GSMA

2020 Mobile Industry Impact Report: Sustainable Development Goals

September 2020

The GSMA represents the interests of mobile operators worldwide, uniting more than 750 operators with nearly 400 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces the industry-leading MWC events held annually in Barcelona, Los Angeles and Shanghai, as well as the Mobile 360 Series of regional conferences.

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A message from Mats Granryd, GSMA Director General

Five years have passed since the launch of the UN Sustainable Development Goals (SDGs) and the mobile industry stepped forward and committed to all 17 Goals. Every year since, we have produced this report to provide an update on progress, highlight successes and identify areas that require even more considerable effort.

The experience of the last five years pulls into very sharp focus the ten-year road still ahead of us, until 2030. And so we must ask in this year's report – how have we done? And what areas do we need to continue, reinforce, adjust or rethink for the Decade of Action that we are entering?

There is no denying the fact that as a society we are currently not on track to achieve the SDGs, and that the ten years ahead are going to be difficult, uphill every step of the way. Add to that the unimaginable and largescale challenge of COVID-19, and we realise that now is the time to mobilise our very best strength and resilience based on our experience and know-how, while at the same time establishing innovative partnerships and refreshed ways of working.

Mobile technology remains at the centre of how we address our most significant global challenges. With half of humanity in lockdown earlier this year, mobile networks were stress-tested but withstood the unexpected massive surges in data use. Thanks to continual investment in recent years, mobile infrastructure has proved robust and resilient, serving as the cornerstone of continuity and recovery. This is reflected in SDG 9: Industry, Innovation and Infrastructure, where the mobile industry continues to achieve its highest impact.

And we have observed something else this year – the increased vulnerability of those who suffer the digital divide. In emerging markets, where mobile is the primary access technology but the mobile adoption

rate is lower than in developed markets, we are seeing that the poorest and most vulnerable people are disproportionately affected by this pandemic. Mobile operators have continued to innovate in addressing the digital divide, providing access to vital information, including health and education regardless of geography. SDG 4: Quality Education is where the mobile industry has achieved its most improved contribution over the last five years.

At this moment of reflection, we can stop to recognise the progress made to date against the SDGs. Still, much more important now is our determination to overcome added obstacles until 2030. Right now, we must commit to do more and to do it faster. We need to extend mobile connectivity to those that remain offline, whether due to lack of access or the more critical lack of usage. In this ever-changing and uncertain world, revived and collaborative partnerships across different industries and the public and private sectors have never been more necessary to our future.

Mats Granryd
Director General
GSMA

A message from Sanda Ojiambo, United Nations Global Compact CEO

In January of this year, United Nations Secretary-General António Guterres launched an ambitious Decade of Action to fulfil the promise of the 2030 Agenda for Sustainable Development. Taking stock of mixed progress, to date, on the 17 Sustainable Development Goals agreed by world leaders in 2015, the Secretary-General called for accelerated action at all levels over the next ten years.

"We need to move together," he said, "leaving no one behind."

That call to action came just months ago, and yet so much has changed since then. Tragically, the COVID-19 pandemic has fuelled a worldwide crisis in public health and economic and human development. Like many past crises, this one is affecting the world's poorest and most vulnerable communities disproportionately. By year's end, the pandemic could push more than 70 million people back into extreme poverty, the first increase in global poverty in two decades.

What has not changed since the January launch of the Decade of Action is the need to build a strong framework for a healthy, successful future. Indeed, it is more urgent than ever. The business community – very much including the mobile industry – can play a key role in making such a future a reality for everyone.

The past few months have given us all an opportunity to rethink what the "new normal" will look like after COVID-19. At the United Nations Global Compact, we have redoubled our cooperation with thousands of companies and like-minded partners committed to sustainable business principles and practices. By leveraging the private sector's market-driven solutions and resources, we continue working hard to support the 2030 Agenda. And while the current crisis brings new and daunting challenges, it has only sharpened our focus.

It is clear that the time for incremental improvements has passed, and the "new normal" will require transformational change. In business enterprises large and small, transformation begins with incorporating sustainability into their core values.

It is clear, as well, that widely expanded access to mobile and other low-cost, high-impact digital solutions can transform the lives of billions of people globally. Deployed at scale, mobile technology has the potential to advance sustainability profoundly, from agriculture, education and healthcare to energy, finance and logistics.

As the voice of the mobile industry – one of the first business sectors to commit to the Sustainable Development Goals – the GSMA is uniquely positioned to track the impact of mobile technology. The following report does just that, covering the industry's contributions to sustainability in 2019. It provides vital guidance for the GSMA, together with its public and private partners, to reach underserved communities through new mobile initiatives and applications.

We are still a long way from achieving the goals set forth in the 2030 Agenda, but the map to success is before us. For the mobile industry and the business community at large, the signposts are leadership, collaboration, investment and innovation. At this defining moment, let us move forward, united in the business of a better world.

Sanda Ojiambo
CEO & Executive Director,
United Nations Global Compact

01

Introduction and key findings

The start of 2020 marked almost five years since the Sustainable Development Goals (SDGs) were adopted, leaving just ten years remaining to achieve them. While significant progress had been made since 2015, including reductions in global poverty and maternal and child mortality rates, it was recognised by governments and the international community that the world was not on track to deliver the 2030 Agenda for Sustainable Development. The reduction in poverty was slowing down, the number of people suffering from hunger was on the rise, climate change was occurring much faster than anticipated and inequality continued to increase within and among countries.[1] In this context, the UN Secretary-General launched a Decade of Action to deliver the SDGs and accelerate the pace and scale of implementation.[2]

> During this unprecedented global crisis, the telecom sector has been uniquely positioned to influence shared future outcomes, provide support to each and every stakeholder and have a significant impact on the entire economy. We are thus advancing a digital transformation agenda with sustainability as the central principle. The SDGs lie at the core of human development and progress – the ICT sector's commitment to contributing towards these goals is a testimony of 'business as a force for good'.
>
> **Sunil Bharti Mittal,** Bharti Airtel Chairman

1   Progress towards the Sustainable Development Goals, United Nations, 2020
2   https://www.un.org/sustainabledevelopment/decade-of-action/

The COVID-19 pandemic has since unleashed an economic and human development crisis. As of 1 August 2020, there had been almost 20 million confirmed COVID-19 cases globally and more than 700,000 confirmed deaths.[3] In addition, half of the world's population was subject to lockdown measures at some point in the first half of the year.[4] The subsequent economic and social impacts have been staggering – in the short term global GDP is expected to fall by 4.9% in 2020[5] (the largest contraction since the Great Depression) and over 1.6 billion children (90% of the world's student population) have been unable to attend school.[6] Health systems have been overwhelmed by COVID-19. Given the uncertainty of how the virus will spread going forwards, it is not clear what the full implications of the pandemic will be. However, the poorest and most vulnerable people will likely be disproportionately affected. In 2020, it is expected that more than 70 million people will be pushed back into extreme poverty, the first increase in global poverty in more than two decades.[7] The UN is also forecasting an overall decline in global human development for the first time since 1990.[8]

In these unprecedented times, the world's dependency on digital technology has never been greater. COVID-19 has demonstrated how fundamental information and communication technologies (ICTs) are to societies and economies everywhere. They have ensured the functioning of emergency services, allowed separated families and friends to stay informed and connected, and enabled large parts of the workforce to continue working productively during the crisis. The situation has also fostered innovation, including new ways to deliver education and healthcare remotely. However, COVID-19 has also reinforced the impacts of the digital divide, with the unconnected – who tend to be poorer, have lower levels of education and live in rural areas – less able to mitigate the economic and social disruptions to their lives.

This fifth annual SDG impact report shows what the mobile industry has achieved during the past five years. With more than 5 billion subscribers and almost 4 billion mobile internet users globally, mobile technology is the primary – often only – method of digital access for people around the world. By expanding connectivity and making new digital services available at the touch of a button, mobile has driven significant social, economic and environmental benefits and has contributed to all 17 SDGs. However, faster action and mobilisation is needed in a post-COVID-19 world to protect the gains that have been made since 2015 and to accelerate progress to deliver the 2030 Agenda.

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3   Johns Hopkins CSSE. Note: The CSSE states that its numbers rely upon publicly available data from multiple sources, which do not always agree.

4   Agence France-Presse

5   A Crisis Like No Other, An Uncertain Recovery, World Economic Outlook Update, June 2020

6   Sustainable Development Goals Report 2020, United Nations, 2020

7   See footnote 6

8   COVID-19 and Human Development, United Nations, 2020

2019 Key findings
Five years of progress

SINCE 2015, THE MOBILE INDUSTRY HAS INCREASED ITS IMPACT EVERY YEAR ON EACH OF THE 17 SDGs

33% ➡ 48%
2015   **2019**

In 2019, the average SDG impact score across the 17 Goals increased to **48**. This score translates to the industry achieving **48%** of its potential contribution to the SDGs – up from **33%** in 2015.

WITH THE USAGE OF MOBILE SERVICES ACCELERATING GLOBALLY, THE INDUSTRY'S IMPACT ON THE SDGs IN 2019 GREW FASTER THAN EVER BEFORE

For example, 1.6 billion mobile subscribers use their phone to improve or monitor their health, representing an increase of **330 million** since 2018. Moreover, 2.3 billion subscribers use mobile financial services, an increase of **620 million** since 2018.

MOBILE CONNECTIVITY HAS DRIVEN SIGNIFICANT ECONOMIC, SOCIAL AND ENVIRONMENTAL GAINS

Since 2015, mobile connectivity has contributed an incremental **$360 billion** in global GDP, or **4%** of overall growth. In the same timeframe, the industry has increased global employment by around **5 million**; in 2019, it supported roughly **30 million** jobs. The use of mobile technology has also powered a global reduction in greenhouse gas (GHG) emissions that is 10 times greater than the global carbon footprint of the mobile industry itself.

MOBILE AND MOBILE INTERNET ADOPTION UNDERPIN THE INDUSTRY'S IMPACT ACROSS ALL 17 SDGs

5.1bn

By the end of 2019, **5.1 billion** people (66% of the global population) were using a mobile phone, an increase of **600 million** people compared to 2015. In addition, **3.8 billion** people (49% of the global population) were using mobile internet, representing an increase of **1.1 billion** people since 2015.

HIGHEST IMPACT

THE MOBILE INDUSTRY CONTINUES TO ACHIEVE ITS HIGHEST IMPACT ON SDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE, DRIVEN BY EXTENSIVE MOBILE NETWORK COVERAGE

3G 92% GLOBAL COVERAGE

4G 85% GLOBAL COVERAGE

Between 2015 and 2019, 3G population coverage increased from **83%** to **92%** (equivalent to **900 million** additional people covered), while 4G population coverage grew from **55%** to **85%** (equivalent to **2.5 billion** additional people covered). This infrastructure plays a vital role in stimulating inclusive and sustainable development, as well as greater innovation.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

MOST IMPROVED

THE MOBILE INDUSTRY ACHIEVED ITS MOST IMPROVED CONTRIBUTION IN SDG 4: QUALITY EDUCATION

This was a result of an additional **610 million** individuals using mobile to access educational information for themselves or their children in 2019, taking the total to **2 billion people** (equivalent to 40% of mobile subscribers).

2billion

USING MOBILE TO ACCESS EDUCATION

4 QUALITY EDUCATION

Ten years to go
Looking ahead to 2030

USAGE ACCOUNTS FOR 40% OF THE GAP IN THE INDUSTRY MAXIMISING ITS IMPACT ON THE SDGs

When usage of mobile services grows, so does the impact on the SDGs. Unless the mobile industry and its partners act faster, we estimate that the industry will achieve around 70% of its full potential impact on the SDGs by 2030.

THE SHIFT IN BEHAVIOUR REQUIRED TO INCREASE THE USAGE OF MOBILE-ENABLED SERVICES COULD BE OCCURRING DURING THE COVID-19 PANDEMIC
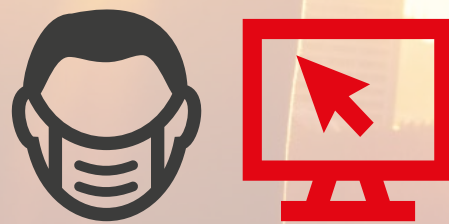
With lockdown measures in place in many countries, individuals have become increasingly reliant on digital services. Throughout this crisis, networks have remained resilient, despite the uptick in usage, due to the investments made by mobile operators.

BUT THE PANDEMIC THREATENS TO SLOW THE INDUSTRY'S PROGRESS IN OTHER AREAS

For instance, the rate of mobile and mobile internet adoption could slow in low- and middle-income countries (LMICs) due to income loss among individuals and businesses, while the economic uncertainty could also constrain 5G rollouts and enterprise funding for IoT projects.

EFFECTIVE PARTNERSHIPS UNDERPIN THE INDUSTRY'S ACHIEVEMENTS ON THE SDGS AND WILL BE ESSENTIAL TO ACCELERATE IMPACT

The progress made by the mobile industry on all 17 Goals would not be possible without multi-stakeholder partnerships involving the public sector, NGOs and other industries. It is vital that the current spirit of cooperation that has been fostered by the COVID-19 pandemic continues in order to meet future challenges.

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The mobile industry's impact on the SDGs

The COVID-19 pandemic has demonstrated how fundamental digital technologies are to societies and economies everywhere, bringing new awareness of the power and potential of a digitally enabled world. With more than 5 billion individuals using a mobile phone, and 7 billion people covered by a mobile network, the reach of mobile technology remains unparalleled. The technology provides individuals an unrivalled platform to access essential communications and life-enhancing services. With more and more people using mobile every year, the industry continues to increase its impact on all 17 SDGs. However, with 10 years left to achieve the 2030 SDG targets, it is incumbent on the mobile industry, policymakers and the wider ecosystem to act faster to maximise mobile's potential within the next decade.

Measuring SDG Impact

This report applies the same methodology used in previous Mobile Industry Impact reports to measure the impact of the mobile industry across all 17 SDGs. For each SDG, an 'impact score' is calculated out of 100. A score of 0 means the industry is having no impact at all, while a score of 100 means the industry is doing everything possible to contribute to that SDG. The impact scores are underpinned by two enablers: connectivity and sustainable business practices. A more detailed description is provided in the SDG Impact Methodology document.[9]

Operators deploy networks to connect the unconnected and facilitate access to mobile-enabled services. Connectivity can be broken down into three parts:

Connectivity
(Consumers/businesses)

Providing connectivity drives the industry's impact on the SDGs

Coverage: The proportion of the population covered by a 2G, 3G or 4G network.

Adoption: The penetration of mobile and mobile internet services among the population. We also consider the adoption of IoT services across different consumer and enterprise verticals.

Usage: The percentage of subscribers that use mobile phones to access particular life-enhancing applications beyond communication, including digital finance, health and clean energy. We refer to these as mobile-enabled services in this report.

Operators have significant direct impacts, both positive and negative, on the SDGs through the environmental and social performance of their operations.

Operating responsibly
(Underpinned by sustainable business practices)

How operators incorporate sustainability into their business activity influences the SDGs

Operating responsibly: One pillar of the GSMA Sustainability Assessment Framework, 'Operating Responsibly', captures operator management and performance on key social, ethical and environmental sustainability issues within their own operations and value chains.

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9   See https://www.gsma.com/betterfuture/2020sdgimpactreport

2.1 Five years of progress

The mobile industry's impact on the SDGs gains momentum

In 2015, the year in which the 2030 Agenda for Sustainable Development was adopted, the mobile industry's average SDG impact score was 33. SDG 9: Industry, Innovation and Infrastructure was the only SDG where the mobile industry scored greater than 40, while the industry scored below 30 on four SDGs. By 2019, the average SDG impact score across the 17 Goals had increased to 48, meaning the industry was achieving 48% of what it could potentially contribute to the SDGs. Furthermore, as shown in Figure 1, not only has the industry increased its impact on all SDGs every year, but the increase has been accelerating, with 2019 the most impactful thus far.
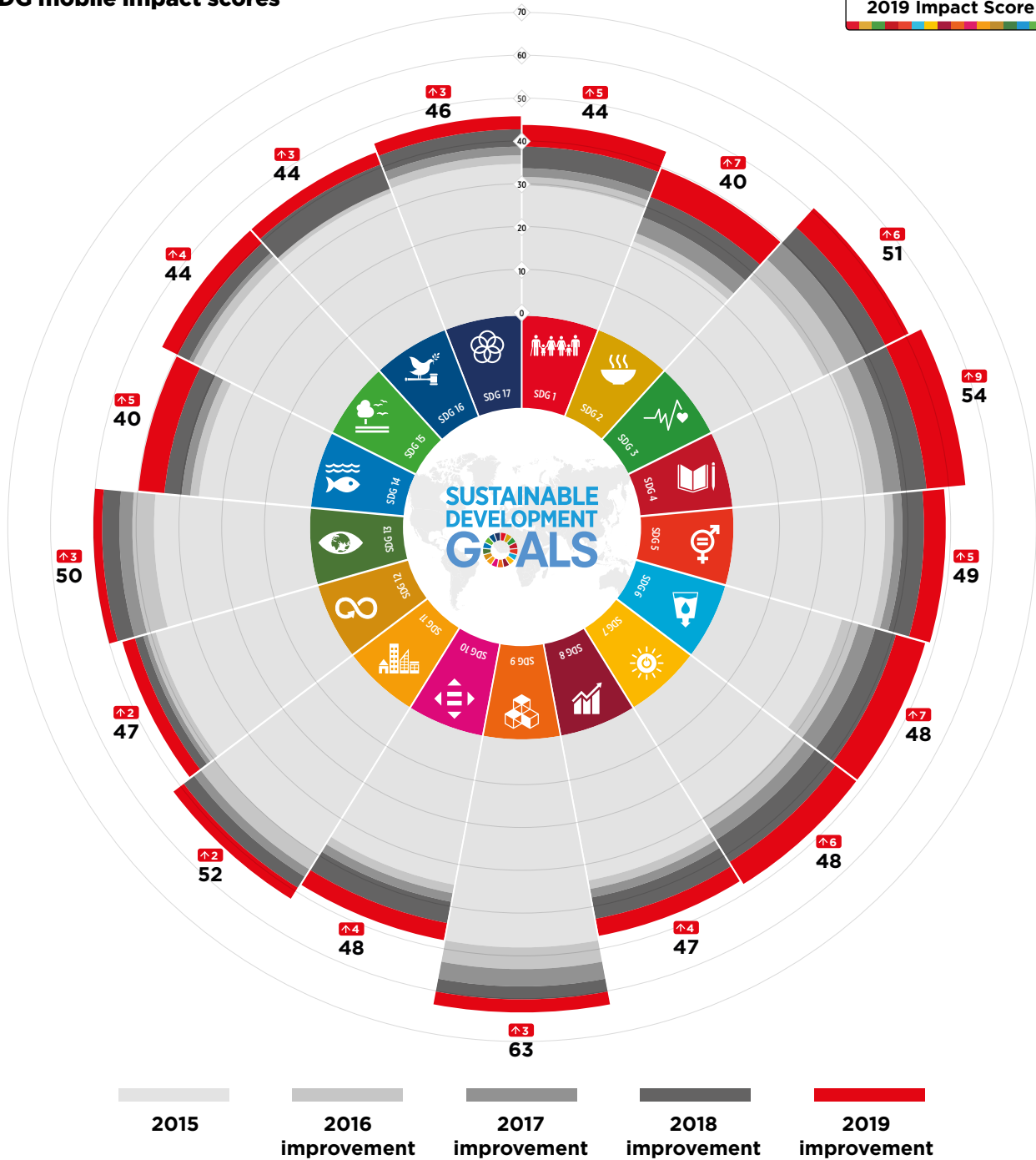
There are now five SDGs where mobile's contribution is greater than 50, compared to none in 2015, while the industry is also achieving at least 40% of its potential impact on all SDGs.

SDG mobile impact scores

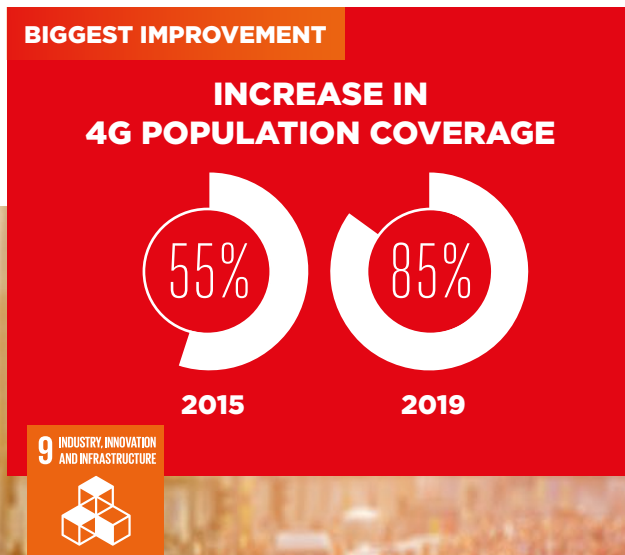| | 2015 | 2016 improvement | 2017 improvement | 2018 improvement | 2019 improvement |

Increased coverage and adoption continue to underpin the industry's impact, especially on SDG 9

The mobile industry achieved its biggest impact on SDG 9: Industry, Innovation and Infrastructure, largely due to extensive mobile network coverage and more affordable mobile services – the importance of this is reflected in SDG Target 9.c.[10] There are now 7.1 billion people around the world covered by mobile broadband networks, up from 6.2 billion in 2015. The biggest improvement has been in 4G population coverage, which increased from 55% to 85% (equivalent to 2.5 billion additional people covered) in this period.

Mobile operators remain committed to reducing the 'coverage gap' – that is, people who live in areas not covered by mobile broadband networks. The coverage gap equalled around 600 million people at the end of 2019, compared to 1.3 billion people in 2015. With most of these individuals living in remote areas of low-income countries, mobile operators and their partners are working to reduce network rollout costs in order to enable further deployments. Innovations to reduce costs are a particular focus. This includes looking at the base station that provides coverage to an area, the backhaul technologies that route this traffic to the core network, and the energy components that ensure all of this can function.[11]

BIGGEST IMPROVEMENT

INCREASE IN
4G POPULATION COVERAGE

55%
2015

85%
2019

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

> [At Verizon] our purpose is to move the world forward for everyone through the power of action and technology. There has never been a more critical moment to leverage the 21st century infrastructure comprised of mobility, broadband and cloud technology to stay globally competitive and address the economic, environmental and societal issues that are most pressing around the world.
>
> **Hans Vestberg,** Verizon Chairman and CEO

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10   SDG Target 9.c aims to significantly increase access to information and communications technology and strives to provide universal and affordable access to the internet in the least developed countries by 2020.

11   Closing the coverage gap: how innovation can drive rural connectivity, GSMA, 2019

More generally, the continued increase in the use of mobile and mobile internet has contributed to the industry's impact across all the SDGs. By the end of 2019, 5.1 billion people (66% of the global population) were using a mobile phone, an increase of 600 million people compared to 2015. In addition, 3.8 billion people (49% of the global population) were also using mobile internet, representing an increase of 1.1 billion people since 2015.
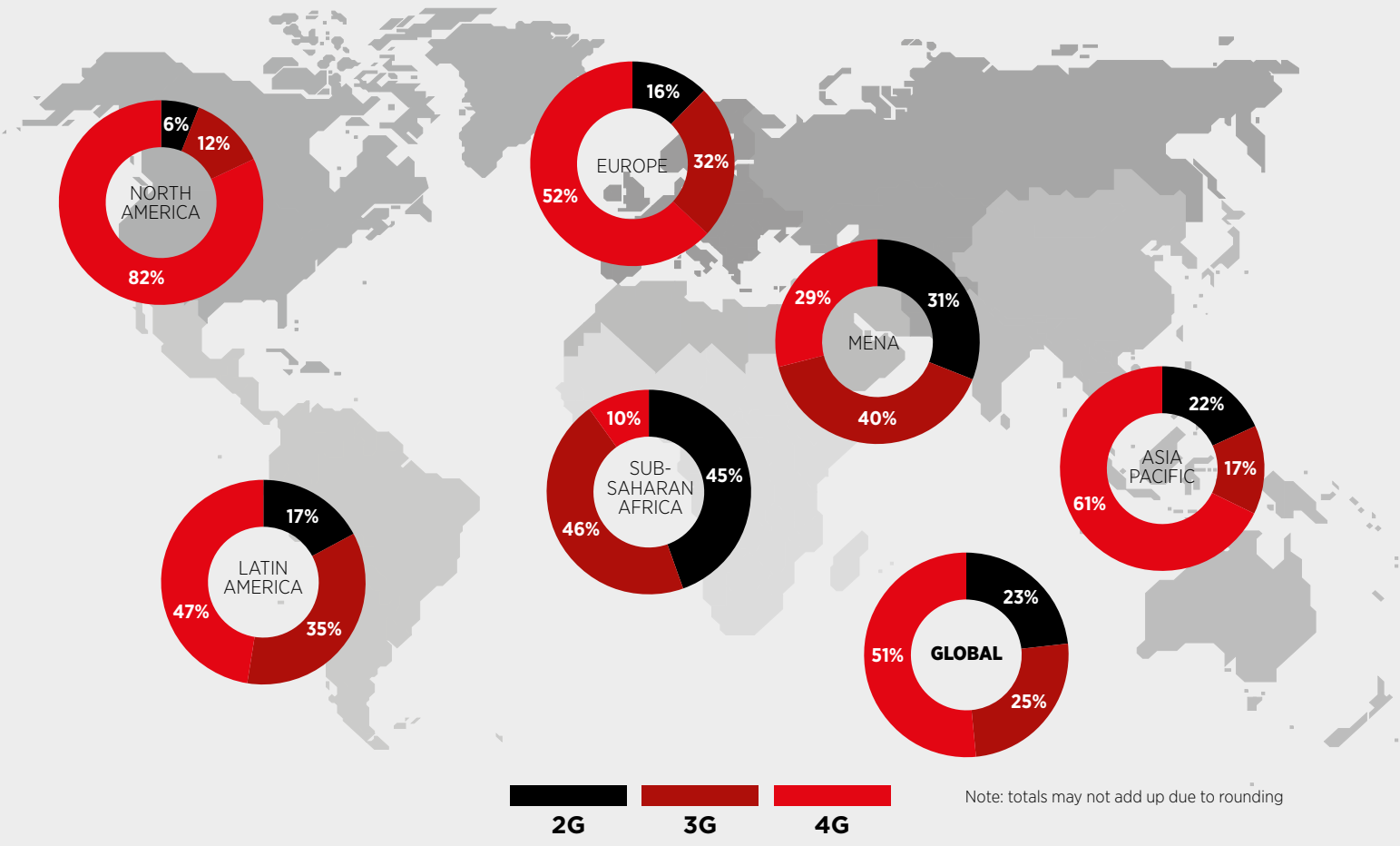
People are also connecting to higher-quality mobile networks. In 2019, 4G became the dominant mobile technology across the world with 4.1 billion

connections, reaching 51% of total connections (Figure 2), up from 15% in 2015. Moreover, 3G networks accounted for 2 billion connections in 2019, equivalent to 25% of total connections. In Sub-Saharan Africa, 2019 marked the first year where there were more mobile broadband (3G or 4G) connections than 2G connections. With the rise of 4G, average download and upload speeds doubled between 2015 and 2019, while latencies more than halved.[12] This has improved the user experience on key mobile-enabled activities while also enabling individuals to access more bandwidth-intensive services, supporting the industry's impact across all 17 Goals.

FIGURE 2

Source: GSMA Intelligence

Mobile connections by technology, 2019

Note: totals may not add up due to rounding

Legend: 2G, 3G, 4G

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12   GSMA Intelligence calculations of data provided by Ookla® Speedtest Intelligence®.

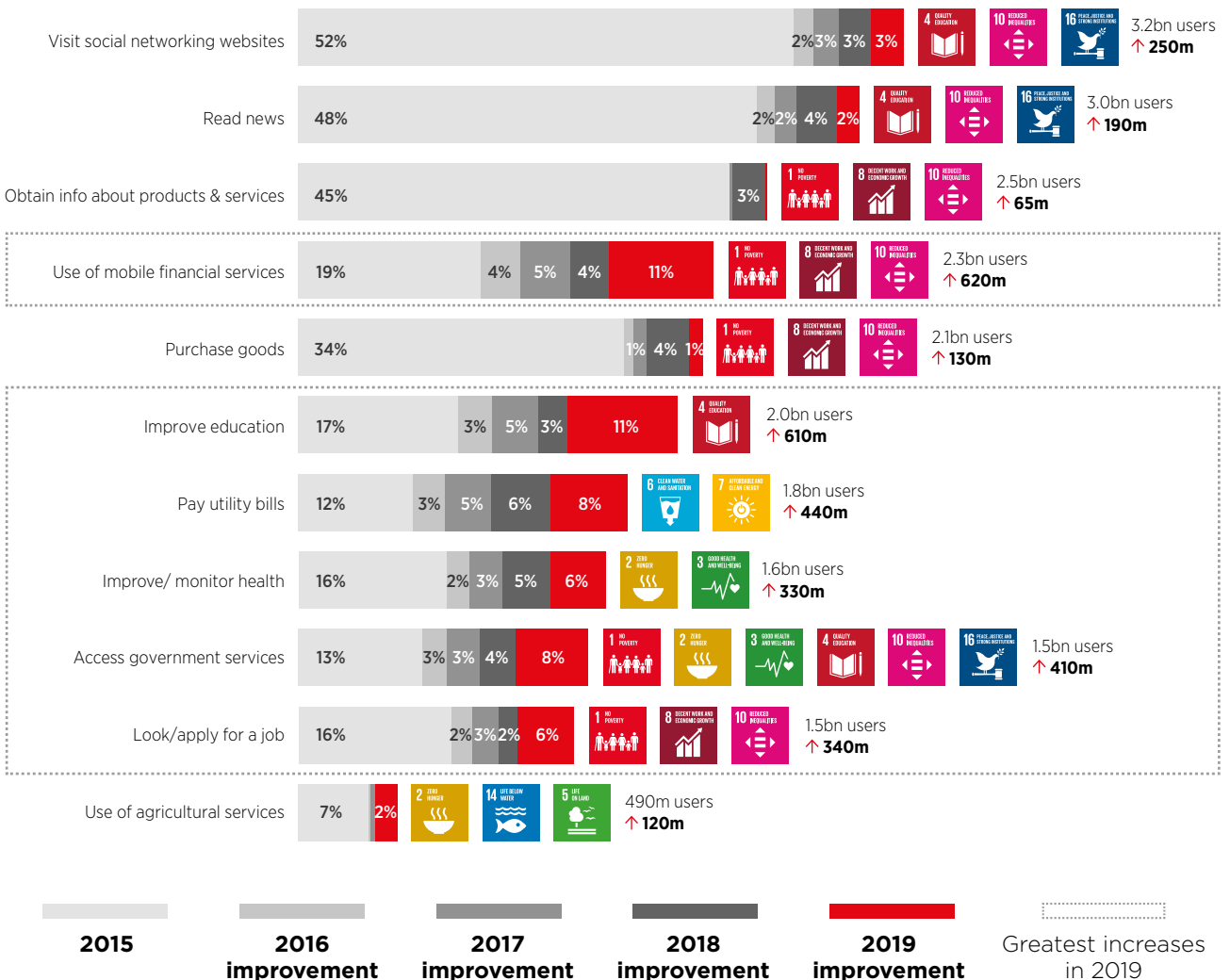## Usage accelerates across key mobile-enabled services

The proportion of mobile subscribers engaging in activities on their phones relevant to the SDGs has steadily increased over the years, with an acceleration in usage taking place in 2019 across a number of key activities (Figure 3). This is the main reason why the industry's impact increased more in 2019 than in previous years.

Mobile usage by activity

Activity	2015	2016	2017	2018	2019	SDGs	Users
Visit social networking websites	52%	2%	3%	3%	3%	4, 10, 16	3.2bn users ↑ 250m
Read news	48%	2%	2%	4%	2%	4, 10, 16	3.0bn users ↑ 190m
Obtain info about products & services	45%			3%		1, 8, 10	2.5bn users ↑ 65m
Use of mobile financial services	19%	4%	5%	4%	11%	1, 8, 10	2.3bn users ↑ 620m
Purchase goods	34%		1%	4%	1%	1, 8, 10	2.1bn users ↑ 130m
Improve education	17%	3%	5%	3%	11%	4	2.0bn users ↑ 610m
Pay utility bills	12%	3%	5%	6%	8%	6, 7	1.8bn users ↑ 440m
Improve/ monitor health	16%	2%	3%	5%	6%	2, 3	1.6bn users ↑ 330m
Access government services	13%	3%	3%	4%	8%	1, 2, 3, 4, 10, 16	1.5bn users ↑ 410m
Look/apply for a job	16%	2%	3%	2%	6%	1, 8, 10	1.5bn users ↑ 340m
Use of agricultural services	7%	2%				2, 14, 15	490m users ↑ 120m

2015 | 2016 improvement | 2017 improvement | 2018 improvement | 2019 improvement | Greatest increases in 2019

Data is sourced from the GSMA Intelligence Consumer Insights Survey, which has more than 30,000 respondents and covers 34 countries. The number of users is calculated by multiplying unique mobile subscribers by the percentage of survey respondents that performed a particular activity (e.g. reading the news) on a mobile phone. Unique subscriber data is sourced from GSMA Intelligence, combining data reported by mobile operators with the annual GSMA Intelligence Consumer Insights Survey.

In 2019, an additional 610 million individuals used mobile to access educational information for themselves or their children, taking the total to 2 billion people, equivalent to 40% of mobile subscribers. This supported the industry's contribution towards SDG 4: Quality Education, which saw the biggest impact score improvement in 2019 to become the second-most impacted SDG. Delivering education remotely has become particularly important during the COVID-19 outbreak, with students accessing educational lessons via SMS, USSD or web platforms. As well as connecting students to these solutions, operators in many countries are providing free access to educational content.[13]

SDG 3: Good Health and Well-being also recorded a strong improvement, with 1.6 billion individuals (32% of mobile subscribers) using mobile phones to improve or monitor their health – an increase of 330 million people since 2018. This includes remote diagnostic services, whereby individuals can contact practitioners through voice, SMS and video services, as well as the distribution of health programmes via mobile to allow people to monitor their well-being. As the COVID-19 pandemic has magnified existing weaknesses and gaps in health systems, digital health solutions are likely to play an increasingly important role to address systemic challenges in healthcare services.

The use of mobile financial services (such as mobile banking and mobile money) increased by 620 million people in 2019 to reach 2.3 billion adults (42% of subscribers). This creates employment, raises productivity and helps to formalise the economy, contributing to SDG 1: No Poverty and SDG 8: Decent Work and Economic Growth. Mobile money services in particular, have an important role in helping to close the gap in access to financial services in LMICs.

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We invest to make technology better and better at solving real-life problems for millions of people. A great example is how connectivity has linked kids and their families with teachers during the pandemic, or its potential for equalizing access to education, jobs and medical care. Continuing investment and innovation also help achieve the Sustainable Development Goals that benefit us all.

Jeff McElfresh, AT&T Communications CEO

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13   See https://www.gsma.com/mobilefordevelopment/blog/education-for-all-during-COVID-19-scaling-access-and-impact-of-edtech/

220m

**PEOPLE IN RURAL
AREAS OF DEVELOPING
COUNTRIES USED MOBILE
TO ACCESS AGRICULTURAL
INFORMATION IN 2019**

As operators shift to a 'payments as a platform' model, allowing more industries to integrate with mobile money services via open APIs, there is an opportunity to offer a broader range of financial services to meet the varied needs of the population. It also supports new business models, such as for paying utility services, supporting the industry's impact on SDG 6: Clean Water and Sanitation and SDG 7: Affordable and Clean Energy. For instance, the rise of pay-as-you-go (PAYG) models for energy and water allows individuals to acquire otherwise unattainable assets through regular small instalments via mobile money. In particular, the PAYG solar model is gaining momentum: in 2018, PAYG solar providers captured 91% of the $500 million invested in the off-grid energy sector,[14] and nearly 4.2 million PAYG solar units had been sold in Africa at the end of 2019, an increase of 48% on the previous year.[15]

There has also been an increase in usage of mobile-enabled services among underserved parts of the population. In 2019, an additional 100 million individuals living in rural areas of developing countries used mobile

to access government services, taking the total to 320 million people using such services, equivalent to 17% of rural subscribers. 220 million individuals in rural areas of developing countries also used mobile to access agricultural information services in 2019, an increase of 80 million people. With agriculture central to many developing economies, this has helped to drive the industry's impact score for SDG 2: Zero Hunger, which was one of the most improved SDGs in 2019.

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The COVID-19 pandemic has undoubtedly demonstrated the critical importance of telecommunications networks and connected technologies. From enabling essential services such as telehealth, online learning, remote working to e-commerce, the impact of technology has been enormous. It is exciting that technology will play a similar role in how we respond to climate change, one of the defining challenges of the 2020s.

Andrew Penn, Telstra CEO

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14   Strategic investments in energy access, Wood Mackenzie, 2019

15   Global off-grid solar market report, GOGLA, 2019

# IoT deployments maintain momentum in the home and workplace

IoT connections increased by 6 billion between 2015 and 2019, reaching 12 billion connections worldwide. This accelerated the industry's impact on a range of SDGs. For instance, the rise of smart city solutions as part of efforts by governments to improve traffic flow and increase safety supports SDG 3: Good Health and Well-being, SDG 11: Sustainable Cities and Communities, SDG 13: Climate Action and SDG 17: Partnerships for the Goals.

The consumer segment currently accounts for most IoT connections, representing 59% of total connections at the end of 2019. This is expected to change, with enterprise IoT growing rapidly to overtake consumer IoT in 2024. Growth will be fuelled by deployments to support industrial use cases (e.g. robotics, factory floor automation) as well as health and public infrastructure assets. This will drive a significant impact on several SDGs, including SDG 8: Decent Work and Economic Growth, SDG 9: Industry, Innovation and Infrastructure, and SDG 12: Responsible Consumption and Production.

FIGURE 4

Source: GSMA Intelligence

IoT connections by vertical, 2015–2019, billion
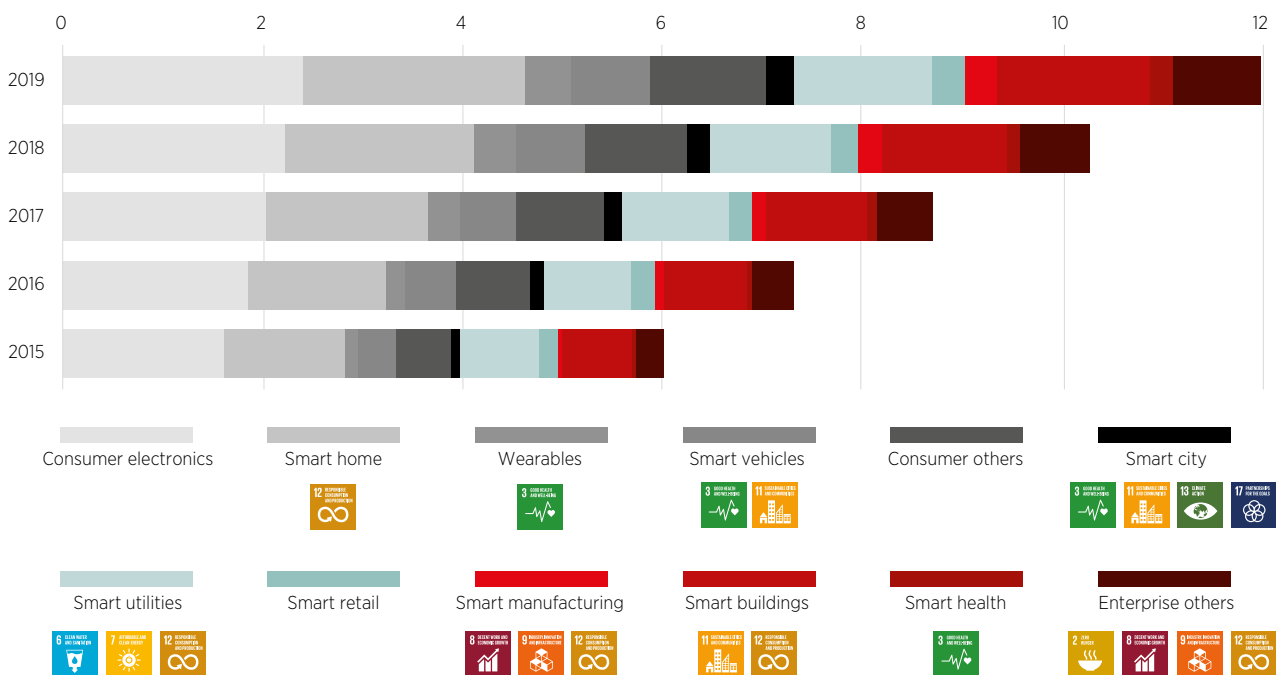
The GSMA Intelligence IoT connections dataset is based on a proprietary forecasting methodology that combines multiple approaches to market sizing. Consumer others includes portable safety devices and wireless headphones. Enterprise others includes agriculture, oil and gas, and other verticals.

> We are advancing towards sustainable development and better life through progressive technological innovation.
>
> **Ke Ruiwen,** China Telecom Chairman and CEO

Creating a more sustainable and responsible business model

Operators also contribute to sustainable development through their business and operational activities. The GSMA Sustainability Assessment Framework measures and tracks operator efforts in social and environmental sustainability. It assesses not only the performance of the MNO's operations but also the interaction of the company with society and its response to global challenges and opportunities.[16]

The overall SDG impact scores for this report were partly informed by the operator scores against the Framework's 'Operating Responsibly' pillar, which assesses the extent to which a company manages and discloses performance on sustainability issues within its own operations and its value chain.[17] The GSMA assessed mobile operators based on the presence of policies, management systems, accountability and governance, performance trend and targets. Figure 5 presents a summary of the average scores for each

issue based on the 25 operators assessed in 2019 – there was no material change in scores relative to 2018, as performance remains uneven across key issues.

Operators scored highest on climate risk, where many are now disclosing performance and setting targets for emissions reductions. Leading operators in this field have set science-based targets and disclose information relating to climate risk as well. Having these systems in place drives the mobile industry's contribution to SDG 7: Affordable and Clean Energy, SDG 11: Sustainable Cities and Communities and SDG 13: Climate Action. By contrast, only a few of the operators surveyed demonstrated a policy or commitment on conflict minerals, with even fewer operators disclosing governance arrangements on this subject. This curtails the industry's impact on SDG 16: Peace, Justice and Strong Institutions.

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16   The Sustainability Assessment Framework assesses operators using publicly disclosed data, such as company sustainability reports, annual reports and other online communications. The assessment was conducted in summer 2019 and reflects information available at that time (consistent with other data used in the SDG impact assessment). For further information, see Results of the GSMA Sustainability Assessment Framework 2019.

17   The scoring elements in this pillar are comparable to the indicators identified by the GRI and SASB standards, although they have been tailored specifically to the mobile sector.

The COVID-19 pandemic has brought other key issues to the forefront. Operators protected the health and safety of their staff by closing retail stores and offices and allowing employees to work from home where possible. As lockdown restrictions lifted in some countries, operators reopened stores, taking a variety of measures to ensure the safety of employees – for example, by providing frontline staff with full personal protective equipment (PPE).[18] Operators have also made efforts to support their suppliers during the pandemic, for example by working closely to increase health and safety performance and shortening the period for payments to suppliers with liquidity problems.[19]

FIGURE 5   Source: GSMA

Operating responsibly – key issues
Representation of average scores
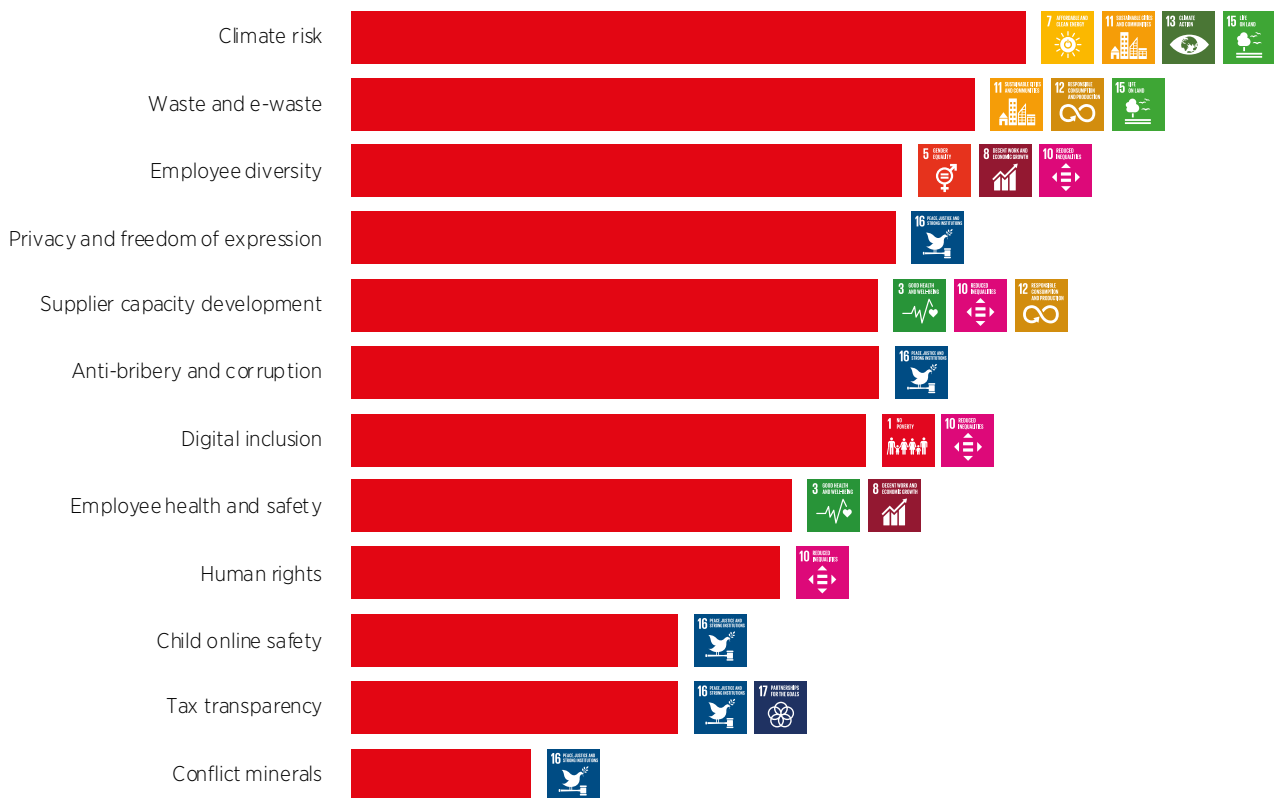
> We believe that technology-enabled solutions can and should be a powerful tool for sustainable development. We developed our sustainability framework to influence everything we do in consistent alignment with the SDGs as a global roadmap to serve the planet and support our communities.
>
> **Eng. Nasser S Al Nasser,** STC Group CEO

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18   "Vodafone welcomes customers safely back to the high street", Vodafone, June 2020

19   Telefónica, Financial Results Report: January–March 2020, May 2020

The benefits of mobile translate to improved sustainable development outcomes

The improvements we have seen during the past five years in terms of adoption, usage and sustainability have resulted in significant economic, social and environmental gains, as the following examples illustrate:

$360bn

Since 2015, the increase in mobile adoption has driven an increase in global GDP of **$360 billion** (or around 4% of global economic growth over the last five years).[20]

5m

The mobile industry has increased global employment by around **5 million** since 2015 – in 2019, it supported **30 million jobs.**[21]

Mobile technology reduces poverty: during the period 2010–2016, mobile broadband lifted **2 million people** out of extreme poverty in Nigeria (which accounts for a quarter of Africa's poor), reducing the country's extreme poverty headcount by 1.5 percentage points.[22]

The use of mobile technology powered a global reduction in GHG emissions of around **2,135 million** tonnes CO_2e in 2018 – these emissions savings were 10 times greater than the global carbon footprint of the mobile industry itself.[23]

The benefits of mobile are also felt directly by users. Across 15 LMICs surveyed by GSMA Intelligence in 2019, on average more than three quarters of mobile owners stated that their device helped them in their day-to-day work, studying or household chores, made them feel safer, and gave them access to useful information they would not otherwise be able to easily get. The benefits were even more pronounced for mobile internet users, which is consistent with other evidence on the benefits of mobile technology.[24]

20   GSMA Intelligence calculations

21   GSMA Intelligence calculations

22   GSMA analysis, see The Welfare Effects of Mobile Broadband Internet: Evidence from Nigeria, World Bank, 2020

23   The Enablement Effect: The impact of mobile communications technologies on carbon emission reductions, GSMA, 2019

24   See for example The Impact of Mobile on People's Happiness and Well-Being, GSMA and Gallup, 2018

The mobile industry is also working to address consumer concerns about digital technology

Despite the largely positive views about the personal and societal impacts of mobile technology, there is increasing awareness about the negative impacts, including, for example, risks to safety because of scams, explicit content or cyber harassment.[25] Moreover, concerns around internet usage tend to proliferate when it comes to the potential impact on young people, particularly around viewing illegal, inappropriate or harmful content.[26]

Business leaders across several sectors, including the mobile industry, have committed to the GSMA's Digital Declaration, which captures key principles that serve as a guide to acting ethically in the digital era.[27] The mobile industry is committed to responsible leadership and believes it is essential that all stakeholders support safe and secure technologies, services and policies in ways that inspire trust and confidence. This can be seen through initiatives such as the GSMA's mPower Youth, which focuses on enhancing the lives and well-

being of young people while also promoting safe and responsible use of mobile services.[28] For example, mobile operators offer or signpost technical tools and solutions (e.g. parental controls), which can play a role in allowing parents and caregivers to help their children have more age-appropriate digital experiences. Mobile operators also work with expert partners, including child helplines, that protect young people. Given the increased internet usage among children, especially during the COVID-19 pandemic, it is important that all stakeholders work together to increase the provision of online training and guidance relating to child online safety to parents, caregivers and teachers.[29]

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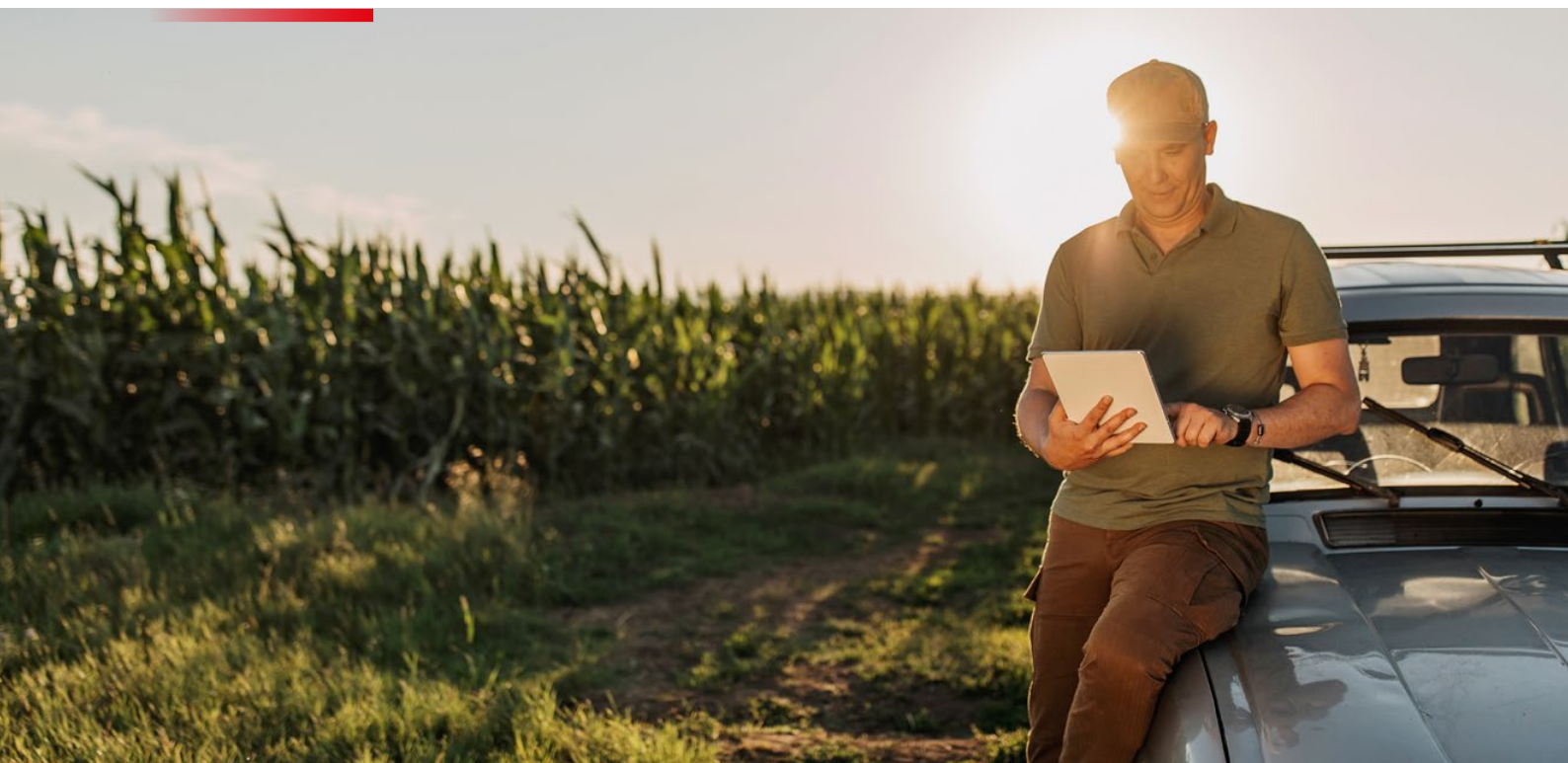
25   See for example Triggering mobile internet use in Côte d'Ivoire and Tanzania, GSMA, 2018

26   See for example Mobile Connectivity in Emerging Economies, Pew Research Center, 2019

27   See https://www.gsma.com/newsroom/press-release/gsma-forty-ceos-back-launch-of-digital-declaration-at-davos/
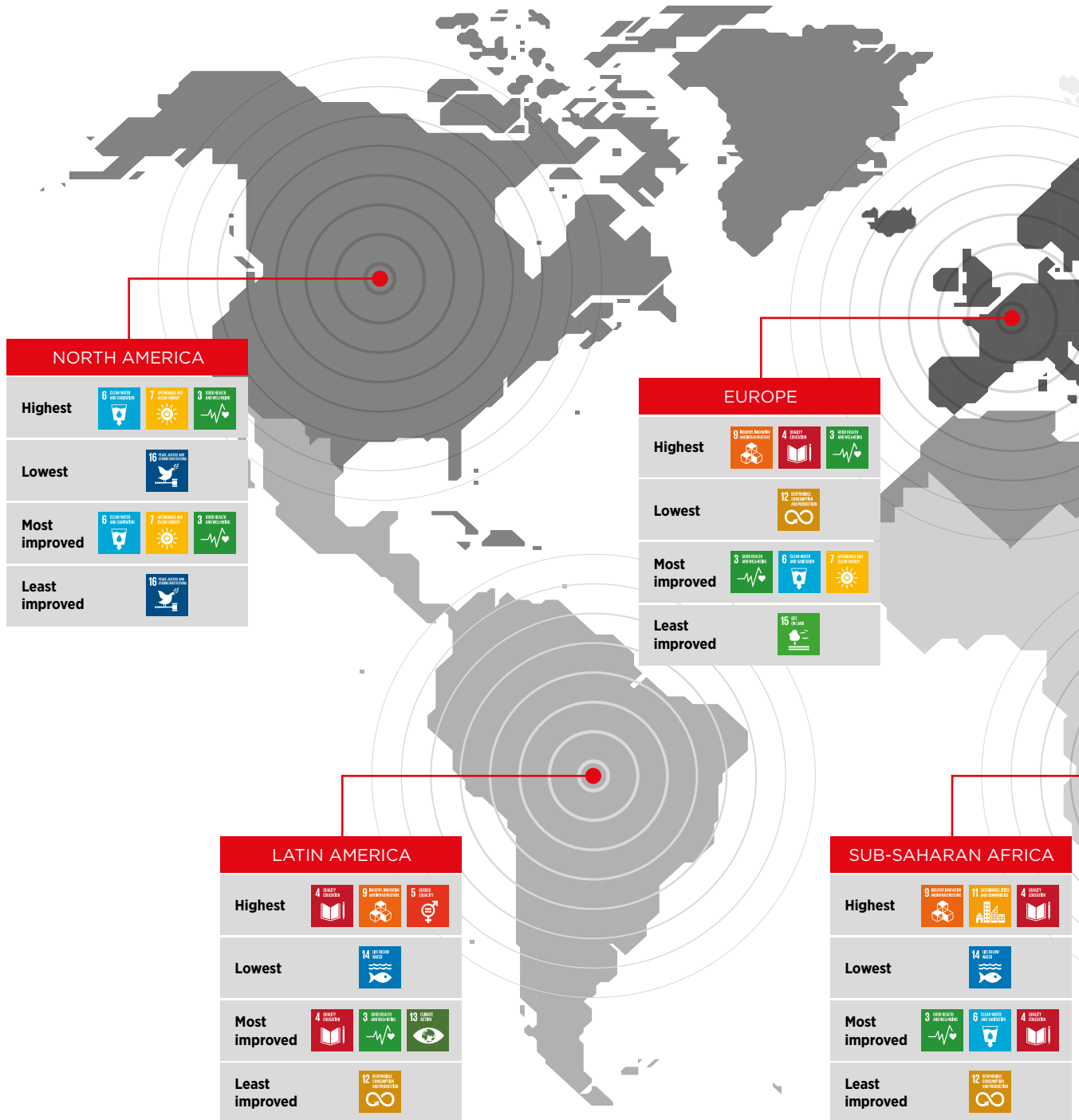
28   https://www.gsma.com/mpoweryouth/

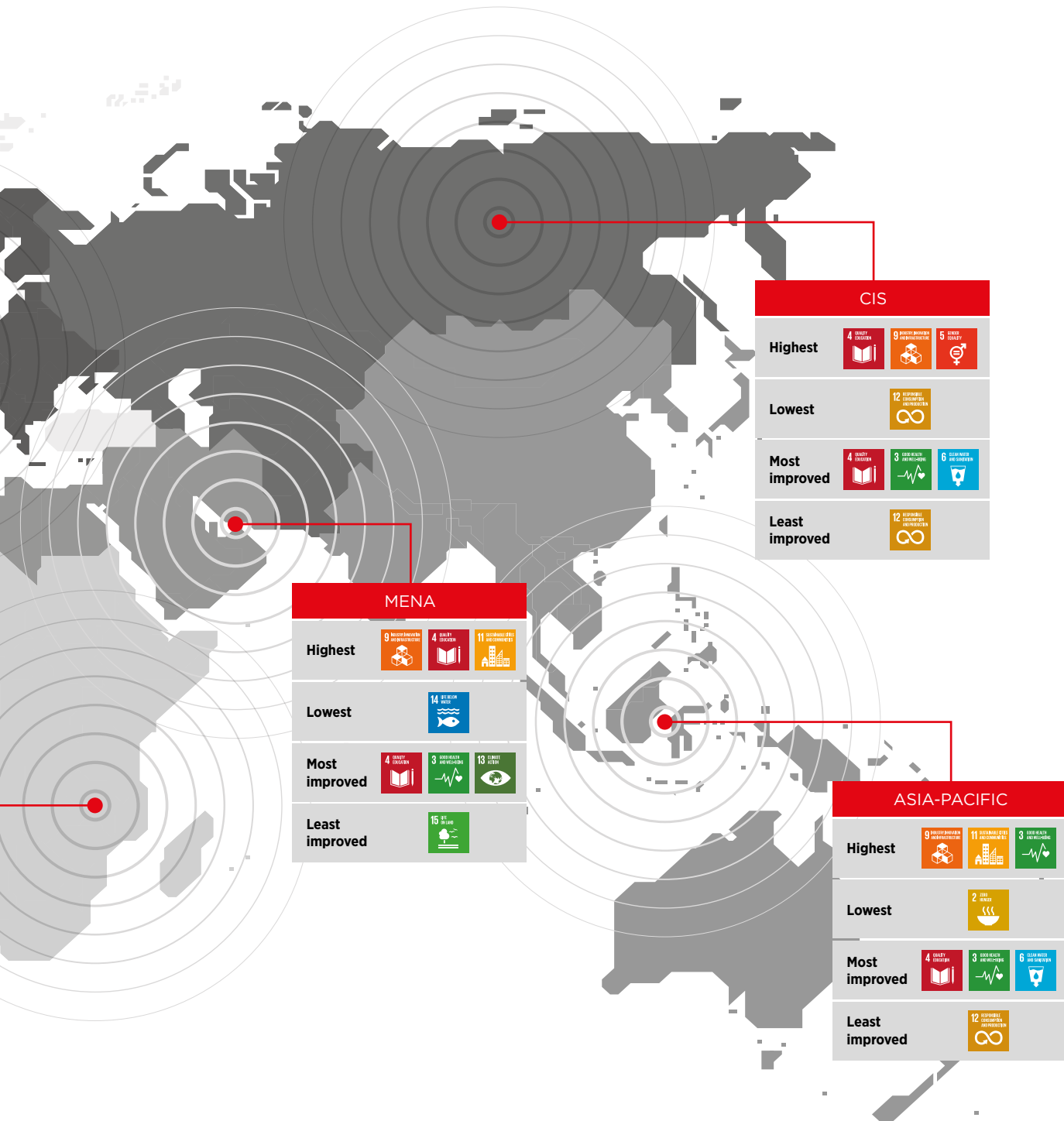29   Enhancing Children's Lives through Mobile, GSMA, May 2019

Regional differences drive variances in SDG scores across geographies

SDG impact scores rank and improvement rank by region, 2019

Source: GSMA Intelligence

CIS

Highest	4 QUALITY EDUCATION · 9 INDUSTRY INNOVATION AND INFRASTRUCTURE · 5 GENDER EQUALITY
Lowest	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Most improved	4 QUALITY EDUCATION · 3 GOOD HEALTH AND WELL-BEING · 6 CLEAN WATER AND SANITATION
Least improved	12 RESPONSIBLE CONSUMPTION AND PRODUCTION

MENA

Highest	9 INDUSTRY INNOVATION AND INFRASTRUCTURE · 4 QUALITY EDUCATION · 11 SUSTAINABLE CITIES AND COMMUNITIES
Lowest	14 LIFE BELOW WATER
Most improved	4 QUALITY EDUCATION · 3 GOOD HEALTH AND WELL-BEING · 13 CLIMATE ACTION
Least improved	15 LIFE ON LAND

ASIA-PACIFIC

Highest	9 INDUSTRY INNOVATION AND INFRASTRUCTURE · 11 SUSTAINABLE CITIES AND COMMUNITIES · 3 GOOD HEALTH AND WELL-BEING
Lowest	2 ZERO HUNGER
Most improved	4 QUALITY EDUCATION · 3 GOOD HEALTH AND WELL-BEING · 6 CLEAN WATER AND SANITATION
Least improved	12 RESPONSIBLE CONSUMPTION AND PRODUCTION

ASIA PACIFIC

Most impacted SDGs:

Most improved SDGs:

Expansion in 4G coverage provides more individuals with a tool to communicate and a platform to access transformative services.

Scaling IoT solutions can reduce some of the adverse environmental and health impacts associated with cities.

	2015	2019	2015	2019
4G coverage	2.4 billion	3.8 billion	60%	92%
Smart city IoT connections	42 million	140 million		
IoT smart buildings connections	250 million	635 million		

COMMONWEALTH OF INDEPENDENT STATES (CIS)

Most impacted SDGs:

Most improved SDGs:

Increased use of mobile to improve education through accessing online learning materials and undertaking activities such as reading the news on a mobile phone.

Subscribers increasingly use mobile as a means to manage their finances, including paying or managing utility bills.

	2015	2019	2015	2019
Using mobile to improve education	65 million	130 million	29%	55%
Using mobile to read the news	78 million	150 million	35%	62%
Using mobile to pay utility bills	27 million	130 million	12%	53%

EUROPE

Most impacted SDGs:

Most improved SDGs:

Industrial IoT deployments can support new manufacturing processes, including closed-loop robotic control and automated guided vehicles.

Increased adoption of IoT in healthcare supports remote health monitoring, which will be vital to support an ageing population.

	2015	2019
Average latency	78 ms	45 ms
IoT industrial connections	333 million	758 million
IoT health connections	7 million	30 million

LATIN AMERICA

Most impacted SDGs:

Most improved SDGs:

Increased usage of mobile to access educational resources and government services drives literacy rates.

An uplift in cellular IoT connections improves business efficiency and enables greater innovation, contributing to a range of SDGs.

	2015	2019	2015	2019
Using mobile to improve education	90 million	200 million	22%	47%
Using mobile to access government services	30 million	110 million	9%	24%
Cellular IoT connections	42 million	97 million		

MENA

Most impacted SDGs:

Most improved SDGs:

Improvements to network quality power a range of SDGs by enabling mobile to support a broader range of services and applications.

Data acquired by smart vehicles and related IoT traffic sensors can improve road safety and ease traffic congestion.

	2015	2019
Average download speeds	7 Mbps	16 Mbps
Average upload speeds	2 Mbps	7 Mbps
IoT vehicle connections	16 million	33 million

NORTH AMERICA

Most impacted SDGs:

Most improved SDGs:

Increased utility IoT connections improves understanding of consumption behaviours to drive efficiencies in the energy and water sectors.

More individuals are using mobile to communicate with qualified medical practitioners through voice, SMS or video services.

	2015	2019	2015	2019
Utilities IoT connections	90 million	146 million		
IoT wearables connections	53 million	128 million		
Using mobile to monitor health	150 million	180 million	52%	57%

SUB-SAHARAN AFRICA

Most impacted SDGs:

Most improved SDGs:

Increased mobile internet adoption enables users to access a range of mobile-enabled services, including health programmes and educational resources.

Rising mobile money adoption facilitates access to water and sanitation through pay-as-you-go business models.

	2015	2019	2015	2019
3G coverage	520 million	800 million	55%	75%
Mobile internet adoption	150 million	270 million	16%	26%
Using mobile financial services	70 million	200 million	19%	43%

2.2 Ten years to go – looking ahead to 2030

With 10 years left to achieve the 17 Goals, operators and their partners must accelerate their impacts

The mobile industry and its partners must increase the pace and scale of their impacts to maximise the mobile industry's contribution to the SDGs by 2030. To help with this, we identify several calls to action for mobile operators, governments and other stakeholders.

As 2020 represents an important milestone for the SDGs, we have forecast the industry's contribution to the SDGs in 2030, which has been made under a 'business as usual' scenario.[30] Since the implications of COVID-19 were only beginning to be felt at the start of 2020, it did not impact the 2019 SDG mobile impact scores. However, there are several potential consequences of the pandemic for mobile's contribution to the SDGs going forwards, which we discuss in this section.

By 2030, we estimate that the industry will have achieved around 70% of its full potential impact on the SDGs. SDG 4: Quality Education, SDG 9: Industry, Innovation and Infrastructure, and SDG 3: Good Health and Well-being will still be the most impacted, with the industry achieving around 80% of its potential impact on these SDGs. Our analysis also indicates that mobile will reach an impact score of at least 60 on all the SDGs by 2030. This would represent important progress, but the industry and its stakeholders need to act faster to maximise their contribution to the SDGs by 2030. This is in line with other reports showing that the world in general is not on track to deliver the SDGs.[31] In order to address this, in 2019 the UN Secretary-General called for a Decade of Action to deliver faster progress across all sectors of society.[32]

> Vodafone and our industry have a unique opportunity to harness the power of digital technology to build an inclusive, sustainable digital society. Accelerating digitisation as we enter into the Decade of Action is a key way to deliver the Sustainable Development Goals.
>
> **Nick Read,** Vodafone CEO

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30   A 'business as usual' scenario assumes that the underlying trends in the metrics used to calculate the impact scores in 2015–2019 continue in the 2020s. For a more detailed description, see SDG Impact Methodology.

31   Progress towards the Sustainable Development Goals, United Nations, 2020
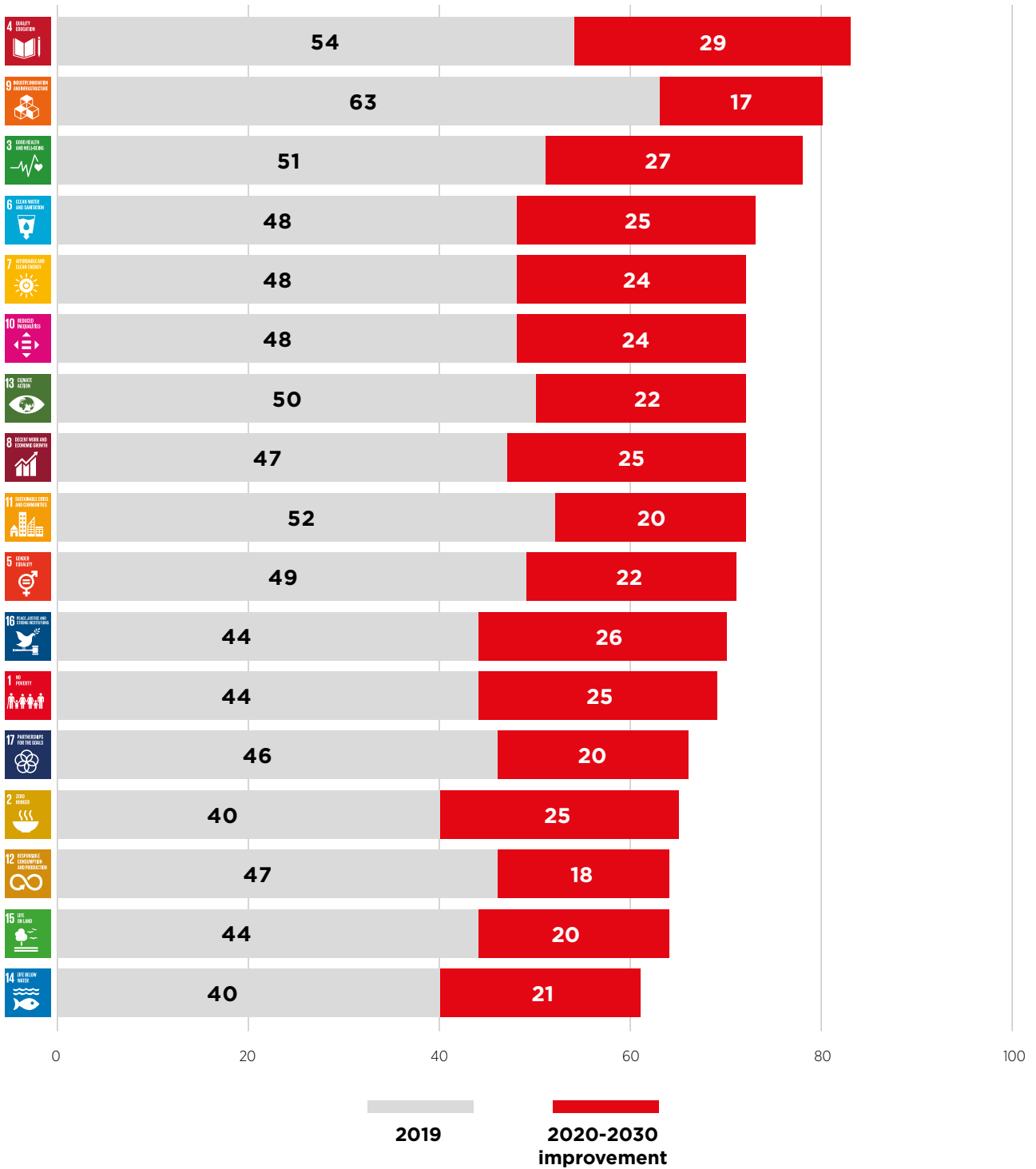
32   https://www.un.org/sustainabledevelopment/decade-of-action/

FIGURE 7

SDG mobile impact scores, 2030 view
Normalised score (out of 100)

SDG	2019	2020-2030 improvement
4 Quality Education	54	29
9 Industry, Innovation and Infrastructure	63	17
3 Good Health and Well-being	51	27
6 Clean Water and Sanitation	48	25
7 Affordable and Clean Energy	48	24
10 Reduced Inequalities	48	24
13 Climate Action	50	22
8 Decent Work and Economic Growth	47	25
11 Sustainable Cities and Communities	52	20
5 Gender Equality	49	22
16 Peace, Justice and Strong Institutions	44	26
1 No Poverty	44	25
17 Partnerships for the Goals	46	20
2 Zero Hunger	40	25
12 Responsible Consumption and Production	47	18
15 Life on Land	44	20
14 Life Below Water	40	21

2019   2020-2030 improvement

To understand how mobile can increase its impact on the SDGs and identify where the gaps are, we consider the difference between current performance and the performance of the industry if it were achieving its maximum impact (i.e. an impact score of 100) on all of the SDGs. This can then be used to determine the size of the gaps for the five main categories that drive the industry's SDG impact.[33]

The gaps in the mobile industry preventing the maximisation of impact on the SDGs
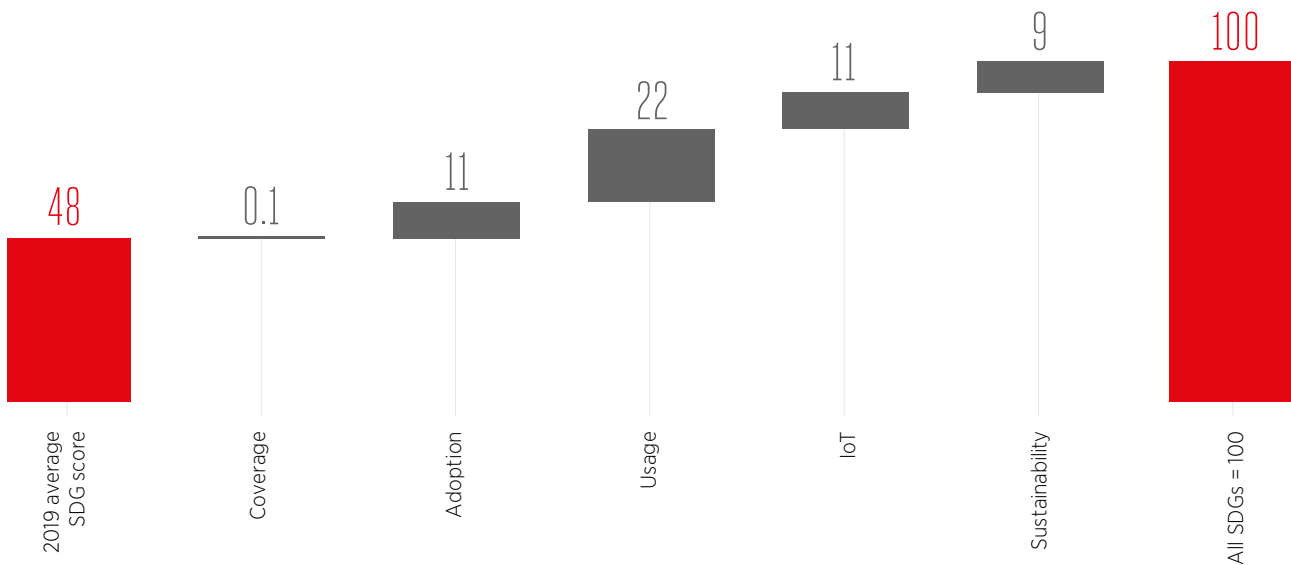
Note: totals may not add up due to rounding

High levels of coverage shift focus elsewhere

Since a high percentage of the population is already covered by 3G and 4G networks, coverage is not of one of the primary gaps to address for mobile to maximise its impact on the SDGs. Nevertheless, there were still almost 600 million people that lived in areas not covered by mobile broadband networks at the end of 2019. Operators continue to invest in networks to reduce this number; however, the COVID-19 pandemic will likely disrupt planned network rollouts in the short term. This is because of spectrum auction delays and supply-chain disruptions, which, along with wider economic uncertainty, could cause operators to rethink their investment priorities and timelines.[34] These factors will also impact 5G deployments, although some operators have been able to proceed with network rollouts as a result of regulators permitting the use of re-farmed spectrum (such as in Poland and Sweden) and temporary spectrum licences (such as in South Africa). Consequently, 22 operators launched commercial 5G services in Q2 2020.[35]

33   For a list of metrics included in these categories, see SDG Impact Methodology.

34   COVID-19 impact: testing the resiliency of mobile networks, GSMA Intelligence, 2020

35   COVID-19 impact: 5G launches and data speeds on the path to recovery, GSMA Intelligence, 2020

To minimise disruption to network rollouts during the pandemic, and to unlock the investment required to close the coverage gap, governments and regulators need to provide the best possible enabling environment by ensuring pro-investment and pro-innovation policies that reduce costs and uncertainty around spectrum allocation and assignments, remove obstacles to network deployment, and adopt international best practices on tax policy.[36] Technology innovations in mobile broadband infrastructure can play a key role in connecting the unconnected,[37] as can smart investment tools, such as the GSMA's Mobile Coverage Maps,[38] which optimise the deployment of rural infrastructure.

36   For more detailed recommendations, see Enabling Rural Coverage, GSMA, 2018

37   Closing the Coverage Gap: How Innovation Can Drive Rural Connectivity, GSMA, 2019

38   https://www.mobilecoveragemaps.com/

Mobile adoption has never been more important

Adoption represents 20% of the gap in maximising the industry's SDG contribution. This is largely because 2.6 billion people (a third of the global population) do not use a mobile phone, while 3.9 billion people (51% of the global population) do not use mobile internet. Network quality is also a factor because in some cases, even when users have access to mobile, they lack the network speed or latency needed to use the services they require.

The importance of connectivity is paramount, particularly at this time. With half of the world's population subject to lockdown measures in the first half of 2020 because of the COVID-19 pandemic, the most impacted regions observed a substantial increase in data traffic – ranging from 20% to 100%.[39] During this time, the mobile industry helped to ensure the functioning of emergency services, helped separated families and friends to stay informed and connected, and enabled large parts of the workforce to continue working productively throughout the crisis. Mobile networks delivered a 7% improvement in download speeds during the pandemic.[40] This was made possible by operator investments in mobile networks, which totalled $180 billion in 2019, with a further $1.1 trillion expected to be invested between 2020 and 2025.[41]

Given the increased reliance on digital services during these times, the pandemic is not expected to cause a decline in mobile or mobile internet adoption, which GSMA Intelligence forecasts to reach 69% and 60% respectively by 2025. However, the rate of adoption could slow in LMICs, driven by income loss among individuals and businesses, as well as lockdown-related store closures. Around 35% of smartphones are sold through operator retail stores,[42] with prepaid subscribers particularly dependant on this channel to top up their allowances.

A THIRD OF THE GLOBAL POPULATION DO NOT USE A MOBILE PHONE AND HALF DO NOT USE MOBILE INTERNET

> In these challenging times we need a "Digital Deal" that lays the foundations for more digital, inclusive and sustainable societies as envisioned by the SDGs. Connectivity is the central nervous systems of our societies and we can leave no one behind.
>
> **José María Álvarez-Pallete López,** Telefónica CEO

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39   Ericsson Mobility Report, 2020

40   Based on Ookla data. Compares mobile network performance in the week of 22 June, 2020 to the week of 2 March, 2020 for all countries except China, which is compared to the week of 6 January, 2020.

41   2025 capex outlook (2020 update), GSMA Intelligence, 2020

42   Device portfolios and strategies in the 5G era, GSMA Intelligence, 2020

Increasing mobile and mobile internet adoption will require coordinated action between all stakeholders to address barriers around affordability, relevance, lack of skills and safety/security concerns. In the short term, it is also important that governments and regulators allow operators commercial flexibility to offer special tariffs to vulnerable customers during the pandemic. For example, many operators have offered zero-rated access to specific health apps and websites, in addition to lifting or extending data caps to enable increased usage.[43] Governments have also made resources available to keep individuals connected, such as subsidies for mobile users (e.g. in Thailand and Egypt).[44] Some governments are also supporting additional investments by delaying or reducing annual spectrum fee payments, as was done in Romania and Canada, for example.[45]

43   Evaluating the impact of COVID-19 on mobile, GSMA Intelligence, 2020

44   "COVID-19 We're tracking digital responses worldwide. Here's what we see", World Bank Blogs, May 2020

45   https://www.gsma.com/newsroom/blog/keeping-everyone-and-everything-connected-how-temporary-access-to-spectrum-can-ease-congestion-during-the-COVID-19-crisis/

Usage represents the biggest gap in the industry for maximising impact on the SDGs

As discussed in section 2.1, there was a strong uptick in usage across a number of mobile-enabled services in 2019. Despite this progress, several activities lack the scale required to drive the industry's SDG contribution as much as it could. For example, less than a third of mobile subscribers use mobile to monitor their health or access government services. As a result, usage accounts for 40% of the gap in the industry for maximising its impact on the SDGs.

The shift in consumer behaviour required to narrow this gap could be occurring during the COVID-19 pandemic. Individuals have become increasingly reliant on digital services in order to lower the virus transmission rate.

Apps for COVID-19 information and symptom tracking, e-learning, remote working and wellness all experienced an increase in usage, as well as a net new user growth of at least 8% during the pandemic.[46] There has also been a shift towards digital solutions in areas such as financial services. For example, mobile money transfers doubled in Rwanda the week after lockdown was imposed.[47] Increased usage was a result of the steps taken by operators to shield the most vulnerable user segments from the effects of the pandemic, such as by waiving transaction fees and increasing transaction limits.[48] It remains to be seen whether such changes in usage are short-term developments or whether they will persist beyond the crisis.

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Addressing the challenge of solving social issues and creating new value amid a structural transition to a 'remote-work society' prompted by the COVID-19 outbreak, we will fulfil our social responsibility as a telecommunications service provider and contribute to the achievement of the SDGs.

Kazuhiro Yoshizawa, NTT DOCOMO President and CEO

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46   Ericsson Mobility Report, 2020

47   "The COVID-19 crisis is boosting mobile money", The Economist, May 2020

48   Mobile money recommendations to central banks in response to COVID-19, GSMA, 2020

With the pandemic bringing attention to the power of digital technologies to enable and enhance essential services, there must be a greater urgency to the digital inclusion agenda of governments worldwide. This includes enhancing the provision of public services online and ensuring the safety and security of users. There also needs to be greater collaboration between mobile operators, governments, international organisations, internet companies and other industries in order to share expertise and best practice and to make products and services accessible to everyone.

IoT demand should remain resilient in the long term

IoT accounts for around a fifth of the gap in the industry for maximising its impact on the SDGs by 2030. This should reduce over time as enterprises gain confidence after seeing the results of their initial IoT investments, which have thus far been mostly small and medium scale. As a result, total IoT connections are expected to double between 2019 and 2025.[49] Further gains are then likely to be made in the period to 2030 as use cases requiring advanced 5G capabilities – such as ultra-reliable low-latency communications and time-sensitive networking – begin to mature.

The impact of COVID-19 on IoT is unclear. On the supply side, 3GPP has pushed back 5G standards by three months, delaying support for innovations such as ultra-reliable low-latency communications, which will be critical to future IoT use cases. However, the greatest impact of the pandemic on IoT is likely to be demand-related. In the short term, the economic uncertainty could constrain enterprise funding for IoT projects and there is also likely to be a hit from businesses that have stopped their operations during the pandemic. In the longer term, however, enterprises are expected to continue their digital transformation journeys, which will fuel IoT investments. For some sectors, such as health and manufacturing, the pandemic could even accelerate the pace of IoT deployments. For consumer IoT, a rise in unemployment and reduced consumer purchasing power could lead to lower spend on connected devices and longer replacement cycles, though demand is expected to remain resilient across most verticals in the long term.

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As COVID-19 is affecting the world today, we should take the opportunity of a new round of sci-tech revolution and industrial transformation, enable 5G and new ICT to effectively address the challenges facing sustainable development, join hands with all parties to drive science and technology to empower all-round development of people and social progress, and work together to achieve a better and more sustainable future for all.

Yang Jie, China Mobile Chairman

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49   IoT connections forecast: the impact of COVID-19, GSMA Intelligence, 2020

50   5G Spectrum: GSMA Public Policy Position, GSMA, 2020

Maximising IoT's contribution to the SDGs requires an effective environment for IoT adoption. Given the importance of 5G to several IoT use cases, governments and regulators should avoid inflating 5G spectrum prices (e.g. setting high auction reserve prices) and should support timely access to the right amount and type of affordable spectrum.[50] There are also opportunities for governments to drive IoT adoption in specific verticals. For example, government regulation aimed at reducing waste and environmental impact encourages the adoption of smart meters and smart grids.

Evidence mounts that sustainable business practices drive financial improvements

Sustainability accounts for close to 15% of the gap in the industry fulfilling its potential on the SDGs. This highlights that achieving the SDGs requires companies to go beyond a business-as-usual approach, even more so as COVID-19 threatens to imperil progress on the SDGs and push tens of millions of people back into extreme poverty and hunger.

The accumulating evidence that sustainable companies deliver significant positive financial performance will likely be a key driver for the increased implementation of sustainable business practices across the next decade. This is being increasingly recognised by investors, who are beginning to value sustainable

businesses more highly.[51] A sustainable approach also helps to foster innovation and engender enthusiasm and loyalty from employees, customers and suppliers. Over the next decade, therefore, more operators are likely to place sustainable business practices at the centre of their business strategies, driving the industry's contribution to the SDGs. For example, Orange launched its Engage 2025 initiative, under which it will increase focus on sustainability while aiming to deliver solid financial results. The company believes that "in the years ahead strong economic performance will not be possible without exemplary performance on social and environmental issues".[52]

> 66
>
> Our industry has a great power connecting people, providing them access to information, education, finance, markets. With our great power comes a great responsibility for a long-term sustainable growth for our communities. For the first time, in 2020 Orange is integrating the SDGs framework into the way we do business and in our day-to-day operations.
>
> **Stéphane Richard,** Orange Chairman & CEO
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51   "The comprehensive business case for sustainability", Harvard Business Review, October 2016

52   "Orange presents its new strategic plan Engage 2025", Orange, December 2019

To drive sustainable business practices across the mobile industry, the GSMA highlights five essential building blocks that any company that wants to operate responsibly needs to consider: a sustainability strategy that aligns to the core business strategy; effective two-way stakeholder engagement; governance practices that 'set the tone at the top'; performance management, including goals and targets; and regular and transparent reporting. Sustainable business practices will increasingly be seen as a source for growth and should be considered as a component of overall financial and business performance.

The diverse nature of the SDGs requires a number of different approaches to bridging impact gaps

There is no one-size-fits-all approach to maximising the industry's impact on the SDGs. While coverage and adoption together account for the largest proportion of the gap for SDG 9: Industry, Innovation and Infrastructure, usage accounts for more than 50% of the gap for six of the SDGs. IoT is also a significant contributor to the gap in some areas. For example, the acceleration in IoT deployments to monitor energy consumption at home and at work should lead to more sustainable behaviours, improving the industry's contribution to SDG 12: Responsible Consumption and Production. Meanwhile, the adoption of sustainable business practices by operators is particularly important to unlocking the industry's full potential on SDG 16: Peace, Justice and Strong Institutions. There are also several SDGs where no single category accounts for more than 50% of the gap, which suggests a broad approach is needed to increase mobile's impact in these areas.

FIGURE 9

The gaps in the mobile industry preventing the maximisation of impact on the SDGs, by SDG

SDG	Coverage	Adoption	Usage	IoT	Sustainability	Callout
9 Industry, Innovation and Infrastructure	4%	45%	9%	17%	25%	Connectivity (**Coverage** and **Adoption**) is the biggest gap
4 Quality Education	14%		86%			Usage accounts for 50%+ of the gap in the industry maximising its potential impact
2 Zero Hunger	12%		71%	16%		
10 Reduced Inequalities	21%		67%		12%	
5 Gender Equality	11%		66%		23%	
1 No Poverty	21%		62%	10%	6%	
14 Life Below Water	17%		59%	24%		
12 Responsible Consumption and Production	9%			57%	34%	**IoT** is the biggest gap
16 Peace, Justice and Strong Institutions	9%		38%		53%	**Sustainability** is the biggest gap
13 Climate Action	46%			27%	27%	No single category accounts for more than 50% of the gap in the industry maximising its potential impact in 2030.
8 Decent Work and Economic Growth	9%		48%	27%	16%	
6 Clean Water and Sanitation	20%		46%	34%		
15 Life on Land	23%		44%	11%	22%	
3 Good Health and Well-being	28%		40%	32%		
7 Affordable and Clean Energy	17%		40%	30%	13%	
17 Partnerships for the Goals	22%	18%		37%	22%	
11 Sustainable Cities and Communities	33%			30%	37%	

Coverage Adoption Usage IoT Sustainability

Effective partnerships underpin the industry's achievements and will be essential to accelerate impact

The progress made by the mobile industry in increasing its impact on all 17 Goals across the last five years would not be possible without multi-stakeholder partnerships. Partnerships drive significant improvements in the industry's contribution to the SDGs. For example, operators have worked with peers, network vendors and regulators to extend mobile broadband coverage, and collaborated with NGOs and the public sector to provide educational resources through mobile.

The importance of collaboration is now clearer than ever. The COVID-19 pandemic is a public health crisis affecting everybody. It requires individuals, companies and governments to quickly adapt to new circumstances and support efforts to contain the spread of the virus. It is therefore encouraging to see stakeholders working together to keep people connected and ensure digital services remain available.

For example, major video streaming providers have reduced their video bit rate, governments have categorised telecommunications activities and personnel as essential, and regulatory authorities have allocated additional spectrum. Meanwhile, mobile operators have taken a wide range of responsive measures — not only adding extra network capacity but also providing customers with free access to essential websites and services.[53]

These actions epitomise the spirit of SDG 17: Partnerships for the Goals, which seeks to strengthen global partnerships to support and achieve the 2030 targets, bringing together national governments, the international community, civil society, the private sector and other players. Collaboration cuts across all SDGs, and the spirit of cooperation on display during the response to the COVID-19 crisis must continue over the next decade and beyond.

> ❝
>
> The telecommunications industry has the transformative power to address the SDGs. I believe that through mobile technology we can collectively – society and the wider industry ecosystem – achieve real impact on the UN's goals.
>
> **Murat Erkan,** Turkcell CEO
>
> ❞

53   https://www.gsma.com/newsroom/blog/eleven-regulatory-recommendations-to-sustain-connectivity-during-the-COVID-19-crisis/

03

Mobile's contribution to the SDGs

1 NO POVERTY

SDG 1:
No Poverty

? Why it matters

SDG 1 focuses on eradicating poverty, providing equal access to economic resources and building the resilience of the poor. While global extreme poverty stood at 8.2% in 2019,[54] a decline from 15.7% in 2010, the rate of decline has slowed and is projected to grow for the first time in two decades as a result of the COVID-19 pandemic.

GLOBAL EXTREME POVERTY

15.7%
2010

8.2%
2019

((•)) The industry's contribution

Mobile technology contributes to SDG 1 by driving sustainable economic growth, helping households to lift themselves out of poverty and enabling humanitarian assistance. Mobile is used by around three fifths of the world's poorest 40% (equivalent to 1.9 billion people),[55] an increase of 200 million since 2015. As a general-purpose technology, mobile drives improvements in productivity and efficiency in other sectors and the wider economy. It enables both rural and non-rural firms – especially small and medium-sized enterprises (SMEs) – to reach more customers in non-local markets, which in turn allows them to expand and create new jobs for local communities.

MOBILE IS USED BY AROUND THREE FIFTHS OF THE WORLD'S POOREST **40%**

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54   Sustainable Development Goals Report 2020, United Nations, 2020
55   This calculation of mobile penetration takes into account the poorest 40% of population in each country.

Helping households lift themselves out of poverty

Target 1.1

By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.90 a day.

Mobile money has helped reduce the financial exclusion gap in LMICs. There were more than 1 billion registered mobile money accounts by the end of 2019, representing an increase of 460 million since 2015. For individuals that would otherwise be excluded from financial services, mobile money allows them to better manage their cash flow, handle risk and build working capital. In Kenya, access to mobile money has lifted 2% of households (almost 200,000 households) out of poverty. In rural Uganda, evidence shows that mobile money can improve the welfare of rural households by smoothing consumption and curbing poverty.[56]

Mobile money also increases the ability of households to save money and withstand unexpected life events that affect income or assets, such as job loss, health problems or environmental and economic shocks. In Burkina Faso, mobile money users were found to be three times more likely than non-users to save for unpredictable events and emergencies.[57] In Tanzania, it was found that mobile money users could fully mitigate the negative effect of a rainfall shock on their consumption.[58]

The use of mobile more generally also aids poverty reduction. In Peru, mobile phone expansion reduced poverty incidence by 8 percentage points and decreased extreme poverty by 5.4 percentage points.[59] In Nigeria, the rollout of mobile broadband networks in 2010–2016 increased labour force participation and reduced extreme poverty by 7 percentage points.[60]

56   Mobile Money, Remittances, and Household Welfare: Panel Evidence from Rural Uganda, Ggombe Kasim Munyegera and Tomoya Matsumoto, 2016

57   Does Mobile Money Affect Saving Behaviour? Evidence from a Developing Country, Serge Ky, Clovis Rugemintwari, Alain Sauviat, 2017

58   Mobile money and risk sharing against village shocks, Emma Riley, 2018

59   Mobile phones and economic development in rural Peru, Diether Wolfgang Beuermann, Christopher McKelvey, Renos Vakis, 2012

60   The Welfare Effects of Mobile Broadband Internet: Evidence from Nigeria, World Bank, 2020

Enabling humanitarian assistance

Target 1.5

By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.

Mobile networks are critical in supporting risk reduction and relief efforts during disasters and humanitarian crises. Partnerships between operators and humanitarian organisations can provide a channel for the delivery of humanitarian cash assistance via mobile money, supporting both resilience and response efforts. In addition to supporting emergency calls for help, mobile services can bolster emergency broadcast systems and provide location data for disaster relief coordination. Operators and humanitarian agencies also work together to enable early warning alerts to people living in areas that are at high risk for disasters.

In 2019, Digicel Haiti partnered with Mercy Corps and Viamo to pilot CHANTER (Communities in Haiti Access New Technologies for Early Warning/Response). Over 11,700 unique users received access to information and advice, delivered via SMS and IVR, on best practices to improve their adaptability to climatic events such as droughts, hurricanes and floods to protect their lives and livelihoods. This project was supported by the GSMA Mobile for Humanitarian Innovation Fund. In March 2020, the same system was adapted to provide relevant information on COVID-19; 14,000 free calls were made within the first week of launch.[61]

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 1 include the following:

• Deploying networks to the final 7% of the population still lacking 3G or 4G coverage. Those without coverage tend to be in remote areas of low-income countries, where more than half of rural populations are not covered by 3G or 4G networks.

• Accelerating mobile internet adoption in LMICs, especially among the poorest groups – 40% of the world's population are still expected to be unconnected in 2025. Key barriers to adoption include literacy and digital skills, affordability, relevance, and safety and security.

• Enhancing coordination and partnerships between mobile operators and humanitarian organisations, both during preparedness activities and in emergency response situations, to be able to provide innovative tools and approaches so that forcibly displaced people can be offered optimised networks and platforms to access services and information.

61   "COVID-19 hotline receives 14,000 calls in one week", Viamo, June 2020

2 ZERO HUNGER

SDG 2:
Zero Hunger

? Why it matters

SDG 2 aims to end hunger and to achieve food security, improve nutrition and promote sustainable agriculture. An estimated 820 million people were undernourished in 2018, an increase on previous years.[62] An estimated 2 billion people – more than a quarter of the world's population – were affected by moderate or severe food insecurity in 2018, with the majority of increases in Sub-Saharan Africa and Latin America.[63]

820m UNDERNOURISHED PEOPLE GLOBALLY IN 2018

OVER **25%** OF GLOBAL POPULATION AFFECTED BY FOOD INSECURITY IN 2018

((•)) The industry's contribution

Mobile technology contributes to SDG 2 through improvements to agricultural practices, nutritional knowledge and household food security. Mobile devices, satellites, drones and other high-tech solutions also contribute to improving the efficiency of the production of agricultural goods. SDG 2 was the second-most improved SDG in 2019 in terms of industry impact, with rural mobile penetration reaching 59% in LMICs. Furthermore, 12% of rural subscribers used mobile agricultural services and 27% used mobile financial services in 2019.

RURAL SUBSCRIBERS

12% USE MOBILE AGRICULTURAL SERVICES

27% USE MOBILE FINANCIAL SERVICES

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62   "World hunger is still not going down after three years and obesity is still growing", World Health Organisation, July 2019

63   Progress towards the Sustainable Development Goals, United Nations, 2020

Mobile information services facilitate nutritional needs

Target 2.1

By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

Target 2.2

By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under five years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.

Mobile health services enable access to nutritional information, helping to empower people to make better and more informed decisions about nutritional practices in their households. A study of eight services in the GSMA's mNutrition initiative portfolio found that, on average, mobile health services were the only source of nutrition information for one in three users, underscoring the importance of mobile as a key information distribution channel for underserved populations. Mobile health services also led to an improvement in overall nutritional knowledge among users compared to non-users.[64]

In addition, mobile agriculture services provide advisories, such as good agricultural practices and weather forecasts, to smallholder farmers, helping them to increase per-hectare yields. As of 2020, Dialog Sri Lanka's Govi Mithuru agricultural value added services (Agri VAS) has reached over 600,000 smallholder farmers. It provides customised and timely advice regarding land preparation, cultivation, crop protection, harvests and family nutrition.

Access to mobile money services can help increase food security for the undernourished, particularly in poor, rural and remote communities.[65] In Côte d'Ivoire, mobile money-enabled international remittances became more frequent during the cocoa harvest season.[66] This meant receiving households had greater access to food, leading to improved nutrition, particularly among children and the elderly.[67]

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64   Creating mobile health solutions for behaviour change: A study of eight services in the mNutrition initiative portfolio, GSMA, 2018

65   Payment Mechanisms and Anti-Poverty Programs: Evidence from a Mobile Money Cash Transfer Experiment in Niger, University of Chicago Press journals, Jenny Aker, Rachid Boumnijel, Amanda McClelland and Niall Tierny, 2016

66   Mobile Money: Competing with informal channels to accelerate the digitisation of remittances, GSMA, 2018

67   Remittances, investments and the Sustainable Development Goals, IFAD, 2017

More efficient agricultural value chains through digital financing

Target 2.3

By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.

Target 2.4

By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

The digitisation of agricultural value chains brings cost reductions and transparency to agribusinesses, cooperatives and smallholder farmers, which streamlines the process of procuring crops in the agricultural last mile. Last-mile tools (e.g. digital records, payments and traceability) and market-linkage tools (e.g. agricultural e-commerce platforms) improve efficiency in agricultural value chains and present an opportunity to formalise the sector, reducing the dependency of farmers on middlemen. Crucially, the digitisation of agricultural value chains enables the creation of economic identities for farmers via digital records,[68] such as mobile money payments from the sale of agricultural produce, leading to full financial inclusion and enabling farmers to access credit and reinvest in their farms.

Mobile operators are already playing a key role in many rural communities, helping to connect previously underserved areas and boosting agricultural productivity by providing farmers with mobile-enabled information services. Operators and mobile money providers also play an important role in bringing to market last-mile procurement tools and agricultural

e-commerce platforms. For example, MTN Ghana has launched mAgric, a mobile-based tool that enables the digitalisation of the entire procurement process in the country's important cocoa sector, which 800,000 smallholder households depend on for their livelihoods.[69] The tool supports farmer registration, data analytics and mobile money payments, serving as an entry point for financial inclusion for unbanked farmers.

There is evidence that mobile money adoption is also playing a key role in improving farmer livelihoods. Mobile money services enabled coffee farmers in Uganda to receive on average 5% higher prices for their produce, as they are able to reach buyers in high-value markets, in addition to their local traders, immediately after harvest.[70] Similarly, in Kenya, users of mobile money had higher profits from banana production and sold a larger proportion of their harvest. This was also linked to their significantly higher amounts of purchased inputs per acre of banana production, as procurement was made easier through mobile money.[71]

68   AgTech Innovation Unlocks Economic Identities for Smallholder Farmers in Indonesia, GSMA, 2019

69   https://www.gsma.com/mobilefordevelopment/resources/digitising-the-agricultural-last-mile-in-ghana-mtn-mobile-moneys-magric/

70   Mobile money, agricultural marketing, and off-farm income in Uganda, Haruna Sekabira and Matin Qaium, 2017

71   Mobile money, smallholder farmers, and household welfare in Kenya, Enoch Kikulwe, Elisabeth Fischer and Matin Qaim, 2014

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 2 include the following:

- Establishing plug-and-play access to mobile money, which would significantly reduce the time it takes to link partners.

- Improving education and digital literacy to enable a greater use of mobile-enabled services. Often, users from the poorest backgrounds lack the skills needed.

- Enabling greater mobile money adoption in rural areas by supporting KYC procedures and setting appropriate transaction limits to enable agricultural payments.[72]

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3 GOOD HEALTH AND WELL-BEING

SDG 3:
Good Health and Well-being
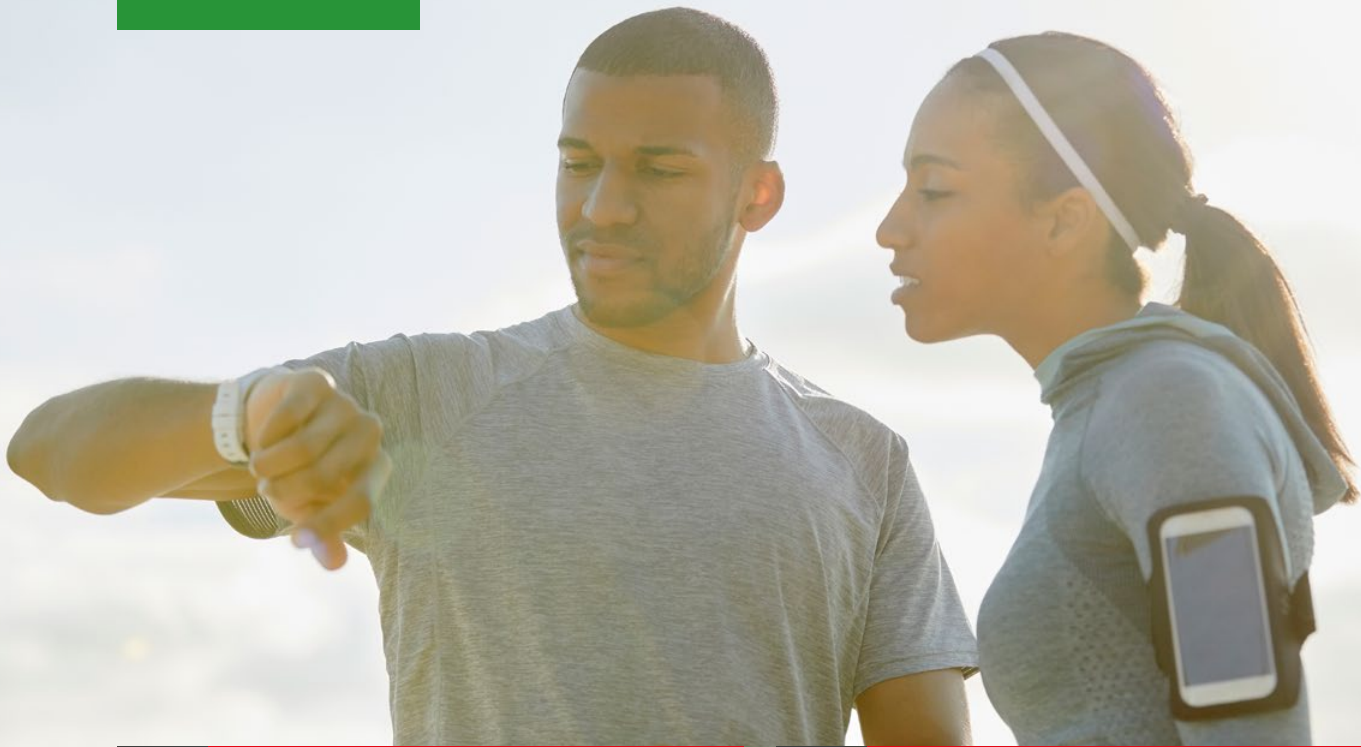
? Why it matters

SDG 3 focuses on ensuring healthy lives and promoting well-being for all. Despite advances in areas such as maternal and child mortality, the rate of improvement has slowed and the COVID-19 pandemic threatens to reverse years of progress as it devastates global health systems.

COVID-19 PANDEMIC THREATENS TO REVERSE YEARS OF PROGRESS

The industry's contribution

Mobile technology contributes to SDG 3 by helping to secure healthcare financing, optimising healthcare service delivery, providing health workers with enhanced skills and supporting the infrastructure needed for the health information system and early detection of diseases through analytics. Digital healthcare tools play a vital role in achieving this goal, especially in resource-constrained areas.

Since 2015, SDG 3 has been the second-most improved SDG in terms of industry impact. In 2019, 32% of mobile subscribers in the world used mobile to improve and monitor their health, equal to 1.6 billion subscribers, an increase of over 900 million since 2015. Further, there were over half a million IoT health connections by 2019, while IoT wearable connections grew to 745 million (up 45% since 2015).

1.6bn PEOPLE IN 2019 USED MOBILE TO IMPROVE OR MONITOR THEIR HEALTH

Strengthening healthcare systems in developing countries

Target 3.1

By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births.

Target 3.C

Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing states.

Mobile health solutions support the delivery of quality and affordable health care. Increasing access to information and connecting people to healthcare can prevent and reduce mortality rates due to pregnancy and childbirth. For example, mobile app access and the use of USSD, SMS and chat bots improved care received by pregnant women in Cameroon, where less than 60% of women receive the recommended amount of care. The GiftedMom application connects specialists with mothers and pregnant women and has supported over half a million mothers as of 2020. It also works closely with over 45 hospitals in Cameroon to help prevent premature deaths. As of December 2019, the startup has provided critical health information to over 250,000 women, many of whom are nursing mothers earning less than $3 a day.[73]

Mobile apps can also provide on-demand training, enable communication between health workers, support the implementation of clinical decision support systems, and provide planning and scheduling tools for users. In Sierra Leone, community health workers can use MOTS (mobile training and support service), which provides refresher training through feature phones that run on IVR technology. The platform has been expanded to offer training based on up-to-date COVID-19 information.[74]

To support health-system financing, a variety of digital solutions are being integrated in developing countries. For example, mobile money solutions enable affordable insurance offerings to low-income households. Examples from Kenya show that 35% of low-income households using hospital facilities took advantage of M-Pesa transfers to pay their bills,[75] while M-Tiba's mobile health wallet has facilitated medical pay-outs of $2 million since its launch in 2016.[76]

73   GSMA Ecosystem Accelerator Innovation Start-up Fund portfolio, GSMA, 2020

74   Digital Health: A Health system strengthening tool for developing countries, GSMA, 2020

75   Cash In, Cash Out Kenya: The Role of M-PESA in the Lives of Low Income People, Financial Services Assessment, 2011

76   "M-Tiba makes Sh205 million in medical payouts in two years", The Star, January 2018

Digital tools to strengthen health information systems

Target 3.D

Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.

COVID-19 has highlighted and exacerbated existing challenges in global health care systems. AI and mobile big data (MBD) analytics can help contain the spread of diseases by providing a tool to respond rapidly to a pandemic, understand how population mobility drives disease transmission and evaluate which interventions reduce such mobility. For instance, during the COVID-19 outbreak in Spain, Orange, Telefónica and Vodafone worked with the National Statistics Institute on population mobility[77] to predict transmission hotspots, enable resource planning and gauge the impact of lockdown policies and strategies.

Large gaps in detection and treatment persist in infectious diseases. For instance, the current pace of progress is not fast enough to meet the SDG target of ending the tuberculosis epidemic by 2030.[78] In the most susceptible countries across Asia and Africa, targeted prevention, diagnosis and treatment using MBD could reduce an additional 650,000 cases of tuberculosis alone over five years (equivalent to a reduction of over 1%). MBD can also be applied to other communicable diseases such as malaria, cholera and hepatitis B.[79]

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 3 include the following:

- Scaling digital health to the bottom of the pyramid and driving adoption to serve those with low literacy levels and the least purchasing power.

- Enabling frontier technologies such as big data analytics and AI for healthcare in developing countries in a cost-effective way.

- Targeting solutions with the most vulnerable sections of the community in mind.

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77   https://www.ine.es/covid/covid_movilidad.htm

78   Progress towards the Sustainable Development Goals, United Nations, 2020

79   Mobile Big Data Solutions for a Better Future Report, GSMA, 2019

4 QUALITY EDUCATION

SDG 4:
Quality Education

? Why it matters

SDG 4 seeks to ensure inclusive and equitable quality education and to promote lifelong learning opportunities for all. While there have been improvements to the number of children accessing education on a global scale, more than 770 million adults – two thirds of whom are women – are illiterate. In Sub-Saharan Africa, less than half of the primary and lower secondary schools had access to electricity, internet, computers and basic handwashing facilities in 2019.[80]

TWO THIRDS OF THE 770 MILLION ILLITERATE ADULTS IN THE WORLD ARE WOMEN

((•)) The industry's contribution

Mobile technology contributes to SDG 4 by allowing students, teachers and employees to learn/teach from any location and on the move. Educational content, as well as educational administration and management, are increasingly being made available over mobile networks to tablets, smartphones and feature phones. SDG 4 is the most improved SDG since 2015 in terms of industry impact. Over 2 billion mobile users (40% of mobile subscribers) access educational services on their mobile phones, representing an increase of more than 1 billion since 2015. Additionally, 30% of mobile subscribers access government services on their mobile phones, equal to 1.5 billion (an increase of 958 million users since 2015).

2bn MOBILE USERS ACCESS EDUCATIONAL SERVICES ON THEIR MOBILE PHONES

Digital content and mobile solutions enable access to education

Target 4.1

By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.

Mobile technology can help education through the dissemination of online content and support. It can also promote ICT in education and bridge the digital divide through e-learning. Further, mobile technologies can assist professionals by enabling the use of new digital tools to improve their teaching outcomes. The benefits of e-learning are amplified during crises, such as the COVID-19 pandemic, which has caused 90% of students to have at some point been kept out of school.[81]

Communication platforms and video conferencing applications (e.g. Whatsapp, Microsoft Teams and Skype) enable real-time learning, and their usage has been further accelerated by the outbreak of COVID-19. In Bhutan, some schools are using mobile applications such as WeChat and Whatsapp in a two-way communication method: they assign students with homework and request an image of the final work to be shared with them for assessment. In Bulgaria, the launch of an e-learning platform in March 2020 has connected over 700,000 students to 65,000 teachers through videos and webinars. Almost 90% of students have enrolled and they receive six hours of distance learning per day.[82]

Many mobile operators are also enabling access to digital content during the COVID-19 pandemic by zero-rating services, lifting data caps, providing access to free content, and distributing devices to teachers and learners.[83] In Indonesia, operators are working with the Ministry of Education to provide free internet data for online educational platforms.[84] In the US, Verizon has supported teachers and students by tripling its monthly data allowance for Verizon Innovative Learning schools (a programme that provides free devices and internet access to under-resourced students), while AT&T created a Distance Learning and Family Connections Fund to support at-home learning. Similarly, Vodafone UK is supporting education by providing online e-learning courses from a range of education services for free to customers and employees.

However, distance-learning in many developing countries is a constant need and not driven solely by times of crisis. In South Africa, a mobile novel series (which has been read over 34,000 times) uses basic mobile phones to allow users to discuss story plots, vote in polls, leave comments and partake in writing competitions. In Nigeria, caregivers of younger children access teaching materials through SMS, audio and video direct to their phones. Further, educational programmes used by professionals in schools are integrated on tablets to help teachers with instructional guides and materials.[85]

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81   See footnote 80

82   https://www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-COVID-19-pandemic

83   "How ministries of education work with mobile operators, telecom providers, ISPs and others to increase access to digital resources during COVID-19 driven school closures", World Bank Blogs, April 2020

84   Supporting Continued Access To Education During COVID-19, UNHCR, 2020

85   Delivering Distance Learning in Emergencies, USAID, 2020

Enabling affordable technical and higher education

Target 4.3

By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.

Mobile education has proved to be effective in addressing basic literacy and numeracy skills.[86] However, higher education and vocational training, access to scholarships and university sponsorship are also important to help young people reach their full potential, improve their employability and further advance their socioeconomic levels.

In South Africa, a blended approach of using mobile learning together with classroom training provided entrepreneurship training to 230 youths, who gained a set of new skills relevant for starting a business. The mobile-enabled course facilitated 32 new business concepts, of which 5% turned into new businesses at the end of the course.[87] In Africa, Asia and the Middle East, nearly 6 million users have learned new skills enabled by the Funzi platform, whose courses have a nearly 50-50 gender ratio.[88]

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 4 include the following:

- Enhancing digital literacy of professionals and caregivers.

- Providing more cost-effective and scalable technology to drive the use of interactive, rather than one-way, learning.

- Providing certainty of programme continuity and sustainability of services when an initiative or donor funding ends.

- Monitoring and evaluating capacities to screen distance-learning processes, track access and engagement, and assess outcomes to enable sustainability of mobile and distance learning.

- Offering incentives to combat lack of cultural and social acceptance of using internet and digital solutions.

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86   Reading in the mobile era, UNESCO, 2014

87   See Case Mashup: Entrepreneurship training in urban & rural South Africa

88   https://www.funzi.fi/impact

5 GENDER EQUALITY

SDG 5:
Gender Equality

? Why it matters

SDG 5 focuses on achieving gender equality and empowering all women and girls. Since the Beijing Declaration and Platform for Action was adopted by world leaders 25 years ago huge strides have been made, and women have more opportunities and access to technology now than ever before. However, a great deal of work remains to be done, as almost 40% of the world's girls and women (1.4 billion individuals) live in countries that are failing on gender equality. Another 1.4 billion live in countries that "barely pass".[89]

ALMOST 40% OF GIRLS AND WOMEN LIVE IN COUNTRIES WITH POOR GENDER EQUALITY

((•)) The industry's contribution

The mobile industry contributes to SDG 5 by increasing women's access and use of mobile technology to enhance their lives, and increasing women's participation and leadership in the technology industry. Empowering women with mobile phones helps to accelerate both social and economic development.[90]

In 2019, 1.8 billion women in LMICs – more than 80% of the adult female population – owned a mobile phone, an increase of more than 300 million since 2014.[91] Furthermore, almost 1.2 billion women in those countries used mobile internet, representing more than half the adult female population. The majority of female mobile owners in LMICs agree that owning a mobile device makes them feel safer, helps them in their day-to-day work and provides access to information they would not have otherwise.[92]
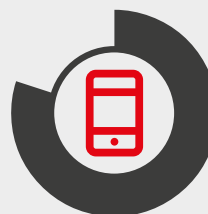
OVER 80% OF WOMEN IN LMICs OWNED A PHONE IN 2019

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89   Harnessing the power of data for gender equality: Introducing the 2019 EM2030 SDG Gender Index, Equal Measures 2030, 2019

90   Progress towards the Sustainable Development Goals, United Nations, 2020

91   The Mobile Gender Gap report, GSMA, 2020; The Mobile Gender Gap Report, GSMA, 2019

92   See footnote 91

Transforming communities, economies and women's lives

Target 5.B

Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women.

Mobile technology can play a vital role in improving gender equality in social, economic and political dimensions, benefiting not only women themselves but also their communities, businesses and the broader economy. Mobile can empower women by providing them with access to services and life-enhancing opportunities, such as health information, financial services and employment opportunities, often for the first time.

Despite the importance of mobile, there remains a substantial mobile gender gap across LMICs: 165 million fewer women than men own a mobile device and 300 million fewer women access the internet on mobile. However, there is positive evidence to suggest that the mobile internet gender gap is narrowing, predominantly driven by improvements in South Asia.[93]

Mobile money can also help reduce the gender gap in financial inclusion. In LMICs, women are on average 33% less likely to use mobile money. However, in many of these countries, the gender gap is lower with mobile money than with traditional financial services. In Côte d'Ivoire, for example, men are twice as likely as women to have an account with a financial institution, yet women are just as likely as men to have a mobile money account only.[94] In Senegal, as much as 59% of women who are financially included own only a mobile money account.[95]

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93   See footnote 91

94   Global Findex, World Bank, 2017

95   The promise of mobile money for further advancing women's financial inclusion, GSMA, 2019

Effective participation and access to the ICT industry and cutting-edge technology

Target 5.5

Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life.

As new technologies such as 5G and AI have become a reality, it is no longer sufficient to ensure only basic digital inclusion for women and girls. The ability to make use of digital technology has become essential in modern societies, with 90% of future jobs requiring digital skills. Women's equal participation in the digital age requires knowledge and access to cutting-edge technology. Addressing women's lower digital literacy and skills, including advanced skills, can therefore also help enhance women's representation in ICT-related industries and allow them equal participation in the digital economy.

It is also important that women become not only content consumers but also content creators. While globally there are more women attending and graduating university than men, women are less likely to major in STEM[96] subjects and only 28% of female students pursue careers in the ICT sector versus 72% of male students.[97] To combat this, in Nigeria a digital skills development programme was developed, teaching technology and programming, digital marketing and graphic design, which had a 50% women participation rate. In 2018, the same programme up-skilled 940 unemployed youths on online work, of which more than 50% were women.[98]

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 5 include the following:

- Improving the availability and quality of gender-disaggregated data. This helps to set targets, create strategies, and track impact and progress.

- Improving affordability, primarily of smartphones. Across LMICs, women have less autonomy and agency in smartphone acquisition.

- Enhancing literacy and digital skills for women and girls. This is the primary reason why male and female mobile users do not use mobile internet in LMICs.

- Adopting and strengthening policies and enforceable legislation for the promotion of gender equality and the empowerment of women and girls at all levels.

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96   Science, technology, engineering and maths

97   "Improving the pathway from school to STEM careers for girls and women", World Bank Blogs, February 2019

98   10 Lessons Learnt: Closing the Gender Gap in Internet use and Access, EQUALS Access Coalition, 2019

6 CLEAN WATER AND SANITATION

7 AFFORDABLE AND CLEAN ENERGY

SDG 6 & 7:
Clean Water and Sanitation & Affordable and Clean Energy

? Why it matters

The aims of SDG 6 and SDG 7 are to ensure the availability and sustainable management of water and sanitation for all (SDG 6) and to ensure access to affordable, reliable, sustainable and modern energy for all (SDG 7). In 2017, 785 million people lacked basic drinking water and 3 billion people had no basic handwashing facilities at home. In 2018, 789 million people – 85% in rural areas -lacked access to electricity.[99]

785m PEOPLE LACKED BASIC DRINKING WATER IN 2017

85% OF PEOPLE WITH NO ACCESS TO ELECTRICITY LIVE IN RURAL AREAS
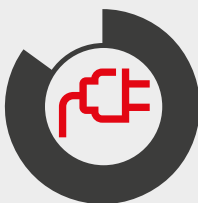
〔((•))〕 The industry's contribution

Mobile technology improves many aspects of water delivery and sanitation provisioning by enabling communication and payment channels between utilities or municipalities and the people they serve. It also facilitates logistics for collection and treatment of non-sewered sanitation services and makes remote and more affordable billing possible.

Mobile money and connectivity have also enabled the growth of PAYG energy solutions that allow households to purchase solar products and appliances through affordable loans. Nearly 4.2 million PAYG solar units were sold in Africa by the end of 2019, an increase of 48% since 2018.[100] This growth has also opened doors for other PAYG models in multiple sectors such as clean cooking, agriculture and water.

4.2m PAYG SOLAR UNITS NOW OPERATING IN AFRICA

99   Sustainable Development Goals Report 2020, United Nations, 2020
100   Global off-grid solar market report, GOGLA, 2019

Enabling safe water access for the urban poor

Target 6.1

By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

Water and sanitation providers in emerging markets often struggle to recoup their costs and become financially sustainable. Economic losses due to inadequate water supply and sanitation are estimated at $260 billion.[101] When revenues do not support the maintenance and expansion needed for reliable supply, this negatively impacts consumers. Mobile-enabled solutions such as smart meters and digital payments can help reduce these losses by creating data trails. These enable providers to increase service coverage and improve customer service and willingness to pay.

For instance, in Ghana, Safe Water Network more than doubled its per-litre payment collection rate, equal to more than 90% of its stations, by digitising processes.[102] Similarly, in Tanzania, mobile money increased water utility payments threefold while reducing water collection waiting times from three hours to 10 minutes.[103] In Haiti, ecological sanitation provider SOIL reduced its collection costs from $1.10 to $0.05 by switching to mobile payments.[104]

Mobile-enabled PAYG water solutions allow low-income customers to pay for what they consume in smaller amounts, rather than a lump sum at the end of a billing cycle (especially for a service that previously may not have provided a steady, timely and safe supply of water). Using mobile payments saves customers time and money by providing a secure means to pay for water at a fair and set price without the need to travel to a local utility office. In Kenya, the time to make a bill payment was reduced by 82% and overall collection efficiency increased up to 101%.[105]

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101   Putting water at the centre of the global agenda, OECD, 2017

102   Harnessing the power of mobile money to achieve the Sustainable Development goals, GSMA, 2019; Testing the Waters, CGAP and GSMA, 2019

103   "One token changing the game for sustainable rural water supply in Tanzania", WaterAid, January 2018

104   See footnote 102

105   Mobile Water Payment Innovations in Urban Africa, Rob Hope, Tim Foster, Aaron Krolikowski and Ilana Cohen, 2011

Enabling access to affordable and reliable energy

Target 7.1

By 2030, ensure universal access to affordable, reliable and modern energy services.

Target 7.2

By 2030, increase substantially the share of renewable energy in the global energy mix.

Mobile money has successfully unlocked a large segment of the solar off-grid market and is enabling access to energy services and appliances for low-income consumers. Mobile-enabled solutions can make access to solar home systems and mini-grid connections more affordable to low-income customers; at the same time, they can give off-grid providers vital information to understand consumer behaviours and therefore improve service delivery.

For instance, smart-meter driven mini-grid power generation and consumption enables effective decision making, including on whether to connect new customers to increase or decrease consumption depending on time of day, or to add new energy storage. Given these dynamics, the International Energy Agency estimates that mini-grids have the potential to supply electricity to more than 450 million people (equal to more than 80% of those still lacking electricity in Sub-Saharan Africa) and to generate $300 billion in investment by 2030.[106]

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 6 and SDG 7 include the following:

- Accelerating mobile penetration to the poorest population segments. This will enable access to relevant digital services, including mobile money for the use of utility services.

- Driving adoption of innovative digital solutions supported by mobile technology (e.g. sensor technology), as sanitation service providers still need to make better use of these tools.

- Creating and fostering partnerships with mobile money providers to enable wider customer adoption of digital payments.

- Enabling regulatory frameworks and funding that encourage the adoption of mobile-enabled digital services for utilities and energy providers.

106   https://www.gsma.com/mobilefordevelopment/blog/mini-grids-macro-impact/

8 DECENT WORK AND ECONOMIC GROWTH

SDG 8:
Decent Work and Economic Growth

? Why it matters

SDG 8 concentrates on promoting sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all. While global real GDP per capita growth has increased by around 2% in recent years, with comparable increases in labour productivity, the COVID-19 pandemic has abruptly and profoundly disrupted the global economy, pushing the world into a recession. Those who are hardest hit include workers in the informal sector, the self-employed, SMEs, and daily wage earners.

COVID-19 HAS PUSHED THE GLOBAL ECONOMY INTO RECESSION

((•)) The industry's contribution

In addition to its direct economic contribution, mobile technology contributes to SDG 8 by allowing firms, especially micro, small and medium-sized enterprises (MSMEs), to become more efficient, access more customers and sell more in non-local markets, which creates jobs for local communities. Mobile can also increase trade and competition by providing consumers with better access to information on products and making it easier to connect them with firms.

MOBILE TECHNOLOGY CREATES JOBS, AIDS EFFICIENCIES AND PROMOTES ACCESS

Technological advancement for efficient productivity

Target 8.2

Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors.

As a general-purpose technology, mobile improves the utilisation of labour and capital and increases productivity. Studies by the ITU have shown that a 10% increase in mobile broadband penetration causes a wider 1.5–2.5% increase in GDP.[107] The economic impact of mobile also increases when technologies upgrade from 2G to 3G and 4G.[108] In 2019, mobile technologies and services generated nearly 5% of global GDP, equal to $4.1 trillion of economic value added.[109]

In addition, 5G technologies are expected to contribute $2.2 trillion to the global economy between 2024 and 2034. Crucial sectors such as manufacturing/utilities (particularly in China) and professional/financial services (especially in MENA and North America) will initially benefit the most from the 5G. The deployment of IoT infrastructure drives further innovation and increases productivity and revenue while reducing costs for enterprises. In 2019, enterprises globally generated $343 billion in IoT revenue as automation and data-driven decision making unlocked productivity gains, increasing worker safety and energy efficiency.[110]

Mobile technologies also enable the formalisation of the informal sector and boost productivity. For example, mobile financial services can facilitate more effective monetary policy by shifting currency and assets into the formal financial system. Transferring resources from the informal to formal economy makes monetary tools more effective and supports efforts to achieve macroeconomic stability.[111]

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107   The economic contribution of broadband digitization and ICT regulation, ITU, 2018; Economic impact of broadband in LDCs, LLDCs and SIDS: An empirical study, ITU, 2019

108   Mobile technology: two decades driving economic growth, GSMA Intelligence Economic Research Working Paper, by Bahia, K., Castells, P. and Pedros, X.

109   The Mobile Economy 2020, GSMA, 2020

110   See footnote 109

111   The Impact of Mobile Money on monetary and financial stability in Sub-Saharan Africa, GSMA, 2019

Supporting employment and micro and small businesses

Target 8.3

Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalisation and growth of micro-, small- and medium-sized enterprises, including through access to financial services.

In 2019, mobile operators and the wider mobile ecosystem provided direct employment to 16 million people across the world; in addition, the industry indirectly supported another 14 million jobs by stimulating employment in other sectors.[112] Access to mobile internet and mobile-enabled platforms, such as mobile money and application-based platforms, also supports productive activities, creates jobs and facilitates entrepreneurship by connecting workers to employers and customers.[113] In Nigeria, increased labour force participation and employment was one of the main benefits from mobile broadband connectivity, particularly among women.[114]

In Sub-Saharan Africa, the lack of quality formal employment is a big challenge for younger populations[115] (95% of youths aged 15–24 years are employed in the informal sector), as underdeveloped social security systems force them to take up any form of employment to meet basic living standards. In 2018, the mobile industry employed 1.2 million youths, of which around two thirds were in the informal sector and a third in the formal sector. The industry is expected to create 300,000 new jobs by 2025.[116]

Mobile money also creates the opportunity for individuals to partner with operators to manage agent outlets, generating an additional source of income. The GSMA estimates that the number of agent outlets has doubled since 2015, reaching 7.7 million in 2019.[117] For example, the eSewa mobile money platform in Nepal can be accessed either through a mobile application or via 47,000 eSewa agents or 'points'. These agents use eSewa as a key business and revenue source, and the service is also encouraging a more digital economy in Nepal with over a million people transacting digitally.

112   See footnote 109

113   World Development Report 2016: Digital Dividends, World Bank, 2016

114   The Welfare Effects of Mobile Broadband Internet: Evidence from Nigeria, World Bank, 2020

115   The International Labour Organisation (ILO) estimates over 75% of all non-agricultural employment in 2018 was informal.

116   Powering Youth Employment through the Mobile Industry in Sub-Saharan Africa by 2025, GSMA, 2020

117   See Mobile Money Metrics

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 8 include the following:

- Integrating IoT business service solutions specific to vertical needs into core connectivity.
- Increasing the use of mobile-enabled services and platforms for applying and searching for jobs in markets where mobile is the primary access technology.
- Increasing digital funding and raising awareness of existing funding opportunities among SMEs to help achieve scale.
- Increasing the proliferation of diversity in the workforce and in leadership.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

SDG 9:
Industry, Innovation and Infrastructure

? Why it matters

SDG 9 aims to build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation. It also seeks universal and affordable access to internet in the least developed countries.

PROMOTING INCLUSIVE AND SUSTAINABLE INDUSTRIALISATION

The industry's contribution

Mobile technology contributes to SDG 9 significantly both as a provider of critical infrastructure and as a catalyst for other sectors. Connectivity enables industrial processes and manufacturing to utilise enhanced technological advancements. Moreover, the industry fosters the research and development of cutting-edge technology and pioneers services enabled by the low latency and high bandwidths that technologies such as 5G provide.

CONNECTIVITY ENABLES INDUSTRIAL PROCESSES AND MANUFACTURING TO UTILISE ENHANCED TECHNOLOGICAL ADVANCEMENTS

Build resilient infrastructure and Improve industrial processes

Target 9.1

Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

Target 9.2

Promote inclusive and sustainable industrialisation and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries.

Technologies such as IoT, M2M, cloud computing, big data analytics and AI play a significant role in Industry 4.0,[118] improving manufacturing efficiency and sustainability. Mobile internet can also be a critical part of a connected manufacturing environment, considering that the economic impacts of mobile are greater in countries with relatively larger service and manufacturing sectors.[119] Enabled capabilities such as object tagging and internet-to-object communication are also vital for capturing data in real time, while cloud computing offers computing and storage power reduction for digitally enhanced manufacturing.[120]

For example, mobile operator China Unicom offers governments and industrial and transportation customers an LTE-based measurement and control method for an unmanned aerial control solution that reduces costs, improves efficiencies and removes any distance and altitude constraints usually found in traditional point-to-point communications.[121]

In many LMICs, mobile connectivity (i.e. 2G/3G/4G) also provides critical infrastructure and a platform that allows MSMEs to grow by reaching bigger markets. In India, for instance, where mobile is the dominant access technology, firms that trade through the Alibaba platform have become more export-focused, reaching customers in up to 40 countries.[122] Furthermore, a lack of access to credit can hinder MSMEs from reaching their full potential; in Sub-Saharan Africa, firms that use mobile money have easier access to bank loans as well as overdraft facilities.[123]

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118 Industry 4.0 refers to the ongoing transformation of traditional manufacturing and industrial practices combined with the latest smart technology e.g. smart factory, cyber-physical systems etc.

119 Mobile technology: two decades driving economic growth, GSMA Intelligence Economic Research Working Paper, by Bahia, K., Castells, P. and Pedros, X

120 Big Data in Cyber-Physical Systems, Digital Manufacturing and Industry 4.0, MECS Press, Lidong Wang and Guanghui Wang, 2016

121 Ground-to-air LTE communication services for industrial drone application, GSMA, 2019

122 "How B2B ecommerce platform Alibaba.com helps small businesses in India export to over 190 countries", SMBStory, June 2019

123 Harnessing the power of mobile money to achieve the Sustainable Development goals, GSMA, 2019

Providing universal and affordable access to mobile internet

Target 9.C

Significantly increase access to information and communications technology and strive to provide universal and affordable access to the internet in least developed countries by 2020.

Growth in mobile connectivity enables individuals to access an array of life-enhancing services, especially in hard-to-reach rural areas. 2G population coverage (97%) is almost universal, while 3G coverage increased from 83% in 2015 to 92% in 2019, covering an additional 940 million people. 4G coverage increased from 55% in 2015 to 85% in 2019, covering an additional 2.5 billion people, while global 5G coverage is forecast to reach nearly 45% by 2025. Despite these gains around half the global population (3.8 billion people) is still offline, mostly in LMICs. This 'usage gap' between coverage and internet adoption shows that closing the coverage gap alone is not going to be enough to connect the unconnected, and addressing other barriers such as affordability, digital skills, relevance and safety and security will be critical.

Of the 7% of global population without 3G or 4G coverage, regional disparities remain. For example, Sub-Saharan Africa accounts for more than 40% of the uncovered, particularly those living in rural and sparsely populated areas. The economics of reaching rural populations and not-spots is challenging, with remote deployments over 35% more expensive than urban deployments.[124] However, operators and other providers are exploring innovative technologies to provide universal coverage.[125] For example, in Zambia, MTN has added more than 200 commercial rural network sites across its footprint through the deployment of Open RAN technology in not-spots and is aiming to reach 5,000 sites in rural areas across its 21 operations.

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 9 include the following:

- Accelerating internet adoption and broadening its use to ensure demand for mobile internet creates a healthy return on investment.

- Licensing sufficient and affordable spectrum, especially the digital dividend, while removing barriers such as sector-specific taxes and complicated planning approval processes for new base stations.

- Providing competition policy and regulatory frameworks that are clear, proportionate, tech-neutral and predictable to encourage investment in high-quality mobile networks.

124   The Mobile Economy 2020, GSMA, 2020

125   Closing the coverage gap: How Innovation Can Drive Rural Connectivity, GSMA, 2019

10 REDUCED INEQUALITIES

SDG 10:
Reduced Inequalities

? Why it matters

SDG 10 focuses on reducing inequality within and among countries. Among 84 countries with available data, income inequality fell in 38 countries between 2010 and 2017 and rose in 25 countries. Despite some positive strides, overall inequality remains high - 43.9% of global wealth is controlled by the richest 0.9%, whereas 56.6% of the world's population own just under 2% of total wealth.[126] Furthermore, the COVID-19 pandemic is hitting the most vulnerable hardest.

43.9% OF GLOBAL WEALTH IS CONTROLLED BY **0.9%** OF THE GLOBAL POPULATION

((•)) The industry's contribution

Mobile technology contributes to SDG 10 by reducing the cost of remittances and improving the delivery of humanitarian assistance. Mobile money-enabled international remittances have been flourishing, with $7.3 billion processed in 2019, compared to $5.5 billion in 2018, while they are available across 184 unique corridors.[127] Furthermore, the ubiquity of mobile in many countries means that it can facilitate access to financial and other life-changing products and services in many contexts, including for persons with disabilities and those facing humanitarian crises. The world's poorest 40% by country[128] have mobile adoption rates of around 60%, an increase of 200 million since 2015. Meanwhile, mobile internet adoption reached 38% among the world's poorest 40% in 2019, an increase of nearly 361 million since 2015.

MOBILE INTERNET ADOPTION REACHED 38% AMONG THE WORLD'S POOREST 40% IN 2019

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126   Global wealth report, Credit Suisse, 2019

127   State of the Industry Report on Mobile Money, GSMA, 2019

128   This calculation of mobile penetration takes into account the poorest 40% of population in each country.

Driving socioeconomic inclusion for persons with disabilities and forcibly displaced populations

Target 10.2

By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex[129], disability, race, ethnicity, origin, religion or economic or other status.

Persons with disabilities (PWDs) are more likely to experience adverse socioeconomic conditions and discrimination than non-disabled persons. This can be exacerbated in humanitarian contexts, where PWDs are often disproportionately impacted by crises.[130] Assistive mobile-enabled technologies and services can increase the capacity of people to live healthier, productive, independent and dignified lives, allowing them to access healthcare, education and labour markets as well as civic life.

In Kenya, PWDs use mobile internet with similar frequency as those without disabilities, while, among smartphone users, PWDs have a higher daily usage of mobile internet at 63% than non-disabled persons at 56%. This highlights the benefits of smartphone features that enable more services than basic phones e.g. IVR for those with hearing impairments or speech-to-text commands for people with visual impairments.[131]

Mobile operators also actively seek to increase the number of employees with disabilities within their workforce. For instance, in Singapore, Singtel is driving an initiative for inclusive workplaces and, through a collaboration with SG Enable, the operator trains and employs several persons with disabilities.[132]

Mobile operators use their technical expertise and infrastructure to increase impact at scale for forcibly displaced persons (FDPs) and their host communities. Some 79.5 million people were forcibly displaced at the end of 2019; 26 million were refugees. At least 93% of refugees worldwide live in areas with 2G or 3G coverage[133] and mobile connectivity and services can provide crucial support to these populations, including the ability to communicate with friends and family, and access to information portals, translation applications and mobile money platforms to receive cash transfers.[134] Operators are also collaborating with humanitarian organisations to improve understanding of people most in need. For instance, Safaricom has partnered with the UN Refugee Agency (UNHCR) and the GSMA to conduct research to better understand how PWDs in humanitarian contexts use mobile and opportunities for mobile-enabled solutions.[135]

129   See SDG 5 for gender equality

130   Bridging the mobile disability gap in refugee settings, GSMA, 2019

131   Understanding the mobile disability gap, GSMA, 2019

132   https://www.singtel.com/about-Us/sustainability/people

133   Connecting Refugees, UNHCR, 2016

134   https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/07/The-Digital-Lives-of-Refugees.pdf

135   The digital lives of refugees and Kenyans with disabilities in Nairobi, GSMA, 2020

Reducing migrant remittance transaction and corridor costs

Target 10.C

By 2030, reduce to less than 3% the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5%.

International remittances are a vital source of financial support for migrants and their families. In 2019, remittance flows to LMICs reached $554 billion[136] (though they are estimated to decline by 20% in 2020[137]). While the global average cost of sending remittances lies at around 7%, banks make up the costliest channels for sending remittances at an average cost of 10.9%, significantly higher than the goal of less than 3% by 2030.[138]

The widespread uptake of mobile money can be instrumental to reducing these costs. The average cost of sending remittances through mobile money has not only been declining consistently over the years but as of 2017 was well below the 3% target of SDG 10.C, having reached just 1.7% of a $200 transaction and 2.7% for smaller transactions e.g. $50 (a 40% reduction year-on-year in both cases).[139]

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 10 include the following:

- Raising awareness of disability issues by providing training, volunteering and programmes to mentor persons with disabilities.

- Aligning efforts across the ecosystem and engaging, co-designing and innovating together with customers with disabilities, tech startups and the public sector.

- Engaging humanitarian organisations to collaborate with mobile money providers to increase meaningful digital and financial inclusion for FDPs.

136   https://www.worldbank.org/en/news/press-release/2020/04/22/world-bank-predicts-sharpest-decline-of-remittances-in-recent-history

137   https://remittanceprices.worldbank.org/sites/default/files/rpw_report_june_2020.pdf

138   Migration and remittances, Recent developments and outlook, World Bank Group & KNOMAD, 2019

139   Mobile money: Competing with informal channels to accelerate the digitisation of remittances, GSMA, 2018

11 SUSTAINABLE CITIES AND COMMUNITIES

SDG 11:
Sustainable Cities and Communities

? Why it matters

SDG 11 strives to make cities and human settlements inclusive, safe, resilient and sustainable. Rapid urbanisation and population growth have forced millions of people into living in slums and informal settlements – the number of slum dwellers reached over 1 billion in 2018, representing one-in-four urban residents.[140] The UN estimates that 3 billion people will still lack adequate and affordable housing by 2030. Furthermore, more than 90% of people worldwide live in areas exceeding the World Health Organization guideline for healthy air.[141]

3bn
PEOPLE WILL LACK ADEQUATE AND AFFORDABLE HOUSING BY 2030

((o)) The industry's contribution

Mobile technology contributes to SDG 11 by providing data analytics and edge computing in combination with fast connectivity to enable smart traffic and cities and to empower municipalities to provide safe and reliable public transport solutions while reducing air pollution. Additionally, operators provide emergency broadcast systems and facilitate emergency communication, which enables effective risk mitigation of disasters and environmental health.

MOBILE TECHNOLOGY SUPPORTS SAFE, RELIABLE AND CLEANER PUBLIC TRANSPORT SOLUTIONS

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140   Sustainable Development Goals Report 2020, United Nations, 2020

141   State of Global Air 2019, Health Effects Institute, 2019

Enabling safe, affordable and sustainable transport systems

Target 11.2

By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

Only 50% of the world's urban population had access to safe and reliable public transport in 2019.[142] Mobile technology can help transport systems to become more sustainable through use cases such as mobile ticketing, timetabling, smart ride and bike sharing, smart traffic light control, and air monitoring. Smart city IoT connections nearly tripled from 2015 to 2019, reaching over 272 million, while IoT vehicle connections have increased by more than 200 million over the past five years, reaching more than 775 million connections. When using smart mobile solutions, bus boarding times can be reduced by up to 75% and aggregated data can reveal which routes are over or underserved, resulting in more optimised timetable scheduling.[143] Smart traffic control systems can also be deployed to reduce travel times, which also reduces CO_2 emissions.

In Côte d'Ivoire, mobile-enabled smart cards have sped up boarding times and improved cash management and transparency for a bus operator.[144] In Canada, a smart traffic management system in the city of Toronto enables traffic lights to self-learn and recognise patterns. A trial period proved that once implemented, the smart traffic solution can shorten travel time by up to 25% while reducing CO_2 emissions by 13%.[145]

Reducing the number of deaths and number of people affected by disasters

Target 11.5

By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.

By enabling communications and access to information, education, and financial and health services, the use of mobiles phones provides essential humanitarian assistance during emergency situations and disasters. The expansion of network coverage and mobile adoption means more people can use mobile in emergency situations. Operator investments have significantly increased network quality and resilience, which is crucial in maintaining communications services in disaster-stricken areas. For instance, in Turkey real-time mobile analytics helps to inform time-sensitive decisions for emergency disaster response.[146] Meanwhile, in Pakistan, the use of innovative technology enables a variety of services such as fleet monitoring for humanitarian agencies to monitor the location of staff in high-risk areas.

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142   See footnote 140

143   "Mobile ticketing can boost public transport usage, here's how", Telelink City, 2020

144   The Mobile Economy West Africa 2019, GSMA, 2019

145   Multi-Agent Reinforcement For Integrated Network (MARLIN) of Adaptive Traffic Signal Controllers, University of Toronto, Samah El-Tantway and Baher Abdulhai, 2014

146   Delivering time-sensitive analytics in the midst of natural disasters, GSMA, 2019

Big data for sustainable and cleaner air

Target 11.3

By 2030, enhance inclusive and sustainable urbanisation and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.

Target 11.6

By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

Big data and IoT solutions can contribute to helping public administrations optimise urban development and management and evaluate the quality of the air in places that do not have any type of monitoring. These solutions save resources and enhance the decision-making processes of public authorities.[147] In Croatia, IT company Smart Sense's collaboration with Deutsche Telekom supports indoor and outdoor monitoring of multiple air quality parameters – including relative humidity, temperature and airborne particles – on room, street and city levels.[148] In Brazil, the use of big data and forecasting algorithms enables pollution levels to be predicted in São Paulo 24 to 48 hours in advance, allowing local authorities to take preventative measures.[149]

147   Air quality monitoring using IoT and Big Data, GSMA, 2018

148   Air quality monitoring using IoT and Big Data, GSMA, 2018

149   Consolidated Management Report, Telefonica, 2019

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 11 include the following:

- Scaling proof of concept projects for implementation, such as IoT sensors and air-quality measurement solutions. This will require continuous work with local governments.

- Leveraging network-derived mobility data to help monitor population movements, especially during disasters.

- Strengthening IoT technology standards specific to infrastructure use and increase network resilience.
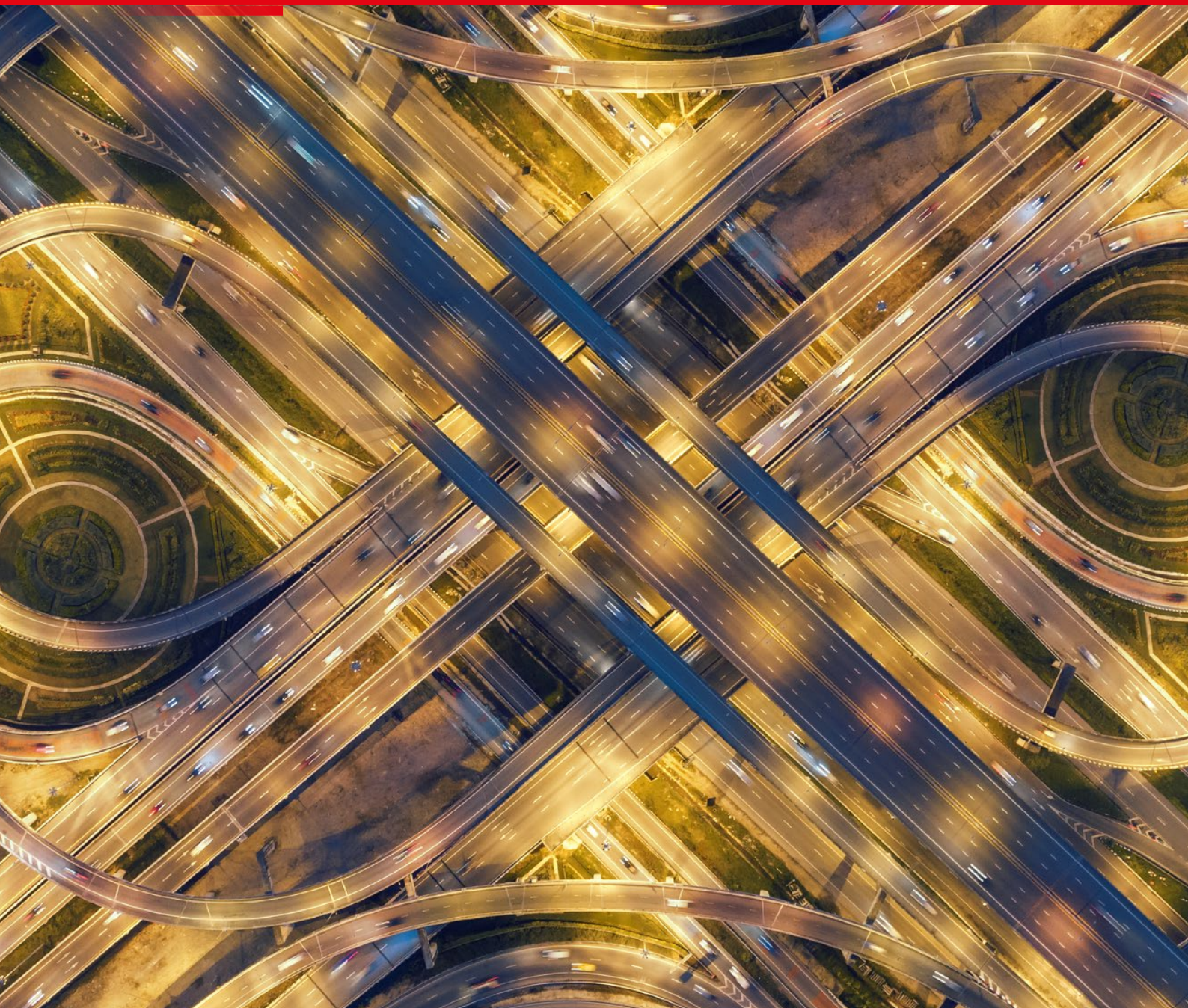
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

SDG 12:
Responsible Consumption and Production

? Why it matters

SDG 12 focuses on ensuring sustainable consumption and production patterns. The global material footprint is still growing, having risen to 92 billion metric tons in 2017. This is 1,250% higher in high-income countries than in low-income countries per capita.[150] Without concerted political action this is forecast to grow even further to reach 190 billion metric tons by 2060, according to the UN.[151]
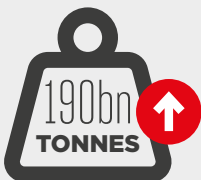
190bn TONNES ⬆ **THE GLOBAL MATERIAL FOOTPRINT TO GROW TO 190 BILLION METRIC TONS BY 2060**

((•)) The industry's contribution

Mobile technology and mobile operators contribute to SDG 12 through various mechanisms for e-waste management, including recycling collection points, awareness programmes and ratings, as well as through catalysing policy developments. They also apply circularity as a service, which is a mechanism to close the loop by collecting end-of-life scrap handsets from developing countries, where it is estimated that more than 1 billion such devices would reach the end of their lives with their owners having no access to any form of recycling facility or service.[152]

MOBILE OPERATORS PROVIDE E-WASTE MANAGEMENT, RECYCLING, AWARENESS PROGRAMMES AND RATINGS

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150   Sustainable Development Goals Report 2019, United Nations, 2019

151   See footnote 150

152   https://www.gsma.com/mobilefordevelopment/blog/telecom-circularity-as-a-service/

'Circularity as a service' to reduce e-waste

Target 12.4

By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

Target 12.5

By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

In 2019, approximately 53.6 million metric tons of e-waste (excluding PV panels) was generated, or 7.3 kg per capita, with 17% of global e-waste documented to be collected and properly recycled.[153] If current trends continue, global e-waste production is expected to reach 120 million tonnes per year by 2050.[154]

Globally, there are 67 e-waste management initiatives led by mobile operators in 40 countries, while 43 operators have set up e-waste or mobile waste collection points in their offices and customer contact centres. Mobile technology also addresses other waste collection and management challenges such as plastic recycling.

In the Netherlands, T-Mobile and Samsung implemented a circular service known as One for One in collaboration with a social enterprise, Closing the Loop, whereby the material footprint of a new phone (purchased in the Netherlands) is offset by recycling an old phone, which is collected in emerging markets. Thus far, Closing the Loop has collected more than 2.2 million phones while also creating additional income for over 2,000 people through partners in Asia and Africa that repair a number of these devices.

153   The Global E-waste Monitor 2020: Quantities, flows and the circular economy potential, United Nations University/UNITAR, Vanessa Forti, Cornelis Peter Baldé, Ruediger Kuehr, Garam Bel, 2020

154   A New Circular Vision for Electronics: Time for a Global Reboot, PACE and The E-waste Coalition, 2019

Meanwhile, an operator-led initiative provides eco-ratings on handsets and includes information such as longevity and reparability, as well as a score between one and five to indicate a device's sustainability level. Telefónica, for instance, provides the eco-rating seal on 80% of its handsets to customers across 10 countries (in Europe and Latin America). Its portfolio in 2019 reached an average score of 3.2.[155] Further, in 2019, Telefónica recycled 73% of electronic equipment collected, while 27% was reused. This gave new life to 4 million communication equipment units while avoiding 4,145 tonnes of CO_2 emissions.

Mobile technology enables plastic waste collection by formalising the process. In Côte d'Ivoire, working with mobile operator MTN and leveraging mobile technology, Coliba reduces plastic waste by formally employing waste collectors and encouraging households to recycle and turn plastic waste into pellets that can be reused while providing mobile users data credit rewards as part of the recycling process. As of July 2019, Coliba had collected plastic bottles from over 4,500 monthly active users on the mobile app, equal to nearly 100,000 kilograms of plastic waste and up to 2 tonnes of plastic recycled a day, while formally employing 45 waste collectors and 23 full-time employees.[156]

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 12 include the following:

- Combatting the production of unsustainable e-waste, for example by setting goals to increase the number of eco-rated devices in handset portfolios to raise awareness among consumers and enable them to make sustainable decisions.

- Looking towards a more sustainable supply chain where device makers and other technology partners collaborate to create a closed loop process that will eventually eliminate unnecessary waste.

- Introducing campaigns to influence and entice customers to bring their old devices and other e-waste to collection points and raise awareness around the health and environmental dangers exposed by substances that can leak out of e-waste that is not disposed of safely.

155   2019 Consolidated Management Report, Telefónica, 2019

156   Coliba using mobile to create a-formalised plastic recycling economy in Africa, GSMA, 2019

SDG 13:
Climate Action

 ## Why it matters

SDG 13 calls for urgent action to combat climate change and its impact. 2019 was the second warmest year on record (and at the end of the warmest decade) and the global community is currently not on track to meet either the 1.5°C or 2°C targets of the Paris Agreement. The world needs to halve emissions by 2030 to limit global overheating to 1.5°C, which is necessary to avoid catastrophic consequences and irreversible changes. Despite the drastic reduction in human activity due to the COVID-19 crisis, the resulting 6% drop in emissions projected for 2020 falls short of what is needed, and emissions are expected to rise as restrictions are lifted.[157]

THE WORLD NEEDS TO **HALVE** EMISSIONS BY 2030 TO LIMIT GLOBAL OVERHEATING TO **1.5°C**

 ## The industry's contribution

Mobile technology contributes to SDG 13 by increasing connectivity, improving efficiency and effecting changes in behaviour, while mobile network–enabled technologies help avoid emissions. Connected devices in particular form an important part of the decarbonisation solution. Meanwhile, 29 operator groups representing 30% of global mobile connections are already committed to science-based targets aligned with the Paris Agreement.
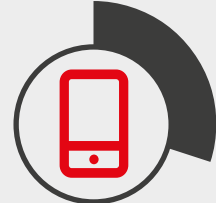
29 OPERATORS GROUPS REPRESENTING 30% OF GLOBAL MOBILE CONNECTIONS ALREADY COMMITTED TO SCIENCE-BASED TARGETS

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157   Sustainable Development Goals Report 2020, United Nations, 2020

Enabling the transition to a zero carbon economy

Target 13.1

Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

Target 13.2

Integrate climate change measures into national policies, strategies and planning.

In 2018, the enabling impact of mobile communication technologies globally was estimated to be around 2,135 million tonnes CO2e – equivalent to the level of GHG emissions emitted by Russia in 2017.[158] The total annual emissions of the mobile sector are approximately 220 MtCO2e,[159] which is about 0.4% of total global emissions. The level of avoided emissions enabled by mobile communication technologies is 10 times greater than the global carbon footprint of mobile networks themselves – a tenfold positive impact. Mobile technologies also enabled a decrease in 1.44 billion MWh of electricity and gas, and 521 billion litres of fuel.[160]

Smart transportation, smart buildings, smart manufacturing and smart agriculture facilitate rapid emission reductions while improving quality of life and supporting economic growth. For instance, the increase in vehicle monitoring, route optimisation, fuel efficiency through telematics helped avoid approximately 105 million tonnes CO2e in 2018, equivalent to taking 23 million passenger cars off the road in the US in a given year.[161]

Over 50 mobile operators, representing more than two thirds of mobile connections globally, are now disclosing their climate impacts, energy and GHG emissions through the Carbon Disclosure Project (CDP). Working in collaboration with the ITU, GeSI and SBTI, the GSMA also helped to develop a new sector-specific decarbonisation pathway for the ICT sector. This enables ICT companies to set science-based targets (SBTs) in line with the latest climate science.

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158   https://stats.oecd.org/Index.aspx?DataSetCode=AIR_GHG#

159   Mobile sector emissions of 220 MtCO2e include the energy to operate the networks, the embodied emissions of the networks and the emissions of handsets.

160   The Enablement Effect: The impact of mobile communications technologies on carbon emission reductions, GSMA, 2019

161   See footnote 160

Improving resilience to the effects of climate change and driving energy efficiency

◎ Target 13.3

Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

Mobile operators and mobile technologies also facilitate and drive innovation in climate adaptation and help to build resilience against climate change. For instance, mobile technologies play a key role in disseminating valuable weather information, especially to smallholder farmers that are vulnerable to extreme and unpredictable weather patterns. An example is the partnership between Ignitia and mobile operators in West Africa to deliver SMS-based location-specific weather information.[162] Smart agriculture services, such as those offered by Orange Business Services and Dacom, also allow farmers to better understand and adjust to climate change through big data analysis.[163] Beyond the dissemination of information via mobile phones, mobile technology is also becoming more crucial to bridge the data gap in weather monitoring and forecasting. For example, microwave data from backhaul networks and mobile-based geo-location data (GPS, cell ID) can be combined with big data from satellites and sensors to create flood warnings or hyper-localised forecasts for communities that are vulnerable to climate change[164].

Agriculture, forestry and other land uses also account for 25% of global GHG emissions,[165] due in part to high emissions from fertiliser use, irrigation systems and food waste. Mobile technology helps farmers to better regulate, plan and remotely monitor irrigation and soil conditions. In California, where agriculture accounts for 80% of all water use, an estimated 9 million acres of farmland are irrigated. The installation of small solar-powered sensors and an LTE-served network helped save an estimated 6% of water use (equivalent to more than 3.4 million litres) while reducing 5% of GHG emissions.

162   https://ignitia.se/iska

163   See https://www.foundedingroningen.com/news/dacom-agriculture-big-data and https://www.orange-business.com/en/case-study/dacom-raises-sustainable-arable-crop-production-and-profits

164   Mobile technology for rural climate resilience: The role of mobile operators in bridging the data gap, GSMA, 2019

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 13 include the following:

- Providing affordable renewable electricity options such as solar, wind, biomass, hydro, tidal in the geographical location where operators are operating.

- Accessing renewable electricity through the local grid by either entering into power purchase agreements with renewable electricity generators or by purchasing renewable electricity through certificates in the local electricity market.

- Local governments supporting direct investments in self-generation of renewable electricity and supporting community energy grids and site sharing in off-grid areas.

- Creating frameworks for public-private data sharing partnerships, for example between meteorological agencies and mobile operators, to improve the availability and quality of climate and weather services.

14 LIFE BELOW WATER

15 LIFE ON LAND

SDG 14 & 15:
Life Below Water & Life On Land

? Why it matters

SDG 14 centres on the conservation and sustainable use of oceans, seas and marine resources. Oceans support all life on the planet and help to regulate the global climate system. However, levels of ocean degradation are increasing – by 2050, it is expected there will be more plastic in the ocean than fish and by 2100, a 100–150% rise in acidity will affect half of all marine life.[166]

SDG 15 seeks to protect, restore and promote sustainable use of our terrestrial ecosystem. It calls for sustainable management of forests, the combatting of desertification, and a halt and reverse of land degradation and biodiversity loss. One fifth of the earth's land area is affected by land degradation, while the proportion of forest area fell from 31.9% of total land area to 31.2% in the last 20 years, a net loss of 100 million hectares.[167]

BY 2050, IT IS EXPECTED THERE WILL BE MORE PLASTIC IN THE OCEAN THAN FISH

((•)) The industry's contribution

Mobile technology contributes to SDG 14 by providing technical platforms that act as channels to capture and enable access to information. Machine-to-machine and sensor-driven services support SDG 15 in the restoration and sustainable use of terrestrial ecosystems.

MOBILE HELPS CAPTURE AND ENABLE ACCESS TO INFORMATION TO SUPPORT LIFE BELOW WATER AND LIFE ON LAND

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165   AR5 Synthesis Report, IPCC, 2014

166   Sustainable Development Goals Report 2020, United Nations 2020

167   See footnote 166 and The Sustainable Development Goals Report 2019, United Nations, 2019

Sustainably managing and enabling the protection of life under water

Target 14.2

By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.

Target 14.4

By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.

Mobile technology contributes to supporting life below water through digital software and mobile devices that monitor the surface. While signal propagation degrades under water, the mobile industry enables improvements in the functioning of coastal ecosystems. It also provides technical platforms on which cost-effective biodiversity-monitoring solutions are built. This is particularly important for small island developing states (SIDS), least developed states and artisanal fishers.

For instance, software solutions such as interactive dashboards contribute to the monitoring of sustainable fishing practices while push and pull content[168] also helps to clean and prevent ocean pollution and preserve marine species. Additionally, data visualisation software and AI in combination with the use of drones enable marine counter-poaching and marine habitat protection. To prevent illegal fishing in the Seychelles, the FishGuard project has implemented drones with preprogramed AI to register types of ships present on water and establish which vessels are authorised to fish. This enables authorities to access information such as vessel location and identification number. FishGuard is a scalable solution that can be adapted further to protect the sustainability of oceans and it is able to monitor millions of square kilometres, decreasing patrolling costs while increasing efficiency.[169]

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168   Push content refers to small messages delivered to relevant consumers without interaction from them. Pull content refers to data or information that users proactively seek out or submit to NRM organisations or authorities.

169   "Drone project aims to combat illegal fishing in the Seychelles", Dronelife, August 2018

Natural resource management to protect, restore and conserve ecosystems

Target 15.1

By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.

Target 15.2

By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

Mobile-enabled technologies, such as satellite imagery, AI and IoT, together with the expansion of mobile broadband coverage, smartphone penetration and web-based dashboards, offer new opportunities to support governments, organisations and communities to protect, restore and promote sustainable use of terrestrial ecosystems. These technologies can significantly improve the efficiency, responsiveness and efficacy of natural resource management efforts, which promote the sustainable use of the planet's natural resources on land, including forests, watersheds and a diversity of plant and animal species. For instance, a Cisco-supported project in South Africa saw the elimination of rhino-poaching activity in one game reserve through biometric scanning, a point-to-point reserve area network and CCTV cameras.[170]

Sustainable forest management is critical for areas that host significant biodiversity. Systems such as acoustic and video monitoring in real time enable the prevention of deforestation.[171] In the Peruvian Amazon this was achieved by preventing illegal mining, a main driver of deforestation, through the use of smartphone applications, as real-time monitoring enabled local law enforcement to capture illegal miners using heavy machinery and dangerous chemicals. Similarly, illegal logging accounts for 50–90% of timber trade in tropical countries, but detecting chainsaws and other sounds related to human activity is challenging.[172] In many countries, including Brazil, Costa Rica, Indonesia and the Philippines, upcycled Huawei smartphones are used and connected to solar panels and microphones to become "Rainforest Guardians". These support law enforcement through real-time alerts and also positively impact forest cover.[173]

170   https://hello.global.ntt/en-us/about-us/case-studies/connected-conservation

171   Digital Dividends in Natural Resource Management, GSMA, 2020

172   https://www.nepcon.org/sourcinghub/info/illegal-logging-0

173   "DENR, Smart, Huawei join hands to save Philippine rainforests", MyCebu.ph, March 2020

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 14 and SDG 15 include the following:

- Scaling the deployment of IoT. Devices used for high-frequency use cases are becoming widely available, but those for less common activities (e.g. water catchment management, wetland management, marine habitat protection and restoration) are produced in low volumes, preventing economies of scale.

- Increasing access and affordability of connectivity in the most remote locations (e.g. forests). This remains a challenge as GSM networks are still underrepresented in remote locations where these types of projects are implemented.

- Scaling the ecosystem of natural resource management stakeholders, including NRM organisations,[174] digital technology organisations, local communities and government.

174   Includes global/local non-profit organisations, social enterprises, privately-owned nature reserves, NRM speciality services organisations.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

SDG 16:
Peace, Justice and Strong Institutions

Why it matters

SDG 16 calls for the promotion of peaceful and inclusive societies for sustainable development, provision of access to justice for all and building effective, accountable and inclusive institutions at all levels.

PROMOTE PEACEFUL AND INCLUSIVE SOCIETIES – PROVIDE JUSTICE FOR ALL

The industry's contribution

Mobile technology contributes to SDG 16 by facilitating access to information and the right to free expression, while digital identity leverages mobile as a trusted and robust solution for the underserved. Together, these lead to greater social and economic inclusion and make individuals more visible to their governments. Governments, especially in countries with low ID penetration, are also making reforms and investments in their identity infrastructure a priority, including birth registration. There are ID systems using digital technologies in 161 countries.[175] As of January 2020, 12% of countries (19 of 155) that implemented SIM registration allowed mobile network providers to verify customers' identification credentials against an approved government database or credential to facilitate validation.

ID SYSTEMS USING DIGITAL TECHNOLOGIES ARE BEING USED IN 161 COUNTRIES

Helping institutions to increase efficiency and reduce fraud

Target 16.5

Target 16.5: Substantially reduce corruption and bribery in all their forms.

Target 16.6

Develop effective, accountable and transparent institutions at all levels.

The poorest segments of society are often excluded from social cash transfer programmes because of challenges related to enrolling, identifying and communicating with beneficiaries. Digital tools facilitate the implementation of social protection systems and support social cash transfers. Digital registration of beneficiaries enables efficient verification, while targeted and transparent delivery of funds avoids corruption and reduces the time for aid delivery. In 2018, social cash transfer programmes accounted for over half of all social protection spending worldwide. Indirectly, such institutional systems also contribute towards lowering poverty. Approximately 36% of households that received social cash transfers were able to avoid absolute poverty.[176] In addition to digital registration, mobile money-enabled transactions also generate data trails which can facilitate oversight and supervision by authorities.[177]

In Zambia, a new enrolment system synchronised more than 55 million data points, improved data collection and social cash transfer applications, and addressed logistical challenges such as payment delays. In 2019, it covered all 108 districts of Zambia and was used by 1,200 enumerators. Furthermore, the use of mobile to support data collection has translated into a strong government institution where decision-makers have real-time access to vital information and are able to reach more beneficiary households in a shorter amount of time.[178]

Transparent transaction records are also vital to protect customers' rights, foster trust, reduce the risk of fraud and theft, and improve social outcomes. Mobile money creates such records of financial history. For instance, in 2010, the Afghan National Police began to use M-Pesa instead of cash to pay salaries. During this process they discovered that 10% of salaries were being paid to fictitious police officers, while some officers were not receiving their salaries in full.[179]

176   The State of Social Safety Nets 2018, World Bank, 2018

177   Harnessing the power of mobile money to achieve the Sustainable Development Goals, GSMA, 2019

178   Digital identity and social cash transfers, GSMA, 2019

179   See footnote 177

Reducing barriers to birth registration through mobile

Target 16.9

By 2030, provide legal identity for all, including birth registration.

Nearly 1 billion people worldwide lack official proof of identity, with one in two women in low-income countries affected.[180] An average of 20% of children under five (166 million under-fives), remain unregistered at birth.[181] As an official and permanent record of a child's identity, birth certificates can bestow access to a number of services and a means to gain national identity documents later in life. Without an identity, individuals are often invisible and therefore unable to vote, access healthcare, open a bank account, receive education or get employment, and they also bear a higher risk for exploitation and trafficking. Without accurate population data, public and private organisations struggle to broadly and accurately deliver the most basic human services. Digital identity is therefore considered one of the foundational enablers that can facilitate access to essential services and aid.[182]

In Tanzania and Ghana, mobile-enabled digital birth registration has led to more infants registered early or on time (within the first year), in some cases almost quadrupling registration rates (from 8.9% to 30.3% in Mbeya, Tanzania). In some regions in Ghana, more than 90% of births are now registered digitally.[183] Similarly, in Pakistan the number of registrations has seen almost three times as many children registered compared to traditional registration processes, which on average require three trips to a government office and a processing time of two days, compared to the mobile-enabled registration process that allows parents to register births without leaving their community (and in some cases, without leaving their home) and can be completed in less than 10 minutes.[184]

180   https://id4d.worldbank.org/global-dataset

181   "Despite significant increase in birth registration, a quarter of the world's children remain 'invisible'", UNICEF, December 2019

182   GSMA Digital Identity Programme: Insights and Achievements (2016–2020), GSMA, 2020

183   Birth Registration in Tanzania: Tigo's support of the new mobile birth registration system, GSMA, 2016

184   Innovations in Mobile Birth Registration: Insights from Tigo Tanzania and Telenor Pakistan, GSMA, 2017

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 16 include the following:

- Lowering ID barriers to register SIM card users, especially vulnerable populations, and barriers to own a mobile phone (e.g. cost of handset, mobile services).

- Relaxing SIM registration and KYC requirements to onboard users.

- Implementing stronger and inclusive data protection and privacy laws that can provide an environment to reduce corruption, fraud and lack of transparency at government and private institution levels.

17 PARTNERSHIPS FOR THE GOALS

SDG 17:
Partnerships for the Goals

? Why it matters

SDG 17 strives to strengthen the means of implementation and revitalise the global partnership for sustainable development. Effective collaboration between public and private sectors is needed to drive significant improvements to the SDGs. In 2019, $554 billion in remittance flows went to LMICs, overtaking foreign direct investment flows and exceeding official aid by more than three times. However, they are expected to decline by around 20% in 2020 due to the COVID-19 pandemic.[185]

$554bn

IN REMITTANCE FLOWS WENT TO LMICs IN 2019 (BUT A DECLINE IS EXPECTED IN 2020)

((•)) The industry's contribution

Effective collaboration between the public and private sectors, as well as collaboration between different industries and sectors, drives significant improvements in the mobile industry's contribution to the SDGs.

EFFECTIVE COLLABORATION DRIVES SIGNIFICANT IMPROVEMENTS TO IMPACT ON SDGs

Strengthening domestic resource mobilisation

Target 17.1

Strengthen domestic resource mobilisation, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection.

Target 17.3

Mobilise additional financial resources for developing countries from multiple sources.

The mobile ecosystem makes a significant contribution to the funding of the public sector through general taxation. In most countries, this includes value-added tax or sales tax, corporation tax, income tax, and social security from the contributions of firms and employees. In 2019, the industry contributed almost half a trillion dollars to the funding of the public sector through general taxation.[186]

Mobile technology also enables governments to strengthen their domestic capacities and ability to provide financial resources. For instance, the digitisation of public revenue collection, such as taxes, school fees and traffic fines, mobilises countries and strengthens their economies, increasing resources for governments while creating transparent and auditable records of public funds. In Rwanda, a public and private partnership led to the creation of a centralised e-payment platform, which offers over 89 services online and has served over 4 million users.[187]

Additionally, government authorities that use mobile money can reach a wider population and reduce the administrative burden and cost of handling cash. For example, in Senegal, the Customs School noted a 50% increase in registrations after digitising registration payments for its entrance exam. This was likely due to new candidates from non-urban areas who could avoid transportation costs by using a digital platform.[188]

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186   The Mobile Economy 2020, GSMA, 2020

187   "Electronic certificates: how Irembo is on course to making Rwanda paperless", The New Times, November 2018

188   Harnessing the power of mobile money to achieve the Sustainable Development Goals, GSMA, 2019

Partnerships to boost impact

Target 17.8

Fully operationalise the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology.

The importance of technology and internet access is reflected in target 17.8, which is measured based on the proportion of individuals in each country using the internet. Access to the internet and innovative services enabled by mobile connectivity are contributing to the fulfilment of all the SDGs.

In many countries, mobile provides the primary – sometimes the only – platform to access the internet. Globally, there were 3.8 billion unique mobile internet subscribers in 2019 (almost half the world's population). Mobile accounted for 87% of broadband connections in developing countries.[189] Across 15 LMICs surveyed by GSMA Intelligence in 2019, an average of 67% of those using the internet accessed it exclusively via a mobile phone.[190]

Many of the industry's current impacts, however, could not be achieved without multi-stakeholder partnerships – for example, the provision of mobile-enabled financial services and the support of populations affected by disasters. The mobile industry and the GSMA realise

the importance of collaboration in addressing the most pressing global issues, as evidenced by the GSMA's participation – and in some cases leadership – in several multi-stakeholder partnerships.[191]

For instance, the GSMA National Dialogues initiative convenes key government ministries and leaders of the mobile industry to explore ways in which mobile can act as a positive force for societal change. Similarly, EQUALS is a multi-stakeholder partnership, co-founded by the GSMA, UN Women, ITU, ITC and UN University in 2016, which brings together international organisations, the private sector, governments, non-governmental organisations, regulatory agencies and academic institutions with a common goal to bridge the gender digital divide. Meanwhile, in partnership with UN agencies, international organisations and mobile operators, the Big Data for Social Good initiative leverages mobile operators' big data capabilities to enable governments to respond effectively and efficiently to many of the world's most pressing health, humanitarian and environmental issues.[192]

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189   ITU

190   GSMA Intelligence

191   For further information, see 2019 Mobile Industry Impact Report: Sustainable Development Goals, GSMA, 2019

192   See footnote 191

Maximising impact by 2030

Enablers that could help maximise the mobile industry's impact on SDG 17 include the following:

- Developing new and effective partnerships and enhancing existing collaborations to achieve the maximum impact possible across all SDGs.

- Connecting the unconnected, which remains a significant challenge to unleash the full potential of mobile technologies.

- Scaling IoT and other emerging technologies, which will require collaboration and investment from both the private and public sectors.

04

Concluding remarks

Mobile technology has been contributing to economic and social development for more than two decades by bringing connectivity into the palms of our hands. For billions of people around the world, mobile is no longer just a luxury service to connect with friends and family or browse the internet. It is now the primary platform to access life-enhancing and, in some countries, life-saving services. It also serves as the backbone of the digital economy – enabling payments and smart infrastructure – and as a vital part of the solution to tackle climate change.

The COVID-19 pandemic has further emphasised the importance of connectivity in our daily lives. However, it has also accentuated the global digital divide, as those that are unable to realise the benefits of digital technology are falling further behind in a post-COVID-19 world. As a result, the mobile industry must work together with its stakeholders (including governments, other industries, civil society and the international community) to ensure the achievements of the last five years are not lost. At the same time, as we begin the Decade of Action, the mobile industry and its stakeholders must also be ready to accelerate efforts to deliver mobile's full potential to address the world's biggest challenges.

#BetterFuture

For further information please visit
the GSMA website at www.gsma.com