

UNITED NATIONS



NATIONS UNIES

Mr. Alexander Trepelkov, Officer-in-Charge, Division for Sustainable Development Goals, United Nations Department for Economic and Social Affairs

Update on the TFM findings on the impact of rapid technological change on the achievement of the SDGs

New York, 14 May 2019

Your Excellency Ms. Marie Chatardová, Co-Chair of the STI Forum for the SDGs and Permanent Representative of the Czech Republic to the United Nations,

Professor Ada Yonath and Professor Isabel Guerrero Pulgar,

Ms. Abby Shapiro and Mr. Amir Dossal,

Excellencies, Distinguished Delegates, Ladies and Gentlemen,

[Mandate]

At the outset, I would like to thank the Co-chairs of the Forum, the 10-Member Advisory Group, the Inter-agency Task Team on STI for the SDGs and all other engaged TFM partners for their unwavering commitment to keep this important topic on the UN agenda.

Last year at the STI Forum, UN Chief Economist Elliott Harris presented *initial findings by the Technology Facilitation Mechanism on the impact of rapid technological change on the achievement of the SDGs*, as mandated by General Assembly resolution 72/242.

Today, it is my great honour to provide you with an update to that presentation, in line with General Assembly resolution 73/17. In view of the limited time available, I will only be able to provide a selective account of the wide-ranging discussions on this topic in the TFM.

[Contributions]

The Inter-Agency Task Team – the IATT – brings together 42 UN system entities at the expert level. They work closely with the 10-Member Advisory Group representing science, civil society and private sector.

The Task Team’s findings represent a collaborative and multi-stakeholder effort with more than 100 expert contributors, building on evidence from eight meetings and sessions under the TFM umbrella; ten recent UN system reports; written inputs from IATT and the 10-Member Advisory Group; and 50 science-policy briefs volunteered by expert contributors. In this context, I would like to thank all colleagues from the IATT and external contributors as well as the International Council on Science and the Major Group on Children and Youth, for their substantial contributions.

Of course, views in the highly diverse TFM community continue to differ, but consensus is also growing on many points. Our approach has been to document the debate, the evidence and the recommendations put forward. I encourage you to visit the TFM website for further details, especially the interesting policy briefs, which constitute a living record of this rapidly evolving area.

[Summary of TFM findings – nine points]

Ladies and Gentlemen,

My remarks today complement– not replace – last year’s findings. These findings have stood the test of time. However, new activities and submissions have provided further details and evidence of new developments.

I have condensed these findings into nine major points. Thereafter, I will update you on recent activities and the content of the latest submissions by experts.

First, the great potential.

Digital technologies, robotics, artificial intelligence and automation, biotechnology and nanotechnology – all have fundamental and far-reaching

impacts on the economy, society and environment, which can be felt in all countries. They hold great promise for the SDGs. We cannot afford not to make wise use of these technologies.

Second, there are risks and gaps.

We know from the past that technological change creates winners and losers. This time around, the pace is more rapid and the scope much wider. Unless we act proactively, existing inequalities could be exacerbated and potentially leave many stuck in long-run, low-technology traps. Nothing could be further from the aspirations of the 2030 Agenda to ‘leave no one behind.’ The UN has an important role to play in promoting action on these issues.

Third, employment and other economic and societal impacts.

In the past, technological change has been associated with the creation of new jobs and the destruction of old ones – and this process has led to productivity gains and ultimately higher standards of living. However, TFM experts do not agree on whether the new jobs created will ‘compensate’ for the loss of old ones this time around.

Some argue that things are different now and computers and robots could replace as many as half of all human jobs in the coming decades. Others argue that new jobs will be created as in the past to meet evolving needs and complement new technologies. There will be societal impacts unrelated to jobs as well – using machine learning for decision making risks further entrenching biases already manifest in the historical data. We need to be prepared for different scenarios to unfold.

Fourth, the impacts of automated production and artificial intelligence (AI) on development pathways.

The combination of cheaper automation of production and large-scale deployment of AI can accelerate current trends toward declining operating costs and the need for workers in a broad range of sectors. Within and across countries, this may indicate a greater concentration of wealth, coupled with a shrinking demand for less skilled labour. Traditional development pathways that

have relied on the growth of manufacturing may no longer be as viable. Many countries may need to find new development pathways that incorporate these technologies, while re-thinking their approaches to employment, inclusion, income distribution and the social contract. While this could broaden access to the benefits of technology and enable much more rapid development, it also presents extraordinary policy challenges that call for commensurate, extraordinary level of international cooperation.

Fifth, preparing for the impacts.

It is clear these society-wide impacts in all countries need pro-active thinking, planning and action. For example, countries will need to re-think and re-organize how they match the supply of skills to the rapidly evolving job market needs—not just in the formal education system, but also through life-long learning. Some of the TFM experts have proposed exploring technological unemployment insurance, guaranteed income policies and a range of other compensatory social policies.

Sixth, the natural environment.

New materials, digital, bio-, and nanotechnologies, and AI – all hold great promise for a range of high-efficiency water and renewable energy systems that could be deployed in all countries, regardless of their state of development, and ease the intensity of natural resource use. However, despite efficiency increases, these technologies could require ever-increasing electricity – with its associated pollution and green-house gas emissions; as well as the production of e-waste, nano-waste and chemical wastes. The rapid and country-sized electricity demand for cryptocurrency mining is a case in point. We should, therefore, incorporate environmental considerations into the design of these technology systems from the start.

Seventh, the science-policy interface.

Importantly, we need to improve our knowledge and understanding of these trends as the basis for well-founded actions and policies. Coherent and plausible scenarios are needed. Unfortunately, there is limited work in this regard, especially regarding developing countries.

Building partnerships with universities, innovation incubators and private sector entities that are at the forefront of this technological change may help fill this gap. These could be in the form of a “discovery lab” or a network of “observatories” that could serve as direct interface between the policy makers and technologists at the frontier, facilitating the exchange of real-time information, engagement and policy insights.

International collaboration in scientific research has greatly increased and has become much more global. This opens a whole range of new opportunities for stronger engagement with developing country institutions and civil society stakeholders.

Eighth, norms and ethics.

Calls for a more responsible and ethical deployment of new technologies must be balanced against concerns that excessive restraints on innovations may deprive humanity of many benefits. The ethical and normative considerations that should guide our thinking on deployment of new technologies have to spring from our shared vision – the values contained in the UN Charter, the Universal Declaration of Human Rights, and most recently in the Rio+20 outcome “The Future We Want” and the 2030 Agenda for Sustainable Development.

Ninth, multi-sectoral, multi-stakeholder engagement.

One of the more striking takeaways from the IATT’s work is its vivid demonstration of the need to think across sectors and across narrowly defined stakeholder boundaries. Indeed, its description of the scope and range of collaborations is revealing.

This is as it should be, with changes that will affect virtually every individual in the world. We are convinced more than ever of the need to foster multi-policy coherence that goes beyond purely sectoral approaches. At the national level, this will help with coherence across policies for the macro-economy, science and technology, industrial development, human development and environmental sustainability.

No less important is the need for a continuing multi-stakeholder dialogue to present different perspectives, arrive at shared understanding and establish trust. The setting provided by the TFM is a particularly valuable one for contributing to these objectives at the global level. Similar efforts are underway at regional and national levels, and there are gains to be made from connecting across them.

[Lessons from the science-policy briefs]

Next, let me give you a glimpse of the types of issues that you can find in the 50 science-policy briefs contributed by TFM experts.

With regard to artificial intelligence, or AI, you will find proposals on AI governance and fair competition rules; on requirements for new education and life-long learning systems; and on promising AI applications for the SDGs. You will find policy strategies to address societal implications of automation and AI; ideas for AI geospatial mapping systems; AI applications for aid-NGOs; and proposals for intergovernmental collaboration on responsible AI.

Regarding the new production revolution, you will find proposals on how to prepare for the future of work; on governance of disruptive technologies; on current and potential future impacts on developing economies. You will find facts on the digital revolution and what it means for development strategies; a framework for ethical assessment of automation and AI; and quantitative evidence of the connection between technology growth and inequalities.

In regard to biotechnology, you will find policy proposals on open innovation systems and do-it-yourself biotechnology community labs; as well as reviews of benefits of open access to digital sequence information; of synthetic biology's development potential; on gene-editing technology; on marine microbial ecology and bioreactors; and on bio-catalysis.

Regarding nanotechnology, you will find ideas on disposal and recycling of nano-waste and impacts on ecosystems; nanotechnology in water treatment and in agricultural production.

With regard to technologies for mitigating trade-offs with the environment, you will find policy ideas on green technology innovation and on systemic research approaches. You will find information on new technologies for urban climate research; AI use in renewable energy systems; new types of solar technologies; as well as technology solutions to improve the aquaculture supply chains and to deal with e-waste.

With regard to big data, you will find policy options to address ethical issues of big data in health; thoughts on leveraging big data for the SDGs; on combining big data with local individual perceptions; and on remote sensing applications for estimating ecological impacts of urban development; and on big data for financial inclusion.

I hope this will have made you curious. Please check out the newest briefs on the TFM website.

[Latest activities by IATT partners]

Over the past year, IATT partners have undertaken many new activities on new and emerging technologies. Let me just mention a few:

The *Centre for Artificial Intelligence and Robotics* became operational in the Netherlands under the umbrella of the United Nations Inter-regional Crime and Justice Research Institute (UNICRI). The Office of Information and Communications Technology (OICT) launched a series of UN Technology and Innovation Labs, starting with project offices in Finland and Egypt. ITU's *AI for Good Global Summit* featured practical AI solutions for the SDGs. The Secretary-General's *High-level Panel on Digital Cooperation* moved forward with its consultations and is in the process of finalising its report – I am delighted to welcome one of its members to the panel.

UNDP joined the Partnership on Artificial Intelligence – a consortium of companies, academics and NGOs. The UNU Centre for Policy Research created an *AI and Global Governance Platform* as a space for public policy dialogue. My department, DESA, published the *World Economic and Social Survey 2018* on the theme of “Frontier Technologies for Sustainable Development”. The

technology chapter of the *Financing for Sustainable Development Report 2019* was also dedicated to new and emerging technologies.

UNCTAD launched its *Technology and Innovation Report 2018* on “Harnessing Frontier Technologies for Sustainable Development”. The Committee on Science and Technology for Development in 2018 and 2019 addressed the issue – this year supported by a Secretary-General’s report on *The Impact of rapid technological change on sustainable development*.

This is just a glimpse of the many recent initiatives in the UN system on new and emerging technologies. They are testament to the high expectations attached to these technologies. The IATT remains committed to document, exchange information and promote cooperation and synergies among them.

New technologies also feature in other work of the IATT, for example in the TFM online platform and STI for SDG roadmaps. If you have expertise in this area, I encourage you to get involved with the team.

[Conclusion]

Ladies and gentlemen,

Rapid technological change is among us to stay. The scope and scale of its impacts, both positive and negative, cut across the full range of economic, social and environmental dimensions of sustainable development and require us to engage actively with these issues.

The findings of the TFM stand to be refined further through discussions at this Forum and beyond. They also serve to indicate a set of central areas of work, where the collaborative, multi-sectoral and multi-stakeholder context of the TFM stands to add value and advance understanding at global, regional and national levels.

Thank you.