G20 Menu of Policy Options for the Future of Work

G20 Framework Working Group

Executive Summary

Transformative technologies will bring immense economic opportunities, such as new ways of doing business, new industries, new and better jobs, higher GDP growth, and better living standards. At the same time, they will create transitional and longer-term challenges for individuals, businesses, and governments[1]. Policy action is needed to harness the opportunities and ensure the benefits are shared by all.

The purpose of this paper is to provide a menu of policy options (the Menu) for G20 Finance Ministers and Central Bank Governors to consider in the areas of tax, public expenditure and transfers, competitive conditions, and measurement and data. Where useful, opportunities for international common efforts, coordination, and knowledge sharing are also identified. These policy options should be underpinned by sound macroeconomic policies to achieve a successful and inclusive digital transformation. The Menu is organised around four overarching objectives with corresponding specific objectives:

I. Harness the benefits of technology for growth and productivity

Technology is the key to productivity growth and rising living standards. However, innovation as well as technology diffusion and adoption are uneven.

- Bridge the productivity gap between frontier and lagging firms. To ensure that more firms benefit from technological change, countries could foster a more competitive environment where new entrants can enter, innovate, grow and gain market share, limiting the "winner-takes-all" effect where appropriate. Countries could also consider tax and public expenditure as well as non-financial measures to help improve the productivity of lagging firms, particularly of small and medium-sized enterprises, through measures aimed at facilitating technology diffusion. Access to private funding is also key.

- Close the technological divide between advanced and emerging market economies. To realise the benefits of innovation, emerging economies could develop comprehensive strategies to increase R&D investment while supporting the enhancement of other elements needed for the innovation process such as infrastructure, firms' capabilities, human capital, and physical capital. International trade and investment also have an important role in technology adoption and knowledge diffusion.

- Expand the technological frontier. To raise growth, productivity, and living standards, countries could consider public investment in priority areas where the private sector is unlikely to invest and consider ways to crowd-in private investment. Countries could also consider policies that simplify their regulatory frameworks and reduce regulatory barriers so that businesses can test innovative products, services and business models.

[1] In March 2018 G20 Finance Ministers and Central Bank Governors discussed the nature of the changes and their implications, which are set out in the note **The Future of Work: Trends, Impacts and the Case for G20 Action.**

II. Support people during transitions and address distributional challenges

Although the overall long-term impact of technological change is expected to be positive, the transition period could be disruptive for some workers and there may be negative longer-term distributional effects. It is essential that we address this challenge in an inclusive way and in particular:

- Facilitate labour mobility while ensuring adequate protection for all. Countries may explore policies to enable people to develop new skills and increase their adaptability, and to provide economic security for all. For example, they could scale up and improve the design of active labour market policies, encourage life-long learning opportunities and/or strengthen social safety nets.

- Ensure the sustainability and adequacy of social protection for a changing workplace. Countries can use different policies to secure people's social protection while remaining fiscally sustainable. For example, they may combine different instruments and resources to fund social protection. They could also consider policies to increase contributory revenues, better tailor social protection systems to workers' needs, and close existing coverage gaps.

- Address distributional challenges and ensure equal opportunities beyond the transition. To help those who may fall behind, countries could consider, for example, ensuring access to universal and high quality education. In addition, to mitigate negative distributional effects, they may consider measures to improve the overall efficiency and progressivity of the tax system. They could also overhaul policies to support disadvantaged groups and regions left behind.

III. Secure sustainable tax systems

Alongside opportunities to modernise their tax administration, countries are facing an increasingly mobile tax base and pressure on domestic and international tax systems and their effectiveness.

- Adapt the tax mix to support inclusive growth and ensure sufficient tax resources. To secure their revenue raising capacity, while maintaining or improving overall fiscal progressivity and making their tax systems less vulnerable to globalisation, countries could choose a greater reliance on less distortive taxes and on taxes that have less mobile tax bases, taking into account country specificities. In addition, they could consider base broadening and reducing differences in effective tax rates across different forms of investment, for the effective taxation of capital income; and ensuring tax neutrality between different forms of work. Countries should also ensure an appropriate taxation of the digital economy.

- Leverage new technologies to modernise and strengthen the tax system. New technologies could be used to better identify and assess tax risks and simplify tax payers' compliance, while promoting formalisation.

IV. Ensure the best possible evidence to inform decision-making

New technologies pose significant challenges to economic statistics and some of the standard analytical tools used by policymakers. They also offer promising new methods and approaches.

- Refine GDP and other macroeconomic measurements to better capture the value of technological advancements. To ensure economic statistics continue to provide a reliable picture of economic activity in light of digitalisation, countries could review current measurement techniques, explore new frameworks, and make use of new data sources. Countries could also collaborate to formulate recommendations on how international statistical frameworks might be updated.

- Track the implication of new technologies on welfare, labour markets and human capital. Countries may develop new methodologies and headline indicators aimed at a broader measurement of economic welfare. In addition, new analytical tools may be used to accurately track the range of variables affected by new technologies. Countries could also develop international frameworks for innovative measures of human capital, welfare and employment.

- Harness the power of data to achieve a more granular and timely understanding of the economy. Countries could develop a data science profession in statistical agencies, central banks, finance ministries and in the wider public sector, and set up national data science centres of expertise. Moreover, countries could develop partnerships between the private sector, public sector, and academia. Cooperation between national government agencies in the use of new methodologies could also be promoted.

- Support regulatory authorities' enhanced understanding of new business models and future trends. Countries could consider how regulators and organisations (including firms) can access new sources of information while ensuring adequate levels of privacy and protection of sensitive data. Under their own legislation, countries could encourage the exchange of data across organisations. Countries could also establish a public-private dialogue to enhance the understanding of, and trust and confidence in, digital technologies.

Options for International Cooperation

Given the borderless nature of technological advancement, **international cooperation** will remain key to achieving our collective objective of strong, sustainable, balanced, and inclusive growth.

The Menu presents opportunities for members to learn from each other through **knowledge sharing**. For example, countries could share policy experiences and best practices, including on social protection programmes, national tax systems, competition policies and frameworks, innovation policies, and data policies. In this regard, the Menu includes policy examples provided by G20 members and guest countries.

The Menu also identifies opportunities to improve **coordination** among members and strengthen the effectiveness of individual members' policy efforts. For example, countries could work together to develop new and internationally comparable measures of human capital, welfare and employment, and review macroeconomic statistics to highlight best practices and frontier research. Moreover, countries could encourage closer cooperation among competition authorities to tackle the challenges arising from digitalisation.

Finally, the Menu identifies opportunities for **common efforts** on this topic. For example, some countries could work on joint initiatives for investment in R&D and frontier innovation. Countries may also take measures to enhance the role of trade and investment in knowledge diffusion. In addition, G20 members will continue to work together in international tax coordination and cooperation to fight base erosion and profit shifting and to improve tax transparency and exchange of information.

Introduction

Technology is already fundamentally reshaping the global economy. In March 2018, G20 Finance Ministers and Central Bank Governors discussed the nature of the changes and their implications, which are set out in the note **The Future of Work: Trends, Impacts and the Case for G20 Action.**

Transformative technologies are expected to bring immense economic opportunities, such as new ways of doing business, new industries, new and better jobs, and higher GDP growth and living standards. At the same time, the transition creates challenges for individuals, businesses, and governments.

Policy responses, including international cooperation, are needed to harness the opportunities and ensure the benefits are shared by all. Ministers and Governors agreed to the development of a **Menu of Policy Options** (the Menu) to draw on when responding to the impacts of technological change.

The Menu is structured around the following four **overarching objectives**, which derive from the **key challenges** identified in March:

I. Harness the benefits of technology for growth and productivity

II. Support people during transitions and address distributional challenges

III. Secure sustainable tax systems

IV. Ensure the best possible evidence to inform decision-making

For each overarching objective, the Menu outlines **specific objectives** with corresponding ***Policy Options*** in the areas of tax, public expenditure and transfers, competitive conditions, and measurement and data, as requested in March. The Menu includes opportunities for common efforts, coordination, and knowledge sharing, highlighting the benefits of international cooperation on this topic.

The Menu sets out potential policy approaches, as a starting point in the discussion by the Ministers and Governors of the G20 on this topic. Any choice of policy responses would need to be tailored to individual and evolving country circumstances, taking into consideration the country's degree of technological diffusion and adoption; level of economic and financial development; factor endowments; available macroeconomic policy space; position in the economic cycle; and country preferences.

I. Harness the benefits of technology for growth and productivity

Key challenge: Current technological developments have the potential to lift growth and productivity, raising living standards over the longer term. However, in many countries, aggregate productivity growth has remained sluggish. The pace of adoption and diffusion of technology and innovation can drive the extent to which they are able to lift productivity growth.

Bridge the productivity gap between frontier and lagging firms. In many Advanced Economies (AEs) and some Emerging Market Economies (EMEs), productivity growth has been driven by a relatively small number of firms at the frontier of technological change. Further, in many AEs, the productivity of the majority of firms has largely stagnated, particularly for small and medium-sized enterprises (SMEs), thereby weighing on aggregate productivity growth.

While temporary market power earned through new or higher quality products can incentivise innovation, it may also create barriers to entry and slow the diffusion of innovations. To bridge the productivity gap, countries could therefore foster more competitive conditions with options that *re-assess local licensing rules*

and limited issuance of permits; reduce the costs of starting or exiting a business, including administrative burdens; and, *reduce barriers to trade in goods and services.* Countries could also review policy frameworks, with forward-looking options that: *review antitrust policies that address the "winner takes all" effect* where appropriate*; evaluate user data portability* to allow customer mobility between digital service providers while ensuring consumer privacy protection and territoriality of sensitive data*;* and, *review enterprise definitions and requirements* that restrict small enterprises and the sharing economy*.*

In addition, countries could also consider tax, public expenditure and non-financial measures that: *encourage entrepreneurship, firm experimentation and scaling up; promote advanced ICT and managerial skills and cognitive capacities in the workforce; improve access of SMEs to highly skilled human capital, physical capital and financial services;* and*, promote complementarities needed for the adoption of new technologies,* such as firms' organisational and operational models, digital infrastructure, and regulations*.*

Finally, access to funding is key for the creation and expansion of firms. Countries could aim to *expand access to equity financing,* given that traditional bank credit might not be best suited to risky investments*.*

Close the technological divide between advanced and emerging market economies. Many EMEs face additional challenges in realising the benefits of innovation. It is a long road from technological feasibility to final adoption, and lags in adoption are still considerable for EMEs. Moreover, the gap in the intensity of use of technology between high and most middle-income countries has widened, which explains the majority of the productivity divergence between countries. On the other hand, some EMEs may be able to leapfrog older technologies without being hindered by existing regulations or incumbent players. Narrowing the technological divide is therefore becoming increasingly important for EMEs' development strategies.

To encourage innovation and technology adoption, particularly by EMEs, countries could consider options that: *increase public investment in R&D; leverage private sector investment in innovation through fiscal incentives and non-financial support; improve access to finance, particularly for early stage investment;* and*, ensure innovation policies are in line with the capacity of firms to absorb new technologies and with the capacity of governments to implement them.* Where appropriate*,* countries could *promote joint forms of public-private investment in technology and R&D*.

In addition to increased investment in innovation, EMEs may need a broader set of complementary policies to narrow the productivity gap. Depending on individual country circumstances, countries could consider options that: *invest in enabling infrastructure* such as telecommunications (particularly broad-band internet), electricity, trade logistics, and payment systems*; encourage firm formalisation; promote universal and high quality basic and secondary education, including vocational education; upgrade skills, particularly in the areas of science, technology, engineering and mathematics (STEM); close the gaps in the use of basic digital technologies*; *create the conditions to attract and retain high-skilled human capital*; *strengthen managerial capacities;* and, *promote the interaction between research institutions and industry.*

There may also be opportunities to foster knowledge diffusion across countries, particularly to EMEs, through international collaboration, while respecting intellectual property rights. These could include measures that encourage international scientific collaboration and mobility, such as *international co-invention, collaborative projects and technology adoption;* and *international mobility of highly-skilled workers.* Trade and cross-border investment are also important channels for knowledge diffusion and the development of new technologies*.* Therefore, countries could take further measures to *leverage the role of international trade and investment in technology adoption and knowledge diffusion.* Countries may also

consider common action to *support investment in region-wide infrastructure,* including digital infrastructure, laying the groundwork for the future development of international digital markets.

Expand the technological frontier. Countries could consider policies that expand the technological frontier, including by prioritising international cooperation and knowledge sharing. For example, some countries could *work on joint initiatives for investment in R&D and frontier innovation*.

Since the private sector carries the bulk of innovations, countries could design policies to foster innovations in this sector through measures that bring direct and indirect support to R&D programs, such as fiscal incentives.

Countries could also consider *public investment in priority areas where the private sector is unlikely to invest,* for instance due to the scale and time frame required, the public good aspect of the resulting assets, or the degree of uncertainty and risk involved. Furthermore, countries could assess ways to *crowd-in private investments* and to *make the output of publicly funded research more widely accessible,* including by promoting cooperation between public institutions (universities, public research facilities) and private R&D centres.

Moreover, for those countries at the technological frontier and where there are relatively high levels of competition, further increases of competition may discourage innovation. Particularly in these cases, countries could *ensure carefully and well-designed patent regimes* that balance the benefits of competition with incentives to invest in frontier innovation.

To expand the technological frontier, countries could also *update regulatory frameworks and alleviate regulatory barriers*. For example, countries may *implement regulatory sandboxes,* 'safe spaces' with flexible regulatory regimes for businesses to test innovative products, services and business models at a small scale. Such regulatory sandboxes should be time-bound, their scope be clearly defined, and their outcomes subject to evaluation.

How are G20 members and guest countries harnessing the benefits of technology for growth and productivity?

- **Argentina** established public-private partnerships for seed and growth capital funding; partnered with start-up incubators; introduced a simplified type of business entity and expedited the process of business incorporation; introduced tax incentives for investors in start-ups and venture capital funds; and introduced crowdfunding, to support entrepreneurship.
- **Australia** introduced tax incentives for eligible investors in early stage innovation companies and in new early stage venture capital limited partnerships; and passed insolvency law reforms to strike a better balance between encouraging entrepreneurship and protecting creditors.
- **Brazil** put into effect a program based on quick and low-cost interventions to increase productivity in industrial companies, particularly SMEs. Participant companies received up to 120 hours of specialized consulting to improve the efficiency of their manufacturing processes.
- **Brazil** also introduced a national program to support the generation of innovative enterprises prioritizing projects with social, environmental and technological impact, with measures such as targeted grants, networking and investor events, and subsidized training.

How are G20 members and guest countries harnessing the benefits of technology for growth and productivity? (Cont.)

- **Chile** implemented a public-private cooperation agreement for the development of human capital for industry 4.0, to support the digital transformation of businesses and promote workforce training and specialization in the use of ICT.
- **China** has implemented tax measures to support start-ups, employment, technology upgrading and innovation, such as VAT exemptions for small-scale taxpayers; increased deduction of R&D expenses for SMEs focusing on science and technology; tax incentives for hiring specific categories of workers; and tax incentives for targeted groups such as university graduates and registered laid-off workers who become self-employed or set up new companies. There are also subsidies for one year of social security contributions under certain conditions.
- **France** is making a series of investments over the next five years to speed up the ecological transition, as well as invest in skills for the long-term for the unemployed and unskilled, the digital transformation of public administrations, the transformation of the agricultural sector, and the development of breakthrough innovations including Artificial Intelligence.
- **Germany** subsidizes close-to-the-market research projects of small and medium sized companies through its Central Innovation Programme. It has established SME 4.0 competence centers throughout Germany to support companies free of charge with current know-how, e.g. on new business models, work 4.0, IT-security, 3Dprinting, logistics, as well as to provide demonstration and testing possibilities.
- **India** implemented a program of digital literacy, providing digital education and training to adults with low technological literacy skills and rural citizens.
- **Indonesia** is encouraging the establishment of special integrated and connected zones, called Science and Technology Parks (STP), by providing basic facilities and infrastructure for STPs, such as roads, drainages, waste management, water, electricity, communications and information technology.
- **Indonesia** has also provided tax incentives, including tax holidays, for direct investment in pioneer high-tech industries such as robotics, computers and medical equipment component manufacture. In addition, Indonesia's government recently launched tax exemptions for registered venture capital companies investing in SMEs.
- **Italy** developed a national strategy to boost productivity and innovation for the Fourth Industrial Revolution, with measures including: overvaluation of technological investments for depreciation purposes; financial support on loans; tax credits for R&D and training 4.0; a national plan for digital education to bridge the digital skill gap and promote STEM; and public investment on high-speed broadband in underserved areas.
- **Korea** provides fiscal support, financing and tax incentives to boost key leading businesses, including hyper-connected intelligence, smart factory, fintech, smart city, drone, and next-generation automobiles, among others.
- **Korea** also plans to mobilize the 'Innovative Venture Fund' and increase tax incentives for angel investors to establish innovative start-ups and venture capital investment. In addition, to develop the skills needed for new technologies, Korea provides fiscal support to top-tier designated vocational institutions with training charges and incentives for trainees.
- **Mexico** implemented a special regime that reduces the barriers for business to enter formality, and grant better facilities for new business such as the transition to digital receipts.

How are G20 members and guest countries harnessing the benefits of technology for growth and productivity? (Cont.)

- **Russia** supports newly created industrial enterprises in priority spheres, including machinery, metal industries and pharmaceuticals, by granting concessional loans through the Industry Development Fund.
- **Saudi Arabia** has developed a number of financing programs and venture capital funds in order to facilitate technological developments, particularly by SMEs.
- **Saudi Arabia** is also investing to develop telecommunications and information technology infrastructure, especially to expand the coverage and capacity of high-speed broadband, including a recent initiative to accelerate high speed wireless deployment in rural areas.
- **Singapore** provides up to 70% fee subsidy for short and industry-relevant courses that focus on priority and emerging skills areas, such as data analytics and cybersecurity, under the SkillsFuture Series. These skills areas draw reference from sectoral plans and feedback from industry players.
- **South Africa** is applying several measures to boost R&D led innovation in the private sector. For example, R&D spending could be deducted when determining the taxable income. There is also a range of direct funding programmes and grants, loans and equity support provided through the Technology Innovation Agency.
- **Spain** has developed the 5G National Plan to become one of the most advanced countries in developing this new technology. The 5G National Plan includes several measures in the following pillars: radio spectrum management and planning; network and service pilot projects and R&D activities; regulatory issues and coordination and international cooperation.
- **Spain** will implement a 'regulatory sandbox' to facilitate innovation. It is also an instrument that serves as a way of learning and gathering evidence for regulatory authorities.
- **Turkey** allows for tax deductions to support R&D, innovation and design activities. Specifically, 100% of R&D expenditures on new technologies and information search can be deducted on tax return, and 50% of the increase in R&D expenditures, made in R&D centres, from previous years can additionally be deducted.
- The **United Kingdom** has announced an action plan to help innovative firms to access patient, long-term capital funding by using public money to leverage private investment**.** The plan includes several measures such as establishing an investment fund where the public sector co-invests with the private sector and increasing tax reliefs for individuals investing in innovative companies.

II. Support people during transitions and address distributional challenges

Key challenge: While the overall impact on income is expected to be generally positive in the longer term, the transition period during which the economy adapts to new technologies can be disruptive for workers, and there may be longer-term negative distributional effects. Supporting people during transitions, and countering current and potential negative distributional effects brought about by technological change are key to ensure that the gains are broadly shared.

Facilitate labour mobility while ensuring adequate protection for all. Workers may face more frequent changes in their work environment, switch jobs more often, and experience greater job displacement or geographical and skills mismatches over the course of their careers.

Countries may consider policy options to provide adequate support for workers during the course of their careers: *upgrade unemployment benefits* that provide a degree of economic security during unemployment spells and promote automatic stabilisation during economic up- and downturns; and *promote active labour market policies* that encourage efficient job search. In addition, where adjustment periods are particularly disruptive, some countries may look for fiscally sustainable ways to *explore, adopt or adapt social assistance programmes*, while warranting adequate incentives to remain in the labour market.

Countries should also focus on policies addressing skills mismatches, notably by promoting active labour market policies that *improve upskilling, reskilling and skills matching*, including by creating fair incentive schemes for private sector involvement. In addition, countries may consider measures to *encourage life-long learning opportunities* to enable people, particularly those in disadvantaged groups, including older workers, to continue to develop their skills and increase their adaptability. These may include targeted fiscal incentives, increased public investment, and other non-financial support. In countries with ageing populations it will be critical to *support workforce participation by older workers*. Countries may adopt whole-of-government, multi-stakeholder approaches to identify which skills and capabilities will either remain or become needed in the future, in collaboration with the private sector. Countries can also *exchange knowledge on policy solutions to promote life-long learning,* and support efforts to exchange information on how to allocate and manage resources in the most effective way to achieve learning and training objectives in the face of technological change. In this policy area there is scope for further research, policy experimentation, and international knowledge sharing.

Finally, countries may also implement policies to facilitate geographical mobility through measures that: *encourage well-functioning housing markets*; *facilitate mutual skills' recognition among countries*; and *allow the portability of social insurance benefits* including pensions, at the national and in some cases international levels, given the increasingly cross-border nature of work. For example, social security agreements between countries could be expanded and standardised to facilitate payment from different benefit schemes.

Ensure the sustainability and adequacy of social protection for a changing workplace. New technologies such as digitalisation and the platform economy could lead to an increase in non-standard forms of employment (NSFE), self-employment, and/or informality. While this might bring greater flexibility and opportunities for employers and workers, it also raises questions about workers' protection and the sustainability of social protection systems. In addition, the increasing need for workers' social protection during transitions places an increasing burden on social security frameworks.

Countries could *combine different instruments and resources to fund social protection,* such as by considering the role of financing from the general tax system, by broadening and focussing the contributory scheme or reallocating public expenditures to social protection objectives. In addition, they could explore policies to *increase contributory revenues,* such as through the use of new technologies to increase the capacity to collect contributions efficiently.

Countries could consider policies to *better tailor social protection systems to workers' changing needs and close existing coverage gaps.* Such policies could not only improve protection for workers but also increase contributory revenues. This may be done, for instance, by: simplifying tax and contribution mechanisms; promoting formalisation in the labour market, notably by rebalancing protection from jobs to workers and

reducing labour market duality; and designing adaptations that take into account the specific and changing needs of different types of workers. In this latter area, there is scope for further research, policy experimentation and international knowledge sharing.

Address distributional challenges and ensure equal opportunities beyond the transition. In some countries, technological change has contributed to labour market polarization, rising skills-premia, falling labour shares of income, and/or stagnating or declining real wages for low and middle-skilled workers. New technologies could have the potential to undermine the bargaining power of workers across skill levels and generate market rents, thereby further reducing the labour share of income. Furthermore, the impacts of technology vary among different groups and country regions, with most of the benefits accruing to dynamic global cities while small cities and rural areas may find it hard to adapt and risk falling further behind.

Reforms in education systems, and more generally investment in human capital targeted on low- and middle-skilled workers, can reduce the increasing skills-mismatch between workers and jobs as new technologies render individuals' skills redundant at a more rapid pace. Reforms should *ensure universal and high quality basic education* that meets future labour market needs. Countries may look for ways to further *improve access to high quality education and training,* such as by providing incentives, removing barriers, strengthening the partnership with the private sector, and significantly increasing and/or improving the efficiency of investments in education.

Where appropriate, countries may decide to mitigate transitory or permanent negative distributional effects at the bottom (or middle) of the income distribution, through measures to *strengthen social protection programmes* and to *improve the overall efficiency and progressivity of the tax system,* while maintaining incentives to work, save and invest. Countries could focus on base broadening, by reforming tax concessions for certain forms of income, and removing inefficient and regressive tax expenditures. They may also consider a range of policy options to *support regions left behind* such as by improving digital and physical connectivity.

Finally, discussions throughout the year have highlighted the importance of promoting gender equality. Gender gaps in education and jobs related to STEM may mean that large proportions of women are left behind. Countries could consider policies to *support greater women's participation in STEM education, research, innovation, industries, and entrepreneurship* and policies to *support greater women's access to finance and venture capital.* Moreover, policies could be considered to *facilitate women's participation in the labour force,* such as by improving access to quality child-care services or reducing disincentives in some tax systems for second earners to work. Countries may also *assess regularly the impacts of gender-sensitive revenues and expenditures,* and *share initiatives that help to improve labour market outcomes for women*.

How are G20 members and guest countries supporting people and addressing distributional challenges?

- **Argentina** grants scholarships for qualifying university and tertiary students, teachers training in strategic areas, young adults in professional training courses, and adults who want to finish their primary or secondary education; and provides free and certified training in programming and job matching services to meet the needs of the IT sector.
- **Brazil** has a national network covering 9 states in the 5 regions of the country with their breakdown into networks by segment and local economic arrangements in a strategy to support the economic autonomy of women, productive strengthening of their enterprises and local development, through the actions of technical and productive qualification, institutional articulation and incentive to participation and leadership in the construction of the economy.
- **Canada,** through Gender Budgeting, supports all new tax and expenditure proposals with gender-based analysis, integrates gender equality objectives within the budget decision-making process and presents information on the expected impacts of the budget from the perspective of gender as well as other intersecting factors such as race, ethnicity, age, disability and sexual orientation.
- **Canada** also provides income support to low-income workers through a system of income-tested refundable tax credits. Starting in 2019, the government will enrich the credits and make them more accessible through the new Canada Workers Benefit.
- **Chile** offers scholarships for graduate studies in subjects related to digital transformation, and separately grants funding for scholarships in IT programing skills that may enhance service exports.
- **China** implements a lifelong vocational skills training system by carrying out employment-enabling skill training programs for unemployed university graduates and implementing the skills improvement program for migrant workers nationwide, as well as a five-year training program for migrant workers to set up start-up businesses.
- The **European Union** provides new upskilling opportunities through financial assistance for adults with low level of skills to acquire a minimum level of literacy, numeracy and digital skills and/or acquire a broader set of skills by progressing towards an upper secondary qualification or equivalent. They may be in employment, unemployed or economically inactive. EU Member States may define priority target groups for this initiative depending on their national circumstances.
- **France** is taking measures in favour of education and human capital in order to improve labour market integration and facilitate transitions towards jobs of tomorrow. Notably, those measures will double the number of first- and second-grade classes in priority education networks REP and REP+, reform the baccalaureate and guidance in high schools and for university entrance as well as apprenticeship and vocational training.
- **Germany** is setting up a cross-departmental national continuous education and training strategy with social partners and Federal States to better link labour market and education policies on the national level with regional training offers, to strengthen advisory and qualification structures (incl. online-based support), to provide financial incentives for training, and to firmly establish a life-long learning culture.

How are G20 members and guest countries supporting people and addressing distributional challenges? (Cont.)

- **India** promotes financial inclusion and implements large-scale, technology-enabled and real-time direct benefit transfers within the country. It allows the poor to have access to financial services and for the transfer of resources to be more reliable.
- **Italy** has been implementing increasing broader measures to tackle longer term unemployment, social exclusion and poverty such as through an 'inclusion income', a single universal measure that aims to provide financial support as part of a tailored scheme to actively encourage the social and employment inclusion.
- **Japan** is planning to provide free early childhood education to all children between the ages of 3 and 5 who attend kindergartens and nurseries that are widely used.
- **Japan** supports tertiary education for children in low-income households and for children who are in need of assistance. The measures include tuition fee exemption, admission fee exemption, and grant-type scholarships.
- **Japan** invests to ensure that everyone, no matter their age, will have the opportunity of recurrent education.
- **Korea** is running the 'Employment Success Package Programme' which supports low-income groups in stages through counselling, vocational training and job search assistance and increasing tax deductions for companies that hire vulnerable groups seeking jobs, such as career interrupted women. Also Korea plans to raise the amount of unemployment benefits and expand their duration when applicable.
- **Mexico** has facilitated access to the labour market and the creation of jobs through diverse measures such as having new modalities of individual contracting (trial periods, initial training contracts and seasonal work).
- The **Netherlands** has a tax deductible for workers for expenditures on training and education after graduation. To increase the effectiveness, the tax deductible will be replaced by an individual learning account for all citizens who have obtained a basic qualification.
- **Russia** has implemented policy efforts that aim to increase labour market flexibility, support the reallocation of resources and mitigate negative effects during transition period such as by implementation of professional educational reform, involving the unemployed in education programs, and promoting labour mobility through web portals.
- **Saudi Arabia** has launched a program to strengthen social safety net and improve inclusiveness by providing direct cash transfers to eligible citizens.
- **Singapore**'s Adapt and Grow initiative provides an online job marketplace and career matching services to help jobseekers find matches with employers offering good job opportunities, and a suite of employment support programmes to address skills or wage expectations mismatches.
- **South Africa** subsidises free higher education for the poor and working-class students to tackle the socio-economic legacy of discrimination based on race and gender and to support the country's economic growth and development objective.
- **Turkey** is planning a coupon system to provide young people with trainings by vocational training providers who are officially accredited in the occupations and sectors that require qualified workforce.

How are G20 members and guest countries supporting people and addressing distributional challenges? (Cont.)

- The **United Kingdom** has implemented automatic-enrolment pensions. Employers must enrol a qualifying employee automatically, and make a contribution towards the pension. The employee is free to opt out but may lose the employer contribution if they choose to do so.
- The **United States** promotes women's entry and advancement in STEM fields through measures including NASA and National Science Foundation programs that ensure women are recruited to STEM-related jobs and aerospace careers and that support women inventors, researchers, and scientists in bringing their discoveries to the business world.

III. Secure sustainable tax systems

Key challenge: Changes to the world of work, including increased NSFE, can put pressure on governments' revenues and tax administrations. Technological change and digitalisation continue to raise questions for domestic and international tax systems.

Adapt the tax mix to support inclusive growth and ensure sufficient tax resources. In a context of highly mobile tax bases, countries could consider how to achieve the best tax mix to secure their revenue raising capacity while supporting inclusive growth. Achieving this will not be the result of any single policy, but a careful balance of policy choices and trade-offs. This could include a *shift to a greater reliance on taxes that have less mobile bases,* such as consumption taxes and recurrent taxes on immovable property*, and on less distortive taxes.* There are however different trade-offs for different countries, and more than one way to achieve efficiency and equity goals. Changes to tax mixes should maintain or improve the progressivity of the overall fiscal policy mix (including public expenditure). Base broadening and reducing differences in effective tax rates across forms of investment could help countries *ensure the effective taxation of capital income at the personal level.* Narrow bases and differences in effective rates often present avoidance opportunities that may disproportionately benefit those with higher levels of income and wealth. These approaches could make the tax system less vulnerable to the impacts of globalisation and more supportive of growth. Some countries may also consider reforming their tax systems to *ensure neutrality between different forms of work*.

International tax cooperation remains key to strengthening tax systems. Priority should be given to addressing the impacts of the digitalisation of the economy on the international tax system. The digitalisation of the economy has highlighted risks of base erosion and profit-shifting (BEPS) and raises questions of how taxing rights on income generated from cross-border activities in the digital age should be allocated.[2] The G20 and OECD have been addressing these issues through the *development and implementation of the BEPS package and the on-going work of the Inclusive Framework on BEPS.* Countries should work together to find a consensus-based solution by 2020.

Leverage new technologies to modernize and strengthen the tax system. Tax administrations may leverage new technologies to *better identify and assess tax risks and simplify tax payers' compliance,* with the use of tools such as big data, electronic invoicing, data analytics, artificial intelligence, and blockchain. The use of

[2] OECD (2018), Tax Challenges Arising from Digitalisation – Interim Report 2018: Inclusive Framework on BEPS, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing, Paris, https://doi.org/10.1787/9789264293083-en.

new technologies could also help to *promote innovation in tax compliance activities*, *enable the integration into the formal economy of certain informal activities facilitated through digitalisation*, and *improve taxpayers' services and education*, strengthening revenue collection.

How are G20 members and guest countries securing sustainable tax systems?

- **Argentina** introduced a tax reform that changes the tax system in gradual steps over a five year window. It reduces the weight of distortionary taxes, such as the turnover tax and the tax on financial transactions; increases the base of most taxes by eliminating exceptions; and shifts the tax burden from highly mobile to less mobile factors or activities (reductions in corporate tax rate and increases in some excise taxes).
- **Australia** has extended its goods and services tax (GST) to low value imported goods (valued at $1000 or below) purchased by consumers from 1 July 2018. Major vendors and online marketplaces (e.g. eBay) have commenced collecting the GST at the point of sale.
- **France** is upscaling its economy through tax measures that foster investment, risk-taking and job creation by reducing the statutory corporate tax rate to 25% by 2022, introducing a 30% flat-rate levy on investment income, partially transferring employee contributions to the general social security contribution which has a larger tax base, transforming the CICE tax credit into a lasting reduction of employers' contributions in 2019 and transforming the wealth tax into a property wealth tax.
- **India** is implementing new goods and services tax (GST) aiming to ensure a level playing field for local businesses. India's is a unified taxation system which will end multiple taxation across the states.
- **Mexico** has pushed a labour and a fiscal reform, which complement each other, to increase public revenues, facilitate tax obligations' fulfilment, and reduce hiring costs to promote formality.
- The **Netherlands** will implement a simpler income taxation system with a lower tax burden by reducing brackets, combined with an increase in the reduced VAT rate to finance it.
- The **Netherlands** also aims to reduce differences between employment contracts for a definite and indefinite period by promoting tax neutrality for different kinds of contracts.
- **South Africa** introduced a regulation which effectively required foreign businesses supplying digital services in South Africa to register as VAT vendors.
- **Spain** has introduced an electronic system for the immediate delivery of VAT billing records as well as various measures to improve the prevention of tax fraud (through the profiling of taxpayers, detection systems of economic activity in open networks and social network analysis).
- The **United States** reformed its corporate tax system by reducing marginal rates and allowing full expensing of investment, which should promote capital deepening and job creation, supporting growth in productivity and wages. The new tax law also reformed the international tax rules, moving towards a territorial system with robust anti-base erosion measures and implementing BEPS recommendations regarding interest deductions, hybrid arrangements and payments, and CFC rules.

IV. Ensure the best possible evidence to inform decision-making

Key challenge: Access to reliable and timely economic statistics is vital for finance ministries and central banks to understand the economy and monitor economic developments, and for regulators, policy makers and economic agents more broadly to ground their decisions in sound evidence. The productivity slowdown might be partly explained by mismeasurement of economic activity, and future economic value will increasingly come from products and services that are difficult to measure. At the same time, technology has led to growth in the volume and availability of data, and new methods offer the prospects of producing new and timely statistics. New technologies bring both opportunities and challenges for interpreting the results generated by the traditional tools currently used.

Refine GDP and other macroeconomic measurements to better capture the value of technological advancements. GDP is the main indicator of an economy's output, but there are questions as to whether current measurements fully capture all economic activity in light of the technological changes taking place. To ensure that GDP, productivity, and other economic statistics continue to provide a reliable picture of economic activity in the future, policy makers could *commission reviews of available economic statistics to identify coverage gaps and new data sources, improve current measurement techniques, and develop frameworks for ancillary accounts.* In order to maintain internationally comparable measures, countries may *commission a review of best practices and frontier research to formulate recommendations on how international statistical frameworks might be updated*, in line with the on-going work of the G20 Digital Economy Taskforce.

Track the implication of new technologies for welfare, labour markets and human capital. To ensure the economic benefits and broader impacts of technological change are adequately captured and measured, relying solely on GDP may not be sufficient. Countries could *develop new methodologies and headline indicators aimed at a broader measurement of economic welfare,* such as measures of consumer surplus, or of the value of household production, volunteer activity, free products and intangibles. An economy that changes at a fast pace will require policy makers to have analytical tools that can accurately track the range of variables affected by new technologies, including new sources of economic opportunities and labour demand. For example, countries could *develop new indicators of the state and utilisation of human capital, contingent work and skills demanded by employers, and assess how these relate to other labour market indicators,* such as employment and wage growth, and impact by gender**.** Finally, countries could work together, supported by IOs, to *develop new international frameworks for innovative measures of human capital, welfare and employment.*

Harness the power of data to achieve a more granular and timely understanding of the economy. Countries could *promote the use of new techniques and technologies, such as 'Data Science', to exploit the availability of new data sources and to achieve more accurate, granular and timely assessments.* Countries could *develop a data science profession in statistical agencies, central banks, finance ministries and in the wider public sector, and set up national data science centres of expertise.* Moreover, countries could *develop partnerships between the private sector, public sector and academia*. Cooperation between national government agencies in the use of new methodologies could also be promoted.

Support regulatory authorities' enhanced understanding of new business models and future trends. In an economy increasingly transformed by new technologies, the traditional analytical approaches and frameworks used by regulatory authorities may not work as effectively as they did in the past. Countries could *encourage regulatory authorities to acquire the technical expertise and capability to better understand changing business models and future trends.* Countries could also *consider how regulators and organisations*

(including firms) can access new sources of information while ensuring an adequate level of privacy and protection of sensitive data. Under their own legislations, countries could also *encourage the exchange of data across organisations.* Finally, countries could *establish a public-private dialogue to enhance the understanding of, and trust and confidence in, digital technologies,* given that the use of data can be a sensitive issue.

How are G20 members and guest countries ensuring the best possible evidence to inform decision-making?

- **Australia** is developing a new data source to better understand changes to the nature of work across Australian industry drawing on tax data combined with ABS (Australian Bureau of Statistics) information about businesses. As an initial focus, the ABS will analyse this data for disruption in the transport industry.
- **Canada** is addressing gaps in gathering and better using data related to gender and diversity, which includes creating a new Centre for Gender, Diversity and Inclusion Statistics that will maintain a public facing gender based analysis data hub to support evidence-based policy development and decision-making—both within the federal government and beyond.
- **China** is leveraging technology to optimize government services and regulations. Eighty pilot projects of one-stop government information services have been launched.
- The **EU** introduced a single set of data protection rules for all companies operating in the EU, wherever they are based, while giving citizens more control over how their personal data is used.
- **Germany** is setting up a think tank on Digitalisation, Work, and Society, in the Federal Ministry of Labour and Social Affairs tasked with strategic foresight and analyses of key trends shaping the future of work, the development of innovative policies on emerging issues, and with continued dialogue with stakeholders nationally and internationally.
- **Indonesia**'s Central Bank initiated a big data project to support effective policy formulation and measurement on areas related to the digital economy such as job vacancy, property, automotive, and fintech and e-commerce. It is also formulating a framework to collect information in the digital economy era.
- **Italy** has included a set of 12 Equitable and Sustainable Wellbeing Indicators beyond GDP in its three-year economic planning process; the government is committed to monitor past trends and forecast future developments at unchanged policies as well as in the light of the policy decisions made.
- **Russia** is implementing 'regulatory sandboxes' available to each bank or organization intending to test innovative financial technologies that require amending the regulatory framework.
- **Turkey** established a labour market survey to determine professions that have difficulties in obtaining labour force and the vacancies in enterprises; and accordingly, to train the workforce.
- The **United Kingdom** is developing an evidence base on how to value human capital, which will support long-term decisions on investment in skills. Technological advancements and changing patterns of work will make investment in human capital more important than ever. The UK is also implementing recommendations of an independent review of economic statistics, including how those statistics can most accurately capture the modern, digital economy.

Conclusion - Opportunities for International Cooperation

Neither the opportunities nor the challenges from technological change are certain; policy responses will shape the outcome. The policy options outlined in this Menu are meant to be voluntary and forward-looking, and should take into consideration the importance of individual and evolving country circumstances. While the impacts on each G20 member will vary, common elements exist. Given the borderless nature of technological advancements, **international cooperation** will remain key.

The Menu presents opportunities for members to learn from each other through **knowledge sharing**. For example, countries could share policy experiences and best practices, including on adapting social protection systems, labour market policies and regulations, national tax systems, competition policies and frameworks, innovation policies and data policies.

The Menu also identifies opportunities to improve **coordination** among members and strengthen the effectiveness of individual members' policy efforts. For example, countries with the support of IOs could work together to develop new and internationally comparable measures of human capital, welfare and employment, and review macroeconomic statistics to highlight best practices and frontier research. Moreover, countries could encourage closer cooperation among competition authorities to tackle the challenges arising from digitalisation.

Finally, it identifies opportunities for **common efforts** on this topic. For example, some countries could work on joint initiatives for investment in R&D and frontier innovation. They may also take measures to enhance the role of trade and investment in knowledge diffusion. In addition, members will continue to work together in international tax coordination and cooperation to prevent base erosion and profit shifting and to improve tax transparency and exchange of information.

International cooperation will remain key in enabling members to keep pace with technological change and ensure its economic potential is achieved and shared by all. By acting now, G20 members will be better placed to further their objective both individually and collectively of achieving growth that is strong, sustainable, balanced and inclusive.