G20 DIGITAL TRANSFORMATION IN PRODUCTION FOR SUSTAINABLE GROWTH

Key Messages from the G20 Multi-stakeholder Forum

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Digital transformation of production for a sustainable and inclusive recovery

The Multi-stakeholder Forum on digital transformation in production for sustainable growth, organised by the Italian G20 Presidency on June 23-24 2021 with the support of the OECD, brought together the views of representatives from G20 Governments, public agencies, engagement groups, starting with B20 and L20 and also Y20 and W20, businesses and academia.

Plenary session day 1

In the initial plenary session of the Forum, the Presidency, B20, L20 and the Government of Korea intervened. The Presidency invited G20 Digital Ministers to commit to take actions for the digitalisation of production and to strengthen international cooperation, in order to promote and accelerate a resilient, sustainable and inclusive recovery, in the three dimensions of people, planet and prosperity.

The COVID-19 pandemic has led to a global economic crisis, putting both workers and businesses at risk, especially the most vulnerable. The pandemic has also highlighted the crucial role of digital transformation of industries for the resilience of G20 economies. The recovery phase represents a unique occasion to seize new opportunities for structural change in the productive sector and address challenges, with the aim of promoting a resilient and inclusive recovery. To ensure that economies thrive, become more resilient, sustainable and inclusive, G20 Governments can take action in reinforcing industrial policies for the digital transformation that support investment and skills, stimulate business dynamism, and foster innovation and technology diffusion in a way that can benefit all.

The debate centred on how to meet these complex and diverse goals, such as a production that is sustainable, inclusive, efficient, and resilient. Policies should aim at reducing trade-offs and boosting complementarities between these objectives. The COVID-19 pandemic has significantly accelerated the adoption of digital technologies, by increasing the use of virtual communications and digital payments, and by accelerating changes in business models, education, e-Government, etc. Yet the transformation has been highly heterogeneous across countries and industries in relation to digitally enabled citizens, MSMEs inclusiveness, and businesses' digital readiness. Moreover, the impact of the pandemic has highlighted critical issues in the resilience of the world economy.

The discussion also highlighted how the digital transformation entails both a tangible and an intangible dimension. To combine these two dimensions effectively, investment in people is

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[1] This document does not prejudge nor represent necessarily the positions of G20 members.

key. Boosting skills of workers, managers, and entrepreneurs represents a top priority to foster the diffusion of technologies and their efficient use. Moreover, several interventions demonstrated how investments in human capital, up-skilling and re-skilling, are crucial to limit the negative distributional effects of digitalisation. The development and deployment of emerging technologies and open innovation are key as well, to keep pace with technological progress. Data ecosystems and big data platforms are an enabling factor for MSMEs.

In terms of environmental sustainability of production, innovation in energy efficiency, energy recovery and reducing process emissions will be important. There is large scope for Government interventions, in particular in terms of dedicated R&D policies.

The lack of trust in digital technologies, also linked to cybersecurity and privacy concerns, was identified as another area requiring action by Governments to ensure a human-centred and responsible development and deployment of technologies. In addition, the growing importance of worldwide network capacity, reach and security was underlined, linked to the risk of leaving unconnected populations behind.

The B20 also stressed the need of an increased world-wide network capacity and improved connectivity quality to support economic activities, together with the need to strive to reduce connection inequalities. It was also signalled gaps and inconsistencies among regulatory principles and frameworks, contributing to increased competitive imbalances.

From the labour side, attention to employment and to new forms of work, the quality of jobs and the human factor in terms of disadvantaged workers, as well as the machine-human interface, were emphasised, together with the need for shared prosperity and decent work. Private and public sectors have a collective responsibility and should strive to cooperate for common goals, involving relevant stakeholders.

Technology, skills and intangibles for productivity gains

From discussions on this topic, a clear message emerged that the digital transformation holds great opportunities for value creation and growth, but there are also important headwinds that can be encountered at the generation, diffusion and/or deployment stage. For this reason, a multipronged policy approach is needed. This includes supporting existing and potential new entrants to invest in tangible and intangible capital, for example through tax incentives for the purchase of advanced digital technologies and investment in digital infrastructure and connectivity. Financial incentives alone are not sufficient, though, for effectively boosting diffusion and deployment: complementary investments in human capital and skills are key for the digital transformation. These skills rely on STEM education but also on soft and organizational capabilities of both workers and managers, to be acquired both via the education system and through high-quality and certified training programs for life-long learning. A third pillar involves the creation of networks in an ecosystem that involves public and private actors, universities, large players as well as smaller firms and entrepreneurs. W20 underlined that cultural and policy actions are needed for women empowerment in the digital economy to reap the fruits of the contribution of women to growth. Skills are considered crucial for Y20 along the education cycle to improve access to jobs and careers.

Several important examples of strategies to boost digital diffusion through investments in intangibles and skills and the support of the ecosystem were highlighted by businesses' case studies, Y20 and Government experiences shared by Argentina, Brazil, South Africa, and Turkey.

New business models to increase market access and strengthen innovative ecosystems

G20 countries are in different phases of the digital transformation, and policies should properly take these differences into due consideration. Differentiated approaches specific to countries, sectors and firms are required. To better respond to societal needs, inclusiveness in different dimensions (i.e. gender, cultures, vulnerable people) should be pursued more than ever.

On new business models, the panel noted that one of the main challenges for Governments will be to support MSMEs in both the digital and the green transformation, to promote new business models that respond to a changing environment and customers' demand. The creation of suitable ecosystems where MSMEs could transform their business models is fundamental to guarantee their competitiveness.

The acceleration of technological innovation is an opportunity for many companies to close the competitiveness gap, while for many others it will represent a threat towards an increased digital divide. The presence of multiple digital technologies suggests that merging technologies are one way to benefit from their 'combinatorial effect'. Digitally enabled servitisation will allow scalability of many different business models. Due to the cost reduction of access to services instead of products, servitisation will allow poorer people access experience they could not have accessed in the past.

For innovative ecosystems, open data approaches should be extended to many sectors since the benefit they bring for the acceleration of innovation and the business creation, including startups, has been demonstrated. It is also a way to promote MSMEs inclusiveness. Standards are also fundamental for the innovation process.

The budget to support specific innovations can be significant for Governments and creating innovative clusters could be a way to leverage on the multiplier effect brought about by synergies across actors. The creation of innovation ecosystems (i.e. systems approach to innovation) is an important way forward in some specific sectors. Several businesses from G20 countries shared the state of the art and future developments with panel members.

Plenary session day 2

In the plenary session of day two, the Presidency, B20 and L20 and the Government of Saudi Arabia intervened.

The Presidency highlighted that the digital and green transitions share the same need for innovation, enabled by new technologies and new targets. In order to reap the benefits of digitalisation and to face increasing challenges, G20 countries should reflect on how to redesign industrial policy to accelerate the digital transformation and to help companies increase productivity and sustainability, enabled by emerging technologies and the wide and increasing availability of data, thus contributing to address social issues and global challenges. At the same time, trust in digital technologies is needed and one important aspect is to assure security

in the digital economy, thereby enabling businesses, especially MSMEs, to adopt cyber security approaches.

On how to make the best use of digital technologies as enablers of the green transition, the discussion highlighted the need for policies to effectively integrate different approaches to production such as digitalisation, bio-economy, and circular economy. To improve sustainability, value chains should be transformed, with important changes in many domains: the design of sustainable products, the reduction of exploitation of natural resources, the extension of product's lifecycle, and the transformation of waste into valuable resources.

The discussion covered the importance of access to data and technologies as prerequisites to build an inclusive digital economy. MSMEs also need to invest in the security of their digital infrastructures and processes along the value chains. Data breaches and cyber-attacks are a major threat for the adoption of digital technologies: mandatory and voluntary standards may improve the trustworthiness of people and small firms. There is also a need for a greater harmonisation and the development of open global standards for technology in the fields of AI, data protection and cybersecurity that requires a multi-stakeholder approach.

As a case study of a comprehensive policy package for an inclusive digital growth, the Saudi policy effort was presented. Thanks to the contributions of B20 and L20 representatives, the discussion widened to cover the main contradictions and challenges of the digital transformation. Given it does not yet involve even half of the global population, it is contributing to new inequalities, and requires policies to address the growing shortage of digital skills among workers.

On the labour dimension L20 stressed the importance of assuring a just transition for workers in the process of industrial digital transformation, paying attention to the quality of jobs and to decent work and work conditions. Moreover, networks of social protection are urgently needed in time of crisis.

Digitalisation in production for a green transition

Ensuring that industry contributes to the achievement of environmental policy objectives is a growing concern for all G20 countries, especially in the run-up to COP26. The digitalisation of production can contribute to environmental objectives and is therefore an important component of broader digital strategies. At the same time, the green transition offers new markets and opportunities for industrial sectors, notably to tap into growing global demand.

The session explored experiences across G20 countries: Canada, European Union, Germany, India, Italy and United Kingdom, and allowed for an exchange on lessons learned. Significant businesses experiences and case studies were presented and UNIDO highlighted the digital divide that remains between the global North and the global South, with 10 economies accounting for 90% of innovation associated with the 4th Industrial Revolution.

Two main questions were explored: opportunities offered by digitalisation for the green transition of industry and the role policies can play to support the twin digital and green transitions in industry.

It emerged that the digital transformation of industry represents an important opportunity to support the green transition. The transformation of industrial production can improve production processes and reduce both energy and material use through the adoption of various technologies: Artificial Intelligence, digital twins, digital quality control, smart manufacturing (3D printing), robotisation, 5G and blockchain. Digitalisation can also promote the development of new business models related to the circular and the sharing economy (where sharing factories or platforms between companies can improve efficiency of capital). Simply collecting and reporting information can have important positive impacts on the environment and empower firms to take action.

These transformations in industry do not only improve firms' environmental performance, they also increase economic performance, through cost reductions (thanks to enhanced energy and material efficiency) and the creation of new markets (e.g. autonomous vehicles). However, these opportunities might not be shared by all. There is a clear digital divide across countries.

This suggests a key role for policies to accelerate the development and diffusion of digital technologies that also improve environmental performance. Three types of policy interventions were considered necessary. First, strengthening capacity, by providing digital and ICT infrastructure, supporting R&D and innovation (including collaborative innovation networks), encouraging entrepreneurship and ensuring the supply of the right skills through education programmes on digital skills. Second, creating markets and supporting the demand for greener goods, by making use of public procurement, implementing eco-design standards (e.g. binding share of secondary materials), and introducing new legislation such as "right to repair". Third, making sure that the broader policy environment is conducive to the green and digital transition, including around intellectual property rights, competition policies and trade policies.

Overall, the sessions highlighted the need to think about the twin transitions jointly and to join up digital policy and environmental policy through a whole-of-government approach. These policies have to differ, however, depending on countries and firms' capabilities (e.g. MSMEs versus large firms).

Enhancing digital security and data access for MSMEs

In addition to its other significant impacts, the COVID-19 pandemic has significantly affected digital security, since it dramatically increased the so-called attack surface. Indeed, the number of connected devices, connected organizations, and connected enterprises increased dramatically, and this often happened without the required basic and minimal levels of protection from the potential threats coming from the cyberspace.

During the sessions, speakers from National cyber security Agencies, National Institutes, business alliances and the private sector analysed vulnerabilities, challenges, and opportunities in several domains, including Governmental, Technical, Organizational, and Human ones.

All speakers stressed, from different points of view, the key role of the human factor in security. Despite efforts at different levels, people are still much more vulnerable than computers. The interventions underlined that significant and effective actions must be taken in capacity building, by strengthening business competences, including skills, through education, training, and raising awareness.

On the one hand, Governments and policy makers should activate practical and effective measures to tackle the cybersecurity workforce shortage, which is estimated, in 2021, at 3.5 million vacancies worldwide, including by experimenting with customised actions aimed at addressing the gender gap. On the other hand, Governments and policy makers should undertake significant actions aimed at raising awareness of the overall population, at any level, from kindergartens to retired people, from CEOs to single employees, from technicians to market experts. The goal here is to build a broader culture for cybersecurity and to develop a knowledge base on digital security risks.

Such a requirement becomes even more stringent when dealing with MSMEs, which are often both suppliers and customers in value chains. On both sides, they often consider cybersecurity just as a cost and not an opportunity nor as a mandatory precondition to be part of the supply chains of big players. If security issues are not properly addressed and managed, MSMEs will find it much more difficult to participate in the most profitable value chains.

Focusing on the Technical and Organizational aspects, speakers underlined the impact of the merging between IT and OT. These two "worlds" are more and more undistinguishable and unified, even if characterized by different life cycles in terms of both requirements and length. It was pointed out that, in addition to security-by-design, it is necessary to develop methodologies and tools to support resilience through the whole product life cycle, from the very early requirements elicitation to responsible and secure end-of-life decommissioning. Examples were presented of the positive roles played by Governments and policy makers in terms of providing methodologies and tools to support cyber-risk analysis and evaluation, specifically for MSMEs.

The final session of the forum focused on data access for MSMEs. Participants from national data institutes, national business support agencies and business associations, agreed that data will be central to 21st -century production and that its importance has grown in response to the COVID-19 pandemic. Governments can play an important role in encouraging, facilitating and enhancing data access and sharing through policy action and governance frameworks. The role of Governments is particularly important in enhancing access to public sector data that can help MSMEs create new services, support decision making and foster new business models. Existing policies and directives need full implementation, providing MSMEs with full and high-quality access to public sector data. Data access to bulk data sets, e.g. through suitable intermediaries, is key for MSMEs to engage in machine learning and tap into the market opportunities of AI and big data analytics.

The discussion also highlighted the importance of infrastructures and data spaces that can provide organisational and technical assistance in sharing data and the development of good use cases, including in the sharing of private data that can increase awareness of the importance of data for MSMEs. Access to data was considered a necessary new infrastructure that needs to be developed. Governments need to help build an eco-system for data access and sharing, including funding for research to help MSMEs overcome the financial barriers in accessing data. The discussion also highlighted the importance of competition, with contractual arrangements to access data that were fair to MSMEs. The importance of data portability, data rights and clear legal provisions were also highlighted in the discussion. Progress on these

issues could overcome existing divides in data access between MSMEs and large firms enable new business models and increase confidence in MSMEs.

Closing sessions

In the closing session the main results of the sessions were shared, and the Government of Indonesia presented the way forward of the G20 Presidency in 2022, bringing forward the results of the G20 2021 Ministerial meeting.