Working Group Report
Digital Entrepreneurship

September 2018

BROADBAND COMMISSION
FOR SUSTAINABLE DEVELOPMENT

Working Group on Digital Entrepreneurship

United Nations Broadband Commission for Sustainable Development

The United Nations Broadband Commission for Sustainable Development. Kigali, Rwanda. 07 May 2018

Disclaimer

Working Group chaired by the European Union

Developed in collaboration with

the**Lisbon**council
think tank for the 21st century

TABLE OF CONTENTS

ROADMAP:
An Action Plan for Digital Entrepreneurship

In January 2018, the United Nations Broadband Commission for Sustainable Development set ambitious digital-development targets for "connecting the other half" by 2025. We believe this is a good moment to endorse and re-commit to those targets, to add additional, more granular commitments and to form a concrete roadmap for getting there. The following nine-point action plan does just that. It puts forward several targets and recommendations; and it adds important and compelling details to help ambitious governments, well-intended civil society and dedicated citizens to get there. The nine targets we set should stretch and guide us.

1. Connect. By 2025, governments of the world should have successfully delivered on the UN Broadband Commission for Sustainable Development connectivity targets: a 75% penetration rate worldwide; 65% in developing countries; 35% in Least Developed Countries (LDCs). Affordable entry-level broadband services should be available in developing countries at a cost of less than 2% of monthly gross national income (GNI) per capita by that date. **By 2020**, the Working Group on Digital Entrepreneurship believes countries may wish to consider providing high-speed Internet to schools and startup hubs and bringing down the cost of cross-border mobile communications and reducing data roaming charges.

2. Skill Up. By 2025, 60% of youth and adults should have achieved at least a minimum level of proficiency in sustainable digital skills. **By 2020**, all countries should have actionable, well-resourced programmes for reaching citizens who need training, including powerful, effective and well-resourced coalitions for skills and jobs.

3. Build a Supportive Policy Environment for Digital Development. By 2025, governments may wish to reconsider all barriers that raise costs for digital entrepreneurs. Although the barriers differ from one country to another depending on various factors including the maturity of the market, the overall ecosystem and whether the country is developed or developing, some examples could include excessive or unjustified data localisation restrictions and targeted taxation of digital services and equipment.

4. Deliver Equal Opportunities. The UN Broadband Commission calls for gender equality to be achieved across all targets **by 2025**. **By 2020**, stakeholders should have provided the practical and political basis for this transition, including access to more programmes promoting science, technology, engineering and mathematics (STEM) education and advanced business skills among girls and women.

5. Make the Administrative Transactions of Running a Business Fully Digital. By 2025, public administrations may wish to consider making it possible to register a company online within a week for a cost of less than 5% of per capita income and providing digital services covering the full lifecycle of running a business.

6. Adopt and Propagate Electronic Identities and Signatures. By 2025, subject to national circumstances, governments and service providers may wish to consider recognising electronic identities and signatures from other countries and private-identity providers and have in place national programmes for the use of local and cross border electronic identification in national and intra-national commerce.

7. Fund Knowledge and Innovation. By 2023, the African Union and others may wish to consider delivering on commitments to raise public funding of research and innovation in developing countries to at least 1% of annual gross domestic product.

8. Harmonise Cross-Country Rules for Healthy, High-Volume Regional Trading Relationships. By 2025, governments may wish to consider harmonising rules across countries to allow more border-free commerce, including online. Regional trading blocs should be accelerated and encouraged, further opening markets and avoiding building new barriers on a global level.

9. Develop Digitally. By 2020, donors and developing countries commit to new development assistance targets in support of broader national agendas and digital entrepreneurship – and deliver on them **by 2025**.

Letter from the Chair
Digital Entrepreneurship: Then and Now

His Excellency Paul Kagame
President, Rwanda
Co-Chair, United Nations Broadband
Commission for Sustainable
Development

The Honourable Carlos Slim Helú
President, Carlos Slim Foundation
Co-Chair, United Nations Broadband
Commission for Sustainable
Development

Dear friends,
My five-year term as vice-president
of the European Commission has
taught me something very important:
digital development is not just about
technology. It is also about overturning
and recreating business models.

Startups are known for accelerating
creative disruption, breaking new ground
with novel approaches and products.
Digitalisation has also given traditional
small- and medium-sized enterprises
(SMEs) new ways of doing business – at a
distance, with more customers, and with
lower barriers to entry and costs in many
sectors.

I believe a thriving landscape of digital
entrepreneurship is essential for
meeting the 2025 targets set by the
United Nations Broadband Commission
for Sustainable Development for
"connecting the other half." New
business models and services will be
needed to drive demand for faster
connections, including fifth generation
broadband mobile networks (5G). Micro-,
small- and medium-sized businesses, or
MSMEs as they are described throughout
this report, can use e-commerce and
digital tools to help nations to achieve
the connectivity targets, expanding the
market for business services aimed at
MSMEs. MSMEs and startups are among
the major users of digital financial
services. This, in turn, encourages

customers towards higher rates of
take-up. And digital technology allows
female entrepreneurs to manage and
own a higher proportion of online-only
businesses in developing countries.

Digital entrepreneurship is also needed
to make progress on the 17 Sustainable
Development Goals, agreed by 193
nations at the United Nations in 2015.
The success of mobile payments in
Africa, for example, has contributed
to financial inclusion across the
continent. The delivery of medicines
by drones, pioneered in Africa, has
made urgent medical care available to
isolated and rural communities. Digital
entrepreneurship can also stimulate
regional integration, with many startups
looking to grow by developing markets
in neighbouring countries and drawing
from international talent pools.

For developing countries in particular, it
is essential – and urgent – to promote
digital entrepreneurship, to build and
scale new businesses based on the
technologies of the fourth industrial
revolution.

To achieve this, however, represents a
formidable challenge. Despite progress
in many places, the most active
innovation ecosystem and investments
are concentrated in Silicon Valley, a few
East Asian cities and a handful of wealthy
countries.

In addition, automation threatens to
remove several rungs of development
that would otherwise have supported the
transition to middle- and high-income
economies. Automated and additive
manufacturing are reducing labour costs
and causing many manufacturing tasks
to return to wealthier countries.

And the digital divide remains large
to begin with. In Europe, more than

84.2% of households are equipped with Internet access, according to State of the Broadband 2017, the flagship publication of the UN Broadband Commission for Sustainable Development. In Africa, household internet penetration is 18.0%. When it comes to mobile broadband, Asia leads the way. Of the world's 4.2 billion mobile broadband subscribers, 52% are in Asia. In Africa, it is barely 6%.

In view of these factors, I initiated a Working Group on Digital Entrepreneurship at the UN Broadband Commission for Sustainable Development. Its aim is to produce policy recommendations for all parties involved – governments, businesses, civil society and donor organisations – and to set digital entrepreneurship as a priority for developing countries with recommendations and targets in four main areas: 1) digital infrastructure and macroeconomic fundamentals (connectivity, skills, regulatory openness, adoption of information and communications technologies [ICT] and Internet by women and girls; 2) policy support for digital entrepreneurship (e-government, funding and innovation ecosystems); 3) stronger e-commerce (online payments, regulatory measures and cross-border parcel delivery); and 4) governance of regional and global digital markets (including development aid assistance).

The resulting report is a collective work, the outcome of many fascinating conversations, including a productive meeting in Kigali, Rwanda in the margins of the UN Broadband Commission for Sustainable Development's Annual Spring Meeting. The study is an effort to reach for and forge consensus in key areas. Members of the Working Group on Digital Entrepreneurship have contributed many useful ideas, reflecting a broad

array of experiences and perspectives. The effort throughout has been to find points of broad consensus, using the forum and format to drive forward powerful messages – and actionable recommendations that could facilitate real change and genuine improvement in peoples' lives. You will find the roadmap on page 5.

A very special thanks to the members of the Working Group, who agreed to share so much time and wisdom. You will find a list of those members on page 54. Thanks as well to friends and colleagues at the European Commission – whose support and strategic advice were crucial to the project – and to Paul Hofheinz, Luukas K. Ilves, Katarzyna Jakimowicz, Stéphanie Lepczynski, Saumya Malhotra and David Osimo of the Lisbon Council, a Brussels-based think tank, which served as the project secretariat. An exceptional thanks as well to Konstantinos Anastasopoulos, Barbara Barone, Phillippa Biggs, Paolo Ciccarelli, Lars-Erik Forsberg, Hanna Hinrikus, Tonnie de Koster, Vivian Loonela, Tim Lyon, Anna Polomska, Axel Pougin de la Maisonneuve and Daniel Spoiala.

We hope this study will serve as a useful point of reflection and a catalyst for action.

Andrus Ansip

Andrus Ansip
Vice-President, European Commission

Commissioner, United Nations Broadband Commission for Sustainable Development

Chair, Working Group on Digital Entrepreneurship

Digital Entrepreneurship and the Sustainable Development Goals

1

Digital Entrepreneurship and the Sustainable Development Goals

The digital revolution has changed everything. But it has changed few things more than it has changed the way the world does business.[1]

Today, the most valuable companies in the world all grew out of small startups founded in the last few decades.[2] Entrepreneurs in every area and at every level of business have rewritten the rulebook on how to build products, reach customers and create new markets.[3] And we are only at the beginning. Some sectors have already experienced profound economic disruption. But new technologies will eventually spur on greater changes in every sector, reaching all corners of the globe, bringing opportunity to some, disruption to others, but always engendering change in their wake – changes in the way people do business; changes in the type and quality of information to which they have access; changes even in the fundamental economic relationships that lie at the core of trade and labour-market practices as we know them.

This report examines the potential that digital entrepreneurship has to dramatically improve lives in developing countries, and to help those countries make progress on the United Nations Sustainable Development Goals, the 17 global objectives (and 169 targets) agreed by the United Nations' 193 member states and the international community in 2015.[4] We find that innovative new products and services in areas like health, energy and education can put business models behind the practical, every-day innovation that helps citizens all over the world live healthier, wealthier, longer and more peaceful lives.

Digital entrepreneurship does not have a strict definition. In this report, we use the term to refer to several, inter-related phenomena. Micro-, small- and medium-sized enterprises (MSMEs) sit at the core of this vision – along with startups, whose lack of legacy and vivid imaginations often make them highly effective innovators. But they're not the only ones; many already successful companies are also changing their way of doing business, looking to develop more and better services based on the dramatic leaps that digital technology can provide. To be sure, startups play an important role in the process of creative disruption, challenging many traditional ways of doing business and product categories with new approaches and products. But these days MSMEs also have unprecedented access to new ways of doing business – they can work at a distance, with many more customers, lower barriers to entry, reduced costs and easier access to a wide range of new sectors.[5] Many far-sighted incumbents are getting in on the act, too, competing directly with MSMEs and startups, but also acquiring, funding and partnering with them in new ways.

At the end of the day, digital entrepreneurship opens opportunities, and beyond its evident importance in advanced economies, it remains an equally urgent imperative for developing

1   For an excellent overview, see World Bank, *World Development Report 2016: Digital Dividends* (Washington: World Bank, 2016).

2   Alan Murray, "Introducing the New Fortune 500 List," *Fortune*, 21 May 2018.

3   Richard Dobbs, James Manyika and Jonathan Woetzel, *No Ordinary Disruption: The Four Global Forces Breaking All the Trends* (New York: Public Affairs, 2015).

4   The 17 Sustainable Development Goals replaced the eight Millennium Development Goals in 2015. For more information, visit https://www.un.org/sustainabledevelopment/sustainable-development-goals/

5   Ann Mettler and Anthony D. Williams, *The Rise of the Micro-Multinational: How Freelancers and Technology-Savvy Startups are Driving Growth, Jobs and Innovation* (Brussels: The Lisbon Council, 2012).

countries.[6] The digital revolution could remove several rungs of the economic ladder that had previously supported the transition from low- and middle-income economies to middle- and high-income economies. Automated and additive manufacturing are reducing the labour costs of manufacturing, causing many tasks to return to wealthier countries (a process known as "re-shoring").[7] Artificial intelligence (AI) and machine learning (ML) could also render obsolete many business services that are outsourced today, including call centres and medical services.

Table 1. Four Wheels Driving Digital Entrepreneurship
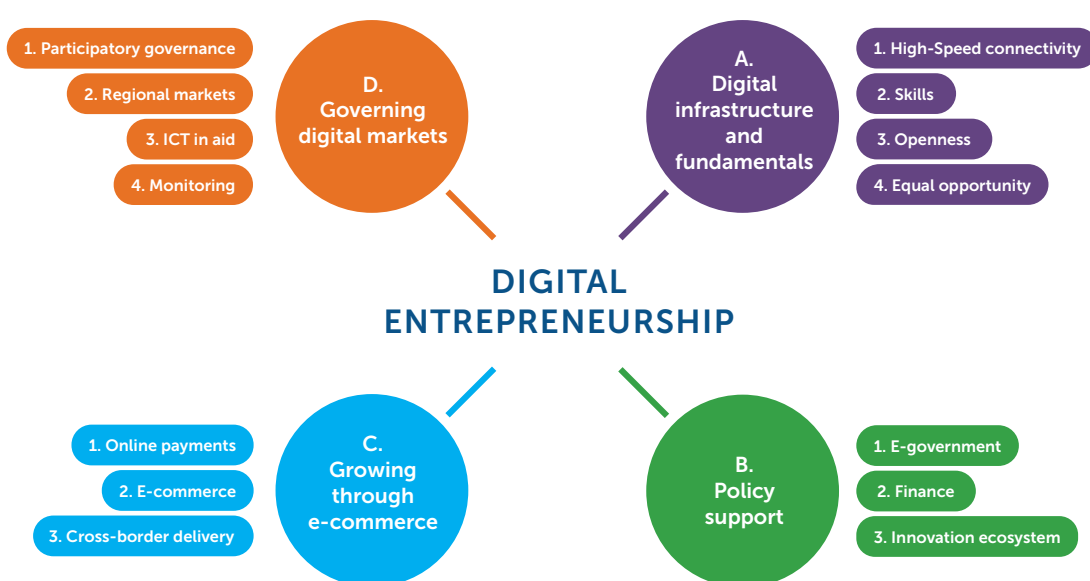
Nonetheless, digital entrepreneurship – despite some isolated success stories – is having trouble making inroads in the developing world, as in many parts of the developed world. Too often, large incumbents lead – moving slowly and not always effectively – while smaller companies are slow to acquire the digital skills or adopt the requisite digital tools. Left unaddressed, this gap could reinforce the lower contribution that small companies make to gross domestic product in developing countries and prevent the development of small companies turning into big ones. Some of the questions that need to be tackled in the developing world include low investment, poor access to financing, small consumer markets (that limit the growth potential of startups and micro-, small- and medium-sized businesses), an underdeveloped talent base and poorly-performing innovation ecosystems with weak infrastructure and sometimes insufficient collaboration between new companies, universities and existing enterprises.

The good news is that it is not too late. The barriers to becoming a digital entrepreneur are falling, and the knowledge and infrastructure

---

6   World Bank, *World Development Report 2016*, op. cit.

7   Organisation for Economic Co-operation and Development, *The Next Production Revolution: Implications for Government and Business* (Paris: OECD, 2017).

to build companies have become cheaper and more accessible. Vibrant startup ecosystems have developed throughout the world, including in many developing countries.[8] For instance, the success of mobile payments in Africa has contributed to financial inclusion across the continent – and set a shining example of what can be accomplished to the world. And the delivery of medicines by drones, also pioneered in Africa, makes urgent medical care available to isolated and rural communities.

In the words of Nigerian entrepreneur and philanthropist Tony Elumelu, "It doesn't matter if you are developed or developing, just starting out or long-established – no organisation, country or continent can hope to progress without tapping into technology and its rich potential to transform lives and countries for the better."[9]

This report calls on all actors – governments, businesses, civil society, donor organisations, citizens and more – to embrace digital entrepreneurship and make it a crucial lever for reaching the Sustainable Development Goals. The report proposes action in four key areas: 1) good management of the broad economy (including human capital development, innovation and equal opportunities), 2) additional policy support for digital entrepreneurship, 3) measures to stimulate e-commerce, and 4) better regional and global cooperation and collaboration. On page 5, you will find a roadmap setting out nine key recommendations – to be agreed in 2018, with interim steps to be completed by 2020 and final goals to be met by 2025.

---

[8]   David Osimo and the Startup Manifesto Policy Tracker Crowdsourcing Community, *The 2016 Startup Nation Scoreboard: How European Union Countries are Improving Policy Frameworks and Developing Powerful Ecosystems for Entrepreneurs* (Brussels and London: The Lisbon Council and Nesta, 2016).

[9]   Tony Elumelu, "If Young People Succeed, Africa Succeeds: Building a Digital Future," *Centre for Public Impact Blog*, 21 May 2018.

The Four Wheels Driving Digital Entrepreneurship

2

2.1 Setting Up the Digital Economy for Success

The adoption of digital technologies and the intensiveness of their use throughout the economy are the key determinants of success in the digital age. Several critical inputs affect the framework conditions for digital development, but none more than the availability of fast and affordable Internet access and the digital skills of the population, as both labour-market participants and consumers.[10]

Among developing countries, there are significant differences in the extent of basic digital development beyond what the differences in their income levels might predict. The share of firms that used the Internet for banking in 2012, for example, was below 20% in several middle-income developing countries, but more than 80% in others.[11] The share of manufacturing and service firms with at least five employees using the Internet ranged from 22% in Tanzania to 73% in Kenya.[12] For those that are lagging, action in these areas provides an ample supply of low-hanging fruit to reach for.

The UN Broadband Commission set ambitious connectivity targets for 2025, including:

- 60% of youth and adults achieving at least a minimum level of proficiency in sustainable digital skills;
- Overcoming the un-connectedness of micro-, small- and medium-sized enterprises (MSMEs) by 50% in all sectors;

- Achieving gender equality across all targets.[13]

In pursuing these goals, this section makes specific recommendations that are part of broader policy agendas where progress will have the highest impact on digital entrepreneurship: providing connectivity to schools and centres of innovation, developing business skills, pursuing market openness in areas that affect the availability and cost of information and communication technologies (ICT) products and services and the inclusion of women in the workforce.

1. Prioritise high-speed connectivity to innovation

The importance of Internet connectivity as a key infrastructural condition for rapid digital development is well established. A recent Expert Group to the United Nations Broadband Commission report on investment highlights key recommendations to close the gap in speed, availability and affordability of high-speed Internet connections.[14] Elsewhere, the United Nations Broadband Commission for Sustainable Development convened at the 2018 World Economic Forum in Davos, where its members set ambitious connectivity goals for developing countries to reach by 2025.[15]

The challenge of connectivity is particularly acute for MSMEs and for challengers in the digital economy.

---

[10] Broadband access and quality vary widely around the world – both among and within countries. The download speed available to average citizens at affordable costs can make a difference in the quality and breadth of digital services. Netflix, Inc., the U.S.-based media services provider, says 0.5 megabits per second (Mbps) is the bare minimum needed for streaming video; but 25 Mbps is the amount needed for viewing videos in ultra-high-definition formats. Debate surrounding broadband speed targets are complex, and include questions about the level of guaranteed minimum service, the possibility of surcharges for "premium" services and the discussion surrounding the optimal technological basis for next-generation networks.

[11] World Bank, *World Development Report 2016*, op. cit.

[12] Ibid.

[13] United Nations Broadband Commission for Sustainable Development, "2025 Targets: Connecting the Other Half," 23 January 2018.

[14] Expert Group to the United Nations Broadband Commission for Sustainable Development, *A New Deal: Investing in Our Common Future: Policy Recommendations to Close the Broadband Gap* (Geneva: ITU, 2018).

[15] United Nations Broadband Commission for Sustainable Development, "2025 Targets: Connecting the Other Half," op. cit.

These firms benefit particularly from connectivity, including access to customers and business infrastructure like cloud services. And, in order to develop compelling new services and products, they will need ubiquitous and affordable high-speed networks and super-fast Internet connections (fibre, satellite and other technologies).

Digital entrepreneurship has an important role to play in its own right in supporting connectivity goals. Creating new digital goods and services raises demand for connectivity. That demand in turn justifies the investment and rollout of new and faster networks. The key is to get this progressive mechanism turning, with each part propelling the other. And either way, someone has to take the first step.

Developing Countries on the Move – Roaming and Beyond

Since the middle of the 2000s, Europe and the United States have both eliminated so-called "roaming charges." Under the system, customers who left home were charged an additional surcharge for using networks in neighbouring countries or regions. For the U.S., the reform contributed to the development of a national consumer market for telecoms services. In Europe, it meant an explosion in data usage by customers traveling abroad. In both cases, roaming went from being a low-volume, high-margin business to a high-volume, low-margin business producing a win-win for mobile network operators and consumers. A number of further international initiatives are currently looking at roaming charges: The **One Network Area** (ONA) roaming initiative in East Africa promotes regional integration by bringing down the high cost of mobile roaming. It also resulted in the increased competition and supply of mobile providers in Burundi, Kenya, Rwanda, Tanzania and Uganda (with the benefits also available in South Sudan). From 31 March 2017, roaming charges no longer apply between the West African nations of Burkina Faso, Côte d'Ivoire, Guinea, Mali and Senegal after regulators of the five states signed a memorandum of understanding. The **Association of Southeast Asian Nations (ASEAN) International Mobile Roaming Framework**, which was implemented on 01 January 2018, aims to provide travellers and businesses with transparent and more affordable access to international mobile data roaming services when travelling within the 10 ASEAN member states. The framework aims to improve transparency in the pricing of international mobile data roaming services and ensure that every operator in each ASEAN member state offers a daily flat-rate data roaming plan to at least one operator in each of the other member states by 2020. Since 2016, the International Telecommunication Union (ITU) has brought together regulatory associations, consumer associations and private-sector associations to discuss and collaborate on strategic solutions to this issue in the **Let's Roam the World** initiative.

Recommendations

- **Provide super-fast connections to key parts of the startup and entrepreneurial ecosystems, notably schools and startup hubs.**[16] Providing schools with high-speed Internet can help ensure that the next generation of entrepreneurs come of age with access to the benefits that the Internet can offer. Networking startup hubs and other centres for MSMEs ensure these are able to compete profitably on a strong footing with competitors. The target should be to connect all schools, start-up hubs and incubators to high-speed (fibre-optic, fifth-generation mobile communications systems or the equivalent) infrastructure by 2020 with an eye towards using this important platform to boost societies towards the broader UN Broadband Commission Connectivity Targets, due to be completed by 2025.

- **Make data plans more affordable to drive the uptake of digital products and services.** A wide range of measures can improve affordability, including competition, infrastructure sharing, the availability of spectrum and use of public infrastructure. To enhance cross-border affordability and usage, regulators and telecommunications companies should undertake initiatives to help drive down costs which ultimately may eliminate data roaming charges for businesses and citizens.

2. Delivering skills

Digital skills can be broken down into three levels – the basic digital literacy needed broadly for all workers, consumers and citizens in a digital society, advanced ICT skills (coding, computer science and engineering) that are crucial to developing innovative ICT products and services, and e-business skills, the specific know-how needed for digital entrepreneurship.[17] The skills question will only become more acute as time goes on. According to the World Bank's *World Development Report 2016*, more than 60% of all jobs in Africa could be prone to automation.[18]

The skills needed to set up a digital business are important in their own right. A lack of e-business skills (digital business skills, tech savvy, entrepreneurial and communication skills) hampers the adoption and effective use of digital technologies by companies and entrepreneurs.[19] MSMEs in less developed and developing countries score much lower in the capacity to connect (specifically, on ICT access and ICT use) in comparison to developed economies, with Southeast Asia and Sub-Saharan Africa recording the largest gap.[20] Over a third of surveyed MSME companies from developing countries cited a lack of technical skills and business knowledge as a bottleneck to establishing their online presence.[21]

---

[16] For more, see Expert Group to the United Nations Broadband Commission for Sustainable Development, *A New Deal: Investing in Our Common Future: Policy Recommendations to Close the Broadband Gap*, op. cit.

[17] European Centre for the Development of Vocational Training (Cedefop) in Cedefop, *Skills, Qualifications and Jobs in the European Union: The Making of a Perfect Match?* (Thessaloniki: Cedefop, 2015).

[18] World Bank, *World Development Report 2016*, op. cit.

[19] United Nations Conference on Trade Development, *Information Economy Report 2017: Digitalisation, Trade and Development* (Geneva: United Nations, 2017).

[20] International Trade Centre, *MSME Competitiveness Outlook 2015* (Geneva: ITC, 2015).

[21] Ibid., *New Pathways to e-Commerce: A Global MSME Competitiveness Survey* (Geneva: ITC, 2017).

Best Practices: CodeBus Africa and 'Training for Employment'

CodeBus Africa, sponsored by Nokia, the Finland-based multinational telecommunications and consumer-electronics company, has organised 45 workshops, reaching more than 1,800 young people between the ages of 12 and 20 in Ethiopia, Ghana, Kenya, Mozambique, Namibia, Nigeria, South Africa, Tanzania, Uganda and Zambia. The project brought together Finnish and African innovators to train local coding instructors. Elsewhere, the Carlos Slim Foundation aims to use digital technology to teach digital technology. Its **Training for Employment** initiative – launched in 2016 – has seen more than 5.7 million enrolments – more than two million of them in ICT training. The programme offers online vocational courses to help graduates qualify for jobs with titles like "Big Data Technician" and "Virtual Learnings Environment Management." The plan is based on the philosophy of Carlos Slim Helú, former CEO of América Móvil, philanthropist and founder of the Carlos Slim Foundation, who argues that education and jobs are the most effective way to lift people out of poverty.

Private-sector initiatives play a key role in developing digital skills, as can increased collaboration between business and academia. Here, the International Telecommunication Union – working with the International Labour Organisation and the United Nations Educational, Scientific and Cultural Organisation (UNESCO) – has led the way, developing an innovative "Digital Skills Toolkit," which sets out a roadmap for translating aspirations into policy in this key field.[22] Soft skills play an increasingly important role. Digital skills matter, to be sure. But the so-called "soft skills" involving creativity, imagination, organisation, initiative, resilience and quality human interaction have emerged as equally important areas for development – from an economic as well as a social and cultural perspective.[23]

Best Practices: "Made in Morocco" and Make Your Mark

The International Trade Centre, with partners in the private and public sectors, offers training courses and advisory services to help MSMEs in developing countries overcome barriers to e-commerce. Examples are **"Made in Morocco"** and ICT services in Kenya and Uganda. The **Make Your Mark** initiative, led by VEON, the multinational telecommunication- services provider, has organised entrepreneurship educational classes in Algeria, Armenia, Italy, Pakistan, Russia and Ukraine. In 2015, 10,000 people attended entrepreneurship classes and more than 5000 entered digital entrepreneur competitions. The initiative has also set up several startup accelerators, including in Italy, Pakistan and Ukraine.

---

[22] International Telecommunication Union, *Digital Skills Toolkit* (Geneva: ITU, 2018).

[23] See, also, Hasan Bakhshi, Ian Hargreaves and Paul Hofheinz, *The Creative Economy in Europe: Why Human Beings Remain the Economy's Key Asset* (Brussels and London: the Lisbon Council and Nesta, 2017).

Recommendations

- **Launch regional skills and jobs coalitions.** These initiatives should combine and mobilise businesses, governments (national and regional), education providers and social partners in tackling the digital skills gap.

- **Train MSMEs in going digital and using digital tools for e-commerce.** That should include the provision of training courses, advisory services to help MSMEs in developing countries to overcome barriers to market access and tools and software that make going digital easy.

- **Integrate vocational training in ICT and entrepreneurship as part of the curriculum in secondary schools, universities and business schools.**

Industry associations, trade unions and individual private firms can play a critical role in the implementation of skills development strategies. Engage private-sector partners in digital fields (e.g. ICT and e-commerce) in proposing digital entrepreneurship-related coursework. Agree course equivalence with academic qualifications.

- **Focus on digital skills, but don't neglect the soft ones.** Businesses are formed – and grown – by capable well-rounded managers and entrepreneurs. Successful entrepreneurial education contains a strong element of "soft skills," which includes instilling a knack for human creativity and good interpersonal relations.

Best Practice: *Intel Educar para el futuro*

Intel Educar para el futuro is a course for experienced – and future – teachers in information technology, robotics and automation. The programme consists of a pedagogical training providing resources and tools to help teachers effectively integrate the use of technology in classroom practices with the ultimate aim of improving student performance. Over the course of a decade, more than four million teachers have been trained in more than 40 countries. In a good example of cross-fertilisation between public and private actors, the faculty of education of the University of Costa Rica decided to launch **El Programa de Tecnologías Educativas Avanzadas (PROTEA)**, an adapted version of the Intel course Educar para el futuro, initially designed for the training of primary and secondary education teachers, so that it fits academic requirements.

3. Use openness to make digital tools more available

The importance of a broadly open regulatory approach to the digital economy cannot be overstated. Our focus here, however, is narrower – on the impact on cost and availability of services that certain rules can have. A number of governmental measures can significantly raise the cost of digitalisation, especially for the newest entrants. In particular, two:

- **Certain measures can make it easier to use ICT services offered from or based in other countries.** Improving the legal and regulatory framework, building the right skills for the digital economy, enabling online payments and more efficient trade logistics, as well as creating environments that are supportive of innovation and the digital economy are good places to start. The issues of data localisation, opening up government data and the cross-border flow of data are currently being discussed in many fora and at different

international/regional levels, with the involvement of different stakeholders. Each stakeholder holds a particular opinion depending on various factors, including the maturity of the market, the overall eco-system and whether the country is developing or developed. In these circumstances, and with the overall inconclusive and sometimes conflicting evidence, it would be too early to suggest a "one-size-fits-all" solution. However, cross-border data flows do increase companies' ability to conduct international business and reduce transaction costs, while data localisation measures can raise the cost of computing and be a barrier to cross-border trade.[24] Overly stringent restrictions on data localisation, in turn, may impose additional business costs, stifle trade and hamper innovation.[25] With six times fewer data location centres in the least developed countries, the impact of data localisation restrictions can be particularly acute in those places.[26]

- **Tariffs and taxation of information and telecommunications products and services can raise their cost significantly** in some countries. Such products and services, from Internet connectivity to computer components and cloud services, are major factors of production for technology startups and digital entrepreneurs, and can make up a significant portion of the costs to start a new digital company. Raising costs through additional sector- and product-specific taxation puts developing country digital entrepreneurs at a disadvantage. To be sure, the governments of some developing countries are often encouraged by the International

Monetary Fund and others to rely on the telecom sector as a source of taxation in the strong formal sector of the economy. Tax and the tax base should be broad and fair, and taxes themselves should be efficient, transparent and proportionate. Towards that end, e-Government and digital services can serve the cause; ambitious adoption allows many governments to collect tax more effectively and efficiently.

Beyond these specific concerns, countries may wish to consider lowering barriers to entry and carefully modulating the controlling power of incumbents in the economy. Disruptive digital innovation changes the cost basis of doing business. There is large variation in the cost of services in many sectors undergoing digital disruption between countries where incumbents have a dominant position versus those where competition in the telecom sector is more open.

A further aspect of this openness concerns how regulations react to changing technological circumstances. Regulators should be open to upgrade rules to simplify for startups. Smart regulation can play an enabling role in this process of discovery, for instance through the use of so-called "sandboxes."[27] These are safe environments that allow innovators to test their business models without fear of being restricted, while allowing policymakers to observe new innovations and develop well-fitted and non-restrictive regulations. Regulatory sandboxes and flexibility can invite piloting of new technology and business models.

---

[24] Silja Baller, Soumitra Dutta and Bruno Lanvin (eds.), *The Global Information Technology Report 2016: Innovating the Digital Economy* (Geneva: WEF, 2016).

[25] A study by one consultancy estimated that data localisation restrictions could increase the cost of cloud computing services by as much as 60%. Brendan O'Connor, "Quantifying the Cost of Forced Localization," *Leviathan Security Group*, 24 June 2015.

[26] United Nations Conference on Trade and Development (UNCTAD), *Information Economy Report 2013: The Cloud Economy and Developing Countries* (Geneva: United Nations, 2013).

[27] See, for example, European Banking Authority Banking Stakeholder Group, *Regulatory Sandboxes: A Proposal to EBA by the Banking Stakeholders Group*, 20 July 2017.

Best practices: Zipline and the Malawi Drone Corridor

Updating existing civil aviation rules is a precondition to developing new uses for drones. Such services can be particularly important for large rural countries with poor infrastructure, yet few African countries have introduced such enabling rules. The countries that have done so, such as **Kenya** and **Tanzania**, are seeing significant innovation in this area. **Zipline**, a startup using drones to deliver medical supplies such as blood plasma to remote communities, first piloted its services in Rwanda, whose Civil Aviation Authority provided the company regulatory approval before authorities either in the U.S. or Europe. Similarly, **Malawi** has a joint corridor with partial airspace that it is completely free for drone development.

Recommendations

- **Create regulatory sandboxes.** Governments should systematically look at existing rules and regulation which may constitute barriers in areas of significant digital innovation and find ways of addressing them where possible.

- **Proactively remove measures that impede the use of ICT**, in particular taxation of digital products and services exceeding the general level of taxation for goods and services and excessive and/or unjustified data-localisation restrictions. Governments may also wish to consider tax waivers for the import and domestic production of ICT equipment and hardware to ease access for entrepreneurs.

4. Women and equal opportunities

Globally, women have less access to – and make less use of – information and communication technologies than men. And the gap is not narrowing: the International Telecommunication Union's most recent estimate indicates that the global Internet user gender gap grew to 12% in 2016, up from 11% in 2013.[28] And in least developed countries, the gap in Internet access between male and female Internet use may be as large as 33%.[29]

This digital divide reinforces other gaps in digital entrepreneurship. Women are also missing out on relevant education. More than five times fewer women than men enrol in tertiary level computer science and engineering programmes in OECD countries.[30] In addition, women enrolment ratios into higher education are much lower in developing countries than in developed economies.[31] As a result, female participation in ICT professions is low: in developing countries, women are three times less likely than men to work in the ICT sector and eight times less likely to have an ICT occupation.[32]

Traditionally, women are less active in the MSME sector and often absent or excluded from ownership, access

---

[28] UN Broadband Commission for Sustainable Development, *Working Group on the Digital Gender Divide – Recommendations for Action: Bridging the Gender Gap in Internet and Broadband Access and Use* (Geneva: ITU, 2017).

[29] International Telecommunication Union, *ICT Facts and Figures 2017* (Geneva: ITU, 2017). For more, see the ITU's innovative data tool at www.itu.int/IDI2016.

[30] Ibid.

[31] Ibid.

[32] World Bank, *World Development Report 2016*, op. cit.

to finance and other resources.[33] The introduction of ICTs in MSMEs has further exacerbated the gender gap, leaving women behind as they have less access to technical know-how and training.[34] For instance, when it comes to access to venture capital, women-owned startups receive 23% less funding and are 30% less likely to have a positive exit – i.e. be acquired or to issue an initial public offering (IPO) – compared to businesses owned by men.[35]

Best Practices: SheLeadsTech India and ICT's SheTrades Initiative

A study by YouGov, the international market researcher, and Development Economics Ltd., a United Kingdom-based consulting firm, found that four of five women in India want to be an entrepreneur, and that 15.5 million business ideas and 64 million job opportunities are not fulfilled as long as female-led businesses are ignored. The SheLeadsTech programme in India was created by Facebook to help respond to this challenge. The initiative supports women-founded startups with access to tools, mentorship and resources to overcome barriers and succeed in building a business in technology. This includes FbStart, a programme that provides year-round technical support through an exclusive community of global startups, free credits to tools, training on Facebook developers tools and services from dozens of partners. As of today, the SheLeadsTech India community boasts almost 9000 participants. The International Trade Centre (ITC) has launched the SheTrades initiative, which seeks to connect one million women entrepreneurs to market by 2020. At SheTrades, women entrepreneurs around the world have free access to online courses, participate in face-to-face workshops and watch live webinars on a range of topics to understand better their markets.

Once this triple divide is overcome, the benefits are clear. When women engage in digital entrepreneurship, they often do very well – for themselves and for the countries at large. A survey of 11 countries found that 75% of online-only e-commerce businesses are women-owned.[36] Businesses founded by women ultimately generate higher revenue than those founded by men.[37] Among entrepreneurs in the Middle East and North Africa, women are 60% more likely to offer what they describe as "innovative" products and services."[38]

---

[33] The IFC concludes "women-owned businesses appear restricted in their growth paths. Women's entrepreneurship is largely skewed towards smaller firms. They make up nearly 32% to 39% of the very small segment of firms, 30% to 36% of small SMEs and 17% to 21% of medium-sized companies. Women entrepreneurs are also more likely than their male colleagues to be in the informal sector, running smaller firms mainly in service sectors and thus operating in lower value added sectors. In addition, they operate more home-based businesses than do men." See International Finance Corporation, *Strengthening Access to Finance for Women-Owned SMEs in Developing Countries* (Washington: IFC, 2011).

[34] Chat Garcia Ramilo, *"Gender Issues and Tools for MSME and ICT,"* Science Council of Asia Conference on Women, Small/Medium Scale Industries and ICT, 29 May 2008; and International Labour Organisation, *Gender Review of MSME Policy* (Islamabad: ILO Pakistan, 2011).

[35] OECD, *Empowering Women in the Digital Age: Where Do We Stand?* (Paris: OECD, 2018)

[36] International Trade Center, *New Pathways to e-Commerce: A Global MSME Competitiveness Survey* (Geneva: ITC, 2017).

[37] Boston Consulting Group and MassChallenge, *Why Women-Owned Startups are a Better Bet* (Boston: BCG and MassChallenge, 2018).

[38] Global Entrepreneurship Research Association, *Global Entrepreneurship Monitor: Women's Entrepreneurship 2016/2017 Report* (Boston: GEM, 2017).

Recommendations

- **Promote Science, Technology, Engineering and Mathematics (STEM) education, advanced business digital skills and life skills such as accounting and financing among women.** Governments, civil-society organisations and the private sector should establish and deliver more programmes proactively targeted towards women.

- **Increase access.** Governments should offer public access points and ICT education packages to women that include family policy support, such as childcare, to ease women's family responsibility.

- **Promote and celebrate women role models.** Women are more likely to choose STEM when they know other women in STEM. Awareness raising is not just about communication but about generating a necessary cultural change.

- **Identify and monitor gender targets, including interim ones.** The UN Broadband Commission's Connectivity Targets boldly call for establishing gender equality throughout the technology sector by 2025. In order to reach that, the Working Group on Digital Entrepreneurship proposes that the legal and political framework for engendering this transition should be in place by 2020.

Best Practice: Ms Geek

The **Ms Geek** competition, organised by Girls in ICT Rwanda, aims to inspire girls to pursue education in science, technology, engineering and mathematics and be part of solving the African continent's challenges using technology. The winners become ambassadors in their countries and abroad.

2.2 Policy Support for Digital Entrepreneurship

Ultimately, entrepreneurs must do the hard work of building profitable business models. Yet governments can help by doing their job well – first and foremost by providing a good local ecosystem to start and run a company. Governments, investors and larger companies can all speed up the conditions that facilitate the life of entrepreneurs in well-developed ecosystems, including access to funding and talented people with business skills. Governments can also use their vast convening power to bring parties together around actionable agendas. The International Telecommunication Union, for one, has proposed a seven-part roadmap for mobilising stakeholders to build effective ecosystems: 1) agree a desired future, 2) understand the current state, 3) analyse gaps, 4) identify good practices, 5) identify challenges, 6) develop guidelines and recommendations and 7) build a programme.[39] The point is, every country is different. There is no cookie-cutter approach. The most effective solutions are the ones that 1) involve the most local engagement, and 2) are best targeted towards solving the very real problems that exist on the ground. As those problems quite often differ from country to country, it makes sense that policy responses might differ as well.

Still, there are certain transversal issues that one quite often encounters in many

---

[39] International Telecommunication Union, *Bridging the Digital Innovation Divide: A Toolkit for Strengthening ICT Centric Ecosystems* (Geneva: ITU, 2017).

countries – seemingly small problems which, when taken together or on their own, can add up to relatively large

constraints on digital entrepreneurship. In this section, we will focus on three.

Best Practice: Moldova and the International Telecommunication Union

The country of Moldova has worked directly with ITU to put the UN agency's innovative ICT eco-system building framework into practice. In a 102-page report, the ITU oversaw a vast effort to map local stakeholders, engage them in discussion and systematically apply their input towards a future reform programme for the country. In the end, the exercise produced seven recommendations, each tailor-made to speak uniquely to the special Moldovan context: 1) develop a dedicated innovation agency, 2) accelerate public-service transformation, 3) develop a phased diaspora engagement programme, 4) promote a transversal ICT policy across sectors, 5) improve the private sector/skills/research triad, 6) increase early stage support for innovation and 7) make the business environment friendlier for entrepreneurship.

1. Use e-government tools to make it easy to start, run and end a company

E-government is a major component of all digital development strategies, and there are certain measures that can help digital entrepreneurship in particular.[40] Digital entrepreneurs and MSMEs trading online in developing countries face many of the same barriers as many other entrepreneurs, such as the high cost of running a business, burdensome and inefficient administrative procedures, problems with contract enforcement and non-transparent legal and regulatory frameworks.[41]

The cost and time of setting up a business in many developing countries remain high. It takes 45 days to set up business in South Africa and 90 days in Somalia.[42] In Sub-Saharan Africa, the average time to set up a business is 25 days compared to four days in Europe.[43] Corruption, as well as the paperwork and administrative procedures to run a business, remain significant transaction costs in most developing countries.[44] These barriers are felt even more acutely by digital entrepreneurs and startups, as they often have only erratic cashflows and lean profit margins in the growth phase.

---

[40] The ITU defines "e-government" as "the use of information and communication technologies in government to provide public services to improve managerial effectiveness and to promote democratic values and mechanisms; as well as a regulatory framework that facilitates information intensive initiatives and fosters the knowledge society." See ITU, *Electronic Government for Developing Countries* (Geneva: ITU, 2008). See also the Austrian government's definition – "the administration of government by means of electronic technology" – in Government of Austria, *Digital Austria* (Vienna: Federal Ministry of Digital and Economic Affairs, 2018).

[41] UNCTAD, *Information Economy Report 2017: Digitalisation, Trade and Development* (Geneva: United Nations, 2017).

[42] World Bank, *Doing Business Dataset*, accessed April 2018.

[43] Ibid.

[44] In the Middle East and North Africa, the share of companies that claim they are expected to give gifts in order to secure government contracts is more than 40%, according to the World Bank's Enterprise Survey.

The Impact of Smarter Regulation and Better Administration

Online business registration systems can lower the cost of entry for new players, increasing competitive pressure for incumbents. The number of newly registered limited liability firms has increased, on average, 56% after the introduction of online registration systems to 4.2 per 1000 working age population, up from 2.7 before the reforms, according to the World Bank's *World Development Report 2016*. But this positive impact masks heterogeneity across countries. Thirty-three developing countries introduced online registration systems for firms between 2006 and 2012. The entry density declined somewhat in eight of the 33 countries.

Adoption of e-government can fundamentally alter this dynamic, with digitalisation serving to enhance productivity in businesses and government agencies alike. In particular, e-government can reduce the barriers to entry for new players, increase competitive pressure on the economy, cut out significant sources of corruption and significantly facilitate companies expanding across borders. Easier company registration can also encourage entrepreneurs outside the formal economy to register.

Digital entrepreneurs face particular difficulties when expanding across borders. By making company registration information available easily in verifiable digital form, e-government tools can help them establish the trust necessary for doing business at a distance, in effect facilitating "know your customer" requirements when expanding across borders.

Business users can also spur the development of an electronic identity (e-ID) ecosystem. Businesses are heavy users and can help drive general adoption of national e-ID schemes. Two steps can help here: first, allowing the use of private-sector issued e-IDs,

and second the mutual recognition of equivalent e-ID schemes from other countries.

Recommendations

- **Governments should consider making the basic administrative transactions of running a business fully digital.** This applies to starting a business, but also filing taxes or amending a company's registration. It should be possible to start a new company fully online within one working week (ideally, within one day) for a cost of no more than 5% of average per capita annual income.[45]

- **Recognise electronic identities from other countries and private identity providers.** Subject to their circumstances, countries at all levels of development should have active e-ID and e-government programmes. An important next step could be the mutual recognition of e-identities and digitally signed documents across borders. This can help in particular to facilitate cross-border business transactions and allow entrepreneurs to work seamlessly with governments and customers in multiple markets. Additionally, cross-border recognition has the knock-on effect of encouraging standardised approaches, which in turn

---

[45] The current numbers are 3.1% in OECD high-income countries, 21.4% in South Asia and 49.9% in Sub-Saharan Africa, though several developing countries are at or near 5%. World Bank, *Doing Business Dataset*, accessed April 2018.

enlarges the market and facilitates the uptake of e-ID and signature solutions.

- **Open up high-value and non-sensitive government data and make it reusable.** It is widely recognised that government data are important not only for transparency and accountability, but also that they can provide a foundation for local MSMEs to generate value-added services. Throughout the world, governments are embracing the open-data principle, but to ensure impact, publishing data and creating open-data portals are rarely sufficient.[46] Governments may wish to identify, in conjunction with the private sector, priority datasets with high public value to be released. They should ensure that data are published with appropriate metadata to ensure findability, and as far as possible through Application Programming Interfaces (APIs) rather than in bulk.[47]

Best Practices: European Union e-ID and Trust Services

The **European Union Regulation on Electronic Identification, Authentication and Trust Services** establishes a system for mutual recognition of state- and private-issued e-IDs within the EU. From September 2018, EU member states will be required to accept e-IDs from across the EU. The aim of the regulation is to enable EU member states to realise the benefits of e-ID adoption (as seen in Estonia, which reports a boost of as much as 2% of gross domestic product from e-ID uptake) and to increase cross-border trade and movement of people.

2. Help businesses find funding

Small businesses, particularly in developing countries, struggle to get access to sufficient financial resources to start and grow. Finance follows opportunities, and access to finance, especially at an early stage, is greater in those regions where economic activity is already thriving. For instance, African MSMEs in sectors that lack financing face a credit gap on the order of $136 billion [around €127.8 billion] annually,[48] and more than 20% of MSMEs identify poor access to finance as their main barrier, in particular as an obstacle to keeping them from scaling up cross-border activity.[49] Lack of investment also means a lack of access to the skills and know-how that typically goes with it.

The financial landscape is evolving fast. First and foremost, new financial solutions are continuously being created. Venture capital (VC) and other forms of risk financing have fundamentally altered the dynamic of funding a new business, giving many firms the resources they need to grow. More recently, crowdfunding and alternative finance (including, increasingly, cryptocurrencies and initial coin offerings) are giving new businesses quick access to early-stage capital.

And venture-capital investment is becoming increasingly globalised and spreading in developing countries. About $560 million [€516.9 million] of VC funding was invested in Africa in 2017, a growth of 53% with respect to

---

[46] See, for example, the European Union's Open Data Portal at https://data.europa.eu/euodp/en/home.

[47] Stefaan G. Verhulst and Andrew Young, *Open Data in Developing Economies* (New York: The GovLab, 2017).

[48] OECD, *African Economic Outlook 2017*, op. cit. The exchange rate is from 2016.

[49] World Bank Ghana Office, *Access to Finance for MSMEs* (Accra: Africa Centre for Economic Transformation, 2014).

the previous year (though Africa still represents only 1% of the global VC market).[50] Latin America, meanwhile, received as much VC investment in the first half of 2017 as it did in the whole of 2016 ($477 million or €448.4 at the exchange rate of the time). Foreign venture capital has grown in Latin America, too; the top VC and corporate venture-capital firms from the U.S. and Asia are highly active there.[51]

Private capital, donors, aid organisations and governments all have a major role to play in improving financing in developing countries. The ultimate goal is to encourage thriving commercial financing ecosystems, but public funding can help provide the initial stability and certainty to make such schemes a success. While many forms of finance are primarily private, many countries and regions have relied on public support to jump start venture capital and MSME funding schemes.

Recommendations

- **Diversify support from grants towards blended financial instruments.** Private-sector involvement is crucial not only to reach the critical mass of funding but also to ensure the provision of adequate skills and know-how to local companies. In order to catalyse rather than substitute for private investment, financial aid can be distributed by mixing different funding instruments, such as grants, loans, guarantees, equity or co-investment funds. These instruments should include financial components targeted towards innovative MSMEs with scale-

up potential in key sectors, such as agriculture, health, education and technology.[52]

- **Establish incentives and clear legal regimes for alternative financing models for MSMEs, including angel, private equity, corporate equity, crowdfunding and peer-to-peer lending.** At the moment, alternative finance is replicating the inequalities of traditional finance, being more developed in countries with the most mature financial markets. Building on the successful example of mobile money and e-payment, alternative finance could become an opportunity for leapfrogging in developing countries. Tax incentives for business angels and equity investments as well as stable regulatory frameworks for alternative finance can help developing countries to tap into the potential of crowd and social investment.

- **Mobilising the diaspora.** The role of the private sector in mobilising finance, providing skills and know-how and promoting innovation is clear. Many developing countries also have access to their diaspora expatriates as a major funding source. In addition to sending remittances, "diaspora entrepreneurs" can play a key role as business owners and investors. These entrepreneurs bring with them skills, knowledge, capital and greater access to international markets.[53]

- **Promote new ways to help startups establish credentials to get funding.** Options include enabling new ways for credit scoring, such as alternative data-based credit ratings.

---

[50] See Cyril Collon, "In Another Record-Breaking Year, African Tech Start-ups Raised $560 Million in Venture Capital Funding in 2017, a 53% Year-on-Year Growth," *LinkedIn Blog Post*, 20 February 2018; Disrupt Africa, *African Tech Startups Funding Report 2017* (Cape Town: Disrupt Africa, 2017). The exchange rates used here are from the year to which the figures refer.

[51] Latin American Private Equity and Venture Capital Association (LAVCA), *State of the Industry: 2017 VC Deal Activity and Highlights* (Buenos Aires: LAVCA, 2017).

[52] OECD, *Making Blended Finance Work for the Sustainable Development Goals* (Paris: OECD, 2018).

[53] African Economic Outlook, *2017 African Economic Outlook*, op cit.

Accreditation@SGD

Accreditation@SGD, an initiative of the Singapore government, is a programme to assist and promote promising technology start-ups by helping companies substantiate product claims, establish credentials, gain market visibility and position themselves as qualified contenders for projects with government and large enterprises. Through the programme, Singapore hopes to build an innovative "technopreneur" ecosystem and encourage the development of dynamic young companies capable of expanding overseas. A number of Singapore MSMEs have attained accreditation for frontier technologies such as computer vision, artificial intelligence and data analytics. Many have gone on to secure substantial growth capital.

3. Build more and better innovation ecosystems

Startups and digital companies do not grow in isolation. They require an innovation ecosystem to ensure support and collaboration with a wide set of organisations. This includes research organisations, business support services and collaboration with larger companies. The key challenge and driver for MSMEs is the ability to connect to the right partners and networks at the local, national and global levels, and integrate know-how into in-house practices and innovation processes.[54]

Government can play a role in this, though not always in the way that is traditionally thought. First and foremost, there is the government's enormous convening power: they can bring stakeholders together. And, as we have argued elsewhere in this report, this convening power is often one of the most effective tools they can wield. By bringing local people and businesses together – and rallying them around a common target – they can make things happen.[55] But it's important to understand the limits of this kind of

support as well. Governments should never put themselves in the position of picking or backing winners. It is much better to focus on building an ecosystem than on helping individual parts of it thrive unduly over others. Access to funding is important, too, but is not fully sufficient if other important elements of the ecosystem remain unaddressed. One way or the other, governments should catalyse a process, targeting unique local problems with an aim towards addressing them and mobilising the local talent around unique local strengths.

Funding is important, too, and not just for growth companies and businesses. For instance, African countries spend less than 1% of GDP on research and development as compared to 3% in the U.S., 3.6% in Japan and 2.1% in the European Union (EU).[56] The good news is that there are numerous cases of developing countries "punching above their weight" in terms of innovation performance, such as Kenya and Vietnam.[57] The bad news is the global innovation divide persists, and the process of convergence is insufficient. Because of their organic growth

---

[54] Ibid.

[55] International Telecommunication Union, *Bridging the Digital Innovation Divide: A Toolkit for Strengthening ICT Centric Ecosystems*, op. cit.

[56] United Nations Educational, Scientific and Cultural Organisation (UNESCO), *R&D Spending by Country* (Paris: UNESCO, 2017). The EU data is from Eurostat R&D Expenditure Database, accessed April 2018.

[57] Cornell, INSEAD and the World Intellectual Property Organisation, *The Global Innovation Index 2017: Innovation Feeding the World* (Ithaca, Fontainebleau and Geneva: Cornell, INSEAD and WIPO, 2017).

pattern, ecosystems tend to concentrate geographically – both within richer regions around the world, and in richer cities within all regions. Indeed, innovation ecosystems in developing countries almost always emerge in large cities.

To counteract these trends, many developing countries have been increasingly prioritising research innovation, both by increasing research and development spending and nurturing more diverse ecosystems. The African Union's Agenda 2063 calls for raising spending on research and development to 1% of GDP by 2023.[58] Africa has more than 440 incubators, accelerators, seed capital hubs, tech centres, start-up academies and co-working spaces that provide resource-constrained entrepreneurs with the essential services they need in order to carry out their work and innovate.[59] While incubators are generally considered a successful way of increasing startup-survival rates, what matters is not the number of incubators but the quality of services they provide and the network to which they facilitate access. Because of the importance of trust and networks, public funding should be designed to support and improve structures that can be shown to be effective in providing services to MSMEs, based on transparent metrics.[60] What's more, ecosystems are composed of people. Internal labour force mobility is an important competitive advantage for large countries – e.g. China and the U.S. – and for single markets such as the EU. Developing countries should ensure that entrepreneurs are able to live and work in other countries and encourage interexchange and movement of workers cross-border to foster the acquisition and exchange of perspectives, skills and networks and the access to scale their enterprises and ideas.

---

[58] African Union Commission, *Agenda 2063: First Ten-Year Implementation Plan 2014-2023* (Addis Ababa: African Union, 2015).

[59] Dario Giuliani, "Africa: A Look at the 442 Active Tech Hubs of the Continent," *GSM Association Blog*, 22 March 2018.

[60] World Bank, *An Evaluation and Impact Assessment of Business Incubation Models in Eastern Europe and Central Asia* (Washington: World Bank, 2014).

Best Practice: Kenya Vision 2030

Launched by President Mwai Kibaki in 2008, **Kenya Vision 2030** aims to transform the country into a rapidly industrialising, middle-income state providing a high quality of life to all its citizens by 2030 in a clean and secure environment. Several actions have been taken to spur development of the country's digital entrepreneurship ecosystem. For instance, particular attention was given to connectivity: in 2009, the East African Marine System (TEAMS) fiber optic cable landed in Mombasa, placing Kenya on the global information superhighway and setting the stage for cheap internet connectivity and enhanced communications. Also, the public sector underwent radical transformation in 2014 with the launch of the e-citizen portal; 197 public services are now available online, including business registration. Attention was also given to education and digital literacy, in particular through the Digital Learning Programme and the Last Mile Connectivity Programme that included the electrification of all public primary schools. Important principles have been enshrined in the 2010 constitution, such as the access to 30% of procurement opportunities in government tenders for women, youth and persons with disability (PWD), as well as the promotion of youth, women and PWD-led enterprises. After 10 years, Kenya's competitiveness position in the Global Competitiveness Index has significantly improved and investment levels have risen to nearly $2 billion [€1.8 billion] in 2016, up from $390 million [€305 million] in 2013. More than 1,532 companies were registered in Kenya over the same period.

Recommendations

• **Define and deliver targets and quotas for research and innovation spending.** While research funding is not a sufficient cause, it is a necessary foundation of a successful innovation ecosystem. Targets such as the African Union's 1% of GDP for research and innovation spending and other organisations' challenge targets are useful to create momentum and direct public funding towards more future-oriented objectives. To be effective, funding for research and innovation should aim at generating collaboration between large and small companies and research organisations. Quotas and conditionality should be built in to ensure the adequate participation of MSMEs.

• **Support existing incubators to modernise innovation-oriented equipment and infrastructure.** Co-working, incubators, fab-labs and maker spaces help startups to network and grow, but should be endowed with state-of-the-art equipment, including the connection of tech hub partners to national research and education networks.

Best Practices: Bridging Sectoral and Geographic Divides

Accelerators and hubs can be particularly useful when they bridge the gap between startups and existing industry or draw together developing- and developed-country startups. The **GSM Association Ecosystem Accelerator Programme** has a special programme operating in Africa and the Asia-Pacific to accelerate the ecosystem of startups and operates an innovation fund that includes direct grant funding, technical assistance and connections with mobile operators. The programme has generated huge interest, with more than 1000 applications in 2017. At the 2018 Transform Africa Summit, the **World Startup Festival** (WSF) signed a memorandum of understanding with Smart Africa that includes training African startup entrepreneurs in WSF's accelerator boot camps to prepare them for seed funding and international business collaboration in different parts of the world, enabling African startups better access to global markets.

- **Ensure fair access to public procurement.** Governments should support more access to the (global) public procurement market for MSMEs, which are too often excluded by formal requirements or by *de facto* participation mechanisms.

- **Facilitate access to markets, startup-corporate collaboration and internationalisation.** Government can proactively assist startups in gaining access to international markets and in collaborating with large corporations through technical assistance, marketing and matchmaking services.

- **Facilitate cross-country circulation of people through an internship programme for digital entrepreneurship.** For example, the EU's Erasmus for Young Entrepreneurs is a cross-border exchange programme which gives new or aspiring entrepreneurs the chance to learn from experienced entrepreneurs running small businesses in other participating countries.

National Agency for Promotion and Financing Guarantees in Togo

In Togo, since February 2018, the **National Agency for Promotion and Financing Guarantee of MSMEs** officially set aside 20% of public procurement contracts for young and female entrepreneurs, who may benefit from simplified procedures, and with considerably reduced costs and timing.

Best Practices: iNNpulsa Colombia and InnovAP

iNNpulsa is the business-growth-management unit of Colombia. It was founded in February 2012 to promote entrepreneurship, support innovation, raise competitiveness and stimulate hyper-growth in a greater number of companies. Its main stakeholders are the Colombian ministry of commerce, industry and tourism; the Inter-American Development Bank (IADB) and Bancóldex, the bank of foreign trade. iNNpulsa Colombia partners with private investors in seeding startups and supporting promising SMEs with injections of funding. In 2017, 87 billion pesos [$29.5 million or €27.2 million] were leveraged by iNNpulsa Colombia and 30 billion pesos [$10.2 million or €9.4 million] by third parties. The funds went to 28,800 beneficiaries, spread out across 90% of Colombian territory. The same year, iNNpulsa Colombia launched **InnovAP**, the first regional network of entrepreneurship and innovation agencies in the countries of the Pacific Alliance, a four-country trade bloc that includes Chile, Colombia, Mexico and Peru.

2.3 Strengthen e-Commerce

Over the last two decades, e-commerce has dramatically lowered the cost of selling to customers across borders. E-commerce provides an opportunity for MSMEs to find new customers on a global scale without needing to develop the infrastructure of sales offices, inventory or representatives across the globe. However, global experience shows that these benefits can only be realised at scale when the practical and legal barriers to selling, shipping and providing services across borders are conducive to such trade.

e-Commerce in Action: Kasikornbank

Kasikornbank, formerly the Thai Farmers Bank, reinvented itself to better navigate the fast-changing digital landscape. The bank formed an internal team to focus technology assets on developing B2B services, embracing the fintech revolution and rapidly building a new customer base around the innovative services it now had to offer. By 2016, mobile subscribers grew to six million, up 87%. Today, KBank, as it is known locally, is No. 1 in Thailand's digital banking space with 38% market share and has expanded across borders to serve clients in 11 countries.

In most developing and transition economies, people buying online constitute a small proportion of all Internet users.[61] Unlike social networking, for which activity rates are relatively high among developing country Internet users, the share of those who engage in online shopping is generally lower than in developed countries.[62] What's more, e-commerce is not exclusively a business-to-consumer phenomenon; e-commerce can create new B2B markets and supply chains in developing countries.[63]

In this section, we will look at key steps that could facilitate e-commerce both within countries and across borders, particularly for startups and MSMEs without their own logistics or payment infrastructure. By lowering the overall cost and friction related to e-commerce, more entrepreneurs will have access to larger markets. Harmonising rules is not simply a question of scale and regulatory convergence – a lack of trust is one of the key impediments to doing business across borders. By giving consumers and business partners more confidence that their goods will arrive, that payment will clear and that there is recourse when these fail, these e-commerce measures help build the trust essential to trading online.

African Continental Free Trade Agreement (CFTA)

The recently adopted **African Continental Free Trade Agreement (CFTA)**, signed by 44 African leaders in Kigali, Rwanda on 21 March 2018, is one example of an initiative to remove practical and legal barriers to trade and to enhance trust. By creating a single continental market for goods and services, with free movement of people and investments, the goal is to accelerate Intra-Africa trade through better harmonisation and coordination of trade liberalisation.

1. Establish and use online payment systems

The lack of access to financial services has long been one of the major obstacles to entrepreneurship and middle-class wealth creation in the developing world. The recent success of mobile payment platforms, such as Alipay, Klarna, M-Pesa, PayPal and PayU Latam has shown how startups can solve long-standing seemingly intractable development problems, but there is significant further growth potential: Sub-Saharan Africa, a frontrunner in the number of mobile-money accounts, registered 33% annual growth in mobile-money accounts between 2013 and 2016.[64] And 1.7 billion people worldwide remain unbanked and without access to e- and m-payments.[65]

Online and mobile payments enable digital companies to expand their customer base within countries and across borders. Many tech startups use business models that are dependent on

---

[61] World Trade Organisation and Organisation for Economic Co-operation and Development, *Aid for Trade at a Glance 2017* (Paris: OECD, 2017).

[62] UNCTAD, *Information Economy Report 2015: Unlocking the Potential of e-Commerce for Developing Countries* (Geneva: United Nations, 2015).

[63] International Trade Centre, *Bringing SMEs onto the e-Commerce Highway* (Geneva: ITC, 2016).

[64] Eran Feinstein, "The Latest in African Fintech 2017 and Forecasts for 2018," *DPO Think Payments Blog*, 13 December 2017.

[65] Asli Demirgüç-Kunt, Leora Klapper, Dorothe Singer, Saniya Ansar and Jake Hess, *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution* (Washington: World Bank, 2018).

the features of m- and e-payments.[66] In developing countries, mobile payments are on the rise, with 22% of respondents in Africa using mobile money to perform their cross-border e-commerce transactions.[67] MSME e-payments are also on the rise, both for transacting with customers and for payments and payroll.[68] And e-payment use mitigates some of the costs of cash, including a large shadow economy.

For businesses that rely on mobile payments, the lack of links between e-payment service providers and banks is problematic, particularly as they grow and need to move m-payment revenues to other financial instruments. Interoperability can also increase competition in developing country payment markets, which are often dominated by one or two players. Mobile money services in Bolivia, Ghana, Mexico and Peru are already linked to the banking system, while work on account-to-account interoperability for mobile money services is ongoing.[69] Similarly, other measures that lower the cost and increase the speed of online payments are a significant boon for businesses doing work cross-border.

Recommendations

- **Continue the promotion and uptake of e-payments.** Governments, regulators and companies may wish to remove barriers to the use of online payment systems and electronic transactions, including cross-border barriers, and develop appropriate regulatory frameworks to provide digital payments. Payment providers should offer tailored business or MSME accounts in the markets they operate in.

- **Coordinate efforts to establish interoperability across mobile-money payment systems as well as with traditional payment methods and banks.** Interoperability of payment systems is a win-win for both banks and non-bank payment platforms and tends to promote competition while reducing fixed costs and leading to economies of scale. Such initiatives are best if done cross-border, e.g., on a regional level.

- **Consider paying government wages, benefits and contracts in electronic form.** Leveraging the clout of the government as a major disburser of payments and support can help move the economy as a whole toward greater adoption of electronic and mobile payments.

Best Practices: Mobile Money in Ghana

Ghana has identified interoperability between mobile-money providers and with bank and automated teller machine (ATM) payment systems as a key measure for improving financial inclusion. On 10 May 2018, the Bank of Ghana launched the country's first **Mobile Money Interoperability System** through the Ghana Interbank Payment and Settlement Systems Limited (GhIPSS).

---

[66] Philip Osafo-Kwaako, Marc Singer, Olivia White and Yassir Zouaoui, *Mobile Money in Emerging Markets: The Business Case for Financial Inclusion* (New York: McKinsey Global Institute, 2018).

[67] International Trade Centre, *New Pathways to e-Commerce*, op. cit.

[68] Harsha Liyanage, "Nations Forgotten: By Global e-Commerce Giants," presentation at the *e-Commerce for Development Conference*, 09 December 2016.

[69] International Trade Centre, *New Pathways to e-Commerce*, op. cit.

2. Build a regulatory framework for e-commerce at home and across borders

In developed countries, clear legislation on e-commerce has enabled the rapid growth of new companies and services. Yet such legislation is lacking in many parts of the world.[70] An adequate legal and regulatory framework enables companies engaged in e-commerce to minimise transactional costs and risks, provides transparency and a level-playing field and protects the rights of citizens and consumers. Still, only about half of the world's countries have legislation on consumer protection (51%) and data protection and privacy (58%).[71]

Most countries need rules in these areas to give citizens and businesses the confidence they need to trade. National rules should be robust, but they should also be based on the principle of openness, permitting foreign companies to operate in markets without artificial barriers, and built around globally recognised legal standards and norms. To facilitate e-commerce, countries may wish to take steps to ensure that their national legislation in the areas of e-transactions, intellectual property, consumer protection and data use remain "equivalent" and broadly comparable with those of its trade partners.

Certain regulations facilitate the development of an Internet economy and protect innovative companies. Intellectual property rights (which includes copyright but also trademarks and patents) and limitations on the liability of Internet intermediaries both help smaller companies operate across borders. In the U.S. and Europe, rules limiting intermediary liability adopted in the 1990s and early 2000s contributed to the rapid growth of e-commerce. And better global coordination of intellectual property rights, such as unified patent rules or single registration of trademarks, lower costs for the protection and use of intellectual property. There can be limits, of course. Courts have found many reasons for curtailing intermediary liability protections, and robust intellectual property rights need to be balanced by measures that stimulate innovation and benefit the public interest.

Other rules help create trust and are increasingly necessary to access markets. International agreements are increasingly coming to include chapters on e-commerce with sections on consumer protection, e-signatures, certificates and data protection.

Compliance with data protection rules is quickly becoming mandatory for access to many markets. The EU's *General Data Protection Regulation* is probably the most comprehensive of these rules to date, but other countries with similar regimes include Argentina, Australia and Canada. Increasingly, text on reaching "equivalent measures" in data protection is being included in trade agreements or agreed through bilateral negotiations.

---

[70] UNCTAD, *Information Economy Report 2017: Digitalisation, Trade and Development* (Geneva: United Nations, 2017).

[71] Ibid.

Best Practices: UNCTAD Data Protection Core Principles and African Union

The United Nations Conference on Trade and Development (UNCTAD) Data Protection Core Principles proposes eight core tenets for building effective data-protection legislation, covering openness, collection limitation, purpose specification, use limitation, security, data quality, access and correction and accountability. The **African Union Convention on Cybersecurity and Personal Data Protection**, adopted in June 2014, aims to harmonise national regulations and activities in both areas and encourages cooperation and harmonisation at African level.

Recommendations

- **Governments and regulators may wish to adapt their legal and regulatory frameworks to enable e-commerce**, possibly by ensuring basic immunity for intermediaries and by adopting joint intellectual property regimes. Intermediary liability rules should ensure equal treatment for services provided from abroad, and minimise requirements for local representatives, particularly for MSMEs. Practical steps for simplifying the protection and use of intellectual property include simplifying rules for registration of a patent, reducing costs and bureaucracy and improving transparency on access and processes.

- **Governments and regulators should strengthen trust in e-commerce by implementing reliable consumer protection rules that facilitate online sales and promote the convergence of data protection rules.** Consumer protection rules should be as harmonised as possible on a regional basis, including concerning restrictions on spam and the right of withdrawal for distance sales (e.g. procedures for returning products acquired through e-commerce). Online dispute resolution can help facilitate problems arising from cross-border sales. Subject to national circumstances, national rules on data protection should reflect international best practice and enshrine certain key principles, such as those proposed in the UNCTAD Data Protection Core Principles: openness, collection limitation, purpose specification, use limitation, security, data quality, access and correction and accountability.[72] Furthermore, countries should develop best practices and strive for global interoperability to ensure that data protection does not become an obstacle to trade.

3. Facilitate cross-border parcel delivery

The digital economy often turns physical. Digital entrepreneurs trading goods online are often hampered by issues related to logistics infrastructure and complicated customs procedures. If people can order something online in one click, parcel delivery also needs to be reasonably quick and predictable. "The share of logistics cost over final price in developing countries is nearly double that in developed countries due to high delivery costs, limited choice of logistics and delivery service providers and challenges in finding warehouses in

---

72 UNCTAD, *Data Protection Regulations and International Data Flow: Implications for Trade and Development* (Geneva: United Nations, 2016).

the destination market," according to a recent International Trade Centre study.[73]

On top of that, gaps in location data (mapping and postal addresses) are a barrier to delivery logistics, as online retailers cannot reliably complete delivery. Poor addressing impacts customer experience, increases the ratio of failed deliveries as well as the number of multiple return trips and undermines trust.[74]

Recommendations

- **Introduce a simplified electronic one-stop clearance process.** Obstacles arise not only from customs agencies, but also from other agencies that require paperwork and declarations

(e.g. taxation, agriculture, health and others). The bureaucracy associated with customs clearance could be significantly simplified by digitising the process and adopting single windows for submitting relevant data and documentation – facilities that allow parties involved in trade and transport to lodge standardised information and documents with a single-entry point to fulfil all import, export and transit-related regulatory requirements.

- **Postal companies and online platforms can consider employing new innovative ways of providing postal addresses and facilitating logistics** (e.g. delivery to local shops by package robots and package vending machines).

Best practices: NIPOST, Geocoding and Single Windows

Through its **Mail for Every House** initiative, NIPOST, the Nigerian postal operator, has set a goal of increasing the number of Nigerians able to receive deliveries at their door to 90% by 2020, up from a starting point of 20%. This goal is facilitated by the use of a geocoding system called **what3words** which assigns a three-word combination to 3x3 meter squares across the world. The **Lao National Single Window**, which grew out of a trade information portal developed with the World Bank and launched in 2016, provides a single web portal to complete all formalities related to import, export and shipment. The service also interfaces with the **ASEAN Single Window**.

2.4 Governing Regional and Global Digital Markets

Access to large domestic and even larger international markets is key to the success of digital entrepreneurs. As alert readers will have noticed, the recommendations throughout this report have all contained strong international components. The complexity of regulation in the digital age calls for deeper partnership and international

cooperation. No government, developing countries included, can afford to approach the development of the digital economy and digital entrepreneurship alone. Rather, they will benefit from a spirit of close cooperation – both with stakeholders at home and across borders. Discussions about technology

---

[73] International Trade Center, *New Pathways to e-Commerce*, op. cit.

[74] About3words, "Improving Delivery Operations with RTT and What3words," *What3words Blog*, 29 March 2018. For more, visit https://what3words.com/2018/03/improving-delivery-operations-with-rtt-and-what3words/.

policy are often both international and global in nature.

This section makes recommendations for how policymakers can work across borders with a variety of actors to achieve the aims of this report with a particular focus on the questions of development aid and monitoring.

1. Establish participative governance at home

Many of the recommendations throughout this report are about setting up a process. Best practice on all of the policy questions raised here are a moving target, with constantly shifting norms and outcomes. This is reflected also in evolving practice in developed countries. Effective policymaking requires a sensitive and frequent feedback loop between government and stakeholders.

Startups and digital entrepreneurs may not have influence and access to government decision-making on par with established companies. Nevertheless, governments can take proactive steps to solicit their feedback and input to policymaking. Startup hubs, business incubators, investors and universities can all take the place of more stable partners or venues to engage with startup communities in a regular and structured manner.

While governments should reach out, other participants in the ecosystem will often do best to organise themselves, establishing representative organisations with clear mandates and policy agendas. Increasingly, communities of practice around digital entrepreneurship are also developing on a regional and global level. By plugging into these communities, national and local networks can grow and benefit from the experience of more developed ecosystems.

Recommendations

- **Develop national digital entrepreneurship strategies.** These programmes should identify the promotion of digital entrepreneurship as a key goal of national digitalisation and economic development agendas.
- **Engage startups, scale-ups and MSMEs in the formulation of national policy** and legislation on topics covered in this report.

2. Build regional digital single markets

Rulemaking for the digital economy is a complex and technical endeavour. Countries may wish to consider regional harmonisation to facilitate rulemaking and ensure a more predictable legal environment for companies trying to scale across a region, thereby avoiding non-tariff barriers to trade. This implies pursuing a basic strategy of both harmonisation and mutual recognition of each other's rules. For the deepest and most comprehensive integration, regional single market initiatives have gone furthest in ensuring the type of convergence needed for the digital economy.

A second, equally important, facet of building regional markets lies in encouraging cross-border links between people and businesses. This can include initiatives to bring the policymaking, business and startup communities closer together. Rulemaking in the digital economy is becoming increasingly complex and regional cooperation also helps pool the analytic and personnel resources of administrations.

The very fact of cooperation at a regional level brings knock-on benefits, such as providing regulatory stability and clout at an international level and signalling to investors the attractiveness of a region as a whole. Regional fora can provide a framework for developing innovation-friendly practices such as regulatory sandboxes and give countries greater clout in their relationships to other regions, developed countries and large multinationals.

Best Practices: Regional Digital Single Markets

Various regional initiatives are looking to build closer regional digital single markets. The **African Union** is beginning to look at building a "single digital market" at African level. The **Association of Southeast Asian Countries (ASEAN)** and **Asia-Pacific Economic Cooperation (APEC)** both have aspects of digital integration as significant parts of their agenda. *El **Mercado Común del Sur (Mercosur)*** – the four-member South American trade bloc founded in 1991 – announced in 2017 that it would form a new digital economy and e-commerce group and adopt a digital agenda. The **European Union** adopted a policy agenda committing to a digital single market in 2015.

Recommendations

- **Countries and international organisations may consider mobilising assistance in support of the creation of regional digital single markets and fostering a sound regulatory and legal environment.** This, in turn, will lay the basis for a more enabling environment for digital entrepreneurship. A more thriving digital economy will result in more skills. And the talent spill-overs will attract more investors and empower innovation that enhances government services, boosts productivity and brings people out of poverty.

- **Use regional initiatives to tackle key challenges identified in this report.** In particular, these initiatives should rely on regional cooperation and international standards when developing rules for new technologies, e.g. artificial intelligence, automated cars or drones; create startup and scale-up programmes at the regional level; foster regional online trade and networking platforms for scaling up; and initiate a structured dialogue between national data protection regulators and startup associations at the regional level.

- **Build bridges between regulators and policymakers in different parts of the world.** This could potentially include the exchange of personnel between agencies and ministries, specific measures to aid attendance at conferences and other capacity building measures. The UNCTAD Intergovernmental Group of Experts on e-Commerce and the Digital Economy could be leveraged in this context.

3. Harness development assistance in support of digital transformation

Startups and digital entrepreneurship cannot run on subsidies. Yet this does not eliminate the need for public investment in infrastructure, skills, seed funding and matching capital for private investment. Developing countries still rely to a great extent on international financial assistance. The share of aid dedicated to ICT and fostering the digital economy in developing countries (and in least developed countries in particular) is still negligible.[75] According to the World Trade Organisation, it constituted only 1.2% of total aid for trade in 2015, down from 3% a decade earlier.[76] Though ICT, e-government and e-commerce are gaining traction as focal areas for

---

[75] UNCTAD, *Information Economy Report 2017: Digitalization, Trade and Development*, op. cit.

[76] WTO, *Aid for Trade Global Review* (Geneva: WTO, 2017).

donors, few have initiatives targeting the question.[77]

More focus should be given to optimising aid assistance by exploring ways in which aid can serve as a catalyst for private investment and reduce developing countries' dependency on aid in the long term. That entails initiatives to encourage and boost regional financial markets and regional venture funds through initiatives, such as regional funds of funds and the design of regional blended instruments; public-private partnerships for the provision of ICT infrastructure and digital capacity building and innovative financial instruments that blend aid with guarantees, equity and loans to multiply the impact of aid provision and generate additional investments.

Best Practice: UNCTAD eTrade for All

UNCTAD's **eTrade for All** initiative gathers 29 international and regional organisations. It aims to make support for developing countries wishing to benefit more from e-commerce and digitalisation more effective and transparent. It is organised around seven policy areas particularly relevant to e-commerce development, including e-commerce assessments, ICT infrastructure and services, payments and logistics, legal and regulatory frameworks, skills development and financing. For the initiative to have the desired impact, it will need to go hand-in-hand with much increased financial support from the international community, including from bilateral donors, development banks and private-sector foundations. UNCTAD also conducts rapid eTrade readiness assessments to assess countries' needs.

Recommendations

- **By 2020, donors and developing countries may consider meeting and agreeing new development assistance targets in support of digital entrepreneurship to be implemented by 2025.** These targets should take into account many of the crucial framework conditions highlighted in this report.

- **Aid recipients need to raise the priority of ICT projects in the funding they request.** To this end, it is important to ensure that least developed countries in particular have knowledge and awareness of what is needed to succeed in the digital economy.

- **International organisations should create common guidelines or principles** on how to integrate ICT and digital entrepreneurship policies into development strategies and how to design and implement effective ICT-enabled entrepreneurial development projects (for instance, a scale-up digital code of principles). They should also support capacity building projects to increase these capabilities in national governments.

- **More focus should be placed on optimising international aid assistance** by exploring the ways in which aid can serve as a catalyst for private investment and reduce developing countries' dependency on aid in the long term.

---

[77] Ibid.

4. Measure, monitor and evaluate

Measurement and monitoring are always important in policymaking, but particularly so in the case of dynamic and fast-moving trends such as digital entrepreneurship. More than in other areas, startup policies need to be designed around specific contexts and continuously adjusted, assessed and fine-tuned based on the changing environment. A data-driven approach is a prerequisite: even in the most advanced economies, startups and their ecosystems evolve too fast to be tracked effectively through official statistics. What's more, innovative policymakers face internal and external resistance when they try to implement digitalisation strategies. Monitoring can help maintain momentum and increase the pressure for change by ranking and comparing the performance of different countries against targets such as those set out in the Digital Entrepreneurship Road Map on page 5.

Yet developing countries typically have lower availability of data and statistical capacity, which adds a layer of complexity to the policy challenge. There is a need for stronger, independent monitoring instruments to make up for the lack of official statistics. A dedicated observatory should be set up to gather data, to monitor trends and to build analytical capacity including data from unofficial sources, such as global startup databases and social media. And the data produced should be released as openly and widely as possible to encourage other players to enrich the data and ensure additional analysis. In addition, the observatory should set up and manage a peer-to-peer monitoring mechanism tracking policy development in different countries in order to elaborate transparent rankings showing how countries perform against the priorities identified in this report. This policy monitoring should aim on one hand to reward the most active countries and incentivise action while facilitating mutual learning and the exchange of good practice.

Recommendations

- **Invest in statistics.** Build competences to gather and analyse data on digital entrepreneurship. Dedicated cross-country observatories should be set up to produce up-to-date information, using official and unofficial data, on national economies. The data and analysis produced by the observatory should be released under open licences to allow third parties to easily reuse and enrich them.

- **Create a monitoring system.** The targets in the road map and the recommendations in this report should be continuously monitored to assess the progress of countries and regions. The results should be reviewed and analysed for the benefit of digital entrepreneurship and made publicly available. The UN Broadband Commission and other bodies may also consider adopting measures to help maintain momentum around defined targets in order to accelerate digital entrepreneurship with global cooperation.

- **Learn what works.** Digital ecosystems grow organically, and there is no single way to achieve these goals. The collective political effort should be accompanied by experimental and learning mechanisms that ensure continuous feedback loops, the sharing of experiences between policymakers and evidence-based analysis of successful approaches.

Bibliography

3

Bibliography

Aboal, Diego, Nelson Noya and Andrés Rius. "Contract Enforcement and Investment: A Systematic Review of the Evidence," *World Development*, Vol. 64, 2014

Accenture. *Getting to Equal: How Digital is Helping Close the Gender Gap at Work* (Paris: Accenture, 2016)

African Development Bank, Organisation for Economic Co-operation and Development, United Nations Development Programme. *African Economic Outlook 2017: Entrepreneurship and Industrialisation* (Abidjan, Paris and New York: African Development Bank, OECD and UNDP, 2017)

African Union. *Ninth African Union Private Sector Forum: Accelerating Africa's Industrialisation through Digitisation and Youth Technopreneurship* (Pretoria: African Union, 2017)

———————————. *First African Union Startup Fest* (Cairo: African Union, 2017)

African Union and African Capacity Building Foundation. *African Union Agenda 2063. African Critical Technical Skills. Key Capacity Dimensions Needed for the First Ten Years of Agenda 2063* (Harare: African Capacity Building Foundation, 2016)

Amin, Mohammad, and Amanda Zarka. *Women Workers in Malaysia's Private Sector* (Washington: Enterprise Surveys, 2017)

Antoninis, Manos, et al. *The Global Education Monitoring Report Gender Review 2018: Meeting Our Commitments to Gender Equality in Education* (Paris: UNESCO, 2018)

Asian-Oceanian Computing Industry Organisation and World Information Technology and Services Alliance. *Reimagining the Digital Era. Digital Transformation. Agendas and Initiatives within the Asia Pacific Economies* (ASOCIO and WITSA, 2017)

Asia Pacific Economic Cooperation Secretariat. "Officials Preview APEC's Digital Development, Inclusion Targets," *APEC Secretariat Press Release*, 14 December 2017

Association of Southeast Asian Nations Secretariat. *Master Plan on ASEAN Connectivity 2025* (Jakarta: ASEAN, 2016)

A.T. Kearney, Jazz Foundation and VEON. *Digital Entrepreneurship Ecosystem in Pakistan in 2017: How Pakistan Can Build a World-Class Digital Ecosystem* (Chicago, Islamabad and Amsterdam: A.T. Kearny, Kyivstar and VEON, 2017)

A.T. Kearney, Kyivstar and VimpelCom. *Digital Entrepreneurship in Ukraine: How Ukraine Can Build a World-Class Digital Ecosystem* (Chicago, Kiev and Amsterdam: A.T. Kearney, Kyivstar and VEON, 2017)

A.T. Kearney and VimpelCom. *Digital Entrepreneurship in Russia: How Russia Can Build a World-Class Digital Ecosystem* (Chicago and Amsterdam: A.T. Kearney and VimpelCom, 2017)

Bakhshi, Hasan, Ian Hargreaves and Paul Hofheinz. *The Creative Economy in Europe: Why Human Beings Remain the Economy's Key Asset* (Brussels and London: the Lisbon Council and Nesta, 2017)

Baller, Silja, Soumitra Dutta and Bruno Lanvin. *The Global Information Technology Report 2016* (Fontainebleau, Geneva and Ithaca: INSEAD, World Economic Forum and Johnson Cornell University, 2016)

Bank of Ghana. *Payment Systems Oversight Annual Report 2016* (Accra: Bank of Ghana, 2016)

Bauer, Matthias, Hosuk Lee-Makiyama, Erik van der Marel and Bert Verschelde. "The Costs of Data Localisation: Friendly Fire on Economic Recovery," *ECIPE*, occasional paper No. 3/2014

Berg, Janine. *Income Security in the On-Demand Economy: Findings and Policy Lessons from a Survey of Crowdworkers* (Geneva: International Labour Organisation, 2016)

Better than Cash Alliance. *Building Inclusive Digital Payments Ecosystems: G20 Guidance Note for Governments* (New York: Better than Cash Alliance, 2017)

-------------. *Social Networks, e-Commerce Platforms and the Growth of Digital Payment Ecosystem in China: What it Means for Other Countries* (New York: Better than Cash Alliance, 2017)

Bourreau, Marc, and Steffen Hoernig. *Interoperability of Mobile Money: International Experience and Recommendations for Mozambique – Final Report* (London: Global Growth Centre, 2016)

Centre Technique de Coopération Agricole et Rurale. *An ICT Agripreneurship Guide* (Brussels: CTA, 2017)

——————————. *Going to Scale with ICTs for Agriculture* (Brussels: CTA, 2017)

——————————. *Embracing Web 2.0 and Social Media: A Life Changing Pathway for Agricultural Development Actors* (Brussels: CTA, 2015)

-------------. *Innover pour l'agriculture: Histoires et témoignages de jeunes entrepreneurs transformant l'agriculture grâce aux nouvelles technologies* (Brussels: CTA, 2016)

——————————. *Stratégie du CTA pour la jeunesse* (Brussels: CTA, 2014)

Chang, Emily. *Brotopia: Breaking Up the Boys' Club of Silicon Valley* (New York: Penguin, 2018)

Collaboration on International ICT Policy for East and Southern Africa. *A Framework for Calculating the Economic Impact of Internet Disruptions in Sub-Saharan Africa* (Kampala: CIPESA, 2017)

Cornell University, INSEAD and the World Intellectual Property Organisation (WIPO). *The Global Innovation Index 2017: Innovation Feeding the World* (Ithaca, Fontainebleau and Geneva: Cornell University, INSEAD and WIPO, 2017)

Cory, Nigel. "Cross-Border Data Flows: Where Are the Barriers, and What Do They Cost?" *ITIF Blogs and Op-eds*, 01 May 2017

C-Tec, Facebook and Morning Consult. *Examining the Impact of Technology on Small Business: How Small Businesses Use Social Media and Digital Platforms to Grow, Sell and Hire* (Washington and Menlo Park: C-Tec, Facebook and Morning Consult, 2018)

Dalberg and Rockefeller Foundation. *Digital Jobs in Africa: Catalysing Inclusive Opportunities for Youth* (Washington and New York: Dalberg and Rockefeller Foundation, 2013)

Disrupt Africa. *African Tech Startups Funding Report 2017* (Cape Town: Disrupt Africa, 2017)

EMERGE Partnership and International Telecommunication Union. *A Review of Micro-, Small- and Medium-Sized Enterprises in the ICT Sector* (Geneva: EMERGE Partnership and ITU, 2016)

eTrade for All. *Connecting the Dots to Secure Development Gains from e-Commerce* (New-York: eTrade for All, 2017)

European Commission. *Accelerating the Digital Transformation of European Industry and Enterprises, Strategic Policy Forum on Digital Entrepreneurship* (Brussels: European Commission, 2016)

——————————. *A Digital Single Market Strategy for Europe* (Brussels: European Commission, 2015)

——————————. *A Stronger Role of the Private Sector in Achieving Inclusive and Sustainable Growth in Developing Countries* (Brussels: European Commission, 2014)

——————————. *Digital4Development: Mainstreaming Digital Technologies and Services into European Union Development Policy* (Brussels: European Commission, 2017)

——————————. *D4D: How to Reach Last Mile: Best Practices and Lessons Learnt* (Brussels: European Commission, 2018)

——————————. *Monitoring the Digital Economy and Society 2016-2021* (Brussels: European Commission, 2015)

——————————. *State of the Union 2016; European Union External Action Plan; Factsheets* (Brussels: European Commission, 2016)

——————————. *Women in the Digital Age* (Brussels: European Commission, 2018)

European Commission and Africa Business Forum. "Conclusions of the High-Level Roundtable on the Digital Economy," *Press Release*, 27 November 2017

European Commission, Start Up Europe and Start Up Europe Comes to Africa. *Startups 4 Africa: Manifesto for the Development of a Thriving Community of African-European Startup Ecosystems* (Brussels: European Commission, 2017)

European Council, European Parliament and European Commission. *The New European Consensus on Development 'Our World, Our Dignity, Our Future'* (Brussels: European Council, European Parliament and European Commission, 2017)

European Internet Forum. *ICT and Development. Examples of Successful Partnerships among Stakeholders in Developing Countries* (Brussels: European Internet Forum, 2007)

European Parliamentary Research Service. *ICT in the Developing World* (Brussels: European Parliament, 2015)

Expert Group to the Broadband Commission for Sustainable Development. *A New Deal: Investing in Our Common Future: Policy Recommendations to Close the Broadband Gap* (Geneva: United Nations, 2018)

Fau, Simon, and Yasmeen Moreau. *Managing Tomorrow's Skills: What Conclusions Can We Draw from International Comparative Indicators?* (Paris: UNESCO, 2018)

Federal Ministry of Economic Cooperation and Development of Germany. *Harnessing the Digital Revolution for Sustainable Development: The Digital Agenda of the BMZ* (Bonn: Federal Ministry of Economic Cooperation and Development, 2017)

——————————. *Glossary – Digitalisation and Sustainable Development* (Bonn: Federal Ministry of Economic Cooperation and Development, 2018)

——————————. *Toolkit – Digitalisation in Development Cooperation and International Cooperation in Education, Culture and Media* (Bonn: Federal Ministry of Economic Cooperation and Development, 2018)

——————————. *Women's Pathways to the Digital Sector: Stories of Opportunities and Challenges* (Bonn: Federal Ministry of Economic Cooperation and Development, 2017)

Feinstein, Eran. "The Latest in African Fintech 2017 and Forecasts for 2018," *DPO Blog*, 13 December 2017

Fredriksson, Torbjörn, et al. *Information Economy Report 2017: Digitalisation, Trade and Development* (Geneva: UNCTAD, 2017)

Garcia Ramilo, Chat. *Gender Issues and Tools for SME and ICT* (Qingdao: Science Council of Asia, 2008)

GhanaWeb. "Mobile Money Interoperability Starts on 10 May," *GhanaWeb Blog*, 22 April 2018

Gillwald, Alison. *Broadband 4 Africa – Ensuring Economic and Social Inclusion* (Cape Town: Research ICT Africa, 2016)

Giuliani, Dario. "Africa: A Look at the 442 Active Tech Hubs of the Continent," *GSM Association Blog*, 22 March 2018

Global Connectivity Index. *Harnessing the Power of Connectivity Mapping your Transformation into a Digital Economy with GCI 2017* (Shenzhen: Huawei, 2017)

Global Entrepreneurship and Development Institute. *Global Entrepreneurship Index 2018* (Washington: Global Entrepreneurship and Development Institute, 2017)

Global Entrepreneurship Research Association. *Global Entrepreneurship Monitor (GEM): Women's Entrepreneurship 2016/2017 Report* (Boston: GEM, 2017)

Global e-Schools and Communities Initiative and African Leadership in ICT. *Assessment of Environmental, Institutional and Individual Leadership Capacity Needs for the Knowledge Society in Africa: A Situational and Needs Analysis in Four Countries Mauritius, South Africa, Tanzania, Zambia − A Situational Needs Analysis* (Dublin: GESCI, 2011)

Global Partnership for Financial Inclusion. *Strengthening Access to Finance for Women-Owned SMEs in Developing Countries* (Washington: IFC, 2011)

GSM Association (GSMA). *APIs: A Bridge Between Mobile Operators and Startups in Emerging Markets* (London: GSMA, 2017)

——————————. *Building Synergies: How Mobile Operators and Startups Can Partner for Impact in Emerging Markets* (London: GSMA, 2017)

——————————. *Corporate Venture Capital: An Opportunity for Mobile Operators and Startups in Emerging Markets* (London: GSMA, 2017)

——————————. *Connected Women: The Mobile Gender Gap Report 2018* (London: GSMA, 2017)

——————————. *Opening Doors: A Startup's Guide to Working with Mobile Operators in Emerging Markets* (London: GSMA, 2017)

——————————. *Startups and Mobile in Emerging Markets: Insights from the GSMA Ecosystem Accelerator* (London: GSMA, 2017)

——————————. *The Mobile Economy 2017* (London: GSMA, 2017)

——————————. *The Mobile Economy 2018* (London: GSMA, 2018)

——————————. *2017 Mobile Industry Report: Sustainable Development Goals* (London: GSMA, 2017)

I4policy. *Africa Innovation Policy Manifesto V1.2, Co-Created and Adopted at the African Innovation Hub Convention 06-07 May 2018, Kigali, Rwanda* (Kigali: Innovation for Policy Alliance, 2018)

International Finance Corporation. *Development Impact Report 2015; Advancing Innovation in Africa* (South Africa: IFC, 2016)

——————————. *MSME Finance Gap* (Washington: IFC, 2017)

——————————. *Strengthening Access to Finance for Women-Owned SMEs in Developing Countries* (Washington: IFC, 2011)

International Labour Organisation. *Global Employment Trends for Youth 2017: Paths to A Better Working Future* (Geneva: ILO, 2017)

International Telecommunication Union. *Bridging the Digital Innovation Divide: A Toolkit for Strengthening ICT Centric Ecosystems* (Geneva: ITU, 2017)

——————. *Digital Skills Toolkit* (Geneva: ITU, 2018)

——————. *Electronic Government for Developing Countries* (Geneva: ITU, 2008)

——————. *ICT Centric Innovation Ecosystem: Country Review: Republic of Moldova* (Geneva: ITU, 2017)

——————. *ICT Facts and Figures 2017* (Geneva: ITU, 2017)

——————. *Measuring the Information Society Report 2017, Vol. 2. ICT Country Profiles* (Geneva: ITU, 2017)

——————. *A Review of Micro-, Small- and Medium-Sized Enterprises in the ICT Sector* (Geneva: ITU, 2016)

——————. *Trends in Tech MSMEs and Startup Support* (Geneva: ITU, 2017)

International Trade Centre. *Aid for Trade at a Glance 2017: Closing the Small Business and Gender Gap to Make Trade More Inclusive* (Geneva: ITC, 2017)

——————. *Bringing SMEs onto the e-Commerce Highway* (Geneva: ITC, 2016)

——————. *E-Commerce in China: Opportunities for Asian Firms* (Geneva: ITC, 2016)

——————. *International e-Commerce in Africa: The Way Forward* (Geneva: ITC, 2015)

——————. *New Pathways to e-Commerce: A Global MSME Competitiveness Survey* (Geneva: ITC, 2017)

——————. *SME Competitiveness Outlook 2015: Connect, Compete and Change for Inclusive Growth* (Geneva: ITC, 2015)

——————. *Status, Opportunities and Challenges of BRICS e-Commerce* (Geneva: ITC, 2017)

Jakimowicz, Katarzyna, Stéphanie Lepczynski, David Osimo and Ilaria Vigo. *Women, Technology and Entrepreneurship: How European Women Use Technology to Get Ahead and Why It Matters for Europe as a Whole* (Brussels: the Lisbon Council, 2018)

Jenik, Ivo, and Kate Lauer. *Regulatory Sandboxes and Financial Inclusion* (Washington: CGAP, 2017)

Kende, Michael, and Richard Morgan. *Overview of Single Digital Market Vision for East Africa* (London: Analysys Mason, 2017)

Kuntchev, Veselin, Rita Ramalho, Jorge Rodríguez-Meza and Judy S. Yang. *What Have We Learned from the Enterprise Surveys Regarding Access to Credit by MSMEs?* (Washington: Enterprise Surveys, 2014)

Kushnir, Khrystyna, Melina Laura Mirmulstein and Rita Ramalho. *Micro, Small, and Medium Enterprises around the World: How Many are There, and What Affects the Count?* (Washington: International Finance Corporation, 2010)

Kushnir, Khrystyna. *Methodology Note on the MSME Country Indicators (MSME-CI)* (Washington: International Finance Corporation, 2010)

Liyanage, Harsha. "Nations Forgotten: By Global e-Commerce Giants," presentation at the *e-Commerce for Development Conference*, 09 December 2016

Locke, Chris, and Marissa Drouillard. *Enabling Entrepreneurs in a Mobile World* (Amsterdam and Farnham: VimpelCom and Caribou Digital, 2014)

Manyika, James, Susan Lund, Marc Singer, Olivia White and Chris Berry. *Digital Finance for All: Powering Inclusive Growth in Emerging Economies* (San Francisco: McKinsey Global Institute, 2016)

ManpowerGroup. *2016/2017 Talent Shortage Survey* (Milwaukee: ManpowerGroup, 2017)

Mate, Rosie, and Greg Rafert. *The Global and Country-Level Economic Impacts of WhatsApp* (Boston: Analysis Group, 2017)

Mengez, Michael. *Broadband for National Development in Four LDCs*, forthcoming

Ndung'u, Njuguna. "Harnessing Africa's Digital Potential: New Tools for a New Age," *Foresight Africa 2018 Report* (Washington: Brookings, 2018)

O'Connor, Brendan. "Quantifying the Cost of Forced Localisation," *Leviathan Security Group Blog*, 24 June 2015

Organisation for Economic Co-operation and Development. *African Economic Outlook 2017, Entrepreneurship and Industrialisation* (Paris: OECD, 2017)

——————————. *Education at a Glance 2017* (Paris: OECD, 2017)

——————————. *Enhancing the Contributions of MSMEs in a Global and Digitalised Economy* (Paris: OECD, 2017)

——————————. *Financing SMEs and Entrepreneurs 2018: An OECD Scoreboard* (Paris: OECD, 2018)

——————————. *Going Digital: Making the Transformation Work for Growth and Well-Being* (Paris: OECD, 2017)

——————————. *Going Digital: The Future of Work for Women* (Paris: OECD, 2017)

——————————. *Making Blended Finance Work for the Sustainable Development Goals* (Paris: OECD, 2018)

————————. *Measuring the Digital Economy: A New Perspective* (Paris: OECD, 2014)

————————. *Moving between Jobs: An Analysis of Occupation Distances and Skill Needs* (Paris: OECD, 2018)

OECD Observer. *i-Sheet: The Digital Economy* (Paris: OECD, 2016)

Osimo, David, and the Startup Manifesto Policy Tracker Crowdsourcing Community. *The 2016 Startup Nation Scoreboard: How European Union Countries are Improving Policy Frameworks and Developing Powerful Ecosystems for Entrepreneurs* (Brussels and London: the Lisbon Council and Nesta, 2016)

Overseas Development Institute. *Multi-Stakeholder Partnerships* (London: Overseas Development Institute, 2003)

Owens, John Vincent, and Lisa Wilhelm. *Alternative Data Transforming SME Finance* (Berlin and Washington: G20 Germany 2017, SME Finance Forum and World Bank, 2017)

PwC and CB Insights. *MoneyTree Report Q4 2017* (London and New York: PwC and CB Insights, 2017)

Rosling, Hans, Ann Rosling Rönnlund and Ola Rosling. *Factfulness: Ten Reasons We're Wrong About the World and Why Things Are Better than You Think* (London: Flatiron, 2018)

Rowntree, Oliver. *Connected Women: The Mobile Gender Gap Report 2018* (London: GSMA, 2018)

Seedstars. *The Rising Startup Ecosystem. Impacting People's Lives through Technology and Entrepreneurship* (Geneva: Seedstars, 2016)

Singer, Peter L., and William B. Bonvillian. "Innovation Orchards: Helping Tech Start-Ups Scale" *ITIF Blogs and Op-eds*, 27 March 2017

Startup Genome. *Global Startup Ecosystem Report 2017* (San Francisco: Startup Genome, 2017)

Shepherd, Ben, Gita Honwana Welch, Henry Thompson and Adjoa Anyimadu. *Developing Businesses of Scale in Sub-Saharan Africa Insights from Nigeria, Tanzania, Uganda and Zambia* (London: Chatham House, 2017)

Supporting Economic Transformation. *Digitalisation and the Future of Manufacturing in Africa* (London: SEP, 2018)

United Nations. *United Nations e-Government Survey 2016. E-Government in Support of Sustainable Development* (New York: UN, 2016)

United Nations Broadband Commission for Sustainable Development. *A New Deal: Investing in Our Common Future; Policy Recommendations to Close the Broadband Gap* (Geneva and Paris: ITU and UNESCO, 2018)

————————. *2025 Targets: "Connecting the Other Half"* (Geneva: World Economic Forum, 2018)

——————————. *The State of Broadband Report: Broadband Catalysing Sustainable Development* (Geneva and Paris: ITU and UNESCO, 2017)

——————————. *Working Group on the Digital Gender Divide: Recommendations for Action: Bridging the Gender Gap in Internet and Broadband Access and Use* (Geneva and Paris: ITU and UNESCO, 2017)

——————————. *Working Group on the Digital Gender Divide: Bridging the Gender Gap in Internet and Broadband Access and Use. Progress Report September 2017* (Geneva and Paris: ITU and UNESCO, 2017)

——————————. *Working Group on Education; Digital Skills for Life and Work; Working Group on Education – Digital Skills for Life and Work* (Geneva and Paris: ITU and UNESCO, 2017)

United Nations Conference on Trade and Development (UNCTAD). *Data Protection Regulations and International Data Flows: Implications for Trade and Development* (Geneva: UNCTAD, 2016)

——————————. *Digitalisation, Trade and Development* (Geneva: UNCTAD, 2017)

——————————. *Empowering Women Entrepreneurs Through Information and Communications Technologies: A Practical Guide* (Geneva: UNCTAD, 2014)

——————————. *Fostering Development Gains from e-Commerce and Digital Platforms* (Geneva: UNCTAD, 2018)

——————————. *Information Economy Report 2011: ICT as an Enabler for Private Sector Development* (Geneva: UNCTAD, 2011)

——————————. *Information Economy Report 2012: The Software Industry and Developing Countries* (Geneva: UNCTAD, 2012)

——————————. *Information Economy Report 2013: The Cloud Economy and Developing Countries* (Geneva: UNCTAD, 2013)

——————————. *Information Economy Report 2015: Unlocking the Potential of e-Commerce for Developing Countries* (Geneva: UNCTAD, 2015)

——————————. *Information Economy Report 2017: Digitalisation, Trade and Development* (Geneva: UNCTAD, 2012)

——————————. *Investment and the Digital Economy* (Geneva: UNCTAD, 2017)

——————————. *The Least Developed Countries Report 2012. Harnessing Remittances and Diaspora Knowledge to Build Productive Capacities* (New York and Geneva: UNCTAD, 2013)

——————————. *UNCTAD B2C e-Commerce Index 2017; UNCTAD Technical Notes on ICT for Development No. 9* (Geneva: UNCTAD, 2017)

——————————. *Unlocking the Potential of e-Commerce for Developing Countries* (Geneva: UNCTAD, 2015)

United Nations Department of Economic and Social Council. *Towards Sustainable and Resilient Societies: Innovation and Inter-Connectivity for Social Development* (Geneva: United Nations, 2018)

United Nations Economic Commission for Africa. *Economic Report on Africa 2015* (Addis Ababa: United Nations, 2015)

UNESCO and United Nations Girls Education Initiative. *Global Education Monitoring Report Gender Review 2018. Our Commitments to Gender Equality in Education* (Paris: UNESCO, 2018)

United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States. *Leveraging Investments in Broadband for National Development: The Case of Rwanda and Senegal* (Washington: UN-OHRLLS, 2017)

United States Trade Representative. *Fact Sheet: Key Barriers to Digital Trade* (Washington: USTR, 2016)

VEON. *VEON Sustainability Report 2017* (Amsterdam: VEON, 2018)

Verhulst, Stefaan G., and Andrew Young. *Open Data in Developing Economies* (New York: The GovLab, 2017)

West, Darrell M. *Internet Shutdowns Cost Countries $2.4 Billion Last Year* (Washington: Brookings, 2016)

World Bank Group. *Africa's Pulse; An Analysis of Issues Shaping Africa's Economic Future* (Washington: World Bank Group, 2017)

——————————. *Digital Dividends: How Tech Hubs are Helping to Drive Economic Growth in Africa* (Washington: World Bank Group, 2017)

——————————. *Doing Business 2018; Reforming to Create Jobs; Comparing Business Regulation for Domestic Firms in 190 Economies* (Washington: International Bank for Reconstruction and Development, World Bank Group, 2018)

——————————. *Doing Business Digitally: Conceptual Framework for Rollout* (unpublished)

——————————. *Do mLabs Still Make a Difference? A Second Assessment* (Washington: World Bank Group, 2017)

——————————. *Growth Entrepreneurship in Developing Countries: A Preliminary Literature Review* (Washington: World Bank Group, 2016)

——————————. *ICT for Greater Development Impact: World Bank Group Strategy for Information and Communication Technology* (Washington: World Bank Group, 2012)

——————————. *Mobile at the Base of the Pyramid: Ghana, Mozambique, Nigeria, Zambia* (Washington: World Bank Group, 2014)

——————————. *Principles on Identification for Sustainable Development: Toward the Digital Age* (Washington: World Bank Group, 2017)

——————. *Reaping Digital Dividends: Leveraging the Internet for Development in Europe and Central Asia* (Washington: World Bank Group, 2017)

——————. *Single Digital Market for East Africa* (Washington: World Bank Group, 2017)

——————. *What's Holding Back the Private Sector in MENA?* (Washington: World Bank Group, 2016)

——————. *World Development Report 2016: Digital Dividends* (Washington: World Bank Group, 2016)

World Bank Ghana Office. *Access to Finance for MSMEs* (Accra: African Center for Economic Transformation (ACET) and the World Bank Group, 2016)

World Economic Forum. *Executive Briefing: The Future of Jobs and Skills in Africa: Preparing the Region for the Fourth Industrial Revolution* (Geneva: World Economic Forum, 2017)

World Trade Organisation. *Trade Finance and MSMEs: Bridging the Gaps in Provision* (Geneva: WTO, 2016)

——————. *World Trade Report 2016: Levelling the Trading Field for SMEs* (Geneva: World Trade Organisation, 2016)

World Trade Organisation and Organisation for Economic Co-operation and Development. *Aid for Trade at a Glance 2017: Promoting Trade, Inclusiveness and Connectivity for Sustainable Development* (Geneva and Paris: WTO and OECD, 2017)

——————. *"Aid-for-Trade Flows and Financing,"* in Aid for Trade at a Glance 2013 (Geneva and Paris: WTO and OECD, 2013)

World Wide Web Foundation. *Open Data Barometer Global Report, Fourth Edition* (Geneva: World Wide Web Foundation, 2017)

Working Group on Digital Entrepreneurship & Acknowledgements

4

Working Group on Digital Entrepreneurship

Chair
Andrus Ansip, vice-president for the digital single market, European Commission (chair of the Working Group)

Amani Abou-Zeid, commissioner for infrastructure, energy, information and communications technology and tourism, African Union

Audrey Azoulay, director-general, United Nations Educational, Scientific and Cultural Organisation (UNESCO)

Kathy Calvin, president and chief executive officer, United Nations Foundation

Peter Cleveland, vice president of the law and policy group, Intel Corporation

Piotr Dmochowski-Lipski, executive secretary, European Telecommunications Satellite Organisation (EUTELSAT IGO)

Scott Gegenheimer, group chief executive officer, Zain Group

Arancha González, executive director, International Trade Centre (ITC)

Mats Granryd, director general and member of the board, the GSM Association (GSMA)

Angel Gurría, secretary-general, Organisation for Economic Co-operation and Development (OECD)

Carlos M. Jarque, executive director, international relations, corporate and government affairs, America Movil

H.E. Paul Kagame, president, Republic of Rwanda

Mukhisa Kituyi, secretary-general, United Nations Conference on Trade and Development (UNCTAD)

Keng Thai Leong, deputy chief executive, Infocomm Media Development Authority (IMDA), Singapore

Mark MacGann, group chief corporate and public affairs officer and member of the global executive committee, VEON Ltd.; co-founder, Moonshot Ventures

Kevin Martin, vice president, mobile and global access policy, Facebook, Inc.

Patrick Masambu, director-general, International Telecommunications Satellite Organisation (ITSO)

Paul Mitchell, general manager, technology policy, Microsoft Corporation

Sunil Bharti Mittal, founder and chairman, Bharti Enterprises

Phumzile Mlambo-Ngcuka, executive director, United Nations Women; under-secretary-general, United Nations

Speranza Ndege, director, Kenyatta University Television and Radio Services (KUTVRS)

Jean-Philbert Nsengimana, former minister of youth and information- and communications-technology, Rwanda; special adviser, Smart Africa Org

Denis O'Brien, chairman, Digicel Group

Rupert Pearce, chief executive officer, Inmarsat

Anusha Rahman Khan, former minister of state for information technology and telecommunication, Pakistan

Abdulaziz Bin Salem Al Ruwais, governor, Communications and Information Technology Commission (CITC), Saudi Arabia

Stephen Spengler, chief executive officer, Intelsat

Rajeev Suri, president and chief executive officer, Nokia

Fekitamoeloa Katoa 'Utoikamanu of Tonga, under secretary-general and high-representative for the least developed countries, landlocked developing countries and small island developing states, United Nations (UN-OHRLLS)

Sun Yafang, chairwoman, Huawei Technologies Co., Ltd.

Houlin Zhao, secretary-general, International Telecommunication Union (ITU)

Acknowledgements

For more information, visit www.broadbandcommission.org.

BROADBAND COMMISSION
FOR SUSTAINABLE DEVELOPMENT