

ITU Invitation to participate in the Open Consultation of the CWG-Internet

FAO's Overview

1. How will new and emerging telecommunications/ICTs impact both the internet and sustainable development, including the digital economy?

The introduction of digital technologies that enable access to information, transactional, advisory services or provide integrated solutions along the value chain will generate impact on economic, social and environmental sectors towards sustainable development.

From FAO's perspective, the wider adoption of new digital technologies in agriculture promises to help in reducing hunger and poverty, accelerate and have a positive transformative and disruptive impact on efforts to meet the achievement of Sustainable Development Goals (SDGs).

These technologies will affect all stakeholders such as governments, private sector and civil society in tackling the development challenge, for example, ending rural poverty, or reducing youth unemployment by leveraging one or more of these existing and emerging technologies. Applying such technologies on agriculture and food systems will not only change how farmers farm, but will fundamentally transform every part of the agri-food value chain. Emerging technologies and the Internet, will affect farmers' behaviour, but also will change the way agro-dealers, food processors, and retail companies, market, price and sell their products.

Digital technologies will help farmers share and build knowledge, overcome productivity challenges and reduce market inefficiencies. They will make a substantial contribution to improving the livelihoods of smallholders and bringing farmers nearer to markets and finance.

2. What are the opportunities and challenges for the adoption and growth of the new and emerging telecommunications/ICTs and internet?

The world is facing changes that are profoundly affecting the environment and every aspect of human life. Currently, out of the 7.7 billion people in the world, 820 million suffer from hunger, and 2.5 billion suffer some form of micronutrient deficiency.¹ The population is also growing, aging and migrating to cities, affecting agricultural production and the demand for food. Against this backdrop, the agri-food system is in dire need for innovative solutions, and one identified approach is through digitalization. The agri-food system has undergone changes that have increased efficiency and profitability to levels previously unattainable.

There are a number of opportunities emanating from the adoption and growth of the new and emerging telecommunications, especially in the food and agriculture sector. Digitalization boosts connectivity in the agri-food system and reduces inefficiencies, with the Internet providing access to technical information, and stimulating cooperation and connection across the value chain. For example, 'Big data' offers insights for improving productivity and decision-making through real-time alerts, such as when coping with natural disasters.

¹ FAO, IFAD, UNICEF, WFP and WHO. "The State of Food Security and Nutrition in the World 2019. Safeguarding against economic slowdowns and downturns". 2019. Available at: <http://www.fao.org/3/ca5162en/ca5162en.pdf>

In agriculture, the following technology trends are changing farming practices:

- in agriculture, sensors, drones, satellites and robots are examples of digital technologies that revolutionize farming;
- sensors and satellites provide information on soil moisture; temperature, crop growth and livestock feed levels, enabling farmers to achieve better yields by optimizing crop management and reducing the use of fertilizers, pesticides, feed and water;
- the Internet of Things (IoT) that connects vehicles, robots and drones to the Internet, make labour-intensive tasks, such as monitoring plant health, sowing crops, or milking cows, more cost-effective.

These technologies also generate on-farm data that can be combined with other data sources. When analysed this data can provide farmers with better decision making. Such Big Data is massive in terms of volume, it contains high-variety information assets and requires new forms of processing that can be used to interpret past events and predict future ones.

Furthermore, Blockchain technology has the potential to monitor social and environmental responsibility, and crop and food production, improve provenance information and facilitate mobile payments, credits and financing, in a secure and trustworthy way. In sum, digital technologies can trigger disruptions in the food system, which will be critical in responding to global challenges and promoting sustainable development.

However, digitalization can also have important drawbacks. It may increase digital divides across the system and cause workforce displacement; that is an important issue, especially where agriculture is the primary source of employment. There is a bias of digital infrastructure and content against the already geographically and socially excluded farming communities, which has serious implications for rural communities' resilience. Those with existing capacities are better placed to benefit from digitalization than those without. The hardest to reach are often in greater need of digital inclusion, as the rest of society forges ahead. In low-income countries, there are still low incomes and affordability, limited user capabilities, a lack of infrastructure and limited investment capital, and a lack of policy incentives. Such factors mean these countries are still a long way from benefiting from the digital transformation in agriculture. Indeed, the gap between modern, advanced farming and subsistence farming is growing at an alarming rate. Youth in low-income countries face gaps in access to, and the use of, Internet-based digital services. Poor and inadequate education reduces the adoption and use of digital agriculture, and dents market competitiveness. Misuse of digitalization is an added threat in terms of data protection, data ownership, privacy rights and cybersecurity. Digitalization can also make it harder for smallholder farmers as they struggle to compete with new technologies that can even cause price rises by increasing market concentration. With regard to digitization and the agri-food system multiple issues need to be examined including requirements for policy-making and regulation, limited access to finance and digital skills among some actors, and the need to overcome existing digital divides which are limiting access to infrastructure and information.

Although investment in digital technologies has increased, the use of local digital solutions remains low. In addition, academia and other research institutions in low-income countries are not financially supported and do not have the necessary knowledge to manage digital innovations, nor the capacity to guide potential grass-roots innovation. Although young students are bringing great ideas, these are not always implemented due to a lack of access to knowledge and finance. Yet there is no proven model that could match the private sector, local youth and academia under one umbrella to drive grass roots innovations, despite the many models tried so far.

3. How can governments and the other stakeholders harness the benefits of new and emerging telecommunications/ICTs?

There is a need to move beyond providing basic digital access, to enhancing levels of education and digital skills in emerging technologies and closing the 'digital divide' should be a major priority.

Policy-makers need to shape the policy and regulatory settings so that they facilitate the opportunities offered by digital technologies. There are legal, ethical and technical governance frameworks that are needed to guarantee rights and enable prosperous and inclusive markets for all stakeholders. Governments need to promote data access and sharing frameworks that address the legal and ethical considerations and maximize the benefits for individuals and the greater good. Policy-makers will need to consider the potential benefits, costs and risks, and to understand the factors affecting technology uptake so that interventions can be targeted to existing demands.

The issue of new emerging technologies is part of the bigger question concerning agrifood and rural development, including issues of growth, jobs and daily life in rural and remote areas. Stable public-private partnerships with well-defined roles and activities are key for success.

Digital technologies applied in the agri-food value chain are not about what technologies are used or offered as service or product, but also how to deploy in the field. The most difficult challenge is actually about defining a clear digital strategy in various sectors, about leadership and political commitment, and new ways of thinking and approach in doing sustainable development. It is clear that digitalization will need champions along the stakeholders in the creation, implementation and evaluation of the process to harness the benefits of these technologies. At an international level, the United Nations and its agencies have led the advocacy to encourage governments to adopt the use of technologies in the achievements of sustainable development goals. For example, the multistakeholder platforms, such as the World Summit on the Information Society and the Internet Governance Forum were established to address digital governance issues through a structured and inclusive approach. These fora address broad challenges, such as the digital divide, and discuss the opportunities of the new information and communication environment. The UN Secretary-General established the High-level Panel on Digital Cooperation to provide recommendations on how the international community could work together to optimize the use of digital technologies and mitigate the risks. In June 2019, the Panel published its report "The Age of Digital Interdependence" and with it a series of recommendations to improve digital cooperation.

In food and the agriculture sector, the need for an inclusive and multistakeholder approach to discuss digital technologies in food and agriculture was reflected in January 2019, during the Global Forum for Food and Agriculture (GFFA), where approximately 74 Ministers for Agriculture from around the world and high-level representatives of international organizations committed to use the potential of digitalization to increase agricultural production and productivity, while improving sustainability, efficient resource use, employment and entrepreneurial opportunities, and living conditions, especially in rural areas. Based on the Ministerial Communiqué 2019, the agriculture ministers called International Organizations, including FAO, the World Bank, African Development Bank, IFAD, OECD, WTO, ITU, OIE and the Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA), to lead a global process under the auspices of the United Nations to consider and assess the possibility of establishing a technical forum, Digital Council for Food and Agriculture, to help everyone harness the opportunities presented by digitalization.

4. What are the best practices for promoting human skills, institutional capacity, innovation and investment for new and emerging telecommunications/ICTs?"

Now that technology is available, most agribusinesses especially those led by youth are already digitalized to some degree. The key to promote, adopt and use these technologies is to fine-tune the digitalization. The most effective way to ensure that rural communities have a knowledge of digital technologies and its impact on the agribusinesses is to offer a learning and development programme that caters to all levels of the needed knowledge.

The international community should act as a financier and capacity builder. Digital incubators, accelerators and laboratories (labs) are some of the models that have to be promoted to support digital skills and inspire entrepreneurship for sustainable development. The application of new and emerging technologies must be aligned with investments in knowledge capital, digital infrastructure and environmental protection. Widening access to these technologies is important, but not sufficient on its own, access needs to be affordable and meaningful. Special efforts are needed to remove barriers for marginalized groups.

The gender gap in digital skills suggests that more effort may be needed to attract and retain higher-achieving female students in computer science and to ensure that they have equal opportunities to receive quality education. Through mentorship programmes and training, a balance of inclusivity in the division of labour between human employees, robots and algorithms will be created. To keep up with the digitalization, a new profile of farmers and rural residents should arise, especially among younger people and those acquainted with the digital technology.

Nowadays, in such a competitive market and digital age, we need to create and cultivate a digital culture as an integral part of digitalization. This change requires an environment that not only embeds digital from the top-down but also ensures that all stakeholders in the agri-value chain are informed, engaged and most importantly, end-users (e.g. farmers and rural communities) are empowered to help cultivate a data-driven digital mindset.