Focus

Roland Berger

Bridging the digital divide |
Improving digital inclusion in Southeast Asia

Roland Berger

Bridging the digital divide /
Improving digital inclusion in Southeast Asia

Digital inclusion is defined as the empowerment of individuals and societies to effectively use information and communication technologies (ICT), enabling them to contribute to and benefit from today's digitalized economies and societies.

In Southeast Asia (SEA), around 150 million adult individuals – 31% of the population – are digitally excluded. Disabilities, illiteracy, age, wealth, concentration of economic activity in urban areas and enterprise access to capital are common factors that create this digital divide.

It is estimated that at least USD 15 billion per year can be unlocked in SEA by bridging the digital divide. But it is unclear how this can be achieved, both in SEA and globally. To tackle this problem, Roland Berger developed a Digital Inclusion Index and Digital Inclusion Framework.

The index measures and analyzes levels of digital inclusiveness in countries across the globe. It ranks 82 countries, based on their scores across four digital inclusion levers: accessibility, affordability, ability and attitude.

Southeast Asia ranks fifth out of seven global regions, and below the global average. Singapore finished top of the ten SEA countries, Laos last. Myanmar was the most improved nation in the entire index. This study details the strengths, weaknesses and digital inclusion development results for each SEA country. Roland Berger's Digital Inclusion Framework is designed to foster digital inclusion. It consists of seven key drivers, which underpin the four levers:

1. Technology, media and telecommunications (TMT) infrastructure development to enable universal access
2. Digital content creation to support greater engagement
3. Regulation reform and wholesale open access to promote competitive pricing
4. Public access to connect and assist the financially challenged
5. Active learning support to build digital literacy and skills
6. Awareness and usage campaigning to enhance enthusiasm for digital
7. Safe digital environment to ease security fears

The Digital Inclusion Framework also factors in the importance of the two main actors in digital inclusion – governments and the private sector. It offers recommendations for both, focusing on the content creation role of the private sector and leadership role of government.

We conclude that digital inclusion is a critical priority for countries across the world and that the private and public sector should strive to address it together. They must do so urgently to avoid falling further behind in the digital race.

PAGE

CONTENTS

4 **1 DIGITAL INCLUSION**

1.1 / The need for digital inclusion

1.2 / The digital divide

1.3 / Economic, social and governmental benefits

1.4 / Digital inclusion and COVID-19

7 **2 ROLAND BERGER'S DIGITAL INCLUSION INDEX**

2.1 / How the index works

2.2 / Key global findings

2.3 / Key SEA findings

14 **3 HOW TO IMPROVE DIGITAL INCLUSION**

3.1 / Drivers for digital inclusion

3.2 / Actors for digital inclusion

19 **CONCLUSION**

Act now, reap the rewards of digital inclusion later

20 Appendix

Cover photo Sean Kruger/Getty Images

1 / Digital inclusion

WHAT IT IS AND WHY IT MATTERS

Over the past decades, digital technology has permeated into every part of the economy and individuals' livelihoods, creating irreversible interdependencies and a need for people to participate in the digital space. Yet nearly half of the world's population is unable to tap into this key resource. Digital inclusion remains a particular problem in emerging regions, such as Southeast Asia.

1.1 THE NEED FOR DIGITAL INCLUSION

Digital inclusion is defined as the empowerment of individuals and societies to effectively use information and communication technologies (ICT), enabling them to contribute to and benefit from today's digitalized economies and societies. This includes having access to the internet and being able to harness digital tools.

Digital inclusion is critical to both personal income growth and macro-economic development. Digital skillsets improve an employee's competitiveness and wages, while at the macro-level, the digital sector is outpacing growth in other sectors. Therefore, emerging nations cannot afford to ignore the digital sector if they aspire to increase their share of global trade.

Digital inclusion is key to creating an equitable and sustainable digital society. However, there is a growing "digital divide" between the "haves and have nots" among and within some countries, such as those in Southeast Asia (SEA). This is detrimental to robust and sustainable digital development. Both public and private actors will need to advocate for the integration and unification of digital capabilities to overcome this divide.

1.2 THE DIGITAL DIVIDE

Socio-economically disadvantaged individuals and groups are most susceptible to digital exclusion. They include low-income households, rural communities, the elderly, the illiterate and persons with disabilities (PwD). On an enterprise level, micro, small and medium enterprises (MSMEs) are at greater risk than to larger businesses.

According to a UN report in October 2019, nearly half of the world's population remains excluded from the benefits of digitalization.[1] In Southeast Asia:

- 50% of the total population live in rural areas with a potential lack of internet access
- 10% of the adult population live below their national poverty line and are unlikely to be able to afford internet access and digital devices
- 5% of the adult population are illiterate and face difficulties using digital communication tools
- 7% of the total population are aged 65 or over and may not be familiar with new technologies

In total, an estimated 150 million adult individuals in SEA are currently digitally excluded, or about 31% of the adult population. Governments and wider society need to actively and urgently work together to close this divide.

1.3 ECONOMIC, SOCIAL AND GOVERNMENTAL BENEFITS

Digitalization, including the automation of factories (Industry 4.0), has upended the economy and dynamics of global industries, including in Southeast Asia. Digital skills and capabilities are now fundamental to successful participation in societal and economic activities. If the digital divide is left unaddressed, large parts of the population will miss out on the opportunities that digital technology presents.

The consequences of neglecting digital inclusion are twofold:

[1] United Nations, https://www.un.org/press/en/2019/gaef3523.doc.htm

1. Reduced economic growth due to the immobilization of a portion of the workforce
2. Weakening social cohesion as the digital divide grows

Working to address digital inclusion therefore brings immense upside and opportunities. It is estimated that at least USD 15 billion per year can be unlocked in SEA by bridging the digital divide. The impact can be measured across three areas: economic, social and governmental.

Economic impact: Wealth generation

Digital inclusion acts as an economic enabler. ICT tools and digital skills provide new opportunities to increase revenues, labor productivity and employment.[2]

Digitally included individuals and businesses have greater access to both local and global markets through online channels and digital transactions. For example, product and service offerings can be made available via online platforms, and data and software can improve the reach of marketing and customer relationship management (CRM) or make them better targeted.

Digital tools also increase labor productivity. They can add significant value in terms of efficiency and performance, and facilitate the ongoing transition towards a future where an estimated 50% of the workforce will be affected by digitalization such as automation. Studies predict that digital-related emerging professions will make up an increasing share of employment.

In Southeast Asia, Roland Berger projections suggest digital inclusion has the potential to unlock USD 16 to 307 per capita in new revenue streams from the technology, media and telecom (TMT) sector and financial services, as well as increasing labor productivity. This translates to USD 19 million to 2.9 billion depending on the country.

[2] World Economic Forum, The Future of Jobs Report 2018

Social impact: Leveling effect

Digital inclusion acts as a social equalizer. Communications, virtual content and devices can play an important role in ensuring equal access to education, diversity of opinion and consumer choice.

One of the main attractions of digital technology is its leveling effect. Digitally included individuals and communities can take advantage of a wealth of online resources and expand their knowledge sources, heightening social mobility through the development of new personal or professional skills. This in turn democratizes education and bridges the gap between social backgrounds. Digital platforms also enable individuals to access and share more varied experiences, reducing social isolation and increasing fulfilment and independence.

Governmental impact: Efficient services

Digital inclusion acts as a governance stabilizer. Increased civic outreach, coverage of citizens and access to public services aid the administration of good governance.

Those who are digitally included benefit from greater access to government services, and save time when using them. In addition, e-government services offer greater efficiency and reduced costs for governmental organizations.

The same applies to other public-sector services such as healthcare. Digital inclusion means more individuals can utilize digital platforms that optimize, automate and accelerate traditional healthcare processes, leading to increased efficiency and reduced healthcare spending.

Realized cost savings can then be used to benefit other under-invested segments. Roland Berger projections suggest digital inclusion in Southeast Asia has the potential to reduce government costs by USD 45 to 128 per capita. Depending on the country, this works out at USD 7 million to 3.3 billion of taxpayer savings per year.

1.4 DIGITAL INCLUSION AND COVID-19

The need for greater digital inclusion has become more apparent during the COVID-19 pandemic, with digital tools increasingly replacing physical interactions and transactions. For example, offices and schools have been shifted into the living room, and overnight, e-commerce has become a crucial retail channel. Today, digital inclusion is no longer merely a privilege but a necessity.

This has highlighted the inequalities between the digitally included and excluded. For example, excluded communities lack support and access to crucial updates regarding the COVID-19 situation, leaving them more vulnerable to misinformation and the disease itself. Daily life is further challenged by limited access to retail, education and even social interaction.

The pandemic also revealed digital transformation failings within businesses, especially MSMEs. Those caught unprepared were unable to execute effective business continuity plans or evolve their business models. This has culminated in significant revenue losses and, for many, bankruptcy. It could also lead to a severe unemployment crisis as skillsets fall behind the needs of future jobs.

The lesson from COVID-19 is that digital is the future. The pandemic has heightened the need to address digital skills and access mismatches, especially as the new normal will require a digital-ready society.

"Low-income and poorly educated populations are most heavily impacted and in need of aid during COVID-19. Many government programs to help them are deployed digitally due to COVID-19 but are unable to reach target populations, many of whom are digitally excluded."

Mya Moe Aung,
Member of Digital Economy Development Committee Myanmar,
on the importance of digital inclusion in the post-COVID new normal

2 / Roland Berger's Digital Inclusion Index

KEY FINDINGS, RANKINGS AND SEA COUNTRY ANALYSIS

Assessing levels of digital inclusiveness is key to addressing the expansion of digital services. But doing so is complicated. Digital inclusion is a result of a plethora of economic, social and governmental factors related directly and indirectly to the topic of digitalization. Roland Berger therefore developed an index to simplify the analysis of digital inclusiveness in countries in a cohesive and coherent manner.

2.1 HOW THE INDEX WORKS

Roland Berger's Digital Inclusion Index (RB DII) measures the level of digital inclusion in countries based on four key levers.

Each lever is weighted according to its level of importance, and split into two, three or four dimensions. These are further divided into indicators, with 52 in total. Each is scored out of 100, with a higher score representing greater digital inclusiveness. Data was compiled for 2020 and, retrospectively, for 2017, using sources such as government publications, established global databases (e.g. ITU, OVUM, UNESCO, UNDP) and survey results conducted by recognized global organizations (e.g. The Economist, World Economic Forum, GSMA). → A

1. **Accessibility:** The availability of digital access to an individual. Digital access is the most important requirement for digital inclusion.
2. **Affordability:** The financial capability to pay for digital access. As hardware and software is required for digital access, investments must be made to increase digital inclusion.
3. **Ability:** Digital literacy regarding the use and knowledge of ICT as part of digital readiness. Only by harnessing its tools can an individual be digitally included.
4. **Attitude:** The trust and enthusiasm to harness ICT. The complexity of digital tools can deter many from adopting them, necessitating a carefully thought-out approach to digital inclusion.

A: RB's Digital Inclusion Index

An assessment of digital accessibility, affordability, ability and attitude

ACCESSIBILITY (40%)	Usage (17%)	5 indicators on internet, mobile and fixed usage
	Quality (33%)	7 indicators on bandwidth, speed and latency
	Infrastructure (33%)	9 indicators on network coverage, WiFi, data centers and investment
	Policy on accessibility (17%)	4 indicators on government initiatives to broaden and deepen accessibility
AFFORDABILITY (30%)	Price (50%)	4 indicators on handset and tariff price
	Ownership (50%)	3 indicators on smartphone, PC and laptop possession
ABILITY (20%)	Education (70%)	5 indicators on education level, length and digital literacy
	Participation (30%)	4 indicators on digital commerce, e-participation and social media
ATTITUDE (10%)	Corporate enthusiasm (25%)	1 indicator on company technology adoption
	Trust and safety (50%)	7 indicators on trust, safety and relevant policy about online content
	Policy on attitude (25%)	3 indicators on government e-inclusion initiatives

Source: Roland Berger

To construct the index, we assessed 82 emerging and developed countries across seven regions, accounting for 90% of the global population and 93% of global GDP in 2019. Ultimately, it aims to support the development of informed policy and programs as well as boost business efforts towards greater digital inclusion.

2.2 KEY GLOBAL FINDINGS

Between 2017 and 2020, there was a clear global improvement in digital inclusiveness. All 82 countries in the index, except Sudan, saw an increase in their overall score, primarily driven by improvements in accessibility. A boost in affordability of ICT also strongly drove progress, as did the development of ICT infrastructure and tools. → B

Accessibility

Accessibility is fundamental to digital inclusion and the most improved countries are largely emerging countries that have made great strides in this area. The accessibility scores of Myanmar, Vietnam and Egypt, for example, jumped by 20, 16 and 13 points, respectively. This is due to significant infrastructure improvements in mobile data availability and coverage.

As well as infrastructure, usage is another key dimension of accessibility. Content that motivates users and engages and expands usage, such as social media, is an important factor. As the English language dominates online content, being used on 60% of all websites, it is no surprise that the populations of eight of the top 10 countries with the highest usage have strong proficiency in English. They are Denmark, Sweden, the Netherlands, Germany, the UAE, the UK, Estonia and the USA.

B: Index rankings

The top 10 countries and top 10 improvers of the 82 nations assessed

TOP 10 COUNTRIES

# 1	Singapore	–
# 2	Sweden	–
# 3	Denmark	+2
# 4	Netherlands	-1
# 5	United States	-1
# 6	Australia	–
# 7	South Korea	–
# 8	Qatar	+5
# 9	Canada	+5
# 10	United Kingdom	-2

TOP 10 IMPROVERS

# 55	Myanmar	+11
# 44	Vietnam	+10
# 50	Egypt	+8
# 14	UAE	+8
# 8	Qatar	+8
# 74	Zambia	+7
# 64	Pakistan	+7
# 57	Cambodia	+7
# 9	Canada	+7
# 37	Iran	+7

Source: Roland Berger

Developed countries have rapidly improved the quality of accessibility by rolling out cutting-edge 5G connectivity and full optical-fiber deployment. In 2019, operators in the UAE, Qatar and South Korea launched nationwide 5G mobile networks, ushering in a new age of high-speed coverage. As ICT further develops, quality digital access will become increasingly available.

Affordability

There is a strong correlation between affordability and economic development in the index. Countries with high GDP per capita have much higher levels of affordability. This is especially evident in Qatar, Australia and Sweden, the countries with the highest levels of affordability, where a mobile plan can cost less than 0.3% of the average monthly income.

Competition among mobile operators is a key affordability factor among the most improved countries. In Vietnam, Romania and Bangladesh, mobile penetration is still growing, and competition between rival telcos to win market share helps drive down prices. Overall, market competitiveness remains a prime mover in making digital costs more affordable.

Ability

Countries with strong ability scores have clear mandates on education and digital literacy. As with affordability, these countries tend to have a high socio-economic status and multiple support programs for building digital skills. Additionally, citizens tend to be proficient in English, the language of the web, giving them an edge when it comes to developing digital abilities. The top 10 countries are Japan, the USA, Australia, Sweden, the Netherlands, Denmark, Canada, South Korea, Singapore and the United Kingdom.

Underscoring the importance of education to digital ability, the most improved countries showed marked increases in levels of literacy, educational attainment and government support for digital literacy training.

Attitudes

Attitudes have changed dynamically across the world. Greater awareness of digital opportunities is pushing countries to further embrace digitalization. In particular, more digital-friendly policies and an increased sense of trust and online safety has led developing nations in sub-Saharan Africa, South America and Southeast Asia to become more enthusiastic about ICT.

Conversely, greater understanding has led to greater trust concerns in areas such as personal privacy. For example, despite having some of the best cybersecurity measures in the world, countries such as Singapore, Malaysia and France saw falls in their attitude scores.

2.3 KEY SEA FINDINGS

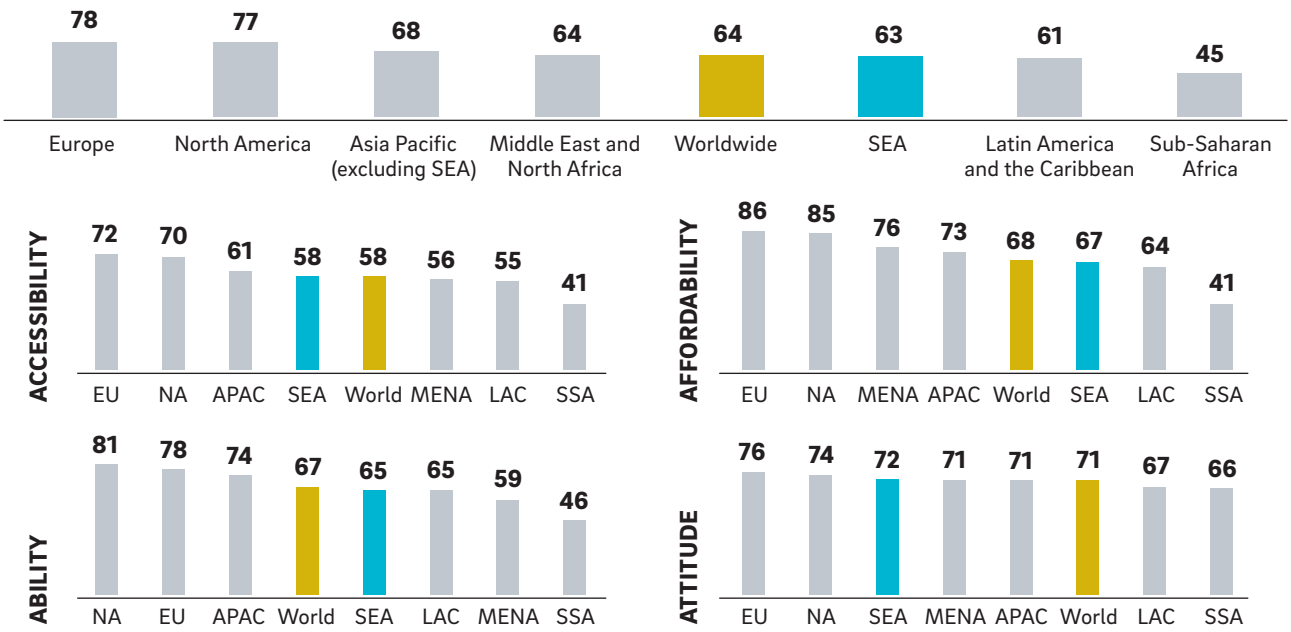
As an emerging region, it is unsurprising that SEA ranks only fifth of the seven global regions included in the index, and below the global average. Whereas many regions are pulled up by regional outliers, such as Australia, China and Japan in the rest of the Asia Pacific region, SEA's score is dragged down because seven of its 10 countries rank in the bottom half of the index. → C

SEA's lowly overall ranking can be explained by its poor scores in the affordability and ability levers. The cost of data and telephony, as well as ICT tools such as smartphones and computers, remains relatively expensive for the largely low-income populations of many of SEA's emerging nations. Similarly, levels of education and digital literacy in the emerging areas of SEA also lag behind the global average.

But SEA is stronger when it comes to accessibility and attitude, where its scores are at or above average. Recent infrastructure developments have supported greater smartphone use in the region, for example, and a young demographic has driven enthusiasm for technology and hunger for greater digitalization.

C: Regional scores

Overall ranking and breakdowns by region for each of the four levers [max. score = 100]



Source: RB index on GSMA, ITU, World Bank, UNESCO, UNDP, Euromonitor, Ookla

"Policy makers must understand the relationships between each lever and plan a holistic approach to improving overall digital inclusion, not just targeting specific areas."

Surina Shukri

CEO of Malaysia Digital Economy Corporation, on the interdependence of the four digital inclusion levers and the need for comprehensive intervention to drive improvement

D: SEA country rankings

Overall positions and scores for each of SEA's 10 countries [max. score = 100]

	Ranking			Overall Score			Accessibility			Affordability			Ability			Attitude		
	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change
Singapore	1	1	—	86	83	↑	86	80	↑	88	87	↑	84	83	↑	82	85	↓
Malaysia	21	21	—	76	71	↑	68	58	↑↑	81	78	↑	80	80	—	87	90	↓
Brunei	38	37	↓	65	63	↑	49	47	↑	86	84	↑	65	63	↑	69	68	↑
Thailand	38	40	↓	64	61	↑	64	55	↑	62	59	↑	60	68	↓	79	83	↓
Vietnam	44	49	↑	64	54	↑↑	61	45	↑↑	64	56	↑	61	63	↓	76	64	↑↑
Philippines	45	42	↓	63	59	↑	60	54	↑	59	56	↑	72	71	↑	67	68	↓
Indonesia	49	48	↓	61	55	↑	53	46	↑	60	57	↑	67	61	↑	81	71	↑↑
Myanmar	55	68	↑↑	53	42	↑↑	58	38	↑↑	53	48	↑	37	32	↑	66	63	↑
Cambodia	57	62	↑	52	45	↑	48	36	↑↑	58	55	↑	51	48	↑	50	45	↑
Laos	69	67	↓	46	43	↑	36	31	↑	54	51	↑	48	48	—	59	52	↑

Top performer | Bottom performer | ↑ Improved | — Unchanged | ↓ Degraded

Source: RB index on GSMA, ITU, World Bank, UNESCO, UNDP, Euromonitor, Ookla

In the following section we look at the individual performance of the 10 SEA countries. Overall, there has been a notable improvement in digital inclusion across the region since 2017. But rankings continue to be widely dispersed, with Singapore topping the overall rankings and Laos ranking a lowly 69th. This reflects the global situation, where there is wide disparity between the leading lights and digital stragglers. → D

Singapore

Singapore maintained its position as the global frontrunner in digital inclusiveness through multiple programs and policies that ensure digital access for the masses. Measures such as free public WiFi and financial assistance schemes for digital skills training have supported wider digital adoption and narrowed the digital divide.

The government has also recognized the importance of digital readiness as a key strategic tool and it aims to improve digital literacy even further. However, the rise of internet scams and concerns over personal data security have also generated greater apprehension. Despite the high level of digital literacy cultivated, attitudes towards digital advancement have become more conservative.

Malaysia

Malaysia has sustained its digital growth by boosting accessibility. Its MYR 22 billion (USD 5.4 billion) National Fiberization and Connectivity Plan (NFCP), and the roll-out of enhanced 4G connectivity by TMT companies, are expected to further increase this.

However, quality remains an issue. While the policy and infrastructure dimensions score well at 96 and 73, respectively, the broadband quality score is still very low at 45. This poor performance is a drag on its efforts for greater digital inclusion.

Brunei

Brunei's digital inclusiveness strength lies in its affordability. While the country's overall score is 65, its affordability score is significantly higher at 86. This is due to cheap mobile-broadband prices, which are priced to match benchmarks set by Singapore and Malaysia. Additionally, the National Broadband Policy, launched in 2014, has reversed early concerns about the affordability of fixed-broadband plans in the telco market, monopolized by Imagine.

Like Malaysia, network quality is one of the key dimensions lowering scores. Quality and infrastructure come in at 37 and 46, which is an underachievement for a developed, high GDP per capita country like Brunei.

Thailand

Thailand has made mixed progress in digital inclusiveness, with improvements in accessibility and affordability but declines in ability and attitude. The implementation of the country's five-year Digital Government Plan, and a 20% increase in capital investment in digital infrastructure per capita, has led to improvements in the nation's network quality and ICT ownership.

However, to improve its ability and attitude scores, the country needs to increase its support for digital literacy and policies designed to increase inclusivity.

Vietnam

Vietnam is the second-most improved country in the index. Bolstered by government plans for Industry 4.0, foreign investments and state-of-the-art 4G and 5G infrastructure, it has leapfrogged the Philippines and Indonesia in the rankings. This is reflected in big increases in its accessibility score, especially along the dimensions of quality, infrastructure and policy. These grew by 12, 21 and 24 points, respectively.

However, the country's lowered ability scores show it needs to pay more attention to developing digital literacy.

Philippines

Growth in the Philippines is mainly attributable to the introduction of new government plans to accelerate digital access. These include the ONE Philippines Act, new policies that drive TMT market competitiveness and initiatives under the National Broadband Strategy. Together, they have driven an overall improvement in scores.

Indonesia

Indonesia registered score increases across all four levers. The country's Broadband Plan improved its telecoms infrastructure, resulting in better accessibility. Increases in ability scores point to developments in the local e-commerce market that have driven digital participation. Additionally, efforts to strengthen the nation's cybersecurity defenses have improved the attitude score.

However, Indonesia's greatest challenge still lies in accessibility. Its island geography is a key obstacle to ICT infrastructure development, especially in rural areas of the nation, which account for 43% of the population.

Myanmar

Myanmar made the greatest overall improvement in digital inclusiveness of all index countries between 2017 and 2020. With the country in the early stages of TMT liberalization, its scores were boosted by significant increases in the accessibility dimensions of quality, infrastructure and policy, like Vietnam. These grew by 18, 29 and 24 points, respectively. This has led to Myanmar leapfrogging Cambodia and Laos in the rankings.

Given the impressive improvement in accessibility, affordability and attitude, Myanmar now needs to place greater emphasis on its lowest-scoring lever – ability.

Cambodia

Cambodia's efforts to expand digital inclusion are gradually bearing fruit. The developing nation's improvement in infrastructure and policy dimension scores were the main drivers behind its digital growth. It even conducted live trials of a 5G network in 2019, showing strong progress in infrastructure development.

Moving forward, educating the population about digital skills and access will be key to improving inclusion.

Laos

Laos is the lowest-ranked SEA country in the index. This is mainly due to weak development in digital infrastructure and policy. Due to its current state of progress, discussions about digital inclusion may be premature. Instead, focus should be placed on prioritizing regulatory reform and infrastructure investment, such as a national broadband strategy.

"Infrastructure is not everything. Ability and attitude are certainly the next steps in terms of teaching digital skills and changing user habits from offline to online."

TM Tuyen

Head of digital transformation strategy at Viettel, on looking beyond the infrastructure lever to drive digital inclusion

3 / How to improve digital inclusion

A FRAMEWORK FOR SUCCESS

Roland Berger has devised a framework to improve digital inclusion by targeting the four key levers. It aims to establish the fundamentals of increased accessibility and affordability, enhance ability by growing digital skills and develop an environment that improves attitudes. → E

The framework consists of seven drivers designed to help facilitate the levers. Responsibility for these is split across the two key actors in digital inclusion – the private sector and governments.

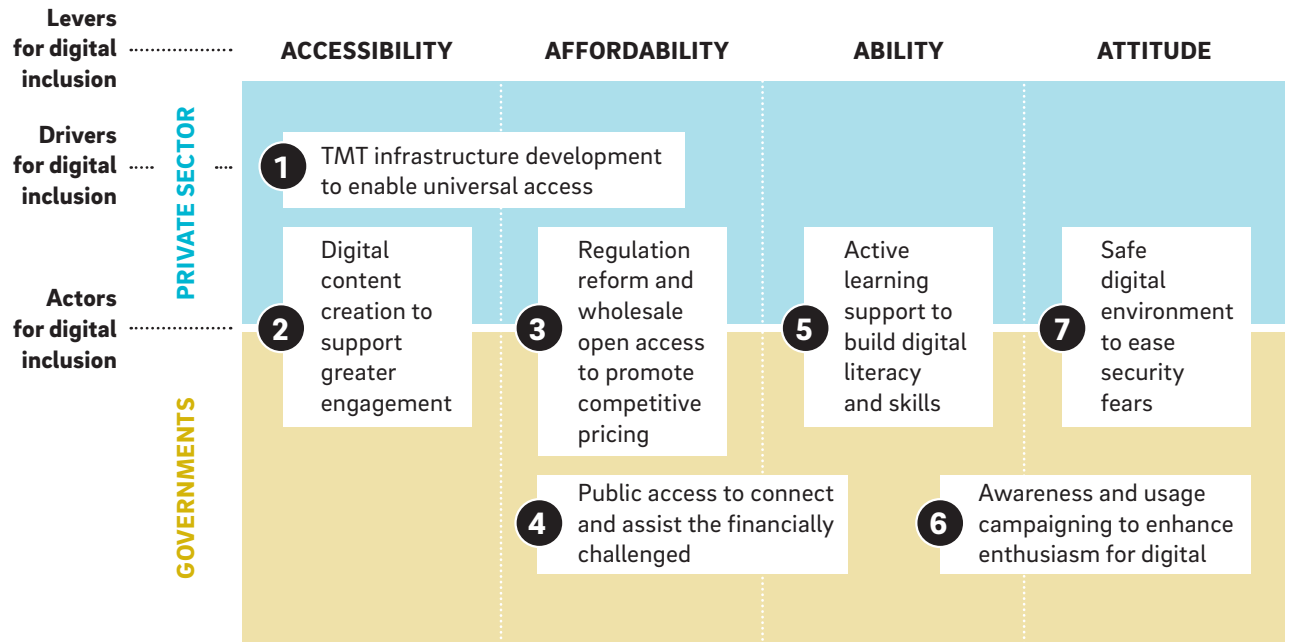
3.1 DRIVERS FOR DIGITAL INCLUSION

The drivers help facilitate either one or two levers within the framework. Here we look at all seven in detail and provide suggestions and examples for executing each.

TMT infrastructure development to enable universal access

Digital inclusion begins with the availability of internet access and ownership of a digital device. Increasing investments in and development of TMT infrastructure

E: Roland Berger's Digital Inclusion Framework
How the levers, drivers and actors interact



Source: Roland Berger

is a necessary first step, particularly in rural and underserved urban areas where digital connectivity is unavailable or unaffordable.

Countries have approached this using strategies such as national broadband plans or setting requirements for incumbent and new network operators. However, all approaches face the problem of conflicts with commercial interests, as infrastructure development is often capital intensive with relatively poor financial returns. Devising a sustainable investment model is therefore key, especially for SEA countries in the early stages of digitalization, such as Cambodia and Laos.

In addition, the building of telecommunication towers and lines may be challenging. This is a major problem for archipelagic nations like Indonesia and the Philippines, for example. New technologies, such as floating solar-powered networking rigs, can help here.

Digital content creation to support greater engagement

Establishing network accessibility is not enough to improve digital inclusion – relevant content must also be created to encourage user engagement.

Content covers a multitude of things – from social media to online services and applications to news and information. A robust user-focused content ecosystem is essential to drive traffic. This means generating material that is relevant and value adding to people's lives, for example, locally focused entertainment, weather and traffic updates, or government services such as tax forms.

Governments can encourage such content by updating policies and regulations for the digital age. For example, in banking/finance, new policies and modification of regulations are required to enable fintech players to roll out services such as e-payments or blockchain. In addition, governments can stimulate digital startups through programs such as digital clusters, funding and incubators.

Language also plays an important role. This is especially applicable to SEA countries, where English is not widely spoken. The low volume of content in local languages is a key barrier to digital inclusion. Artificial intelligence (AI) software can play a vital role here as it offers immediate and relatively high-quality translations of content at low cost.

Regulation reform and wholesale open access to promote competitive pricing

Encouraging competitive pricing can ensure digital inclusion is more affordable. For example, a pro-competition regulatory framework that incentivizes investments, innovation and ultimately greater digital inclusion can make broadband offerings more competitive. This could include policies such as:

- Strict licensing that defines the number and diversity of internet service providers to prevent the formation of oligopolies
- Spectrum reallocation, including pricing processes and rules around unlicensed spectrum
- Infrastructure sharing among network operators that leads to higher quality service and reduced retail prices

Wholesale open access networks (WOAN) may also be a viable solution in countries with low availability of connectivity, and in highly consolidated markets that require more substantive changes in their broadband market. WOANs offer more equitable and less costly access to backhaul infrastructure. Such policies can help improve rural networks that are less attractive to private investors.

Public access to connect and assist the financially challenged

Investing in public access diversifies broadband markets and expands connectivity in underserved areas that

are of little interest to commercial providers. This is executed by purchasing bulk wholesale data connections from providers and channeling the capacity to users at very low, or no, cost.

Requisite policies and facilities are key to making this happen. Policies that prioritize the underserved groups are essential, while free WiFi hotspots or computers in public spaces such as transport interchanges, post offices, libraries and community centers are fundamental facilities for improving connectivity. These must go hand in hand with digital skills training.

Public access has been an integral part of many national digital strategies for decades and its value is still as important today for achieving universal access, especially in bridging the digital divide for communities frequently underserved by the private market.

Active learning support to build digital literacy and skills

Empowering the digitally excluded to use digital services is highly important for sustained digital inclusion. But adoption can be intimidating for new users, highlighting the need for programs that actively support the building of digital literacy, skills and confidence.

There are two critical areas to prioritize. First, digital education needs to be added to national curriculums from an early age, and second, there should be programs that empower existing workforces, particularly within traditional industries, to upskill so they can continue to be relevant in an increasingly digital economy.

Digital literacy and skills development can come in many forms. In India for example, the START program is a 45-hour digital learning curriculum that uses hands-on activities and games to teach first-generation users. Also, the UK's Online Centers Network program provides a flexible platform to develop essential digital skills for the local job market through one-to-one mentorship and open-ended learning.

There are four main components to creating the right learning conditions:

1. Funding and application – how much will it cost to deliver a single program?
2. Delivery – what different styles of support and learning do students need?
3. Reporting – how can learner outcomes be audited to measure performance?
4. Progression – what conditions most effectively support learners to remain digitally included in the long term?

Ensuring that programs account for technological changes, are flexible to meet a diversity of needs and empathize with learner challenges will be keys to success.

Awareness and usage campaigning to enhance enthusiasm for digital

A digitally inclusive society embraces technology through enthusiasm for digital tools and services. As such, developing campaigns that promote awareness and usage of ICTs is a useful driver to promote digital inclusion.

Campaigns are not simply about creating awareness of digital's applications and benefits. They help people build digital confidence in areas such as:

- Understanding and applying basic cybersecurity knowledge, for example, recognizing fake news and cybercriminal activity
- Appreciating the convenience and benefits of digital services such as e-commerce, mobile money and internet banking
- Registering personal information for accessing online services such as e-government services
- Managing of information and communication such as search engines, social media and collaboration tools like e-mail and chat applications.

Various forms of outreach via traditional marketing strategies and community engagement programs tailored to different communities can be used to engage and enthuse audiences, as well as new technologies such as augmented and virtual reality, smart systems and the Internet of Things (IoT).

Safe digital environment to ease security fears

Fear is a major hurdle in ensuring long-term digital inclusion. The proliferation of cybercrime and fake news discourages those who feel unprepared and unprotected when it comes to engaging with the digital world. Thus, building a safe digital environment is integral for achieving greater digital inclusion.

A safe digital environment has four hallmarks:

1. A resilient cybersecurity framework
2. A robust legislative structure
3. An active cybersecurity unit
4. Committed international partnerships

A resilient cybersecurity framework directly creates protection mechanisms within digital environments. Through robust and systematic cyber risk management processes, digital space can better withstand cyberattacks and recover more quickly after a disruption.

A strong legislative structure equips regulators with the necessary powers to address the growing sophistication of threats and create a safe online environment. Instruments such as a Cybersecurity Act provide frameworks for the preventing, managing and governing cyber incidents.

A highly skilled cybersecurity unit and a swift action plan that combats cybercrime with speed and scale is vital for administering criminal justice efficiently. Having such capabilities provides a greater sense of security for users.

International partnerships are crucial as cybersecurity is a global issue. Disruption to one country can have significant spillover effect on others, such as on inter-dependent services and financial markets. Therefore, collaboration and cooperation through international partnerships is vital.

3.2 ACTORS FOR DIGITAL INCLUSION

Achieving greater digital inclusion requires multiple parties to play their part. In particular, strong involvement of and collaboration between the private sector and governments are required to support the four key levers.

"Governments must play a key role in identifying needs and those which lack resources, and they must enable funding – or help direct funds to where resources are needed."

Jaidee Thanasorn
President of True Digital Park, on governments' role in identifying and investing in digital inclusion

The private sector is a key supplier of digital content and services

Whether with network providers, e-commerce retailers, digital banking services or social media, the majority of end-user engagement involves commercial players. The private sector therefore needs to play its part in offering services that are viable and secure for underserved markets if digital inclusion is to be enhanced.

Public-private partnerships play an important role in several of the proposed drivers, especially #2, #3, #5 and #7. These initiatives are usually government sponsored but involve the use of private sector resources to facilitate the provision of services to the public. They have two main benefits:

1. They enable governments to harness the private sector's expertise, efficiencies and network infrastructure
2. They reduce the cost of delivering services as resources are shared between the partners

Startups, in particular, can make a difference as they aim to improve or disrupt inefficient market models by democratizing digital content and tools. Apps from service startups such as Grab and Deliveroo demonstrate their ability to promote digital inclusion by integrating individual service providers and SMEs into their platform, thus expanding digital inclusion.

Governments must take a leadership role

Expanding digital inclusion often requires governments to take the role of chief initiator. A highly complex level of coordination across ministries, departments and subsidiaries needs to be carefully managed as digital initiatives involve multiple facets, from land development, community development, education and manpower development to economic development.

To address this, some countries have set up a national agency to oversee overall project management. This could be in the form of a digital inclusion council. Over time, as digital inclusion grows, the purpose of this council may evolve into achieving loftier goals such as digital readiness or Smart Nation.

Governments can also take the lead in driving digital inclusiveness. A popular strategy is to do this through e-government programs, in which government services are digitalized. By exposing the population to digital interactions as a byproduct of consuming government services, e-government can build greater accessibility, ability and attitude. Examples of countries with strong e-government programs include Singapore, Sweden and Estonia.

"Major shifts in mindset, investments and approach are required to drive digital inclusion. Governments, as first movers, need to take the big step to drive that shift."

Dr. Veera Veerakool
Vice-President of Digital Council of Thailand, on how governments need to take the lead in the drive towards developing digital inclusion

Conclusion

Act now, reap the rewards of digital inclusion later.

The benefits digital inclusion bring to a nation should not be underestimated. Its potential economic, social and governmental contributions are massive, as highlighted by the differences in status and development of the SEA countries in Roland Berger's Digital Inclusion Index.
As such, digital inclusion is a critical priority for countries across the world today. Bridging the digital divide is a massive undertaking, but it is also achievable, as our framework demonstrates. Success will require collaborative action from the community at large, especially between the private sector and governments. Taking lessons from advanced economies, this should be initiated sooner rather than later. But once accomplished, societies will uncover new potential that can propel them to greater heights in the future.

APPENDIX

GROUPS AT RISK OF DIGITAL EXCLUSION

Low-income households (LIHs)
Individuals from LIHs are at risk because constraints on disposable income reduce their ability to spend on ICT and therefore get digital access. Sizable population groups in SEA live below the national poverty line, making them even more susceptible to digital exclusion. Addressing income levels in both groups could increase digital inclusion within a country significantly.

Rural communities
Much of SEA is still underdeveloped and rural populations are large. Although digital coverage reaches many rural areas, their geography and population density sometimes make it economically unviable for telecommunication companies to set up the necessary infrastructure for digital connections. Without coverage or suitable network connectivity quality, they risk being excluded.

Elderly
The adoption of new technology is difficult for the elderly due to the challenges of learning at an advanced age. Here, this group is defined as individuals aged 65 and above. While enabling the elderly may not be relevant to the labor force, their adoption of digital could greatly reduce the demand for offline services in sectors such as healthcare or retail. In most countries, the largest group of non-ICT users is the elderly.

Illiterate
Literacy, defined as individuals aged 15 and above who cannot read or write a simple statement, is a significant barrier to using digital platforms. As most digital platforms' primary means of communication is through the written word, the inability to read severely inhibits usage.

Persons with disabilities (PwDs)
There is a wide spectrum of ability among PwDs, ranging from physical to mental limitations and high to low functioning. It is the low-functioning PwDs with learning or mental disabilities who are at greatest risk of digital exclusion. Similar to illiterate people and the elderly, they struggle to adopt ICT. Though their population size is the smallest, they should not be overlooked.

Micro, small and medium enterprises
Most businesses recognize the need for digital transformation, and many are investing heavily in data and analytics. However, as most MSMEs do not have the same investment capabilities as larger firms, they tend to lose out in accessing the modern data tools needed to thrive in the new digital economy. This divide gives larger companies such an advantage that they push small businesses out of the market.

ROLAND BERGER DIGITAL INCLUSION INDEX OVERVIEW: HOW THE 82 COUNTRIES SCORED IN 2020 AND 2017 [MAX. SCORE = 100]

	Ranking			Overall Score			Accessibility			Affordability			Ability			Attitude		
	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change
Singapore	1	1	–	86	83	↑	86	80	↑	88	87	↑	84	83	↑	82	85	↓
Sweden	2	2	–	85	80	↑	76	68	↑	96	93	↑	86	84	↑	85	84	↑
Denmark	3	5	↑	85	79	↑	80	71	↑	94	94	–	84	77	↑	81	66	↑↑
Netherlands	4	3	↓	84	79	↑	79	70	↑↑	92	89	↑	86	85	↑	79	76	↑
United States	5	4	↓	84	79	↑	77	68	↑	95	92	↑	88	86	↑	73	73	–
Australia	6	6	–	84	78	↑	78	67	↑↑	96	92	↑	86	83	↑	72	66	↑
South Korea	7	7	–	84	78	↑	82	70	↑	87	86	↑	84	80	↑	80	78	↑
Qatar	8	13	↑	83	75	↑	75	63	↑↑	98	95	↑	73	67	↑	85	84	↑
Canada	9	14	↑	82	75	↑	77	67	↑↑	90	87	↑	84	78	↑	74	70	↑
United Kingdom	10	8	↓	81	77	↑	75	68	↑	91	89	↑	82	81	↑	76	74	↑

↑ Improved – Unchanged ↓ Degraded

Source: Roland Berger

APPENDIX

	Ranking			Overall Score			Accessibility			Affordability			Ability			Attitude		
	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change
Estonia	11	15	↑	81	75	↑	77	66	↑↑	88	85	↑	78	77	↑	83	74	↑
Germany	12	11	↓	81	76	↑	74	65	↑	90	88	↑	81	79	↑	83	79	↑
Japan	13	12	↓	81	76	↑	73	67	↑	88	84	↑	88	81	↑	77	75	↑
UAE	14	19	↑	81	73	↑	74	61	↑↑	94	90	↑	79	73	↑	72	75	↓
Austria	15	10	↓	81	76	↑	74	65	↑	91	89	↑	78	78	–	84	81	↑
Belgium	16	9	↓	80	77	↑	69	65	↑	93	91	↑	80	79	↑	83	81	↑
Spain	17	16	↓	79	74	↑	75	65	↑↑	84	82	↑	77	76	↑	80	79	↑
France	18	18	–	78	73	↑	76	64	↑↑	88	84	↑	72	72	–	74	82	↑
Ireland	19	17	↓	77	74	↑	66	57	↑	95	91	↑	77	83	↓	73	69	↑
Poland	20	20	–	77	72	↑	68	60	↑	86	81	↑	79	78	↑	76	77	↓
Malaysia	21	21	–	76	71	↑	68	58		81	78	↑	80	80	–	87	90	↓
Romania	22	23	↑	76	70	↑	71	63	↑	85	78	↑	75	71	↑	72	70	↑
Portugal	23	22	↓	75	71	↑	66	60	↑	84	82	↑	75	74	↑	81	80	↑
Oman	24	25	↑	75	69	↑	68	59	↑	86	82	↑	66	65	↑	81	77	↑
Saudi Arabia	25	29	↑	74	67	↑	66	57	↑	85	79	↑	69	69	–	82	72	↑↑
Italy	26	26	–	73	68	↑	68	60	↑	80	76	↑	75	74	↑	69	67	↑
Chile	27	24	↓	73	70	↑	68	61	↑	80	78	↑	68	69	↓	80	81	↓
Bulgaria	28	34	↑	73	66	↑	72	63	↑	73	71	↑	73	67	↑	73	67	↑
Kazakhstan	29	27	↓	72	68	↑	64	56	↑	82	78	↑	75	75	–	72	70	↑
Kuwait	30	32	↑	72	67	↑	66	56	↑↑	91	87	↑	57	61	↓	66	58	↑
Russia	31	31	–	72	67	↑	64	59	↑	82	80	↑	77	66	↑↑	62	66	↓
China	32	33	↑	72	67	↑	63	53	↑↑	76	75	↑	75	73	↑	84	83	↑
Greece	33	36	↑	71	65	↑	66	56	↑↑	81	78	↑	72	62	↑↑	61	65	↓
Hungary	34	28	↓	71	68	↑	69	63	↑	77	73	↑	65	65	–	71	72	↓
Argentina	35	30	↓	70	67	↑	63	58	↑	78	75	↑	72	71	↑	73	73	–
Turkey	36	35	↓	70	65	↑	65	57	↑	75	72	↑	71	67	↑	72	71	↑
Iran	37	41	↑	66	59	↑	60	48	↑↑	77	72	↑	57	59	↓	72	70	↑
Brunei	38	37	↓	65	63	↑	49	47	↑	86	84	↑	65	63	↑	69	68	↑
Mexico	39	39	–	65	62	↑	55	48	↑	70	66	↑	73	73	–	77	83	↓
South Africa	40	44	↑	65	59	↑	62	54	↑	63	60	↑	64	60	↑	83	77	↑
Brazil	41	43	↑	64	59	↑	59	54	↑↑	69	67	↑	59	59	–	80	59	↑↑
Thailand	42	40	↓	64	61	↑	64	55	↑	62	59	↑	60	68	↓	79	83	↓
Colombia	43	38	↓	64	62	↑	58	57	↑	65	63	↑	69	63	↑	73	81	↓
Vietnam	44	49	↑	64	54	↑↑	61	45	↑↑	64	56	↑	61	63	↓	76	64	↑↑
Philippines	45	42	↓	63	59	↑	60	54	↑	59	56	↑	72	71	↑	67	68	↓
India	46	45	↓	62	57	↑	56	50	↑	60	57	↑	67	59	↑	82	83	↓

Source: Roland Berger

↑ Improved – Unchanged ↓ Degraded

APPENDIX

	Ranking			Overall Score			Accessibility			Affordability			Ability			Attitude		
	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change	2020	2017	Change
Peru	47	47	–	61	56	↑	57	47	↑↑	64	62	↑	61	58	↑	71	73	↓
Morocco	48	46	↓	61	57	↑	55	49	↑	72	67	↑	56	58	↓	58	59	↓
Indonesia	49	48	↓	61	55	↑	53	46	↑	60	57	↑	67	61	↑	81	71	↑↑
Egypt	50	52	↑	60	52	↑	50	37	↑↑	69	64	↑	56	56	–	76	65	↑↑
Sri Lanka	51	50	↓	57	53	↑	46	40	↑	60	57	↑	72	66	↑	59	63	↓
Bangladesh	52	53	↑	56	52	↑	52	48	↑	56	50	↑	59	54	↑	64	69	↓
Kenya	53	51	↓	55	52	↑	54	50	↑	52	49	↑	53	52	↑	70	75	↓
Guatemala	54	54	–	53	50	↑	48	41	↑	59	56	↑	55	54	↑	54	61	↓
Myanmar	55	68	↑↑	53	42	↑↑	58	38	↑↑	53	48	↑	37	32	↑	66	63	↑
Ghana	56	55	↓	52	50	↑	42	41	↑	59	55	↑	53	52	↑	73	69	↑
Cambodia	57	62	↑	52	45	↑	48	36	↑↑	58	55	↑	51	48	↑	50	45	↑
El Salvador	58	56	↓	52	48	↑	48	41	↑	54	53	↑	57	51	↑	50	55	↓
Jamaica	59	60	↑	52	46	↑	53	40	↑↑	40	40	–	61	57	↑	64	60	↑
Mongolia	60	57	↓	52	48	↑	54	47	↑	39	40	↓	65	60	↑	53	49	↑
Algeria	61	58	↓	51	46	↑	42	34	↑	66	62	↑	45	44	↑	59	48	↑↑
Uganda	62	64	↑	50	45	↑	47	43	↑	42	36	↑	53	50	↑	76	65	↑↑
Nigeria	63	59	↓	49	46	↑	45	38	↑	53	51	↑	39	44	↓	77	66	↑↑
Pakistan	64	69	↑	49	42	↑	41	30	↑	54	52	↑	43	36	↑	74	67	↑
Botswana	65	63	↓	48	45	↑	46	44	↑	43	38	↑	53	53	–	67	56	↑↑
Uzbekistan	66	66	–	47	44	↑	41	33	↑	55	51	↑	49	56	↓	49	44	↑
Venezuela	67	61	↓	47	46	↑	36	36	–	54	52	↑	52	51	↑	59	52	↑
Senegal	68	70	↑	46	41	↑	45	37	↑	37	34	↑	47	42	↑	78	71	↑
Laos	69	67	↓	46	43	↑	36	31	↑	54	51	↑	48	48	–	59	52	↑
Tanzania	70	65	↓	46	44	↑	39	36	↑	45	45	–	46	50	↓	73	65	↑
Cameroon	71	71	–	45	40	↑	34	28	↑	56	53	↑	46	43	↑	54	44	↑↑
Rwanda	72	72	–	45	40	↑	50	42	↑	22	24	↓	49	46	↑	81	68	↑↑
Namibia	73	73	–	42	39	↑	37	34	↑	40	41	↓	52	43	↑	52	43	↑
Zambia	74	75	↑	42	35	↑	39	28	↑↑	35	32	↑	50	40	↑↑	63	57	↑
Ethiopia	75	76	↑	39	33	↑	30	24	↑	41	36	↑	43	39	↑	63	48	↑↑
Côte d'Ivoire	76	74	↓	38	35	↑	40	36	↑	45	44	↑	21	18	↑	43	39	↑
Mozambique	77	77	–	37	31	↑	37	24	↑↑	32	34	↓	34	27	↑	59	59	–
Madagascar	78	81	↑	34	28	↑	35	29	↑	18	17	↑	44	35	↑	55	47	↑
Malawi	79	79	–	33	29	↑	36	27	↑	21	21	–	30	33	↓	60	56	↑
Burkina Faso	80	80	–	30	28	↑	28	25	↑	25	27	↓	34	32	↑	48	38	↑↑
Sudan	81	78	↓	28	30	↓	20	25	↓	38	35	↑	24	24	–	39	41	↓
Liberia	82	82	–	27	22	↑	33	27	↑	12	6	↑	28	21	↑	47	55	↓

Source: Roland Berger

↑ Improved – Unchanged ↓ Degraded

CREDITS AND COPYRIGHT

AUTHORS

JOHN LOW
Co-Managing Partner, SEA
+60 3 2203 – 8634
john.low@rolandberger.com

DAMIEN DUJACQUIER
Co-Managing Partner, SEA
+65 9487 4854
damien.dujacquier@rolandberger.com

SULINA KAUR
Principal
+603 2203 8617
sulina.kaur@rolandberger.com

The authors would like to thank
Chua Thian Rui, Daniel Lim and He Wanxin
for their contribution to this study.

We welcome your questions,
comments and suggestions

WWW.ROLANDBERGER.COM

01.2021

This publication has been prepared for general guidance only. The reader should not act according to any information provided in this publication without receiving specific professional advice. Roland Berger GmbH shall not be liable for any damages resulting from any use of the information contained in the publication.

© 2021 ROLAND BERGER GMBH. ALL RIGHTS RESERVED.

ROLAND BERGER, founded in 1967, is the only leading global consultancy of German heritage and European origin. With 2,400 employees working from 35 countries, we have successful operations in all major international markets. Our 52 offices are located in the key global business hubs. The consultancy is an independent partnership owned exclusively by 250 Partners.

PUBLISHER:
ROLAND BERGER GMBH
Sederanger 1
80538 Munich
Germany
+49 89 9230-0

RB_PUB_20_033