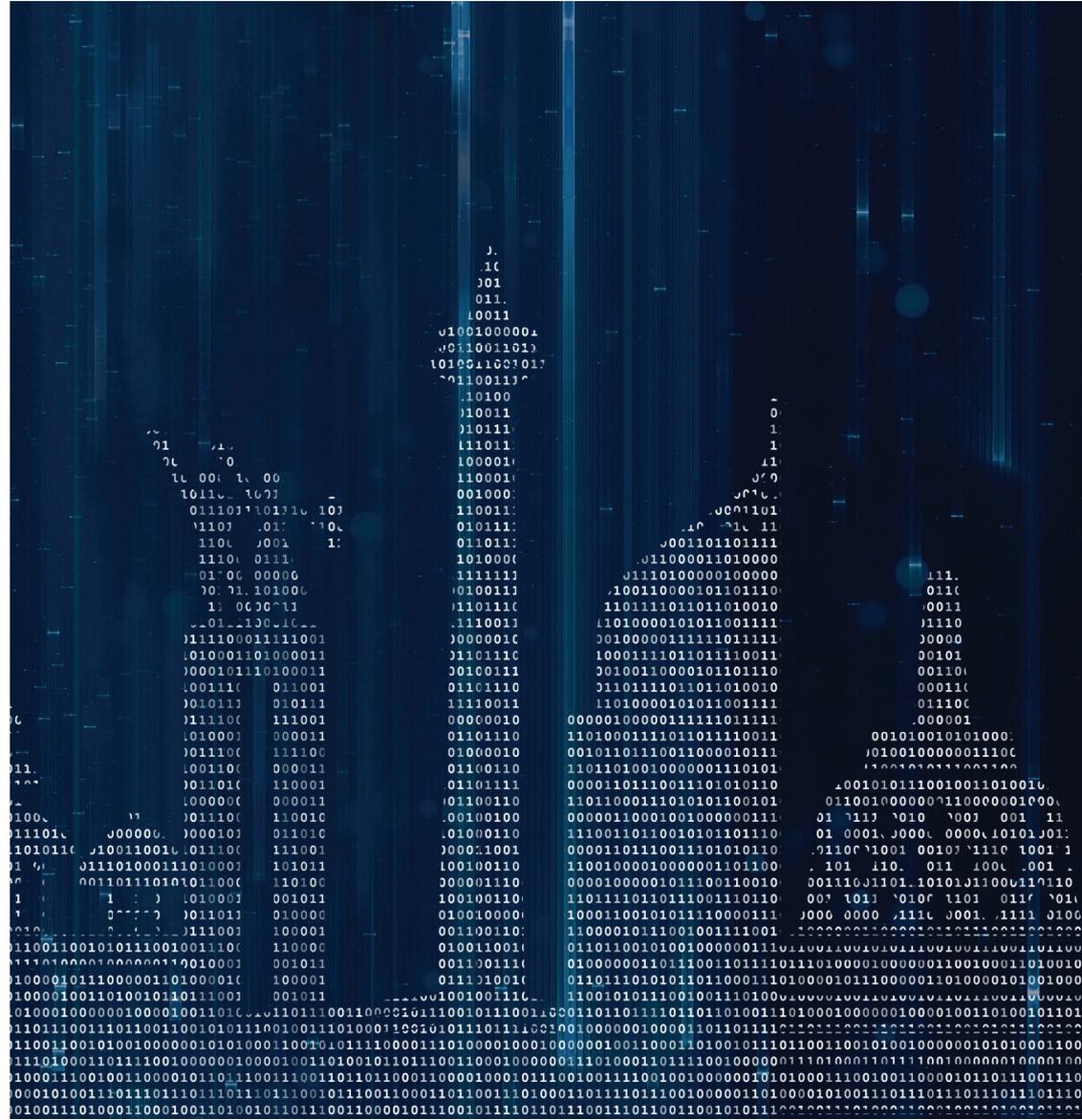


Unlocking Indonesia's digital opportunity

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Unlocking Indonesia's digital opportunity

By going digital, Indonesia can unleash the next level of economic growth—to the tune of USD 150 billion in annual economic impact by 2025.

Due to the rapid pace of technological advancement, countries that harness digital technologies stand to reap significant economic benefits in the long run. However, nations that are slow to embrace digital run the risk of falling further behind in short order.

How far along is Indonesia in the digital revolution? Not far enough yet—but herein lies the opportunity.

To gauge Indonesia's digital progress, McKinsey conducted research and analysis on 20 select markets in the world. Our findings indicate that Indonesia is in a nascent stage of digitization. However, the country presents a curious paradox: its digital denizens are among the world's most active, and it has a vibrant start-up ecosystem, but overall the country lags in embracing the benefits of modern technology. ICT infrastructure is weak and digital usage is uneven within and among various business sectors. Indonesia's connected citizens are tech-savvy, but Internet penetration is low. In short, Indonesia has a long way to go in the digital age.

If Indonesia embraces digitization, it can realize an estimated USD 150 billion in

growth—10 percent of GDP—by 2025. Digital technologies offer ways to boost productivity across sectors and expand participation in the economy to all segments of the population. But accelerating Indonesia's digital progress will require businesses to step up to the challenge and fundamentally transform themselves.

To win in a digital age, Indonesian businesses should pursue five strategic imperatives that will spearhead growth and efficiency:

1. Define customer-centric experiences to differentiate on design and agility.
2. Develop omnichannel engagement to link the online and offline worlds.
3. Leverage big data to drive real-time decisions across the value chain.
4. Double down on cybersecurity to protect information capital in a connected world.
5. Build digital capabilities to develop the organization of the digital age.

The world is going digital

The digital age is commonly hailed as the fourth industrial revolution—except this revolution has the potential to transform every facet of daily life, from reshaping how people make decisions, enhancing customer experiences, and creating new business models to optimizing value chains for unprecedented levels of efficiency.

“E-commerce in Indonesia is growing rapidly but is constrained by limited access to technology, a lack of technological savviness, and the absence of credit cards.”

—Agung Nugroho, Cofounder and Chief Operating Officer, Kudo

The digital revolution is driven by four types of technologies that, while not new, have advanced in recent years to significantly increase their impact on the global economy:

- **Mobile Internet:** Mobile devices have overtaken fixed-line devices as the main gateway through which people access the Internet. Around the world, 60 percent of all online traffic now originates from mobile devices.¹
- **Cloud technology:** Cheaper and faster connections through the Internet have enabled more computing power to be accessed remotely. In 2014, for the first time more information workload was processed via the cloud than in the traditional IT space.
- **Internet of Things (IoT):** In 2015, there were 18.2 billion Internet-connected devices. By 2020, this number is expected to increase threefold, to 50 billion.² Cheaper sensors and actuators as well as faster, reliable Internet connections are spurring more connected and remotely controlled devices

and unleashing new business and operating models, including innovative products such as driverless cars and smart homes.

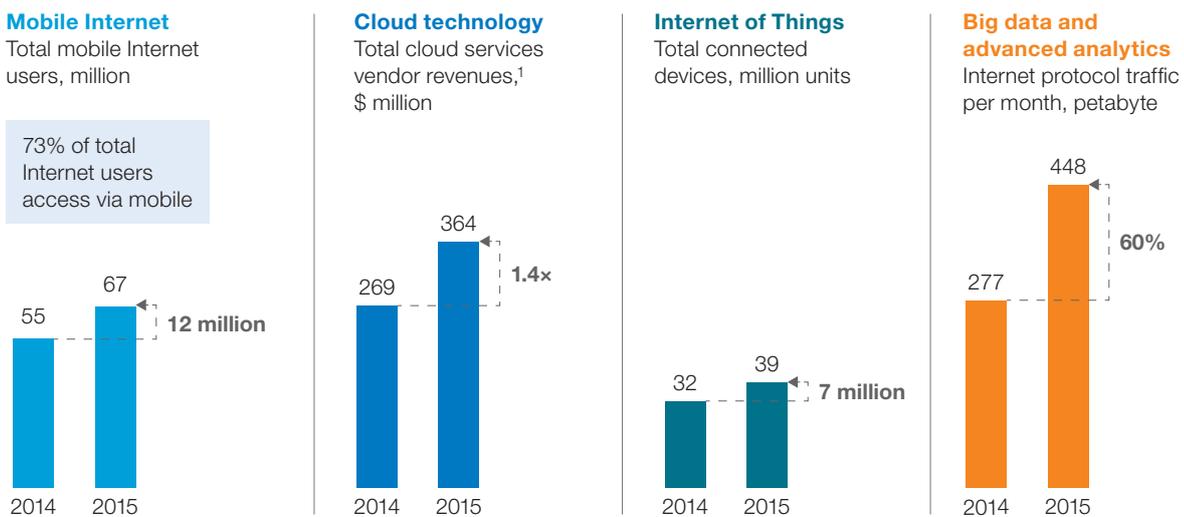
- **Big data and advanced analytics:** In 2016, Internet traffic reached 1 zetabyte—equivalent to 1 trillion gigabytes.³ Everyday objects are transmitting information every second of their operation, and computers with advanced analytical horsepower are enhancing human decision-making and unleashing the power of big data to optimize supply chains and business processes in sectors as far ranging as healthcare and retail to energy and mining.

Indonesia in the digital age

The four disruptive technologies are intertwined and complementary. And taken in combination, these four disruptive technologies are the keys to accelerating the impact of digital in Indonesia. Indonesia has experienced increasing adoption of each, effectively laying a solid foundation for future investments and productivity gains (Exhibit 1). Indeed, while these are early days, the digital revolution has arrived in Indonesia.

EXHIBIT 1

The digital revolution has arrived in Indonesia.



¹ Revenues from public cloud services and cloud IT infrastructure.

² 1 petabyte = 1 million gigabytes.

Source: WCIS, Machina, IDC worldwide public cloud services and cloud IT infrastructure tracker, World Robotics report

Despite Indonesia’s progress in each of the four disruptive technologies, the country still has a long way to go. To benchmark Indonesia’s digital standing, McKinsey conducted research and analysis on 20 select countries in the world (see sidebar, “About the research”).

Overall, McKinsey finds that Indonesia lags behind other select markets in capturing its digital potential. The country’s performance across the various metrics is uneven.

Digitization is an important driver of productivity. Deployment of digital technologies such as remote sensors, intelligent machines, big data, and real time communication enhances process efficiencies, improves quality of products and services, and enables optimal resource allocation, resulting in faster

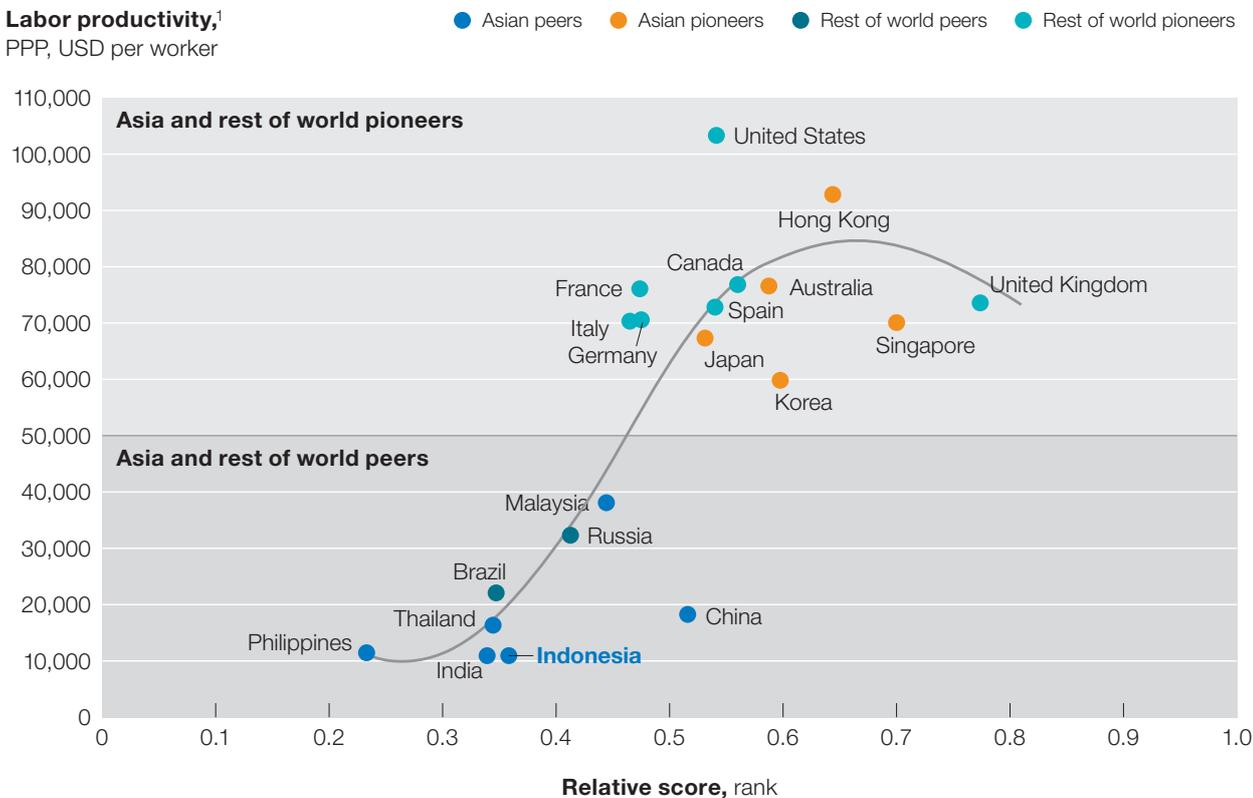
processing times, leaner operations, and better customer satisfaction. As such, there is a strong correlation between the level of digitization and labor productivity—but Indonesia is behind the curve when compared with the selected group (Exhibit 2).

Amid all the challenges, three mega-trends come to the fore that will enable Indonesia to capture its digital potential: infrastructure, consumers, and businesses.

Massive infrastructure opportunity
 Mobile data in Indonesia is very affordable, costing just 50 percent⁴ of what consumers in some ASEAN neighboring countries pay. However, quality—defined as the average connection speed and Internet bandwidth—can be very low (Exhibit 3).

EXHIBIT 2

Improvement in digitization results in increased labor productivity.



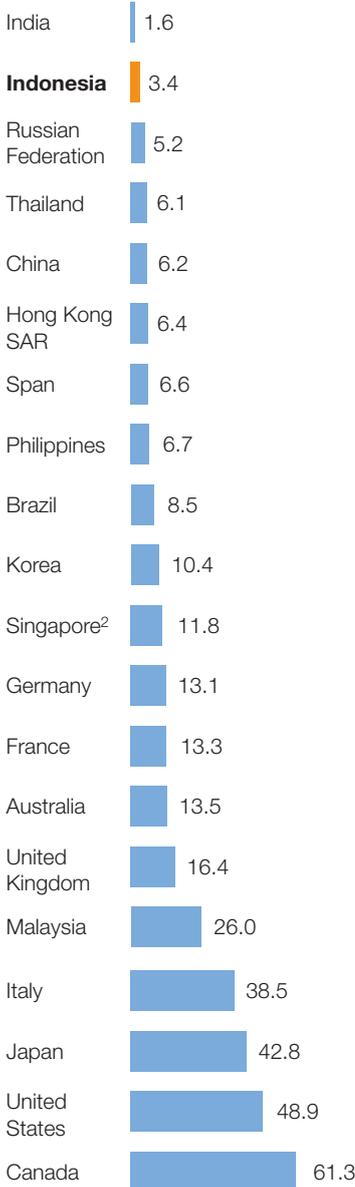
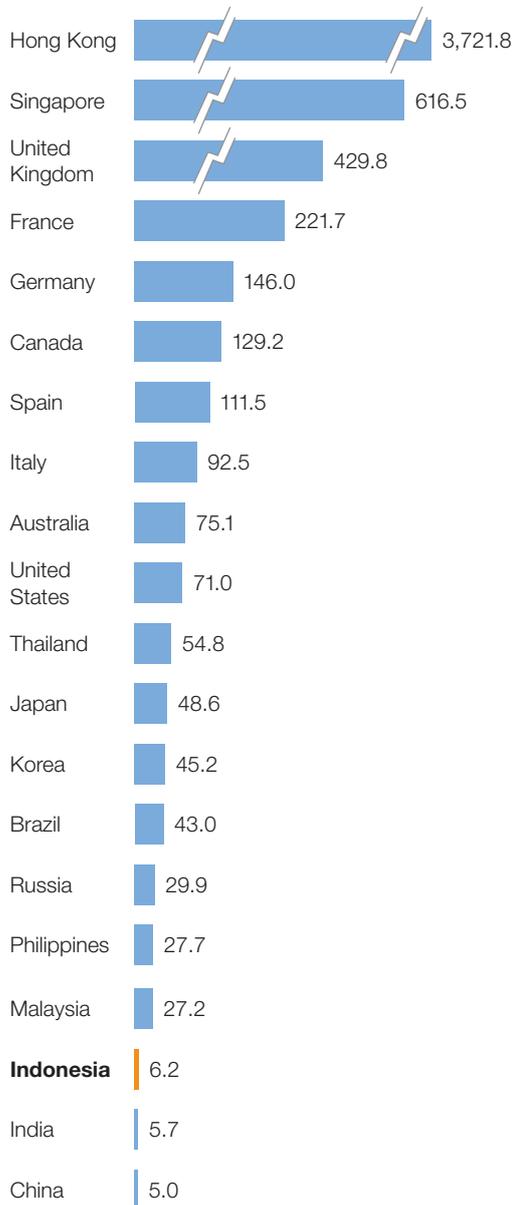
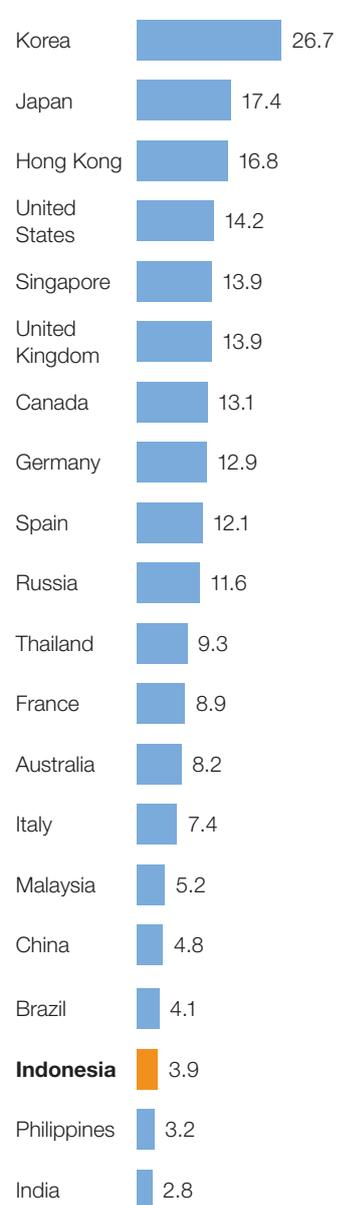
¹S-curve is based on polynomial regression.
 Source: McKinsey analysis, IHS WIS 2015

EXHIBIT 3

Internet is inexpensive—but average quality is poor.

Internet access is affordable ...

... however, quality is poor compared with other countries.

Mobile broadband pricing,¹
\$/500 megabytes**Internet bandwidth,**
Kb/s per user**Average connection speed,³**
Mbps¹ Prepaid tariff for all countries except for China, Japan, and Korea, where postpaid tariff is used.² Singapore data price dropped sharply since 2014.³ Average connection speed from all IPs. Peak average speeds can be higher, especially with at-scale 4G rollout.

Source: ITU (International Telecommunication Union) 2014, World bank 2015, Akamai 2015

Indonesia's size and geographic complexity compound the challenges. While the country's performance has dramatically improved in the past 12 months with the introduction of 4G, there are three clear opportunities to further improve Indonesia's infrastructure in the near term:

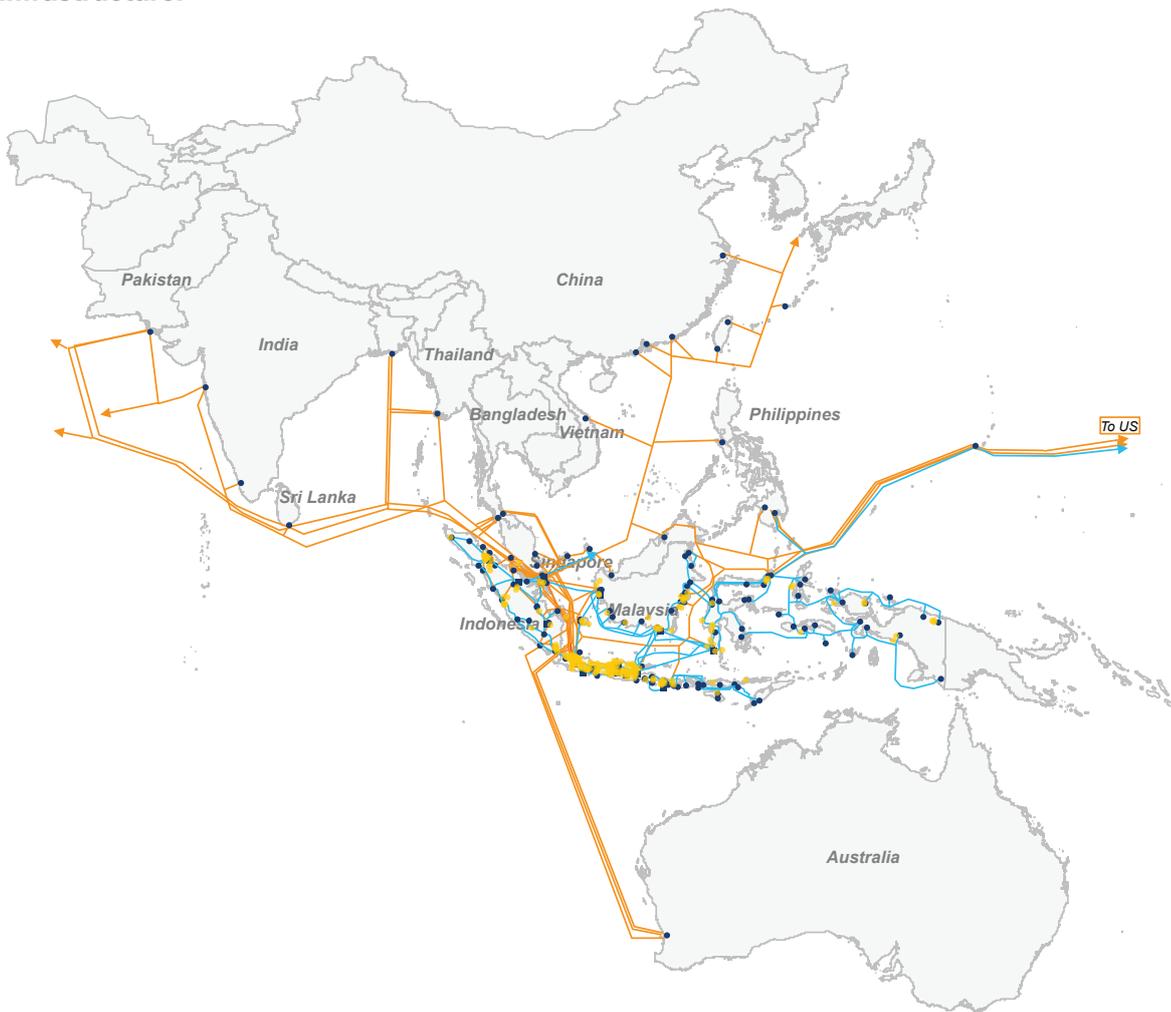
1. International linkages. With a large portion of Indonesia's traffic going to international sites such as Facebook and Google, international bandwidth is an important consideration for planning Indonesia's digital future. According to Telegeography, Indonesia's international

capacity is limited, with only 0.01 megabytes per second (mbps) per user compared with Singapore with 2.74 mbps per user.⁵ Connectivity is also concentrated, with most lines going through Singapore—a situation that leads to less than competitive pricing (Exhibit 4).⁶ 40 percent of landing points are located in just three cities (Batam, Dumai, and Jakarta).

2. Domestic cable network. Data traffic in Indonesia is expected to rise sixfold by 2020, placing pressure on the capacity of the domestic network⁷—that is, the linkages through submarine and overland fiber optic

EXHIBIT 4

Indonesia's infrastructure opportunity across international linkages, domestic network, and 4G infrastructure.



¹Linkages through submarine cables and fiber optics.

Source: Submarine cable maps, We Are Social, Telegeography 2015, nPerf, Kementerian Komunikasi dan Informatika, WCIS

cables. In order to raise fixed broadband penetration beyond the current low level of 2.5 percent,⁸ it is vital to expand the availability beyond the greater Jakarta area by strengthening connectivity in western and central Indonesia and expanding into eastern Indonesia.

The fiber optic network needs to be increased by the timely execution of the 35,000-kilometer Palapa ring project,⁹ an undersea and terrestrial cable network spread from Sumatra to West Papua.

3. 4G infrastructure. Indonesia's last-mile 4G coverage was at only 23 percent in 2015.¹⁰ Growing e-commerce, mobile entertainment, and gaming content have increased the need for speed for the 73 percent of Indonesia's users that access the Internet through mobile broadband.¹¹ The country must enhance 4G/LTE infrastructure outside Java to enable users to take advantage of the falling handset prices and increase 4G penetration beyond the 2015 level of 7.6 percent.¹² With the recent enabling of critical spectrum assets for 4G, operators have already started moving aggressively in this direction.

Small but growing base of digital consumers

Indonesia's Internet penetration is 34 percent.¹³ The current rate is half that of ASEAN neighbor Malaysia and far behind that of leaders such as the United Kingdom, Japan, and Canada. Indeed, its relatively larger population means that Indonesia is home to the world's third-largest population of individuals without access to the Internet. Geographically, digitization is uneven across Indonesia, with Internet

penetration strongly correlated to income per capita; poorer regions have lower penetration. Only the large population centers such as Jakarta and Yogyakarta have a penetration rate above 45 percent.¹⁴

However, connected Indonesians are very digitally savvy. They are netizens in every sense of the word, with a need for constant connectivity, instant information, and a growing appetite for digital content. They spend a higher-than-average amount of time on the Internet, primarily engaging in heavy social media usage and e-commerce (Exhibit 5). Their social media usage is among the highest of any population in the world; Jakarta is widely considered the Twitter capital of the world. In 2016, revenue of e-commerce in Indonesia amounted to USD 6 billion,¹⁵ and 78 percent of current Internet users made online purchases.¹⁶ The industry is expected to grow by approximately 18 percent annually¹⁷ in the next five years, reaching a market volume of USD 16.4 billion by the end of 2020.

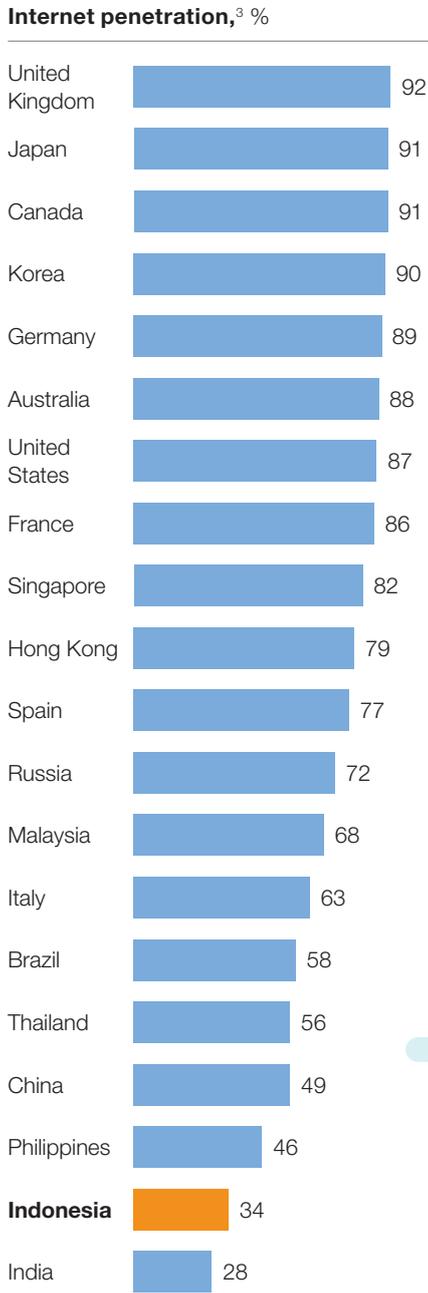
Furthermore, Indonesia is a mobile-first nation; approximately 75 percent¹⁸ of the online purchases are made via mobile devices. The usage statistics far exceed that of digitally mature countries such as the United States, where these media have been around longer and are firmly established.

Furthermore, Indonesia's Internet population is set to boom due to the growing accessibility of the mobile Internet as well as the increasing availability of inexpensive phones. Indonesia is expected to add 50 million new Internet users¹⁹ from 2015 to 2020, reaching a penetration rate of 53 percent (Exhibit 6).²⁰

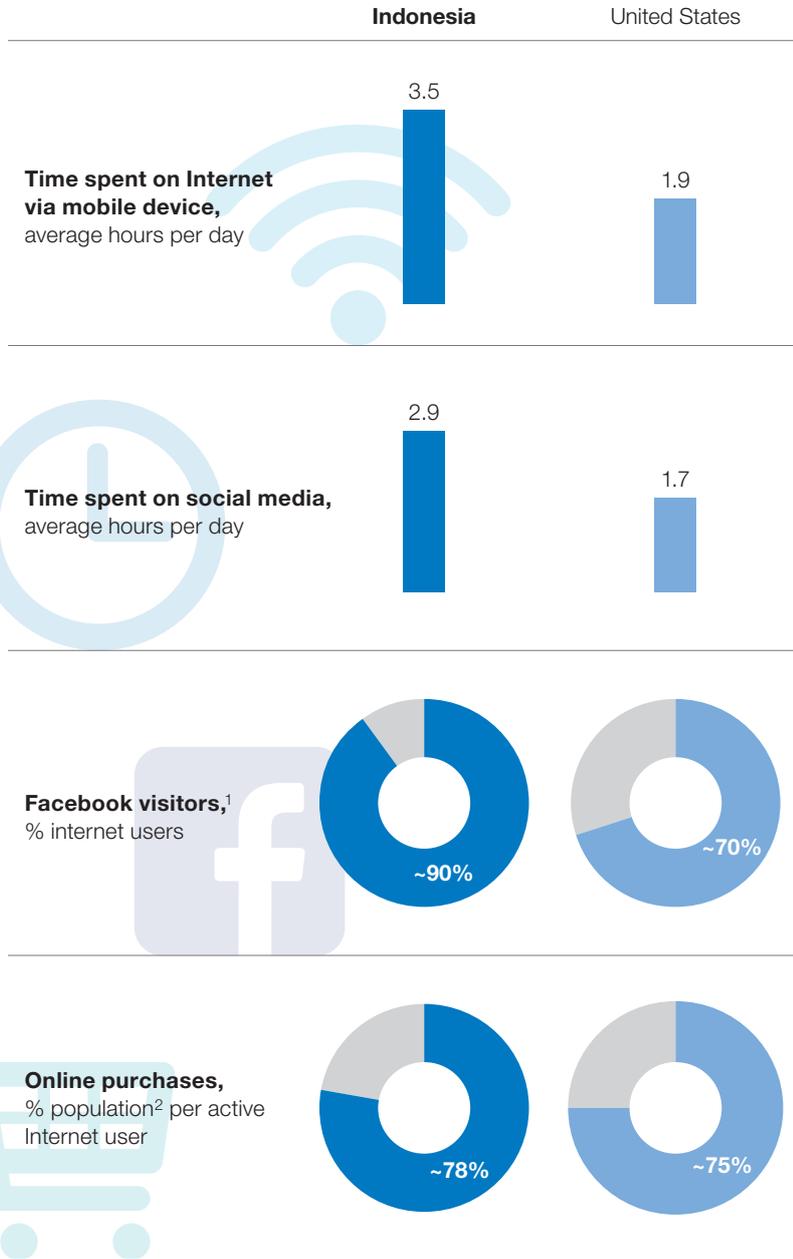
EXHIBIT 5

Indonesia has a small base of current Internet users, but connected citizens are tech-savvy.

Low overall Internet access ...



... however, the connected ones are very savvy.



¹ Internet users who have visited/used the service in the past month.

² Percentage of population that purchased a product or service online in the past 30 days.

³ In completing this research, we found a wide range of estimates for Indonesia's Internet penetration rate. For the purpose of the analysis and to be consistent with the sources for key comparisons, we have used estimates from We Are Social.

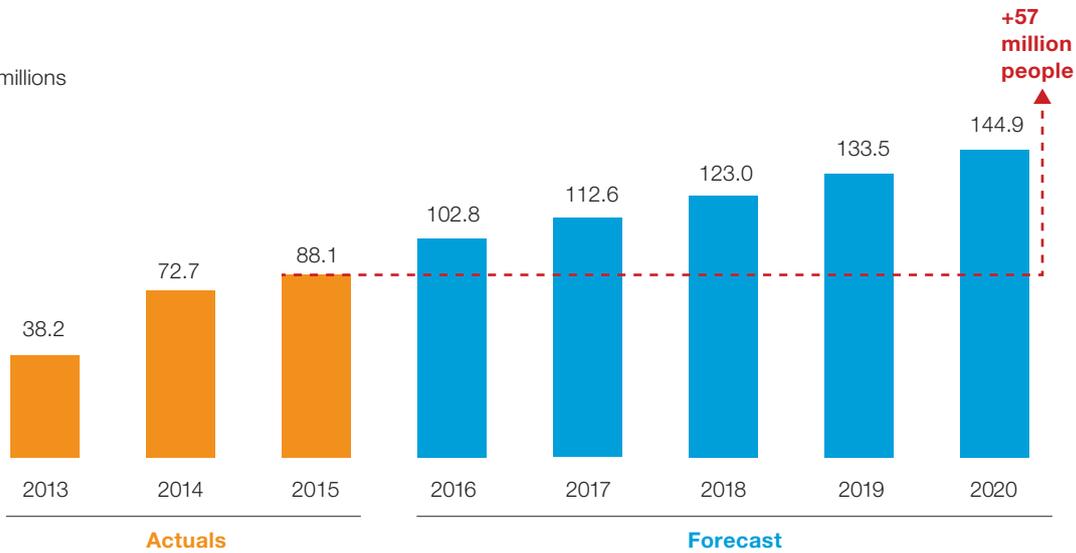
Source: McKinsey analysis based on data from We Are Social 2016

EXHIBIT 6

Indonesia’s Internet population is further set to boom due to accessible mobile Internet and cheaper phones.

Internet user¹

No. of people, millions



Internet penetration, % of population

15 29 34 39 43 46 50 53

¹Actual data from We are Social and forecast from Statista; 2020 penetration is a projection.

Source: Statista, population data from World Bank

“On the banking side, digitization is largely driven by customer pull...Banks to a large extent have been pulled into digitization because people are using the phone for everything from transport to booking their travel to chatting. You have to follow the trend.”

—Peterjan van Nieuwenhuizen, Incubation Head of Digital Banking, Bank Tabungan Pensiunan Nasional (BTPN)

A thriving start-up culture

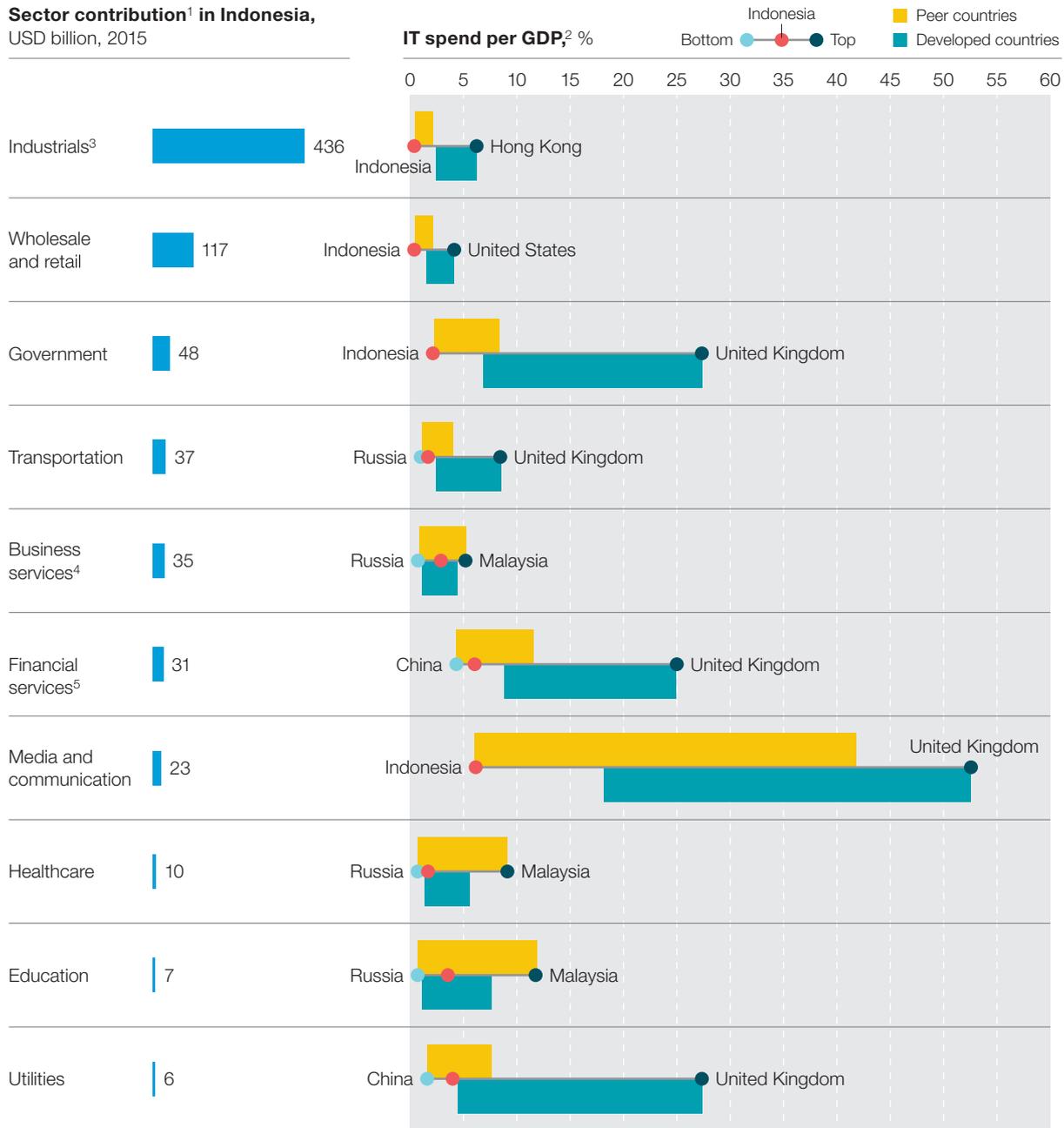
Across all of Indonesia’s key sectors, IT spending lags behind not only developed countries but also peer countries, which indicates a low level of digital intensity (Exhibit 7). While labor-heavy sectors such as financial services and business services fare slightly better due to the digitization of the workforce and driven by the emerging financial technology (fintech) boom, the asset-heavy backbone industrial sectors—which include mining, manufacturing, and natural resources and contribute approximately 50 percent of the country’s GDP—lag far behind those of other countries. In Indonesia, these industries lack the customer pull to digitize—the driving force behind the digitization of financial institutions and retail. Even in

these industries, customer interactions are the first to be digitized, while adoption of Internet in factories, in other physical assets, and in business processes is even slower. The availability of cheap labor and the poor quality of Internet access, discussed earlier, are key reasons for low digitization among Indonesia’s businesses. Social sectors such as government and healthcare also have a long way to go in digitization—mirroring a global trend.

Despite low digitization across Indonesia’s key sectors, start-ups are proliferating and thriving across the board. E-commerce start-ups such as Alfacart.com and MatahariMall.com; financial services companies Kartuku and HaloMoney;

EXHIBIT 7

Across ten sectors, Indonesia's IT spend lags behind even its peer countries.



1 Major sectors. 2 Philippines data is not available. 3 Including agriculture, mining, manufacturing, and construction. Agriculture IT spend is not available. 4 IT-related activities and other business activities. 5 Banking, securities, and insurance.

Source: McKinsey analysis based on data from Gartner IT Spending 2015 and IHS

and transportation companies Go-Jek and Traveloka are just a few examples, backed by angel investor and venture capital firms like CyberAgent, Mountain Kejora, and Ideosource, among others. In 2016, the total disclosed

funding of start-ups in Indonesia is estimated to have reached USD 1.7 billion.²¹ Along with Jakarta, Bandung and Surabaya are emerging as innovation hot spots.

“In any industry, it’s often not the established players but the challengers who are successful with digital first. It wasn’t an established taxi/transportation company that made a big splash in digital, but Go-Jek, Grab, and Uber. Not Blockbuster, but Netflix. However, financial services are much more strictly regulated—with the need for banking licenses, for example—and that has made it much harder for a true challenger to come along, and thus it’s been less of a necessity for the incumbents to adapt their business models.”

—Peterjan van Nieuwenhuizen, Incubation Head of Digital Banking, Bank Tabungan Pensiunan Nasional (BTPN)

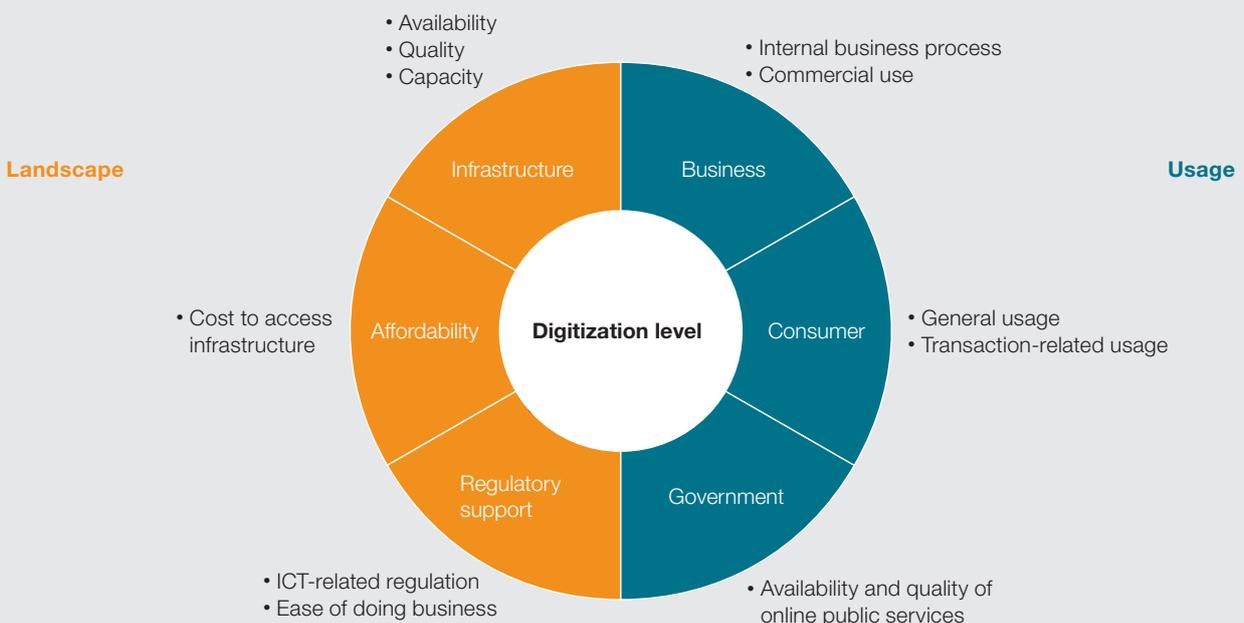
About the research

McKinsey assessed two categories of countries: the first category included peer countries at a similar economic development stage—Brazil, China, India, and Russia—and ASEAN neighbors—Thailand, Malaysia, and Philippines. The second category included mature economies—Australia, Canada, France, Germany, Italy, Japan, Singapore, South Korea, Spain, the United Kingdom, and the United States. The analysis compared the countries by their performance on 11 metrics across two key dimensions: landscape and usage (Exhibit 8).

- 1. Landscape:** What is the level of system and infrastructure supporting ICT in terms of infrastructure (availability, quality, and capacity), affordability, and regulatory support available in the country?
- 2. Usage:** What is the degree of adoption of ICT by key user groups—consumers, businesses, and government—for their commercial and everyday needs?

EXHIBIT 8

Country digitization level is measured across two dimensions: landscape of ICT services and degree of usage.



Indonesia’s digital opportunity: USD 150 billion by 2025

In the first decade of the millennium, Indonesia’s real GDP growth rate increased steadily in most years, from 3.6 percent in 2001 to 7.4 percent in 2008. But this growth has slowed, dropping to 4.8 percent in 2015. From 2016 to 2020, the economy is forecast to grow at a modest 5 percent.²² This decline will continue as the contributions from the two components of GDP growth, labor inputs and productivity, continue to slacken.

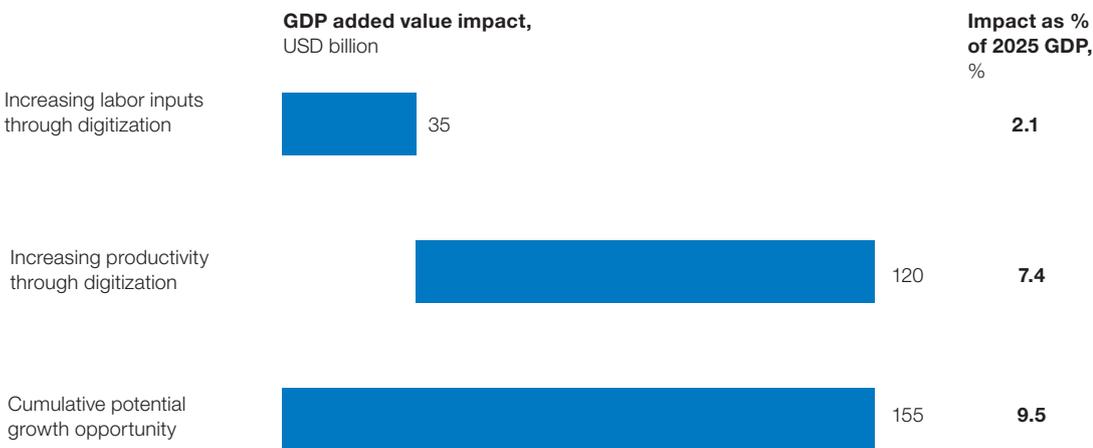
If Indonesia is to return to a growth trajectory of 7 percent a year, there is no other choice but to boost both labor participation and productivity in Indonesia. Through a combination of these elements, digital technologies can achieve a total impact of approximately USD 150 billion by 2025 (Exhibit 9).

require a breakthrough—one that is impossible to achieve without digital leverage. There are many ways digital can boost labor supply in Indonesia, increasing participation and reducing total unemployment. Firstly, with the emergence of on-demand work, social and online platforms connect members of the nonproductive and partially productive segment—for example, stay-home spouses and the informally employed—who are active on the mobile Internet with jobs. The International Labor Organization (ILO) estimates that there are more than 35 million non-working female citizens between 15 and 64 years old in Indonesia. Our estimate indicates that with online platforms, Indonesia can activate 3 percent of this population, adding 1 million people to Indonesian workforce.

Secondly, online job platforms can facilitate faster and better matches between employers and job seekers, replacing traditional methods

EXHIBIT 9

Digital technology can play a key role in boosting growth for both labor and productivity factors with estimated impact of USD 150 billion in 2025.



Source: Global Insight (WMM), IHS data, Euromonitor International, Team analysis

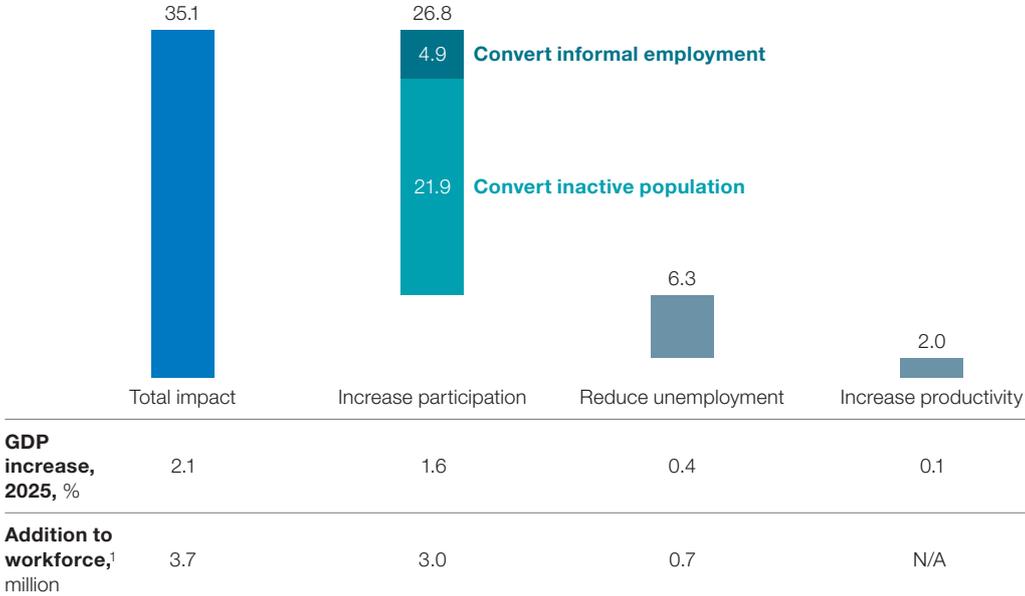
Increasing labor inputs through digitization
In recent years, labor force participation has held steady at 70 percent, and unemployment rates have dropped to an all-time low of 5.5 percent. The next level of improvement will

such as newspaper classifieds. This will essentially reduce the effective period of unemployment by lowering search and match time.

EXHIBIT 10

Digital technologies in labor have potential to increase Indonesia’s GDP by USD 35 billion by 2025 and add 3.7 million jobs.

\$, billion



¹ Calculation is based on full-time equivalent (FTE) level employment.

Source: Based on McKinsey Global Institute Study, “Labor Market that Works,” team analysis adjusting figures for Indonesian context

Finally, online platforms have access to much more data on both job seekers and employers. An analytics engine will help the job matches to be more effective, linking the right people with the right job and improving the productivity of the labor force overall.

By converting informal employment, employing the inactive population, and reducing unemployment, digital technologies have the potential to add 3.7 million jobs and USD 35 billion a year to Indonesia’s economy by 2025 (Exhibit 10).

Increasing productivity through digitization
Indonesia also needs to boost its labor productivity. The labor productivity in Indonesia is ranked second lowest among our 20 selected markets, ahead of only India. While one may argue that this is partially driven by the larger population in Indonesia, the counter-example is China, which has a labor force almost seven times larger than Indonesia’s—but which achieves labor productivity of almost twice that of Indonesia. This finding indicates that there

is a large opportunity for Indonesia to catch up, with significant growth potential in the future.

The use of technology has increased productivity in a wide array of business settings. Productivity improvements from digital can generate cost savings and increase efficiency across the value chain, from product development to operations to sales and services. Industry 4.0 can revolutionize operations with the combination of IoT sensors, advanced analytics, and autonomous machines. For example, equipment with sensors can conduct self-diagnostics to enable predictive maintenance, translating into lower overall equipment downtime. With unprecedented access to operational data, advanced analytics can play a key role in offering new insights into optimizing yield, energy, and resources while delivering on non-negotiable work necessities like health and safety. Swiss technology giant ABB, for instance, used a computer-based system that mimics the actions of an “ideal” operator in an Australian cement kiln, using real-time metrics to adjust kiln feed, fuel flow, and fan-damper position. This resulted in a throughput boost by up to 5 percent.

In the aspect of human health and productivity, digital technologies provide new opportunities to increase workforce productivity. Use of biosensors and chips can allow companies to better measure, monitor, and understand employee productivity and the factors influencing it. By using such insights, companies can reallocate human resources, redesign human-related processes, and restructure organizations.

Digital can also provide new ideas in developing new products and increasing sales. Component suppliers can collect customer usage data to understand key features used and key failure modes, then channel R&D resources to develop new and more customized products for customers. Companies can understand their customers better than ever before and will be able to offer targeted promotion, advertising, and increasing opportunities for cross-selling and up-selling. Amazon now plans to go beyond their “recommended” products for their customers and is testing “anticipatory shipment”—sending promotional goods to

customers even before ordering, such as shipping diapers to expecting parents based on their purchase history and other information. Each digital lever delivers varying levels of impact for Indonesia’s economic sectors. Our bottom-up analysis indicates that the operations optimization lever has the highest impact given the large size of the industrials sector in Indonesia, with low productivity and low IT spend. Operations optimization alone can add USD 98 billion to Indonesia’s economy in 2025, with manufacturing standing to gain the most. Other sectors such as retail, transport, mining, agriculture, telecom and media, healthcare, the public sector and utilities, and the financial sector could also generate value through digital-enabled productivity improvements. In all, improved productivity from digitization could provide a boost worth USD 120 billion annually by 2025 (Exhibit 11).

To reimagine what the future of four key sectors could look like, the following infographics depict several scenarios of digital use cases in manufacturing, retail, mining, and farming.

EXHIBIT 11

Across key sectors, Indonesia could harness digitization to realize total productivity impact of USD 120 billion by 2025.

USD billion

Sector	Estimated 2025 GDP base impact	Operation optimization	Human health and productivity	Product and sales development
Manufacturing	34.4	29.4	3.0	2.0
Retail	24.5	12.5	6.7	5.3
Transport	15.5	13.6	1.9	0.0
Mining	14.8	14.0	0.5	0.3
Agriculture	11.0	10.6	0.3	0.0
Telecom and media	7.9	5.7	1.7	0.5
Healthcare	6.6	2.2	4.3	0.0
Public sector and utilities	4.8	4.7	0.1	0.0
Financial	1.8	1.1	0.1	0.6
Total	121.4	93.8	18.7	8.9

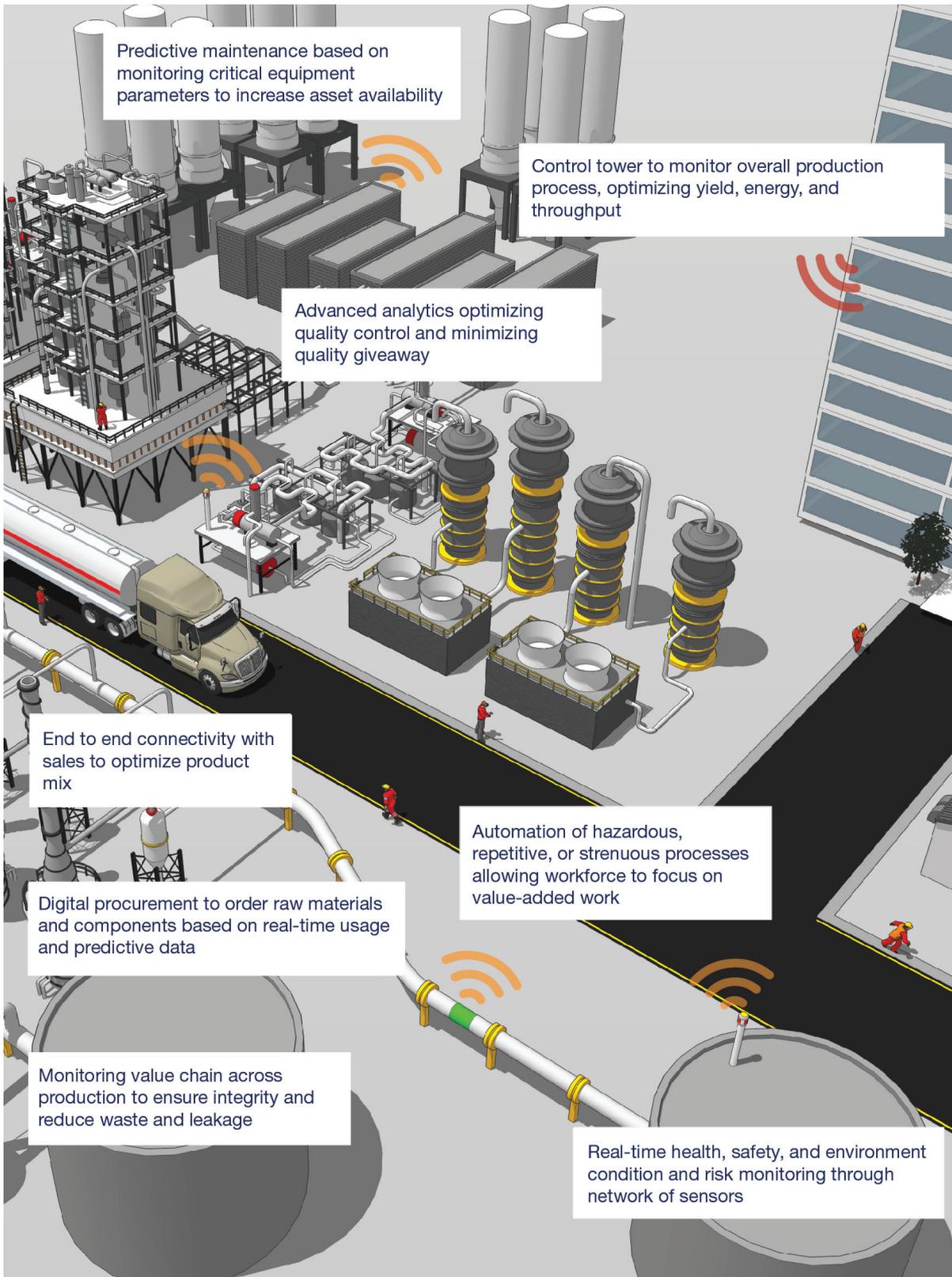
Source: Based on McKinsey Global Institute Study “Unlocking the potential of the Internet of Things,” Team analysis adjusting figures for Indonesian context

Manufacturing of the future will be connected and efficient

Continuous plants will have sensors built in the key parts of the production process, sending real-time operating status to the control tower. All this big data will be aggregated to generate

insights to boost yield, energy efficiency, throughput, quality, and the condition of critical equipment for predictive maintenance. Real time connectivity with sales data will dictate the product mix. Hazardous, repetitive and strenuous work will be automated. (Exhibit 12).

EXHIBIT 12

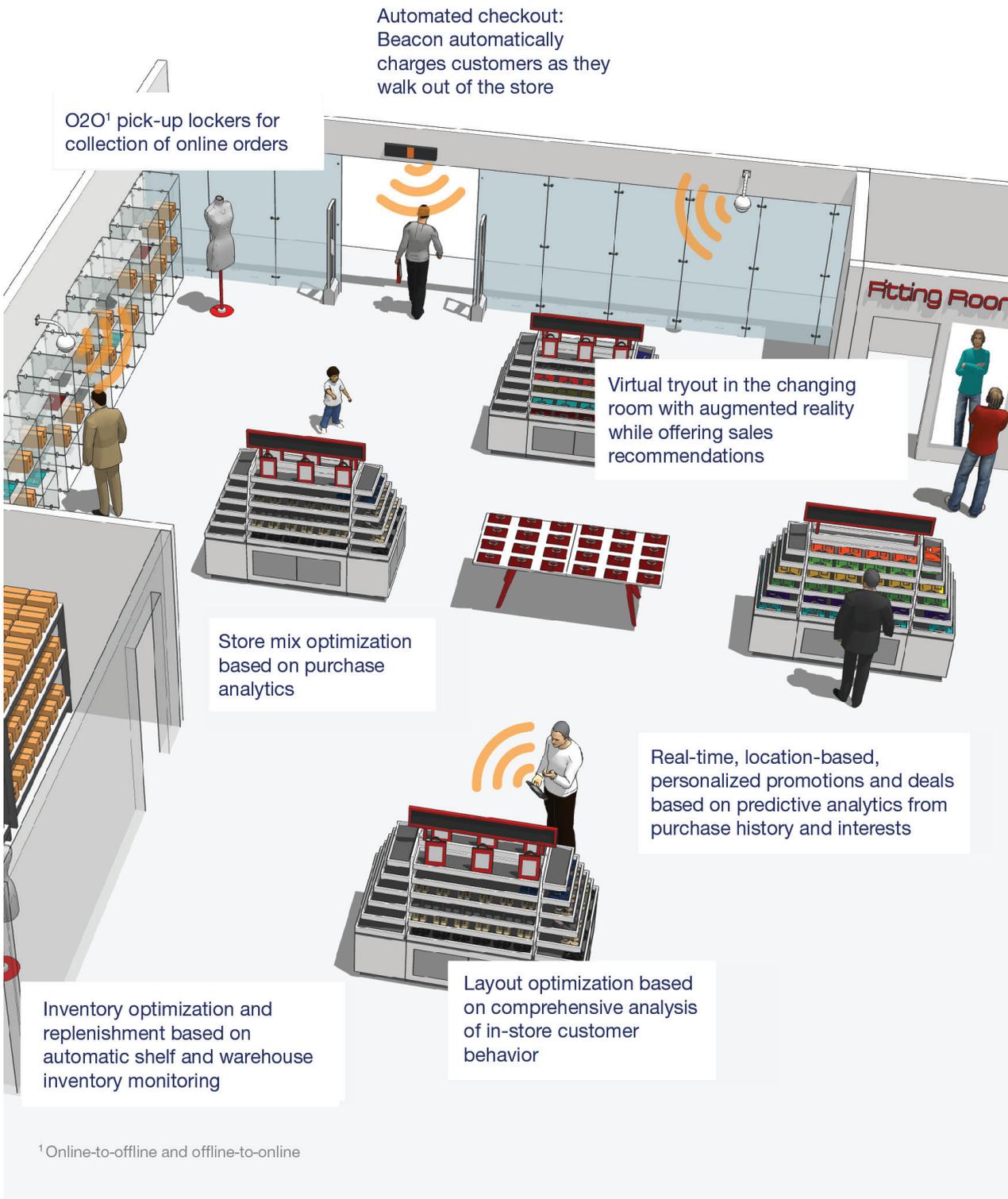


Retail will evolve to be all about customer experience

A digitized retail store will require almost zero human resources. A customer will be able to walk into a clothing store and receive notifications on customized promotions based

on purchase history. Augmented reality will change how we try on clothes. Payment will be conducted automatically. At the back end, shelves will auto-optimize inventory and replenish stock based on analytics of customers and sales data (Exhibit 13).

EXHIBIT 13



Mines will be transformed into high tech, operationally efficient enterprises

Digitization will significantly increase productivity of mines. Mine planning will be done with the aid of advanced software, combining geological and equipment considerations. Large vehicles around the site—

excavators and haul trucks, for example—will be driverless, equipped instead with sensors to gather terrain data as well as carry out self-diagnostics for predictive maintenance. Drones will monitor environmental data such as air quality, temperature, and weather to optimize day-to-day operations (Exhibit 14).

EXHIBIT 14

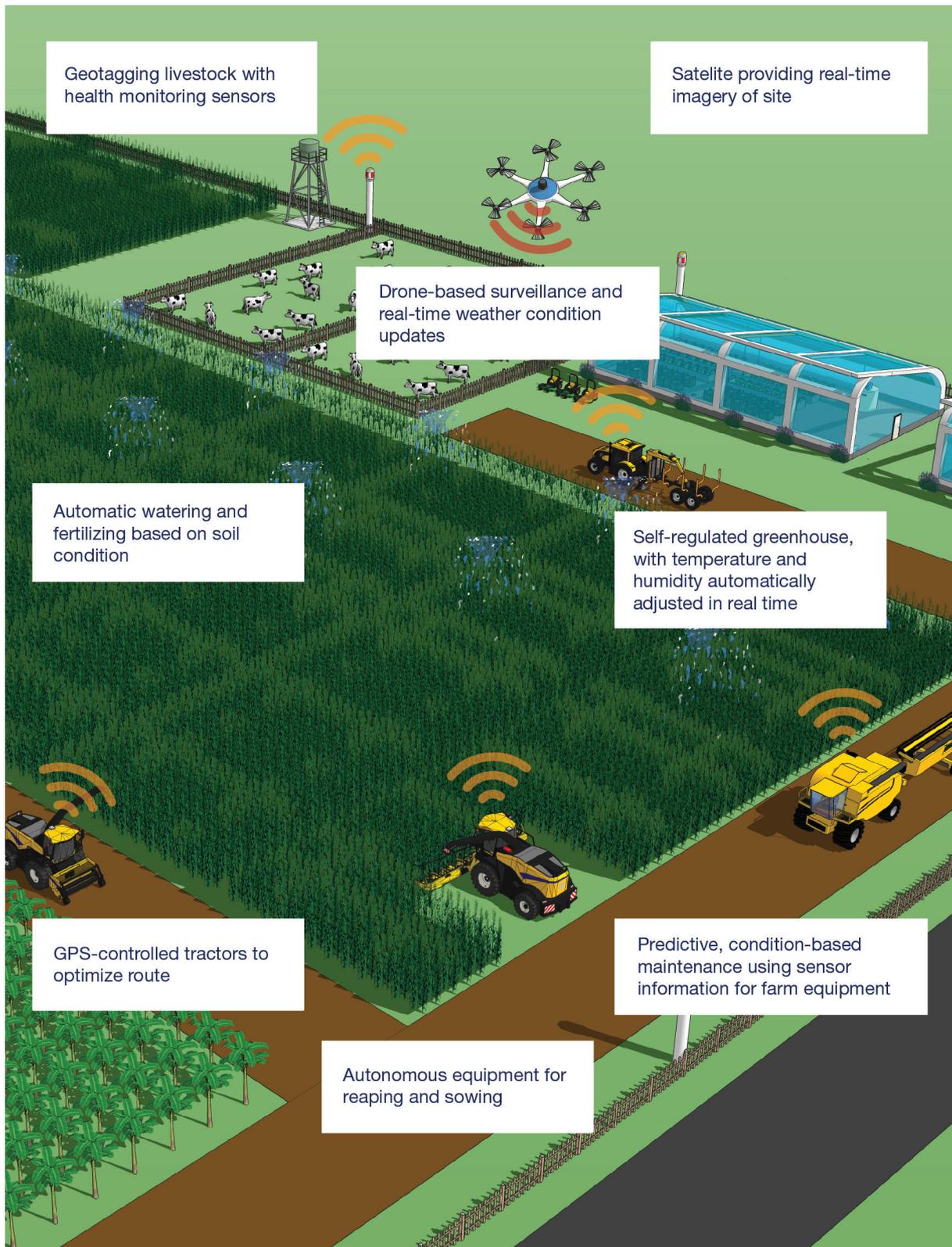


Smart farming will revolutionize food production

Farming will be virtually unrecognizable. GPS-controlled autonomous tractors will do most of the work, from preparing the soil and sowing seeds to harvesting the produce and trucking

it to collection points. Automatic watering and fertilizer systems will utilize sensors to optimize soil conditions and minimize waste. Livestock will be geotagged with location and health sensors (Exhibit 15).

EXHIBIT 15



Winning in a digital age

To capture the digital opportunity, governments and businesses should consider innovative pathways to create value across three dimensions:

- **Products and services.** Innovations to fulfill unmet or partially met customer needs, by creating new products or services that use digital technologies.
- **Business models.** Transformation of customer experience, delivery models, and value propositions, made possible by digital technologies.
- **Business processes.** Improvements along the value chain, using digital technologies to enhance process efficiencies and eliminate waste.

These three dimensions are not mutually exclusive; in fact, businesses that attempt to innovate along one dimension often come across barriers that require a breakthrough in

some other dimension. One example is Apple’s success with the iPod. Although not the first to unveil a portable music player, Apple developed a high-quality product (the iPod) in tandem with a business model innovation: iTunes and the ability to download music inexpensively. Such two-pronged innovation sealed Apple’s dominance, which has continued with the unveiling of the iPhone and the iPad.

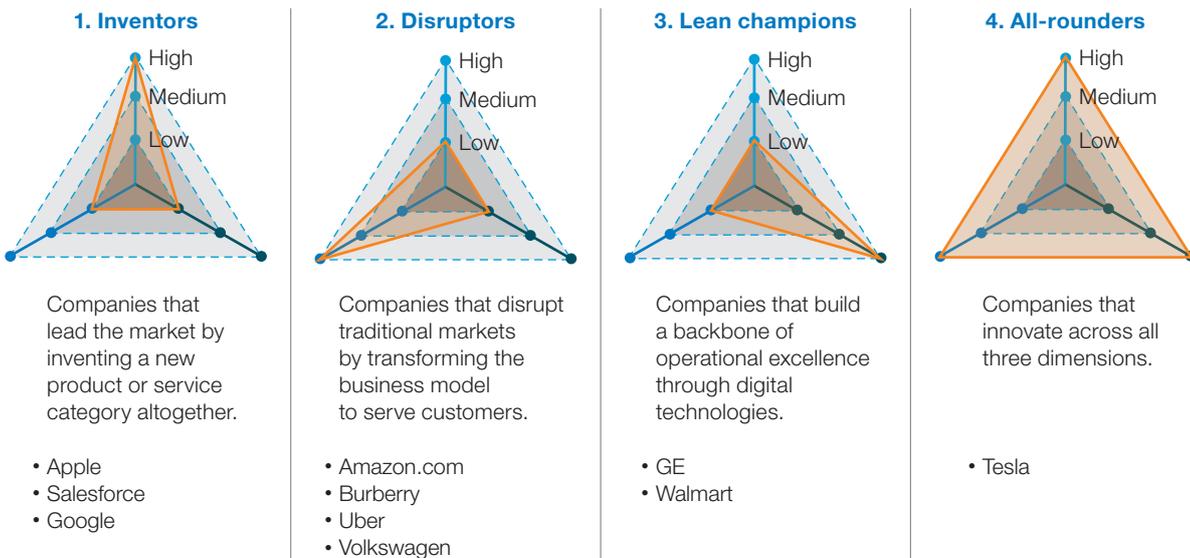
Defining the players

McKinsey’s review of the world’s top 50 innovators, as ranked by *Forbes*,²³ reveals that few companies—even the most innovative ones—are distinctive across more than one innovation dimension. Four main archetypes of digital innovators emerge (Exhibit 16).

All three types of innovators beat the S&P 500’s average performance of 42 percent over the past five years by a wide margin. (The sample set for all-rounders was too small to derive any meaningful result.) In short, innovation is key to superior value creation. (Exhibit 17)

EXHIBIT 16

Across the world, four types of innovation archetypes are emerging.



Indonesia is poised to become a hotbed of digital innovation across sectors such as retail and financial services, with new business models as the dominant form of innovation.

Five ways to win in the digital age
 To unlock the potential of digital technologies, Indonesian companies must reinvent themselves through a holistic digital transformation with five strategies:

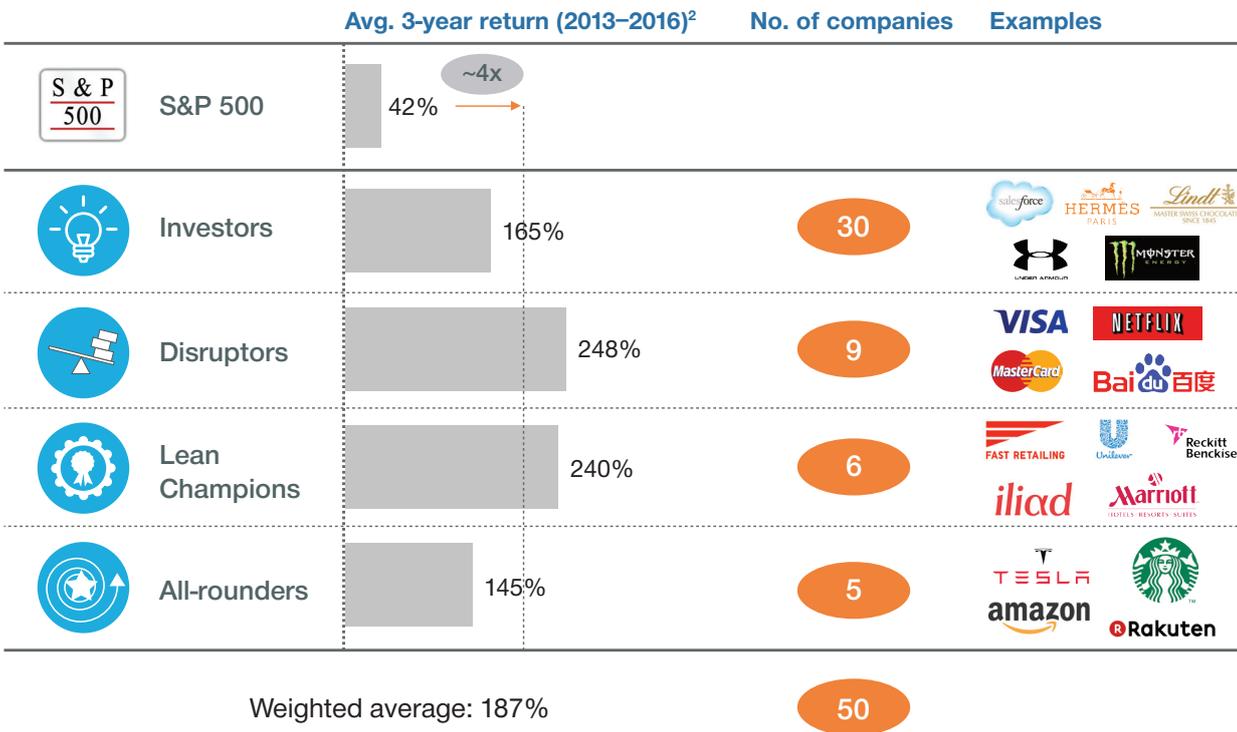
1. Define customer-centric experiences and differentiate on design and agility

In the age of rapidly evolving customer-centric experiences, companies need to ensure that the customer is the focus of all digital initiatives.

Consumers are looking for the next-generation user experience—personalized, interconnected, fun, fast, and seamless. Such an experience depends on world-class design and agile development, and it is being championed by both digital companies such as Facebook, Google, and LinkedIn and nondigital corporates such as Disney, Starbucks, and Starwood Hotels. Starbucks in particular is a leading example of offering not only a consistent user experience across all physical stores around the world but also a digital experience through the highly popular Starbucks card apps, which feature rewards and loyalty points. A customer-centric experience is not limited to business-to-consumer (B2C) companies. Several business-to-business (B2B) customer-centric champions

EXHIBIT 17

Innovative companies create superior value; in fact, the world’s top 50 innovative companies¹ significantly outperform the S&P 500.



¹ The World’s Most Innovative Companies 2016 published by *Forbes*. ² Average return for Jan 2013–16. SOURCE: McKinsey analysis, *Forbes*, S&P 500

“Innovation is finding new ways to create value. I don’t believe in innovation just for innovation’s sake—it must generate value.”

—Adamas Belva Syah Devara, Cofounder and Chief Executive Officer, Ruangguru.com

such as 3M, IBM, and Xerox are pioneering new, tailored customer experiences. For example, IBM consultants work closely with their customers to ensure that IBM Research develops software solutions for specific client problems.

2. Develop omnichannel engagement to link the online and offline worlds

Multichannel is passé. Nowadays, customers not only interact with companies across several different channels along the customer decision journey—for example, a physical store, a kiosk, an online website, a call center, e-mail, social media, and a mobile phone application—but also demand seamless engagement across the touchpoints. A Google survey found that one-third of US consumers and 40 percent of Asian customers use multiple channels in their buying behavior.²⁴ Companies must adapt accordingly. Many companies are upping their O2O (online-to-offline and offline-to-online) offerings to offer coherence across online and offline channels.

and decision making. By harnessing the superior computational power now available, companies can tap the power of big data and advanced analytics to inform real-time decisions across the value chain. The data can drive better decisions across the board from performance management, forecasting, customer segmentation, and tailored offerings to product development.

For example, Intel harnesses big data to conduct predictive analysis on its quality assurance, effectively cutting down on unnecessary tests and reducing test time. FedEx's SenseAware tracks high-value and time-sensitive shipments. It attaches sensors that read location, temperature, light exposure, and shock and send real-time data to FedEx and its customers. Capital One utilizes big data to analyze the demographics and spending pattern of its customers to offer the best products, thus increasing conversion rate and

“We have a huge network of brick-and-mortar stores that we can use as leverage to improve convenience for our customers. Being part of a large retail group has its perks; we are the first to offer a truly O2O concept that allows customers to shop anywhere at any time and collect their goods at hundreds of different retail stores, malls, apartments, train stations, and post offices across Indonesia.”

—Hadi Wenas, CEO, MatahariMall.com

Argos, for example, has successfully complemented its brick-and-mortar store with online and mobile channels. In 2015, Argos' mobile revenue reached GBP 1 billion—the first company in the United Kingdom to reach this milestone. Argos has also forged a partnership with eBay, where eBay customers can place their orders and collect them at an Argos store.

3. Leverage big data to drive real-time decisions across value chain

The amount of data in the world is growing exponentially. Currently companies use only a miniscule fraction of data generated for insights

gaining profitable customers. And the Nebraska Furniture Mart conducts price scraping across 18 competitors to adjust pricing up to twice a day using digital signage.

4. Double down on cybersecurity to protect information capital in a connected world

Given their growing volume and importance, intellectual property and business data must be treated as assets in the digital age. More data, interconnected processes, and digitally enabled decisions coupled with a build up in malevolent elements of increasing sophistication means that institutions must invest in cybersecurity

to protect their information capital and ensure resilience. Indonesian hackers are quickly gaining in skill and reach: the country is subject to one medium to major cyberattack a day—most of which originate from within Indonesia's borders. Common targets include commodity industries, strategic installations, and residents. However, local Indonesian citizens, corporations, and government organizations are not yet aware or resilient enough.

A focus on cybersecurity requires three elements:

1. *Strategy.* Stakeholders must differentiate protection for the most important assets and integrate security into the technology environment across the value chain.
2. *System.* Stakeholders must deploy active defenses to be proactive and uncover attacks early, as well as conduct realistic testing and war games to improve incident response.
3. *People.* Stakeholders must enlist frontline employees in cybersecurity efforts, helping them to understand the value of information assets, and integrate cyber resilience into enterprise-wide governance processes.

5. Build digital capabilities to develop the organization of the digital age

The hardest part of any digital transformation is building the right institutional culture for the transformation. Indonesian companies must evolve to embed digital in their DNA. Key organizational essentials include leadership, an

organization structure, and the right mind-set and capabilities.

On leadership, companies could appoint a Chief Digital Officer (CDO) to drive the company's digital agenda. For example, Starbucks appointed a CDO responsible for all digital initiatives, including the mobile app and loyalty program.

On organization structure, companies could deploy a center of excellence to integrate new-age digital competencies across the organization; Wal-Mart, for example, carved out innovation labs in attractive, talent-rich locations. Companies can also embed digital expertise like agile development DevOps skills, mobile skills, and analytics capabilities in key functions and units; Kellogg's, for example, has a digital strategy department that coordinates digital efforts across its marketing, technology, sales, and analytics departments.

On mind-set and capabilities, companies could blur the boundaries between internal and external talent sources to meet rapidly evolving needs; P&G, for example develops deep relationships with select partners for preferred access to specialized skill sets such as advanced analytics, digital architecture, and cybersecurity. Companies could also instill a digital mind-set of "test and trial," increasing the "clock speed" of decision and execution. In this vein, Spotify CEO Daniel Ek has said, "We aim to make mistakes faster than everybody else."

Conclusion

Indonesia is poised to benefit greatly from the digital revolution. To accelerate progress, the country's public and private sectors must focus investments in digital technologies to enhance infrastructure, increase penetration, and boost productivity. The resulting economic impact—USD 150 billion annually by 2025—is too large a prize to ignore. Implementing a holistic digital strategy will enable Indonesian companies to win in the digital age and lift Indonesia's economic growth to the next level.

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