

1. What are your biggest challenges and concerns when adopting digital technologies to address current development issues?

The Digital Economy has greatly changed the way people live, work and communicate. Societies from developing economies increasingly rely on the digital exchange and storage of data. In particular, the Internet allows new modes of information access, interaction opportunities, as well as knowledge creation and sharing that were previously not available in an environment lacking basic infrastructures. This evolution has increased people's information requirements and expectations from products and services they were often not able to use in a non-digital manner. This trend is affecting how the private and public sector operates. At the same time, it offers opportunities for increased quality and range of services. Such a digital revolution implies an alignment of interest among key stakeholders to generate the expected benefits. If most governments have clear ambitions for a transition towards a digital economy, usually expressed in so-called national digital plans, the level of digital maturity greatly differs across countries. Adopting digital technologies for inclusive economic and social growth presents various challenges.

In the current regulatory environment, a large part of future investment requirements in digital infrastructure is commercially viable, provided efficient financing is in place. However, economically beneficial investments in less densely populated, rural areas are financially not viable as they suffer from an imbalance between high up-front investment costs and, in comparison, limited cash flows private operators can reap from a lower number of consumers. Because of this lack of commercial viability, projects covering the most vulnerable populations are often held back resulting in a deepening of the "digital divide". A digital divide may also within urban areas when affordability for services is low. If low competition levels used to be a major affordability inhibitor, most economies have liberalised their market and have established competitive markets, which helps to achieve better affordability levels. The cost of international connectivity is still a major inhibitor in some markets, especially land-locked countries or those with limited submarine cable connections.

Access to energy also greatly constrains the expansion of telecom infrastructures in some developing economies. In the least developed countries, the lack of reliable power at cellular tower sites is usually the single biggest challenge to offer stable and reliable mobile phone services. Cellular towers located in areas without access to reliable electricity grids – or any electricity source at all – have to be powered by diesel generators with high operating costs and negative environmental impacts. Managing the supply of reliable power is not a traditional core business competency of Mobile Network Operators (MNOs) which increasingly turn to Energy Service Companies (ESCOs) to provide them with cost-effective, reliable power, possibly based on renewable sources.

Provided infrastructures are in place; such as telecom networks, e-Identity and e-banking, the private sector transition to a digital environment is driven by new revenue potentials, operational efficiency and cost reductions. Concerning the public sector, the transition from physically delivered and paper-based operations to public services delivered in an efficient manner making use of digital technologies generate positive economic and development impact beyond the public institutions. Such pillar of a transformation to a digital economy impacts all stakeholders and the way they interact with public institutions and among themselves. Citizens benefit from a more efficient, transparent and comprehensive administration. However, such transformation may face significant implementation challenges such as low acceptance by end-users based on a misalignment of interest, a misunderstanding of the benefits or the fear of the challenge to reform established administrations.

Finally, there is a significant lack of awareness of the risks of cyber-criminality for consumers, private and public players. Among productive forces, several major inhibitors are still hindering an effective implementation of cybersecurity strategies, including lack of top management buy-in, budget and resource constraints, skills shortages and limited access to talent pool. In addition, it is crucial to speed up investment in the secure functioning of the electronic infrastructure on which most of economic transactions will be based directly or indirectly. There is a crucial need to support on one hand the deployment of cyber security solutions in the public and the private sector and on the other hand, the development of new solutions and technologies to keep up with ever growing criminal threats. The investment requirements in cybersecurity are expected to grow strongly across the globe even though much of the required investments may actually not take place due to insufficient availability of financing.

A transition to a Digital Economy has a profound impact on the skills needed to operate productively in the workplace and, increasingly, in society. Studies show how digitalization is reshaping the future skill needed for all professionals, not only for ICT-workers. This evidence strengthens the urgency to equip the whole workforce with an adequate set of skills, ensuring that employees and entrepreneurs are in the position to leverage digital technologies for business and innovation purposes, but also favouring the dissemination of skills that allow all citizens to critically assess an information-dense environment. In other words, a successful transition to a Digital Economy requires a purposeful dissemination of digital skills among students, employees, as well as among the general population.

A widespread adoption of digital technologies cannot be fully effective unless coupled with investments for the redesign of education curricula to include ICT and digital skills at primary, secondary and higher education levels. It is equally important to consider upskilling and reskilling interventions for employees affected by the digitalisation of work processes, as well as dissemination and training support for citizens in general. The widespread diffusion of basic ICT and digital skills to the entire population is also a necessary precondition to mitigate the risk that a digital economy transition may end up worsening inequalities and social disparities, within and across Countries.

2. What are the breakthrough digital ideas you think could exponentially advance sustainable development?

Furthering the digitalisation of the economy will improve the delivery of quality basic services, increase the transparency and accountability of the public sector and underpin human rights. Digitalisation can transform the delivery of public services, including healthcare, some areas of education and agriculture. The transition to a digital economy is changing the way people interact by enhancing the effectiveness of development activities and offer new solutions across all sectors with extensive economic benefits. Digital services require the layout of universal infrastructures based on fixed and mobile access networks as well as connection of these networks to the internet via backbones and international connectivity. Technologies like eID provide another enabling infrastructure for public services.

The transition to a digital economy is largely driven by the digitalization of corporate and public entities' products and processes which seek to gain in competitiveness, taking the opportunity offered by IT solutions to redesign operating models, organisational structures, skills and roles. In developing economies, the lack of services the software market is largely driven by the opportunity to fill in market failures across industries such as payment, logistics, education or information exchange. The impact of the digital transformation is far greater for the population which were long excluded from basic services. Software solutions offer the capacity to overcome a number of market failures in the delivery of economically important services. For instance, mobile payment has greatly improved bank services penetration in various emerging markets, and the use of point of care diagnostics / diagnosis can deliver essential primary health services in remote and isolated areas of the globe. In the education domain, online education tools can be useful to target specific area of needs, for example in the upskilling of employees or furthering the support to younger students who may lack access to appropriate infrastructure.

Supporting entrepreneurship and innovation can play a significant role in accelerating economic development and social progress by: i) developing affordable solutions to fundamental livelihood, education, primary healthcare, energy, and social needs; ii) significantly contributing to the creation of high quality jobs, in particular for young people; iii) promoting the social fairness of the economy, in a context characterised by an unequal distribution of wealth and high barriers for newcomers to start a business. Technology and specifically, mobile technology, provides a versatile, low cost platform of new opportunities for entrepreneurs.

Robust, inclusive, and responsible foundational identification systems can be transformative for the poorest and most vulnerable part of the population by enabling access to basic healthcare, basic education, social safety nets, facilitating financial inclusion, and fostering the empowerment of women and girls. The ability to uniquely identify individuals and reliably authenticate their identity is a key enabler of progress toward economic development. Digital identification systems can generate

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significant benefits across the public and private sectors by increasing accountability (chiefly through the reduction of fraud, leakages, and waste) as well as driving innovation in service delivery (through the use of mobile or digital payments, for instance). Moreover, such systems can generate reliable and continuous data for policymakers to measure development progress and identify areas needing additional investment. The opportunity unlocked by e-Health solutions (such as patients' databases, AI-supported diagnosis, epidemic monitoring and control) can be cornerstone in generating leapfrogging initiatives in developing areas, which can embrace the latest scientific and medical advancements because of digital innovations. Health informatics enables cross-border patient mobility, overcoming fragmented national health systems and stimulates price and quality competition, critical in a context of rising costs for healthcare provision. It also stimulates international medical research and it addresses workforce shortages, by enabling remote diagnoses and treatments.

Low levels of financial inclusion greatly slows down the economic development. However, this situation also creates a major economic and social impact growth opportunity for entities that understand the need of the market and have the capacity to develop innovative solutions. The rise of digital technology, which is rapidly reshaping business environments, allows innovators to reinvent legacy models in order to deliver services accessible to a wider population group. As a result, some developing markets have become leaders in the diffusion of mobile financial services and thus greatly contributing to overall better economic growth and gender equality.

The interlinkages between infrastructure availability and economic development are well established, including the positive impact of infrastructure access on poverty alleviation, equality, growth and specific development outcomes such as job creation, market access, health and education. Broadband access in many developing regions has largely been driven by mobile technologies, as fixed line services remain stunted. This trend in high-speed connectivity via mobile technologies will continue to grow with 3G and 4G as leading technologies into the 2020s, providing opportunities for infrastructure investment until 5G is rolled out in the end of the decade. WiFi technology, which has dominated the home broadband sphere for several years, is anticipated to play a leading role in wireless connectivity in the coming years. By 2020, WiFi networks are expected to be interconnected with all other access networks to provide seamless mobility and ubiquitous access. Due to the lack of fixed line infrastructure and the high investments required to roll out fixed line services, wireless technologies will continue to provide viable options and economically sustainable solutions for connecting to the Internet in the future, particularly for the rural areas.

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