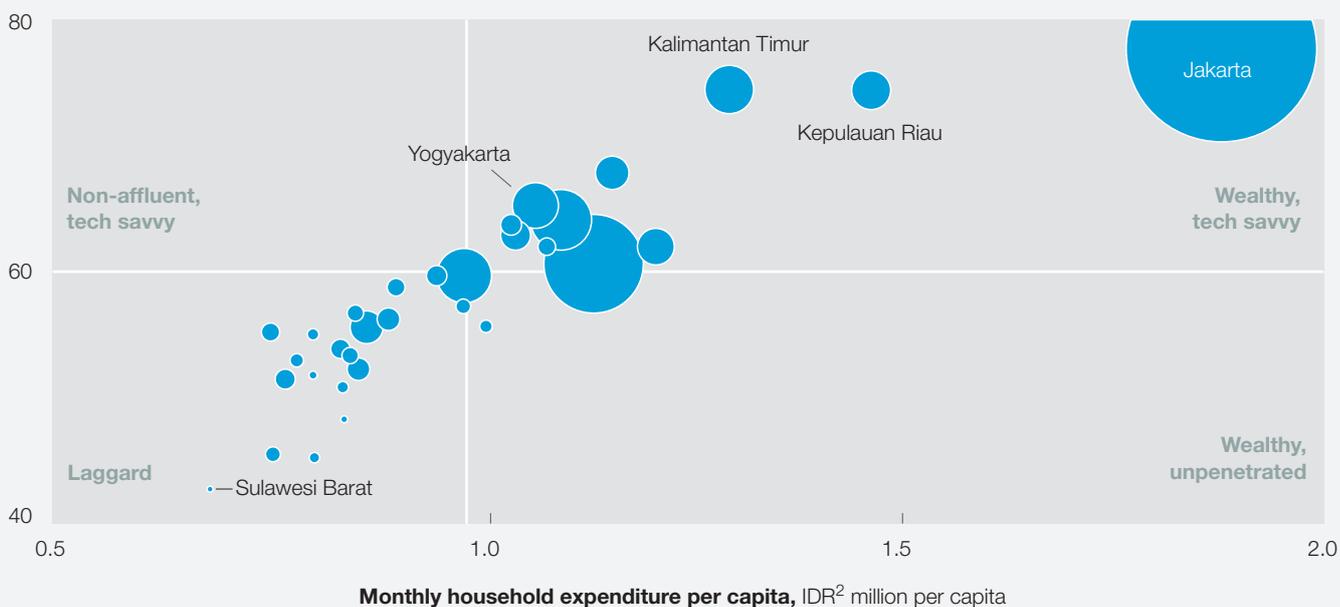
Exhibit 20

Growth in rural regions will be driven by increasing internet penetration and rising household expenditure per capita.

E-tailing spend per capita is positively correlated to household expenditure and internet penetration

Diameter of bubble indicates relative e-tailing spend per capita, 2017

Internet penetration,¹ % of population



Note: Figure excludes Nusa Tenggara Timur and Papua, both of which have <40% internet penetration.

¹ Internet penetration growth based on 2015–2025 historical and forecasted growth; household expenditure based on 2011–2016 historical growth.

² Indonesian rupiah (1 IND = \$0.000069).

Source: Statista; research partners; McKinsey analysis

Provinces with higher household expenditure and internet penetration also demonstrate higher online spending per capita (Exhibit 20). Jakarta,² the province with the highest rate of internet penetration and household expenditure per capita, accounts for 30 to 35 percent of all online spending in the country. The 12 wealthiest and most tech-savvy of Indonesia’s 34 provinces account for more than 50 percent of the country’s total online spending.

If this correlation holds, online spending should continue to increase in all provinces as the nation continues to develop. Internet penetration is projected to continue rising at 4.6 percent a year.³ Household expenditure grew at 9.8 percent a year from 2011 to 2016 and is expected to continue rising.⁴ As internet penetration and monthly incomes rise, so too do online spending and its attendant benefits. ■

² Jakarta is a subset of greater Jakarta, hence its portion of total online commerce spend is lower (see Exhibit 9).

³ Kaushik Das, Michael Gryseels, Priyanka Sudhir, and Khoon Tee Tan, *Unlocking Indonesia’s digital opportunity*, October 2016 McKinsey.com.,

⁴ Calculated from data provided by the Households and NPISHs Final consumption expenditure (constant LCU), the World Bank, accessed 2018, data.worldbank.org.



Chapter 3

KEY SUCCESS FACTORS AND CHALLENGES



© Danny Tan/EyeEm/Getty Images

Indonesia can draw on the experiences of other countries to learn about the factors underpinning a thriving online commerce ecosystem. Upon reviewing online commerce around the world, we identified five primary success factors comprising 12 indicators of progress.

In this chapter, we examine those five factors, look at Indonesia's status relative to the indicators, and offer examples of efforts to support online commerce. Overall, we find that Indonesia has room for improvement in all areas—logistics and infrastructure, payments, MSME digital engagement, local talent, and investment climate.

ASSURING RELIABLE LOGISTICS AND INFRASTRUCTURE

Assuring reliable logistics and infrastructure comprises the quality of infrastructure, the quality of service providers and the ease of exporting products. We found that Indonesia's logistics infrastructure lags behind its regional peers; according to the World Bank, it ranked 63rd out of 160 globally in 2016.

In addition, Indonesia's online commerce efforts suffer from limited logistics providers with sufficient geographic coverage and inconsistent service quality. In 2016, the World Bank ranked Indonesia 55th out of 160 countries in logistics quality and competence, 62nd in delivery timeliness, and 51st in the ability to track and trace consignments.¹

The country also ranks 136th and 97th out of 188 countries on cost and time for export, respectively, according to the World Bank (Exhibit 21). One logistics expert told us, "There are no standards in shipment process. Different companies have different parcel sizes, different truck sizes, different pallet sizes, and different IT systems."

Shippers face other issues as well. "House addresses are mixed up, and nobody uses standard postal codes. I basically need to create my own mapping and database instead of relying on public data," said a newcomer to Indonesian logistics. "We often need to just keep attempting to deliver the package to our 'best guess' addresses until we find the right one."

Still, Indonesian logistics companies are benefiting from the growth of online commerce. "I hired thousands of new employees last year and will keep hiring more in the coming years as my business grows," one major logistics player told us.

But there is intense pressure to improve the country's logistics infrastructure. Increased online commerce could lead to 1.6 billion parcel shipments in 2022—six times as many as today. Our research found that players are struggling to keep up. "I've checked with my members, and many said they couldn't keep up with the volume increase, especially all the manual parcel

¹ Numbers are aggregated from the Logistics Performance Index, World Bank, 2016, lpi.worldbank.org.

Exhibit 21

Indonesia ranks in the bottom half of ASEAN for both time and cost to export, making it challenging for most MSMEs¹ to reach overseas buyers.

Country	World ² rank in cost to export ³	World rank in time to export ⁴	ASEAN rank in cost to export	ASEAN rank in time to export
Singapore	52	46	1	1
Thailand	71	57	2	2
Malaysia	83	66	3	4
Vietnam	98	95	4	7
Cambodia	121	59	5	3
Philippines	123	114	6	10
Indonesia	136	97	7	8
Brunei	153	84	8	6
Laos	159	70	9	5
Myanmar	180	108	10	9

¹ Micro, small, and medium enterprises.

² Out of 188 countries.

³ Includes cost of border compliance and document compliance.

⁴ Includes time for border compliance and document compliance.

Source: World Bank

sorting required. They also don't have enough money to continuously invest," said a board member of a logistics trade group.

What others are doing

- Investment in a strong fulfillment network has enabled Amazon, the online shopping giant, to provide fast shipping and easy returns. Amazon had more than 200 fulfillment and redistribution hubs, Amazon Prime Now hubs, sorting centers, and delivery centers by the end of 2017. The company says that 99 percent of the population of the continental United States qualifies for one- or two-day delivery.²
- SingPost, Singapore's postal service provider, has teamed with Alibaba, the Chinese online commerce company, to enhance online commerce logistics in Oceania and Southeast Asia. Alibaba paid 92 million (about \$70 million) Singapore dollars for a 34 percent stake in Quantum Solutions International, SingPost's logistics subsidiary specializing in online commerce logistics and fulfillment.³

² Amazon.com

³ "Alibaba increases investment despite share tumble," *Economist Intelligence Unit*, July 2015

OFFERING SEAMLESS, SECURE, AND SCALABLE PAYMENT OPPORTUNITIES

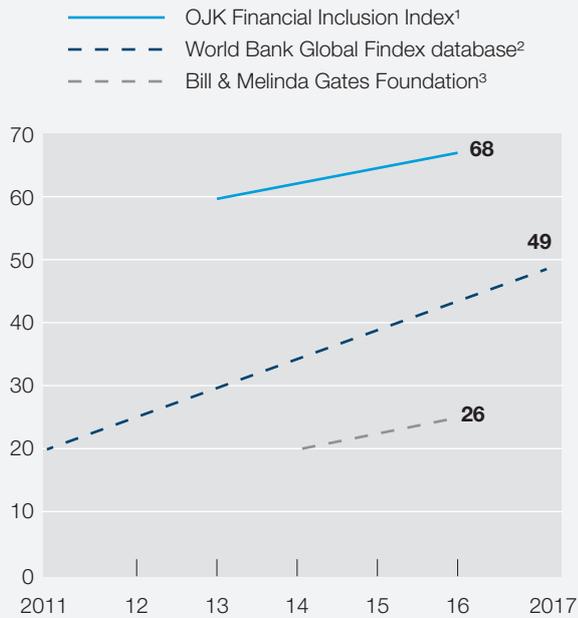
Payment adoption and security are prerequisites for a sound and growing online commerce market. Only 49 percent of Indonesians have access to financial services, well below regional benchmarks Malaysia (85 percent) and Thailand (82 percent) (Exhibit 22).

Exhibit 22

Though Indonesia's financial inclusion is improving, it still lags behind peer ASEAN countries—only 49 percent of adults have access to bank accounts.

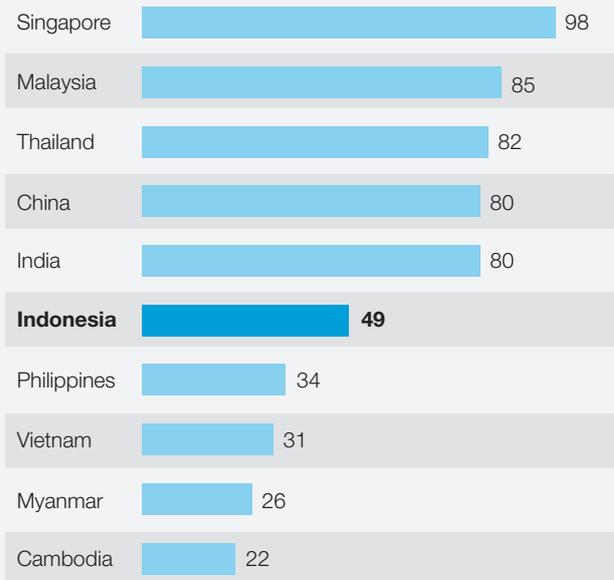
Both international and national metrics demonstrate Indonesia's financial inclusion is improving.

Percentage of adults considered financially included



Financial services registered users in ASEAN countries,⁴ China, and India

Percentage of surveyed adults, 2017 World Bank Global Findex database



Indonesia is ranked 84th out of 144 surveyed countries by measure of financial inclusion and is below the emerging economy average of 63%.

Financial inclusion is lower for the poor (37%) and for rural communities (47%).

¹ Individuals with access to formal financial institutions, n = 9,680. Survey conducted in 2013 and 2016; assumed linear interpolation for 2014–2015.

² Denotes the percentage of respondents (aged 15+ years) who report having an account (by themselves or with someone else) at a bank or another type of financial institution, or through a mobile phone. Data available for 2011, 2014, 2017—assumed linear interpolation for years in between.

³ Individuals >15 years old and registered users of financial services, n = 6,000.

⁴ No data available for Brunei and Laos.

Source: Bill & Melinda Gates Foundation; Global Findex Database; InterMedia Indonesia; OJK Financial Inclusion Survey

“Most Indonesians remain unaware of available financial services, let alone use them,” one researcher noted. A logistics provider added during an interview, “Dominance of cash-based transactions results in greater complexity and high costs for processing them.”

Indeed, 99 percent of transactions, by volume, in Indonesia are cash based. As a result, Indonesia lags behind most Asian countries in payments revenue per capita; in 2015, Indonesia recorded \$74 in payments revenue per capita, compared with \$271 in Malaysia. Point-of-sale card acceptance remains low, as do credit card and debit card ownership and use. In 2015, Indonesia ranks last among Asian countries in card penetration and ahead of only India in transactions per capita.

Online fraud in Indonesia is the highest among the ASEAN countries, while the country ranks 70th out of 165 in cybersecurity—a clear disincentive for consumers and merchants who might pursue online commerce (Exhibit 23). Orders originating in Indonesia are 12 times more likely than the global average to be fraudulent.⁴ In July 2017, Indonesia ranked second in the

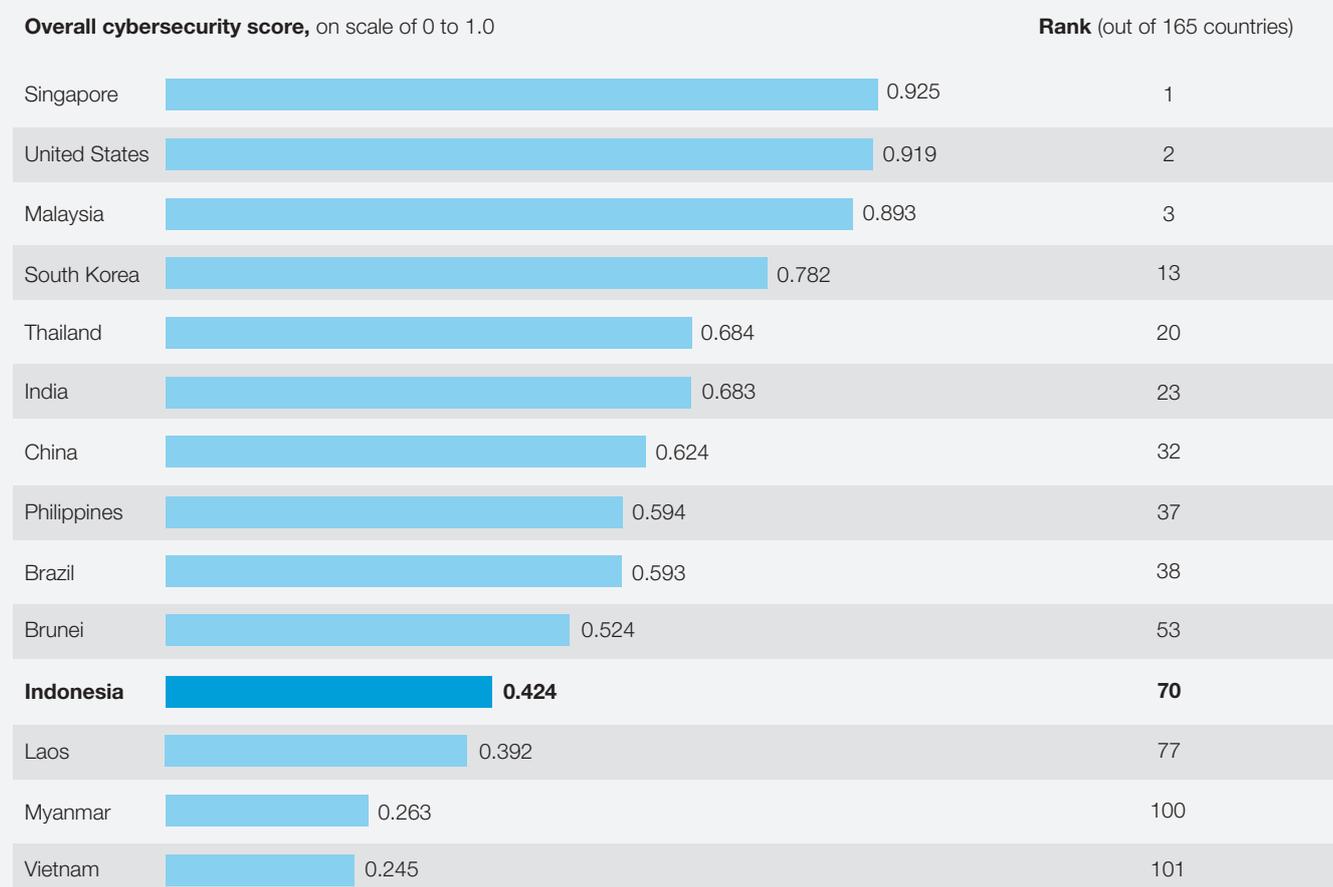
⁴ Allison Enright, “Online orders originating in Indonesia, Pakistan and Romania have high fraud rates,” May 28, 2014, digitalcommerce260.com.



© Courtesy of Tokopedia

Exhibit 23

Indonesia ranks 70th globally in cybersecurity, behind regional peers such as the Philippines and Thailand.



Source: International Telecommunications Union

list of Asia-Pacific countries most vulnerable to malware threats and second worldwide in the number of network attacks.

Some countries have tried to address cybersecurity issues by developing national risk-management frameworks and building national-level incident-response capabilities. For example:

- The United Kingdom employs Active Cyber Defence (ACD) protocols, carrying out extra security measures to strengthen systems and networks against attacks.
- Germany established a National Cyber Security Council to encourage cooperation between the public and private sectors.
- Malaysia launched a digital forensics lab in its cybersecurity agency.
- Australia created a cybersecurity center to analyze threats and lead the government's response to incidents.

What others are doing

- In 2014, Alibaba's payment service, Alipay, partnered with Sina Weibo, the Chinese microblogging platform, to create a new payment platform, Weibo Payment. The platform makes it easier for online shoppers to pay for purchases.
- India's PayTM has become a prominent mobile-payments company and online commerce platform, boasting about ten million transactions a day. Also, the Indian government has strongly supported adoption of digital payments to lessen the country's reliance on cash.

BUILDING A PROFESSIONAL AND DIGITAL MSME ECOSYSTEM

Access to the internet and participation in online commerce are clearly the keys to a strong ecosystem. More than 60 percent of Indonesian MSMEs are online, but only about 15 percent have online ordering and payment systems.⁵

Indonesian MSMEs face various obstacles in the pursuit of online commerce, and only a few have succeeded in overcoming the barriers. Among the challenges are a lack of knowledge about online commerce, insufficient time to learn about it, a limited pool of employees who are qualified to do online commerce, and the possibility that competitors will copy a company's work. "In Indonesia, we just have to deal with the fact that our design could get copied and then mass produced," one merchant told us. "This happens even when I'm doing the business offline. If I do it online, it would be even easier for them to do so—they can just steal my images"

MSMEs also say they worry about a perceived loss of personal interaction in online commerce. "How can the customer justify spending \$500 for an item they have not seen in person to a seller they have not met in person?" another merchant asked.

Indonesian consumer behavior also plays a role. "Indonesian customers like to be served," a merchant told us. "They are already at our website, and our website does have a payment system—all they have to do is click 'buy.' Yet they screenshot the page and start a WhatsApp conversation to complete the purchase."

Indonesia has seen some successes. For example, the country's Orori grew from a brick-and-mortar family business to a big online jewelry company, becoming Southeast Asia's leading digital gold trader. The company has more than 100,000 registered users in their digital platform, and records \$1 million in transactions a month. Significant potential exists for online commerce to increase exports—particularly jewelry, footwear, gold, and clothing products—but limited participation by MSMEs in online commerce has inhibited export growth so far.

What others are doing

- Jewelry exports in Bali increased 20 percent from October to November 2017. Much of that growth can be attributed to online commerce.⁶

⁵ *SMEs powering Indonesia's success*, Deloitte, August 2015, 2.deloitte.com; McKinsey analysis.

⁶ Ani Hasanah, "Bali Jewelry exports increase up 20 percent," January 22, 2018, voinews.id.

- Hong Kong and Singapore’s governments actively encourage MSMEs to adopt information and communications technology by offering incentives and subsidies.
- China’s Baozun, an online commerce-services company, helps sellers manage their websites by providing marketing, fulfillment, and IT services.
- China’s Taobao, a shopping website, builds trust among consumers by ensuring the quality of sellers on its site and by providing access to seller information such as ratings and comments.

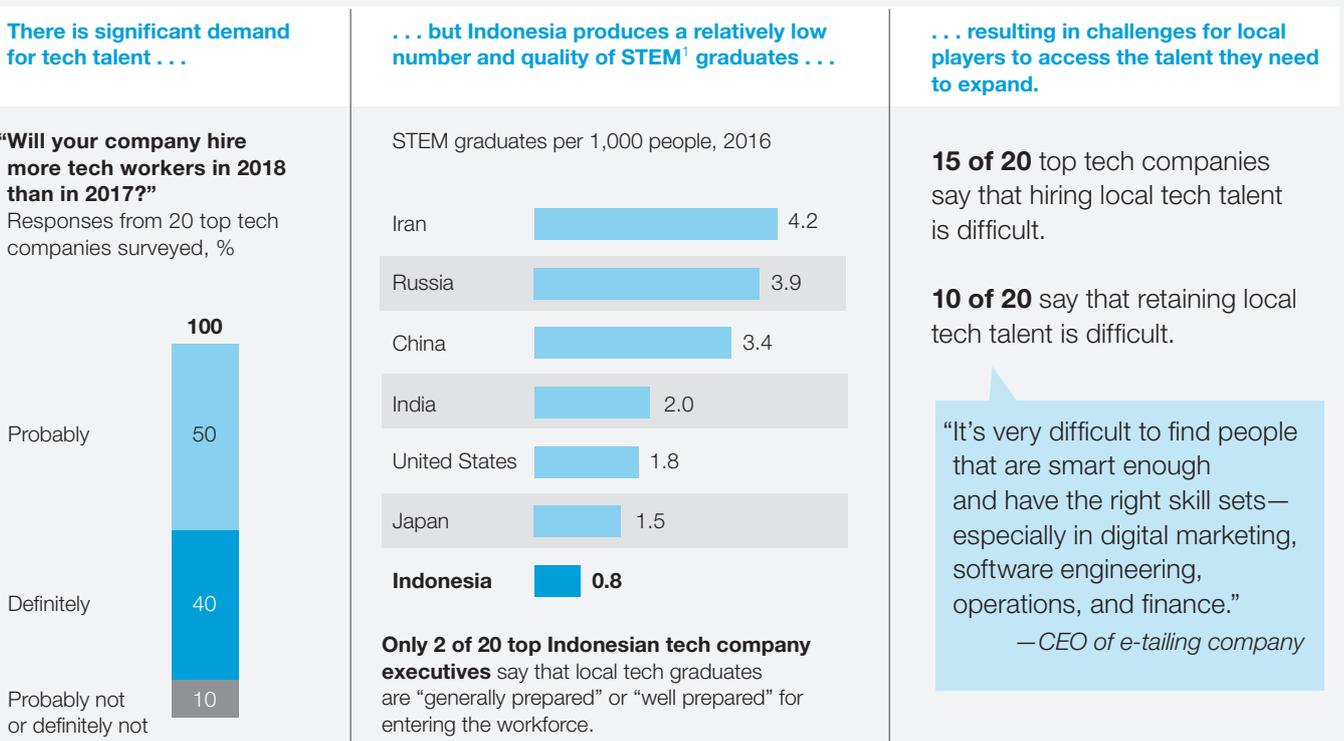
ENCOURAGING A STRONG LOCAL TALENT POOL

The success of the online commerce sector depends on the supply and quality of local talent in addition to the number of start-ups.

Indonesia faces great demand for technical talent, but the country produces just 0.8 science, technology, engineering, and mathematics (STEM) graduates per 1,000 citizens, far below China (3.4) and India (2.0). In the OECD’s 2015 Program for International Student Assessment (PISA) test results, Indonesia ranked in the bottom ten of 72 countries for math, reading, and science. And 18 of the 20 executives of leading Indonesian companies we surveyed said that they are not satisfied with the quality of local talent (Exhibit 24).

Exhibit 24

Talent in particular is a significant challenge in Indonesia; 75 percent of tech company executives surveyed reported that hiring local tech talent is difficult.



¹ Science, technology, engineering, and math.

Source: BPS; McKinsey survey of leading Indonesian tech companies, n = 20; stakeholder interviews; WEF

Governments around the world, including in Singapore's, have implemented comprehensive strategies to encourage participation in STEM careers and improve the quality of STEM workers.

"If you go to school now, what you learn in technology will be obsolete by the time you graduate," said the chief of information technology of one of the largest Indonesian telecommunications companies. "It is not simply increasing the number of technology graduates in Indonesia—it is beyond that. In comparison to other countries with similar backgrounds, like Thailand, Indonesian engineers need more 'grit' in solving a problem and need to substantially improve their analytical rigor in problem solving."

The chief executive officer of an online commerce company told us, "It's very difficult to find people that are smart enough and have the right skill sets, especially in digital marketing, software engineering, operations, and finance."

"The biggest change after we received foreign investment is that we suddenly had access to thousands of engineers from our investor's home country," the chief financial officer of another online commerce company said. "This made a huge difference since finding local talent is so hard."

What others are doing

- Governments around the world, including in Singapore, have implemented comprehensive strategies to encourage participation in STEM careers and improve the quality of STEM workers.
- China has established several programs to attract overseas talent for an innovation economy, including the Hundred Talents Program of the Chinese Academy of Sciences and the Thousand Talents Plan. The programs are designed to provide compensation packages competitive with Western countries.

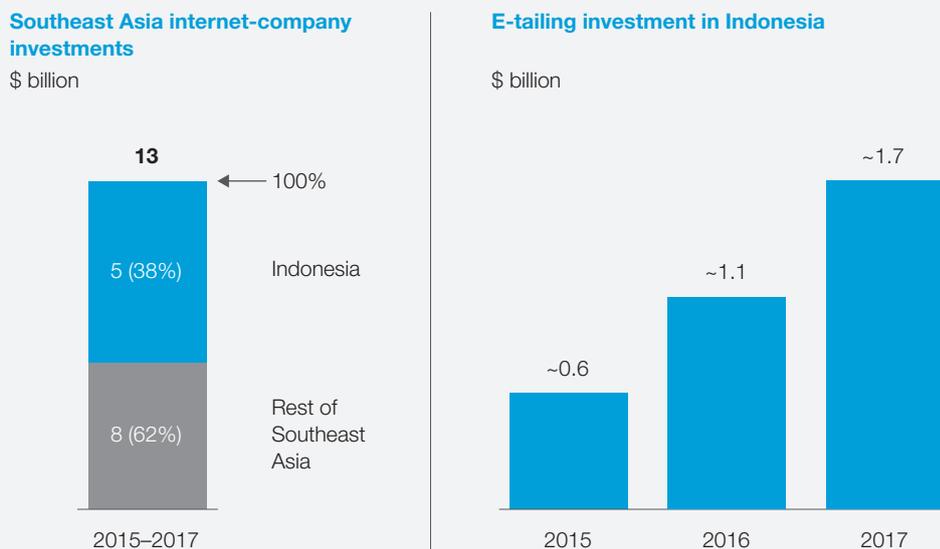
CREATING A HEALTHY INVESTMENT CLIMATE

Funding levels and the number of local investors are indicators of an online commerce market's health. Indonesia has received about 38 percent of total ASEAN venture capital funding over the past three years, exceeding its relative contribution to ASEAN's total GDP of 36 percent. E-tailing accounted for almost \$3 billion of the funding (Exhibits 25 and 26).

But for Indonesia, funding is not the primary issue. More pressing challenges include a relative lack of start-ups. The country's online commerce ecosystem is developing, but the number of start-ups is badly lagging (Exhibit 27). In addition, there is a need to foster those start-ups that exist to qualify for at least Series A financing, a company's first sizable round of venture capital investment.

Exhibit 25

Over the past three years, 38 percent (\$5 billion) of Southeast Asia’s internet-company funding has gone to Indonesia, with nearly \$3 billion invested in e-tailing alone.



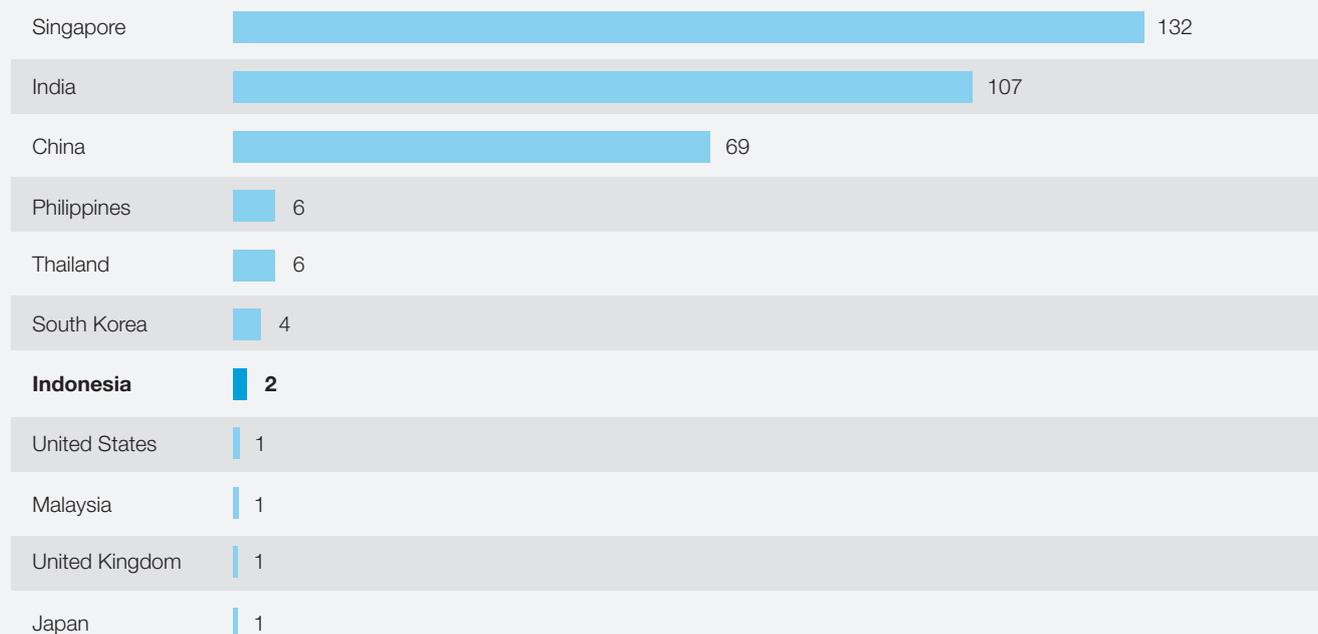
Source: CLSA; Crunchbase; Google; IDEA; press search; Temasek; McKinsey analysis

Exhibit 26

Indonesia’s number of venture capitalists and tech incubators is below that of regional peers.

Relative number of investors per country

Number of investors (angel investors, corporate venture capitalists, incubators, and venture capitalists) per 1 million people

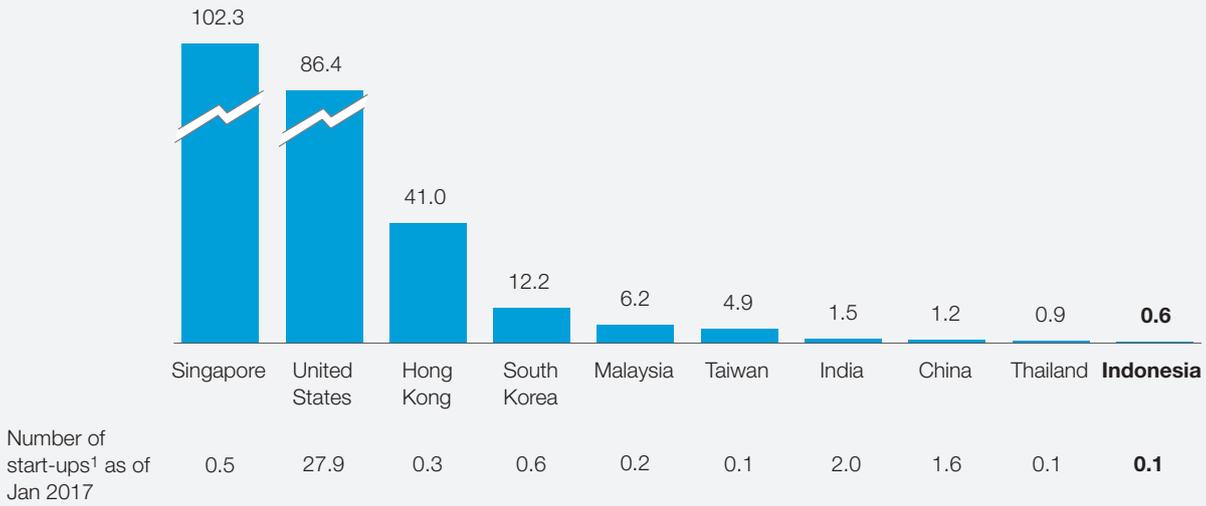


Source: Crunchbase; McKinsey analysis

Exhibit 27

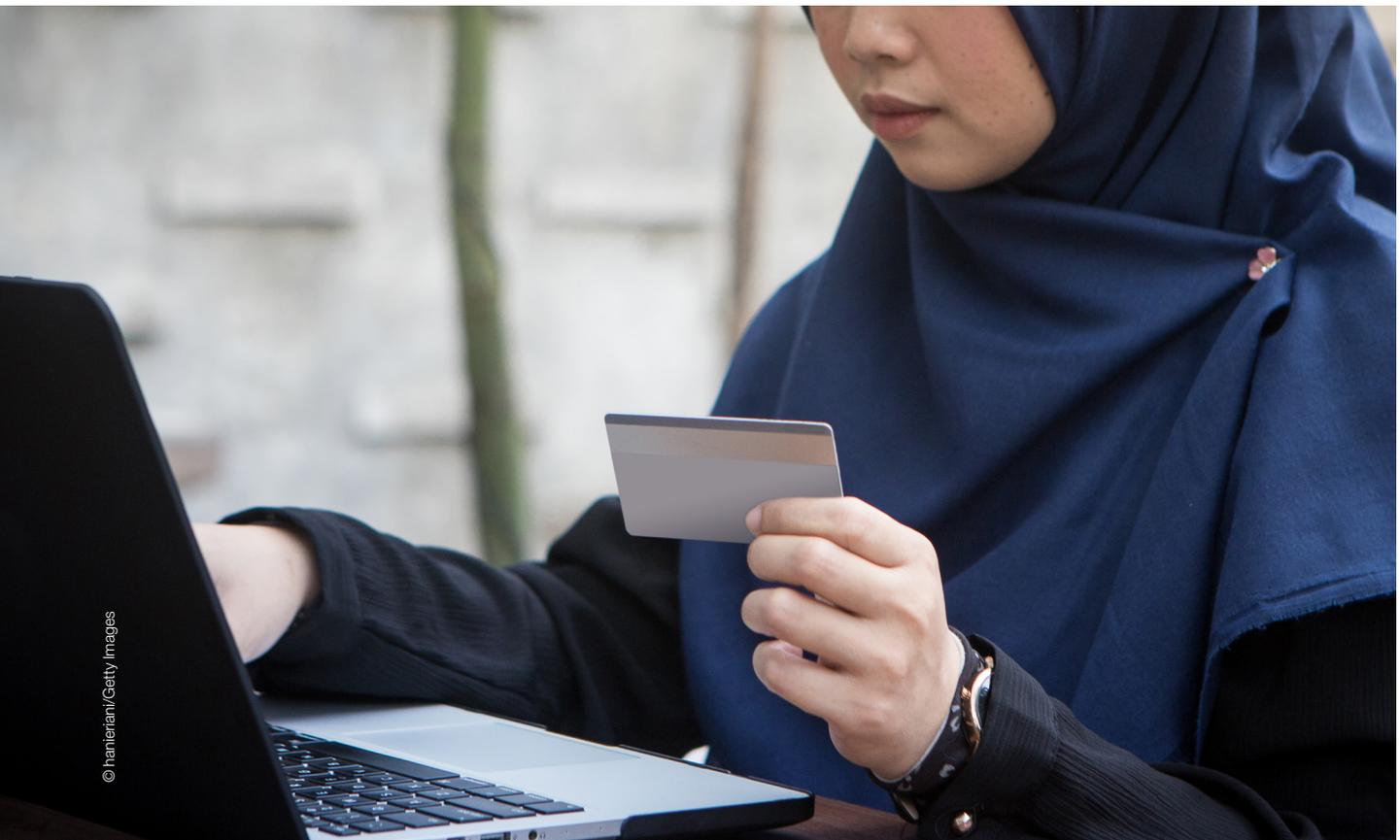
Indonesia has fewer start-ups than peer countries, with only 0.6 start-ups per one million people.

Start-up density per 1 million people



¹ Only covers venture-backed start-ups.

Source: Pitchbook; McKinsey analysis



Indonesia needs start-ups to spur innovation. Innovation, in turn, will help the ecosystem grow to sufficient maturity so that it can capture value locally and prevent global competitors from entering and dominating the market.

What others are doing

- Northleaf Capital Partners, a private-equity, infrastructure, and private-credit manager, supports the Canadian start-up community through a national corporate-financed fund.
- The not-for-profit MassChallenge uses a competition framework to accelerate start-ups across industries. Programs in Boston, Israel, Mexico, Switzerland, Texas, and the United Kingdom give start-ups opportunities to win cash prizes.
- Y Combinator in Silicon Valley provides seed funding for start-ups, helps the start-ups to develop their ideas, and teaches them how to better pitch their enterprises to potential investors. ■



Chapter 4

HOW TO ENCOURAGE ONLINE COMMERCE



Overcoming the challenges Indonesia faces in online commerce will require a concerted effort by public and private stakeholders across the sector's ecosystem. Exhibit 28 summarizes the ecosystem elements that Indonesia must have in place for online commerce to thrive, based on the key success factors we identified in other markets.

We have identified several ideas that companies and government could pursue and divided them into three themes: building a reliable logistics infrastructure, spurring conversion to cashless payments, and helping MSMEs move online. The themes presented here, as well as those in chapter 5, address the key success factors discussed in chapter 3.

BUILDING A RELIABLE LOGISTICS INFRASTRUCTURE

A better-developed logistics infrastructure would be a big step forward for Indonesian online commerce. It may be hard to achieve a vibrant, fast-growing online commerce sector without logistics improvements. Incumbents are at risk of being outmaneuvered by newcomers if they do not continue to invest and innovate. Logistics companies and online commerce players could embrace strategic partnerships to improve the logistics infrastructure in a way that adds value for both parties.

If online commerce grows at the rate outlined in chapter 2, about 1.6 billion e-tailing parcels will be shipped annually by 2022, and Indonesia will ship more parcels in the next five years than in its entire history. "We need at least two more JNEs [a leading Indonesian logistics company] in the next five to ten years," one leading e-tailing executive told us.

Indonesia has a lot of work to do. "It is cheaper to ship a container of Chinese mandarin oranges from Shanghai to Jakarta than to send similar freight from Jakarta to Padang in West Sumatra, even though the distance between the two Indonesian cities is one-sixth of the distance between Jakarta and Shanghai," the World Bank wrote.¹

There are actions Indonesia's companies and government should take to improve logistics.

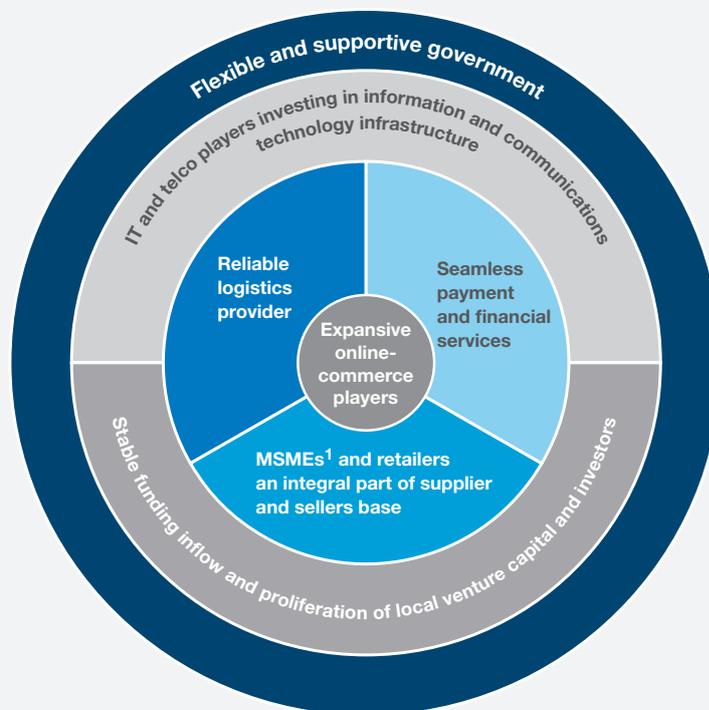
Companies

Continue to cater to the growth in urban centers. Urban areas will continue to be the center of gravity in the coming years. Although Tier II and III cities will grow, the lion's share of the online commerce market in the next few years will come from Tier I cities. Fulfillment and delivery, especially at the last mile, will become more competitive as customers demand better service. Logistics players should work on improving efficiency in speed and cost and on providing distinctive customer services such as interactive tracking information and easy returns.

¹ "Indonesia: \$400 million approved for logistics reform," World Bank, November 2, 2016, worldbank.org.

Exhibit 28

Multiple sector stakeholders have a role in helping Indonesia achieve its full online commerce potential.



¹Micro, small, and medium enterprises.
Source: McKinsey analysis

Start considering cross-border opportunities. As online commerce penetration grows, logistics players should start to build cross-border capabilities to prepare to play in the export market. Logistical competence is essential to realize the potential of high-margin, cross-border online commerce.

In early May 2018, for example, the online platform Lazada exported to Malaysia its first shipment of fashion accessories and home décor made by Indonesian small and medium-size enterprises. To help the companies meet export standards, Lazada provided training on product standardization and exporting licenses. The first container held products from 20 small and medium-size enterprises, and, in an effort to reach more Southeast Asian countries, Lazada plans to expand the program to more than 300 such companies by the end of 2018.

Enhance the first mile. Social commerce currently dominates Indonesian online commerce transactions. In many instances, a package originates at someone's house, not a warehouse. Logistics players can differentiate themselves from competitors by improving the package pickup experience.

Customers in the United States, for example, can generate and print shipping labels at home and place their packages into drop boxes for shipment. Companies such as UPS and FedEx have drop boxes in post offices, office buildings, major retail areas, and grocery stores.

Invest in back-end efficiencies. Network growth alone is not enough. To stay ahead of nimble entrants, incumbents must continue to pursue back-end operational efficiencies such

as automated sorting, advanced analytics, standardization of parcel sizes, and IoT systems. As the market matures and customer experience improves, quality will not be the main differentiator. All players will have scale, and costs will matter more. Logistics players can stay ahead by investing in technologies that trim inefficiencies.

Use big data and digital technology such as the Internet of Things to spur productivity.

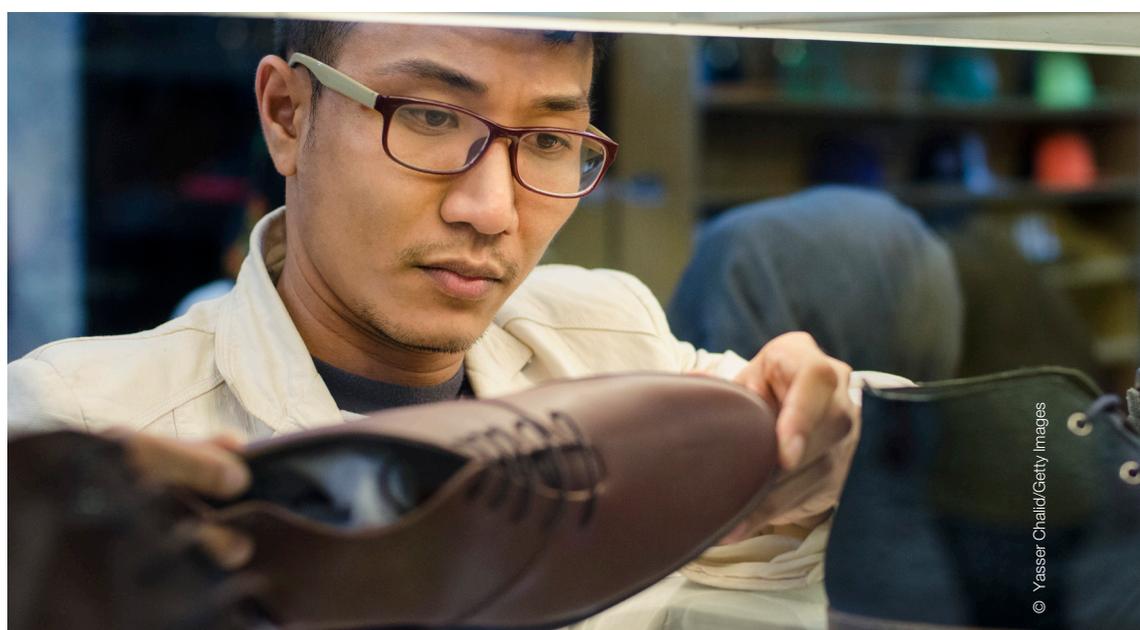
Disruptive technologies are enabling new applications within operations and service delivery. The post and parcel sector is rolling out more and more applications, with operators such as FedEx investing in initiatives to save costs in IT (see sidebar “How FedEx uses apps for savings.”)

For example, the logistics company Dynamic Parcel Distribution uses SMS to inform customers about estimated delivery times and to allow dynamic rerouting of an item already on its way. DHL Express is applying big data in interesting ways in the United States, including differentiating between deliveries to businesses and deliveries to residential addresses. UPS stores data from its trucks’ GPS and fuel-efficiency sensors, helping it to cut annual distance traveled by 85 million miles.

Government

Stimulate investments, in both logistics and the surrounding infrastructure. Demand for online commerce may soon exceed the ability of logistics players to expand their networks. Some countries have publicly committed to improving their logistics infrastructure. The government could unlock additional investment, by either offering subsidized capital for network investments or by implementing public-private partnerships to accelerate infrastructure deployment. Such initiatives could be specifically targeted at prioritized regions, such as Tier II and III cities with rapidly growing populations of online shoppers and merchants.

Investment must be deployed efficiently, however, and in conjunction with investment in adjacent sectors. For example, a 2012 McKinsey analysis found that Indonesia could save nearly 50 percent on maritime logistics costs by rationalizing the configuration of four major ports with hubs and trans shipments, if the average vessel size could be doubled.



How FedEx uses apps for savings

FedEx has saved hundreds of millions of dollars by eliminating redundant smartphone applications and reorienting the remaining apps in a service-oriented architecture. The company realized in 2009 that it had more than 2,600 applications, the result

of organic growth and acquisitions. FedEx adopted Apptio, which helped it track the cost of each discrete app, including the hours required to develop and maintain each and the cost of the infrastructure to run it. Then the company reworked its application

portfolio and integrated the apps into a service-oriented architecture, in which loose linking among software components ensures autonomy and modularity.

In India, the government has granted the logistics sector a special “infrastructure” status, enabling companies to invest in development by borrowing money up to 25 percent cheaper than before. China has invested significantly in logistics, both nationally and internationally.

SPURRING CONVERSION TO CASHLESS PAYMENTS

The growth in online commerce offers financial-service providers opportunities in two areas: noncash transactions, as consumers migrate to digital payment; and lending, especially to smaller enterprises. In the next five years, Indonesia will settle more noncash payments than it has in its entire history. If online commerce grows at the rate discussed in earlier chapters, the number of online commerce transactions in 2022 will be four times that of total credit card transactions in 2017.

At present, banks meet only 25 percent of MSMEs’ financing needs,² and online commerce could help them further penetrate the market. We estimate that MSMEs will need about \$13 billion in working capital for online sales and operations in 2022. Online commerce can help sellers obtain financing in three ways: the transaction process provides verified cash flow; a customer feedback system can be a proxy for character; and expanding sales, evidence of better financial performance, can increase a seller’s credit score.

A thriving online commerce ecosystem requires widespread adoption of cashless payment instruments as well as a secure environment for transactions—both the government and the private sector have roles to play. Indonesia took one such step in December 2017 when it launched the national payment gateway, or Gerbang Pembayaran Nasional, which requires existing payment instruments to work together. As a result of the initiative, consumers will see faster transaction times and lower fees, further spurring the adoption of cashless payment instruments. Since all payment instruments will be interoperable, players should focus more on creating a better customer experience by, for example, improving ease of use, increasing payment safety, and introducing additional features, such as financial-planning and management tools.

Companies

Invest while taking the long view. Digital finance players require scale to reach profitability, and thus they should be prepared to absorb short-term investments in areas such as keeping transaction costs low; creating cash-in, cash-out, and merchant networks; and developing

² *Financing SMEs: Sharing ideas for effective policies*, Bank Indonesia, October 2014, bi.go.id.

compelling use cases for the currently unbanked. They should use the boost provided by online commerce to build large payment networks. Several Indonesian players are experimenting with digital finance and payment solutions, but none has yet reached scale, as China's Alibaba has (see sidebar "Alibaba and Alipay payment ecosystem").

Alibaba and Alipay payment ecosystem

China's Alibaba and its Alipay payments system offer a model for online commerce (exhibit). Alipay has achieved dominance by creating a full ecosystem of interoperable payment options. It has addressed customer demands in the following ways.

Alternative payment solutions

Express checkout: Using bank cards connected with an Alipay account, customers need only one password when making a payment.

Online banking: Customers can use debit or credit cards. Alipay partners with more than 160 domestic and foreign banks as well as Visa, Mastercard, and JCB.

Prepaid cards: The payments system accepts Alipay prepaid cards or mobile phone top-up cards.

COD: Alipay accepts bank card payment and cash.

Sales outlets: The payments system partners with the post office and drugstores, among other outlets.

Improved functionality

Payment and collection: Payments and transfers, guaranteed payment, and credit card payments are functional.

Bill pay: Alipay offers cell phone top-up, fixed-line broadband, and the ability to pay utility bills, mortgages, traffic tickets, and donations.

Wealth management: Alipay offers smart deposit (an automated cash-investment tool) and money market funds.

Enhanced payment safety

Fund protection: Any losses incurred when using Alipay (including credit card fraud but excluding online-banking direct payment) can be fully or partially compensated, once verified.

Safety technology: Payments can be made only on computers installed with digital certificates; a dynamic ID is created every minute and required for verification when making a payment; secure payments can be ensured once UKey, a USB security dongle, is plugged in and tied with specific accounts; and a security plug-in protects the user's name and password from being stolen in real time.

The Alibaba economy created an ecosystem around core online commerce brands.

Mission



Make it easy to do business anywhere

Goals



From \$547 billion of gross merchandise value in 2017 to \$1 trillion in 2020

From 537 million of global annual active consumers in 2017 to 2 billion in 2036



Source: Alibaba

Government

Implement “sandbox” regions. To spur innovation, regulators could designate certain geographies as pilot regions where players would operate with limited controls, including the testing of alternative e-Know-Your-Customer (eKYC) approaches, while remaining below a set scale (both in number of participants and in total amount of funds). Participants could be allowed to scale up beyond the so-called sandbox, provided they follow the required government guidelines, such as implementing a direct-to-government reporting channel so that consumers could report any issues. Regulators, in turn, could establish the appropriate body to process and respond to such reports and regulate players as necessary.

Favor principles over checklists. Some countries regulate payment systems through broad principles rather than by spelling out detailed guidelines, giving companies and entrepreneurs the flexibility to experiment. In such cases, the government must also strengthen monitoring and legal frameworks to mitigate the risks of online commerce for both businesses and customers. Customers must be empowered to report malpractice via consumer-protection agencies, which in turn must be able to levy significant penalties against noncompliant companies. By monitoring for adherence to principles rather than a prescribed checklist, regulators can facilitate greater innovation while protecting what truly matters to consumers. China followed the path of regulating in principle, thus facilitating innovation (Exhibit 29).

Continue to push to improve data protection and cybersecurity. Merchants and consumers are reluctant to venture into online commerce when they believe their transactions are insecure. Indonesia might benefit from reviewing the steps other countries have taken regarding cybersecurity.

For example, the European Union (EU) recently implemented the world’s most comprehensive approach to cybersecurity. The General Data Protection Regulation (GDPR) was designed to strengthen online privacy rights, boost the digital economy, and harmonize the regulation of data protection. It allows companies to share data as long as the customer has agreed to the terms of service and can report violations through consumer-protection agencies. Customers have easier access to their personal data, as well as the right to have the data deleted. Companies must immediately report data breaches and can be fined up to 4 percent of their global revenue if they violate the regulation.

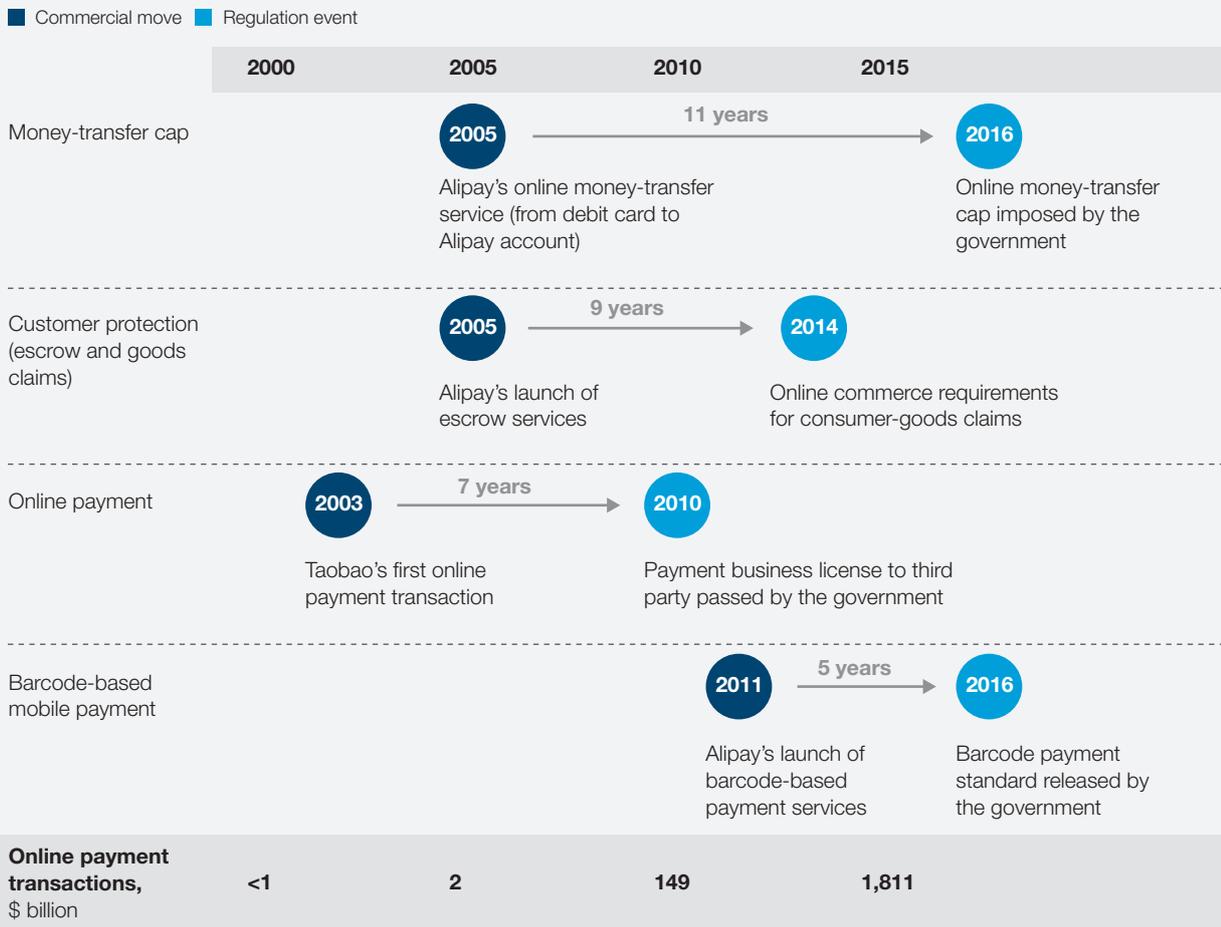
The regulation applies not only to companies doing business in the European Union and customers who are EU citizens or residents, but also to anyone doing business with any EU-based organization, regardless of nationality or location. Companies from Indonesia, therefore, must be prepared to adhere to the GDPR when expanding abroad. Given the global nature of the internet, this comprehensive framework might become the gold standard for cybersecurity policy.

HELPING MSMES MOVE ONLINE

According to a survey that we distributed to more than 500 small and medium size Indonesian businesses, the main challenges they face in going online are limited time and a lack of guidance. Companies and the government can help bring more MSMEs online by addressing these issues.

Exhibit 29

China's government policy left space for mobile-payment innovators to experiment.



Source: Alibaba, Baidu, and Tencent annual reports; official regulatory announcements; Shanghai Automotive Industry Corporation and Ministry of Commerce; McKinsey Global Institute analysis

Companies

Provide one-stop-shop merchant services. Major participants in Indonesia's digital ecosystem—such as Bukalapak, Google, and Tokopedia—are already helping MSMEs take the first steps to going online and using basic tools.

For example, Google's Gapura Digital program supports Indonesian MSMEs through workshops on topics that include digital trends, business portals, and search-engine optimization and marketing. Tokopedia's Top Community program helps its platform's leading sellers host online entrepreneurship workshops in cities across Indonesia. Similarly, the Penggerak Pelapak program by Bukalapak holds workshops and trains MSMEs to encourage them to join the online commerce ecosystem.

Efforts to encourage MSMEs to go online should continue. However, more advanced services should also be available for merchants ready to take their businesses to the next level. For instance, one-stop-shop merchant services could be provided to help MSMEs create an online presence, pursue online commerce, develop digital-marketing strategies, and use

digital payments. Large players could also offer these entrants the tools they need to grow, such as marketing analytics, branding development, and digital storefront design.

China's Baozun exemplifies this one-stop-shop approach. By providing multiple business models and products—including IT solutions, online store development, and digital marketing—Baozun helps MSMEs boost profitability online. Similarly, Alibaba uses big data to help companies on its platform market themselves and to facilitate working capital loans to merchants (Exhibit 30). Companies receive credit ratings based on their transaction data, such as volume shipped, customer feedback, and consistency of inventory. This data has allowed Alibaba to mitigate risk and approve loans easily and efficiently. By providing its merchants with primarily small-ticket (less than 50,000 renminbi, equivalent to about \$7,800) working capital loans at favorable interest rates, Alibaba supports its merchants in building their businesses.

GOVERNMENT

Provide training and mentorship for MSMEs to go online. Many influential Indonesian stakeholders, aware of the potential impact of digitization on the economy and society, have pushed hard for its rapid adoption. Several agencies within the government of Indonesia have studied the challenges facing MSMEs and have launched initiatives to support them (Exhibit 31).

The government has also started to consolidate efforts within ministries and agencies as well as with companies. In April 2017, the Ministry of Information and Communication Technology, seven other ministries, and six online commerce marketplaces committed to collaborate on online training and mentorship for MSMEs.³ As of late 2017, the Ministry of Cooperatives and SMEs estimated that nearly four million MSMEs have participated in online commerce as a result of these programs.⁴

³ "UMKM Go online, upaya wujudkan visi 'Digital Energy of Asia,'" *Kementerian Komunikasi Dan Informatika Republik Indonesia*, March 31, 2017, kominfo.go.id.

⁴ Fatimah Kartini Bohang, "8 Juta UMKM Ditargetkan 'go online' pada 2019," *Kompas.com*, November 11, 2017, tekno.kompas.com.

Exhibit 30

Alibaba provides its merchants with a diverse set of big data offerings.

Tabo Zhitongche, Taobao Zuan Zuan	Programmatic targeting advertising tool <i>Advertisers can set the targeting needs, budget, and bidding price and will automatically push out ads</i>
Tanx (Taobao Ad Network & Exchange)	Alibaba's AdExchanger and supply-side platform <i>Provides programmatic advertising capability for advertisers</i>
Alimama	Alibaba's data management platform <i>Provides data management, profiling, and analysis for advertisers</i>
Yushanfeng.com	Alibaba's open, big data development environment <i>Provides environment for third-party independent software vendors to develop big data application for advertisers in precise marketing</i>
Alimama Brand Real Effects	One-stop, big-data-enabled marketing solution for brands <i>Includes a dedicated brand subsite, marketing resource support, customer management tool, and ROI management</i>

Source: Press search

Exhibit 31

Multiple Indonesian ministries and agencies are already supporting the path toward digital economy—but none are tracking aggregate impact.

Companies	Kementerian Komunikasi dan Informatika Kementerian Perdagangan	Kementerian Koperasi dan Usaha Kecil dan Menengah Kementerian Pemuda dan Olahraga	Kementerian Badan Usaha Milik Negara	Kementerian Perindustrian	Badan Ekonomi Kreatif (BEKRAF)
Ministries and agencies involved	Ministry of Information and Communication Technology Ministry of Trade	Ministry of Cooperatives and SMEs Ministry of Youth and Sports	Rumah Kreatif BUMN consulting agency Ministry of State-Owned Enterprises	Ministry of Industry	the Creative Economy Agency
Targets	8 million MSMEs ¹ online by 2019	100,000 MSMEs go online in just 3 days as a result of a series of road shows across 30 cities	514 “creative houses” across Indonesia to help MSMEs grow	9,510 MSMEs listed in national online database by 2019	Creative economy ecosystem contributing 12% of GDP
Progress (as of December 2017)	3.97 million MSMEs involved in B2C and C2C marketplace platforms Partners with marketplace companies providing digital workshops to MSMEs Working with other bodies, such as Coordinating Ministry of Economic Affairs, Bank Indonesia, Nurbaya Initiative, and IDeA Indonesia	Free domain (.id) and hosting provided Helped MSMEs to get financing (KUR) MSMEs helped to navigate C2C marketplaces Work with Nurbaya Initiative to help MSMEs take pictures and write product descriptions for their online shop	91 physical locations Ongoing workshops and independent resources to help MSMEs thrive online	1,630 MSMEs enter digital economy by joining C2C marketplaces Help with standardization and certification (SIINas), IP protection, better access to raw material, access to financing, and widening reach through exports	Working with online-commerce platform player (eg, Lazada), payment player (eg, Bank Mandiri), other organizations (eg, IDeA Indonesia), telco player (eg, Telkomsel), and logistics player (eg, JNE Logistics) to launch #KamuJugaBisa movement aiming to shift the mind-set of small and medium enterprises to compete in increasingly global market, opened by the access to digital platforms

¹ Micro, small, and medium enterprises.
Source: March 2018 press search; stakeholder interviews

The government has also undertaken other efforts to assist MSMEs. For example, it introduced Laporan Akuntansi Usaha Mikro (Lamikro), an online bookkeeping application. More than 3,000 MSMEs participated in workshops to raise awareness of the importance of digital record keeping and are now maintaining their books online.

Indonesian online commerce is expanding, but the country’s private and public sectors can speed its development through specific actions. In the concluding chapter, we reflect on how companies and government can accelerate overall digitization of Indonesia—which in turn will support the expansion of online commerce. ■



Chapter 5

MAKING DIGITAL INDONESIA A REALITY



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Developing online commerce is just one of the ways Indonesia can fulfill the promise of a digital Indonesia. McKinsey research¹ has found that by 2025, digital technology could raise GDP by \$150 billion, which is equivalent to an average 1.2 percentage points of additional growth each year over the next seven years. This would account for almost 60 percent of the increase required to reach the government's 2025 target of 7 percent annual GDP growth.²

An expanded digital economy would have benefits for Indonesia beyond the impact on GDP. With growing online commerce, the overall digital economy could unlock dramatic socioeconomic benefits. Our research found that maximizing the potential of the country's digital economy, however, requires Indonesia to address three fundamental challenges: extraordinary talent shortages in the digital arena, such as digital professionals, digital facilitators, and digital-savvy leaders; a shortfall of midsize to large companies that could capture domestic consumption and export opportunities if the digital economy were unleashed; and insufficient means of tracking the impact of digitization on Indonesian society.

Addressing these challenges should be a priority for both public and private stakeholders and will require collaboration between both sectors. Here we offer three ideas for fostering a better ecosystem for developing a digital Indonesia.

MAKING BREAKTHROUGHS IN THE TALENT PIPELINE

To take full advantage of digitization and make digital Indonesia a reality, we estimate that Indonesia will need 17 million people with digital capacity in its workforce by 2030: one million digital professionals, including software engineers, computer scientists, and advanced analytics and big data analysts; three million digital facilitators who could introduce digital practices to people with limited digital experience; and 13 million digital-savvy leaders who could champion the use of digital tools to improve decision making.

The Indonesian government has taken positive steps to attract the talent needed to build a digital economy, but more could be done. For example, the government could partner with the private sector to launch a holistic talent program, which would include expanding the digital talent pool by engaging members of the Indonesian diaspora, reducing barriers for niche foreign professionals, retaining more women in the workforce, and scaling up vocational education in digital-related professions. Talent-recruitment efforts in other countries offer lessons that Indonesia could consider and apply.

Establishing a comprehensive Indonesian diaspora program

As many as 25 million Indonesian nationals are living abroad. In 2016, according to the United Nations Educational, Scientific and Cultural Organization (UNESCO), about 46,000 Indonesians were studying in other countries—a 35 percent increase over the past decade.³ Public and private stakeholders alike have an interest in encouraging Indonesians to return to Indonesia.

1 Kaushik Das, Michael Gryseels, Priyanka Sudhir, and Khoon Tee Tan, *Unlocking Indonesia's digital opportunity*, October 2016, McKinsey.com.

2 *Unlocking Indonesia's digital opportunity*, 2016.

3 "Kongres diaspora Indonesia keempat digelar di Jakarta," Kompas.com, June 12, 2017, nasional.kompas.com.

China has been in the same position.⁴ In response, they created government agencies created the Thousand Talents Plan in 2008 in the wake of the financial crisis. Designed to both attract and retain top talent in the country, the plan includes initiatives such as offering jobs at home with pay comparable to what expatriates receive abroad, providing a welcoming environment and job opportunities for spouses of returning expatriates, supporting high-quality schools at home, and identifying trusted local professionals who can answer expatriates' questions about living in the country. The government can play a significant role in this effort, because incentives such as subsidized housing, tax breaks, and school credits can be a tipping point in an expatriate's decision to return home.

Malaysia's TalentCorp program may offer some lessons for Indonesia. TalentCorp aims to attract Malaysian expatriates and other skilled workers to the country through several approaches:

- The Returning Expert Program offers attractive living and financial incentives to encourage Malaysian citizens abroad to return bringing invaluable experience, skills, and intercultural abilities.
- The Career Comeback Program encourages women to return to the workforce after a career break (for example, to start a family) by connecting them with potential employers and matching skills with employment needs.

⁴ Luke Kelly, "How China Is Winning Back More Graduates From Foreign Universities Than Ever," *Forbes*, Jan. 25, 2018.

Indonesia's current initiatives

Indonesia has already undertaken several initiatives to encourage expatriates to return home:

- The Indonesian Diaspora Network is designed to build community among expatriates and strengthen connections with their home country. The "Diaspora Card" serves as an identity card that allows expatriates to open bank accounts, own property, and build businesses in Indonesia.
- The Indonesian Diaspora Congress, an annual networking event, brings together skilled individuals with family ties to Indonesia to discuss topics related to serving and building the country.

- These efforts complement other initiatives, including the Indonesia Endowment Fund for Education (LPDP), a scholarship program offering stipends for qualified students to take postgraduate classes at leading universities in Indonesia and overseas. The program encourages students to return home and contribute to the country when their studies are completed. As of 2017, LPDP had offered more than 16,000 awards, and more than 3,000 of the scholarship students have graduated and are in Indonesia.¹ LPDP alumni are connected through

the Mata Garuda Indonesia alumni network program.

- While LPDP is a step in the right direction, it could have greater impact if it scaled up and developed stronger partnerships with state-owned enterprises and private-sector businesses to ensure that graduates have the right skills and make a smooth transition into the Indonesian workforce.

¹ Grace D. Amianti, "Government allocates Rp 22.5t for scholarships," *the Jakarta Post*, February 1, 2017, thejakartapost.com.

- The Residence Pass-Talent Program adds diversity to the nation's workforce by issuing 10-year renewable residence passes to highly qualified expatriates. This program is a partnership with Malaysia's Immigration Department.

These initiatives have increased by 17 percent the probability that applicants with job offers in Malaysia would return to the country.⁵

Indonesia could consider taking a multipronged approach to recruitment of the diaspora—not only by increasing funding for outreach but also by partnering with the private sector—and encourage a supportive community to help expatriates find jobs for spouses, locate quality schools for children, and understand cultural nuances. (See sidebar, “Indonesia's current initiatives.”)

Attracting niche foreign professionals to Indonesia

Indonesian companies face a shortage of workers with specialized digital skills, including IT architects, data scientists, and user interface/user experience (UI/UX) designers. These are niche professions that are new to the country. One way to expand the pipeline of talent is to attract foreign professionals to Indonesia, where they can serve as on-the-job mentors to talented Indonesian apprentices interested in these fields.

China's Thousand Talents Plan offers a model for this. Besides aiming to attract and retain expatriates, the program recruits individuals with senior roles in notable organizations outside of China, including full professors at prestigious institutions. Foreign recruits will receive visa privileges, competitive pay, bonuses, senior titles, and other benefits. To date, the program has attracted more than 6,000 high-level workers from overseas.⁶

If Indonesia undertakes a similar program, it should focus on recruiting candidates who can fill the country's skill gaps. It should also extend attractive offers. For example, the government could provide multiyear visas to reduce candidates' administrative burden. Candidates could be matched with bigger companies or start-ups, and Indonesian companies could partner with multinationals to create talent rotation programs. Local players with overseas funding could work with their investors to develop talent exchanges within the investor's portfolio of companies.

Accelerate women's labor-force participation

A McKinsey Global Institute report, *The power of parity: Advancing gender equality in Asia Pacific 2018*, estimated that Indonesia could add a total of \$135 billion a year to annual GDP by 2025—9 percent above business as usual—by accelerating progress toward gender parity. Driving this economic opportunity are higher female labor-force participation (currently 32 percent), a higher share of women working full time rather than part time (now 30 percent), and more women working in higher-productivity sectors such as manufacturing (now 38 percent).⁷

5 World Bank, “Improving the Effectiveness of TalentCorp's Initiatives: Assessment of Returning Expert Programme and Residence Pass--Talent,” June 2015, p. 34, documents.worldbank.org.

6 Liu Caiyu, “US accusation of China ‘stealing military tech’ with talent program groundless: experts” *Global Times*, June 25, 2018, globaltimes.cn.

7 Jonathan Woetzel, Anu Madgavkar, Kevin Sneader, Oliver Tonby, Diaan-Yi Lin, John Lydon, Sha Sha, Mekala Krishnan, Kweilin Ellingrud, and Michael Gubieski, *The power of parity: Advancing women's equality in Asia Pacific*, McKinsey Global Institute, April 2018.

Digital communications technology that facilitates working part time or from home could enable more women to participate in higher-productivity sectors. For small enterprises, digital inclusion has made a big difference. Women make up 51 percent of small-business owners but contribute only 15 percent of total revenue generated by the sector; by contrast, our research found that women business owners account for at least 35 percent of online commerce revenue.⁸

Increasing the retention of women in the workforce requires both the public and private sectors to participate in the following initiatives:

- **Invest in digital technology.** Advances in this technology could encourage women to participate in higher-productivity sectors and increase the productivity of women across sectors.
- **Legislate and enforce greater legal protection for women.** For example, offer equal pay and childcare benefits, promote flexible work arrangements, and strengthen enforcement of gender protection.
- **Invest in physical infrastructure.** About 30 percent of households lack access to clean water, sanitation, and clean cooking fuel. Because women in Indonesia do most household chores, investing in infrastructure is essential to give them more time for unpaid care work. A weak transportation infrastructure further reduces the time women can spend on unpaid work.
- **Create mentor networks and learning groups to help more women reach senior management.** Women account for about 18 percent of senior management and board positions in Indonesia, compared with 33 percent in Singapore and 39 percent in Australia.

Investing strategically in programs for new skills training

Increasing the number of digital professionals through the above strategies is a necessary step but by themselves are not sufficient to unlock the digital economy. Both public and private enterprises play a role in building capacity for entry-level digital professionals, digital facilitators, and digitally savvy leaders.

Public-private partnerships in vocational education for digital careers. According to research conducted by McKinsey and the Asia Philanthropy Circle in 2017, vocational education has a lower status than general education in Indonesia. In fact, 84 percent of the Indonesian students we surveyed said that their society values vocational education less than academic pathways. Interviews with employers and students also highlighted concerns about the lack of employer input into the curriculum, limited hands-on training, and teacher quality.⁹

⁸ *Women-owned SMEs in Indonesia: A golden opportunity for local financial institutions*, International Finance Corporation, the World Bank, March 2016, ifc.org.

⁹ Asia Philanthropy Circle, *Catalysing Productive Livelihood: A Guide to Education Interventions with an Accelerated Path to Scale and Impact*, a report, November 2017.



In an era when digital technologies are accelerating the pace of change in industries, strengthening links between employers and potential employees is more critical than ever. Public-private partnerships could help transform vocational education for digital professions.

For example, in May 2014, Mayor Bill de Blasio of New York City announced the NYC Tech Talent Pipeline (TTP), an approximately \$10 million public-private partnership that supports the growth of the city's tech ecosystem and aims to prepare New Yorkers for 21st-century jobs.¹⁰ TTP has attracted a network of more than 150 companies. Its advisory board comprises representatives from the city's tech employers, including AT&T, Google, and LinkedIn; its academic council includes postsecondary institutions such as Columbia University.

NYC TTP works with its public and private partners to "define employer needs, develop and test training and education solutions to meet these needs, and scale solutions that work throughout the city." The partnership has resulted in several tailored learning programs:

- NYC Web Development Fellowships, which prepare people for new careers as front-end, back-end, or full-stack web developers
- City University of New York (CUNY) Tech Prep, an industry-designed course for computer science majors
- Series A: IT, a part-time, 12-week program designed for people with no previous professional tech experience. The course covers a wide range of topics, from deploying computer operating systems to networking.

¹⁰ "Mayor de Blasio delivers keynote address at internet week New York 2014," The Official Website of the City of New York, May 19, 2014, 1.nyc.gov.

In 2017, Singapore's Ministry of Education launched the SkillsFuture for Digital Workplace to support the digital transformation of the economy by updating the capabilities of 100,000 Singaporeans over three years.¹¹ The program receives support from a range of corporate technology partners, and companies such as Courts, Fei Siong Group, Maybank, SIA Engineering, and Singtel have actively encouraged employees to participate.

Other programs create flexible curricula that respond to employer and student needs. For example, Pathways in Technology Early College High School (P-TECH), a partnership between IBM and the City of New York's schools and colleges, prepares students in kindergarten through sophomore year in college for careers in information technology.

Making breakthroughs in the talent pipeline

McKinsey research estimates that 16 percent of current work activities can be automated in Indonesia by 2030, and these positions will demand different skills. As much as 29 million Indonesians in the workforce will likely need to switch occupational categories, hence they must continuously update their skills.

Indonesian companies around the world are moving to address this need. In 2012, for example, Amazon launched Career Choice, a program that helps its US employees earn certificates and associate degrees by paying 95 percent of their tuition and fees (after one to two years of tenure). Employees can use the tuition assistance to earn degrees not only in fields that are relevant to Amazon but also in high-demand occupations as identified by public labor agencies (for example, aircraft mechanics, computer-aided design, machine tool technologies, medical lab technologies, and nursing).

Some 10,000 workers have participated in Career Choice since its start; that number is expected to reach 20,000 by 2020. By 2016, 7,000 Amazon warehouse workers in the United States had taken courses that could allow them to leave Amazon for better-paying careers in nursing, truck driving, and video-game design.¹²

Companies could also form partnerships with academic institutions to develop reskilling programs. For example, AT&T partners with universities such as Georgia Tech and the online learning company Udacity to offer employees subsidized tuition at 32 universities. The company created an online community, AT&T Aspire, where employees can share their training success stories, both within the company and with others. AT&T also built an internal marketplace that displays job openings together with relevant training opportunities. Between 2008 and 2017, AT&T spent more than \$250 million on employee education and professional development programs, and more than \$30 million a year on tuition assistance.¹³

¹¹ Amelia Teng, "Over 100,000 Singaporeans to be trained in basic digital skills over next 3 years under SkillsFuture," *the Straits Times*, October 5, 2017, straitstimes.com.

¹² Ángel González, "Amazon: 7,000 blue-collar employees have trained for careers outside the company," *Seattle Times*, July 21, 2016.

¹³ John Donovan and Cathy Benko, "AT&T's Talent Overhaul," *Harvard Business Review*, October 2016.

Public and private stakeholders could collaborate to create an accelerator program aimed at enhancing the competitiveness of a select group of midsize companies.

ENHANCING THE COMPETITIVENESS OF MIDSIZE COMPANIES

Out of Indonesia's 56 million companies, only about 54,000 are midsize or large, but they account for about 54.5 percent of GDP. These companies are also the ones that can invest in large-scale manufacturing, an important attribute for catering to the export market. Expanding online commerce in particular could facilitate up to \$26 billion of new exports, equivalent to 40 percent of manufacturing exports today.

Indonesia is punching below its weight in the number of midsize to large companies—only 0.1 percent of total enterprises, compared with a global average of 2 percent. Unless its companies bulk up, the country will find it difficult to capture both the lion's share of the increase in domestic demand created by an expanding banked population and the potential of the export market. The barriers to increased scale include limited access to financing, insufficient infrastructure support, inadequate business mentorship, and lack of knowledge about potential new markets.

Public and private stakeholders could collaborate to create an accelerator program aimed at enhancing the competitiveness of a select group of midsize companies. Such a program could provide resources like mentorship; information on how to gain access to new markets; help in obtaining financing; support related to infrastructure, such as aid in building warehouses and finding land for factories; an introduction to management tools such as enterprise resource planning as well as getting support on how to employ digital to better manage and increase productivity of their businesses. This academy could be modeled after MSME support programs in other countries.

In particular, Malaysia has had success with its Malaysia External Trade Development Corporation (MATRADE), a national agency created in 1993 under the Ministry of International Trade and Industry. In 2016, MATRADE organized more than 300 promotional activities, including trade fairs, export acceleration missions, international sourcing programs, and trade and investment missions, according to the organization's website. According to its website, in the past four years, MATRADE has helped more than 170 high-performing midsize companies to define and strengthen their export plans and build capabilities, leading to an average 15 percent increase in exports year on year.¹⁴

With the help of MATRADE, one plastics manufacturer tripled its exports after revamping its business model. A manufacturing-solution provider increased exports by more than 175

¹⁴ Malaysia External Trade Development Corporation; McKinsey analysis.

percent after refocusing to serve multinationals. By 2020, the program is expected to touch 500 midsize companies and generate an increase of more than \$1.5 billion in exports and create 21,000 high-income jobs.

MEASURING DIGITAL IMPACT

Like other economies, Indonesia's public and private sectors have limited knowledge about the impact of digital on the country despite the availability of measures such as broadband penetration, the number of smartphone users, and indicators from the World Economic Forum Network Readiness Index. This lack of understanding on whether certain innovations or policies are helping to unlock the impact or hindering progress of digital could become a larger handicap as government and companies press forward with the digital-economy agenda.

Several government ministries are working on digitization issues, but they would benefit from a compass to help guide whether their efforts are achieving the desired impact. To date, while several indicators measure the degree to which society is prepared to make use of affordable digital technologies, no index can comprehensively measure the effects of digitization on an array of socioeconomic factors.



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The creation of a digital impact index could provide an overall score based on two categories of information: one reporting indicators reflecting movements in the consumer sector, MSMEs, and the talent market, and the second would be a set of indexes focusing on outcomes, including the following:

- Economic development (for example, the size of the digital economy and exports associated with online commerce platforms)
- Employment (such as the impact of digital on job creation)
- Social concerns (such as geographic and gender parity and financial inclusion)

As Indonesia's digital economy unfolds, a digital impact index could benefit both government and business. The government will likely face increasing challenges to keeping up with the pace of innovation—especially with respect to writing and implementing new regulations—and its role is likely to shift toward facilitating and protecting innovation. The digital impact index could help the government to simultaneously enable and oversee the development of digitization, which is especially important given that several ministries are pursuing different efforts.

As for the private sector, the most successful innovators in Indonesia will be those that generate benefits beyond higher revenue and profit. They will invest in talent, develop long-term capabilities, and contribute to the broader social-development agenda of the country.



Successful digitization of the Indonesian economy depends on the ability of public and private sectors—working together and separately—to fill the country's talent gaps, bulk up midsize companies so that they can capitalize on the global export opportunities offered by digital platforms, and cultivate transparency in the digital arena, particularly through the creation of a digital impact index. Resolving these broad issues—in addition to easing logistical bottlenecks, encouraging cashless payments, and getting more MSMEs online—will put the country on the road to becoming a digital archipelago. ■

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