As delivered

UNITED NATIONS NATIONS UNIES

Mr. Elliott Harris,
Chief Economist and Assistant Secretary-General for Economic Development, United Nations Department for Economic and Social Affairs

Presentation of initial TFM findings informal findings by the Technology Facilitation Mechanism in response to General Assembly Resolution A/RES/72/242

New York, 5 June 2018

Your Excellency, Ambassador Mr. Juan Sandoval-Mendiolea,

Your Excellency, Vice Minister Mr. Miguel Ruíz Cabañas,

Your Excellency, Vice-Chair of the Commission on Science and Technology for Development, Mr. Peter Major,

Excellencies,

Distinguished Delegates,

Ladies and Gentlemen,

[Thank you]

At the outset, I would like to thank our Co-Chairs for their unwavering commitment and initiative.

Today, it is my great pleasure and honour to present to you some "initial findings of the Technology Facilitation Mechanism (or TFM)" on the "Impact of rapid technological change on the achievement of the SDGs.

What I can present to you in the time available will necessarily selective – an overview of the wide-ranging discussions that have been going on in the TFM on this topic since 2016.

[Contributions]

The Inter-Agency Task Team or IATT's information paper on their preliminary findings will be posted on the Forum's Website soon. On 200 pages, this paper synthesizes the evidence and conclusions from:

- eight meetings and sessions under the TFM umbrella;
- ten recent UN system reports and publications;
- written inputs from IATT and the 10-Member Group, and;
- 39 science-policy briefs.

It represents a collaborative and multi-stakeholder effort with well over 100 expert contributors. This broad and diverse contributor base testifies to the convening power of a multi-stakeholder TFM with institutionalized entry points for science. Most striking for me, the majority of contributions have come from developing country nationals from all parts of the world. Almost half the contributions have come from women.

While coordinated by DESA and UNCTAD, this work could not have been accomplished without the engagement of all of the other 34 UN system entities that are part of the IATT, and I wish to commend them all. I commend also the TFM 10-Member Group for their tireless mobilisation of stakeholder contributions over the past two years, including those from the International Council for Science, and the Major Group on Children and Youth.

Of course, views within the highly diverse TFM community differ. **But there is also consensus on many points.** The IATT approach has been to not force a synthesis, but to instead document the debate, the evidence and the recommendations put forward.

[Outline of IATT paper]

The IATT paper begins by discussing the different ways in which people talk about rapid technological change – many terms are used, but I agree with the IATT that we should not get hung up on terminology: 'we know it when we see it'.

There is much evidence of the fast and increasing pace of technological change. Innovation cycles have shortenedand progress in one group or cluster of technologies fuels and accelerates progress in others, in a self-reinforcing loop—for example, progress in digital technologies drives progress in nanotechnology and vice versa. And modern bio-technology would be impossible without the modern computing power that has recently become available.

The IATT's information paper comprises chapters on technology change in general; artificial intelligence and automation in particular; natural environment considerations; economic prosperity and development considerations; societal harmony considerations; future perspectives; conclusions and recommendations, as well as Annexes with policy briefs and summaries of IATT-related meetings and UN system documents.

It is a "living document" that the IATT will continue updating and improving over the coming months, and these findings are only a starting point. I encourage you all to continue to send in to your evidence-based inputs and ideas to the IATT Secretariat for inclusion in these updates.

Ladies and Gentlemen,

Let me highlight just a few points.

[New technologies: great potential for reaching the SDGs]

Digital technologies, robotics, artificial intelligence and automation, biotechnology, and nanotechnology – all have fundamental and far-reaching impacts on the economy, society and environment and can be felt in all countries.

These new technologies hold great promise for the SDGs. They could help eradicate poverty; bring high quality education to all; help us find cures for the most intractable diseases; expand mankind's knowledge base; greatly improve resource efficiencies; improve governance, accountability and inclusion; and finally make a fully renewable, circular economy possible.

The potential benefits are so great, that we cannot afford not to make wise use of these technologies.

[Technology risks and gaps]

But at the same time, risks abound. Benefits are not equally distributed and new technologies often have un-anticipated adverse consequences. The benefits could be long-lasting, but the potential negative impacts too could become entrenched and difficult to reverse.

Technological change has never been neutral—it creates winners and losers. There are already technology gaps between and within countries; between men and women, and across social groups. These gaps often correspond to differences in infrastructure, access and capacities. But they also give rise to fears that many could be stuck in long-run, low-technology traps.

Unless we act proactively, existing inequalities could be exacerbated or become further entrenched over the SDG timeframe. Nothing could be further from the objectives of the 2030 Agenda and its aspiration to 'leave no one behind.'

I believe the UN has an important role to play in helping to change this situation.

[Development impacts of cheap automation and AI]

The IATT paper presents empirical data on the declining costs for automated production which, in many sectors, can lower the demand for workers with associated skills. Such trends can be strengthened by the emergence of other technologies, such as 3-D printing, and the deployment of large-scale artificial intelligence, which could radically change how we perform many cognitive tasks. The close interlinkages with biotechnology, nanotechnology and other clusters will further accelerate these trends.

On the one hand, rapid technological progress and the declining costs of new technologies can broaden access to the benefits of technology, and enable much more rapid development.

On the other hand, it clearly presents extraordinary policy challenges that call for an extraordinary level of international cooperation. Many countries may need to find new kinds of development pathways that incorporate these technologies, but that also require a rethinking of patterns of employment and income distribution.

[Employment impacts]

Employment impacts have been recently reported in newspapers and magazines. It has also been an important area of concern in TFM discussions. However, perspectives on this question differ among TFM experts.

Technological change is always associated with the creation of new jobs and the destruction of old ones. Historically, the new jobs are associated with productivity gains, and may even offer improvements in quality. Over time, the number of new jobs may even exceed the number of jobs lost, although the speed at which

this happens, their distribution across regions and industries, and the capacities and skills are affect the overall impact.

The question is whether these new will 'compensate' for the loss of old ones this time around, as happened in the past? Some argue that things are different now.

According to oft quoted estimates, computers and robots could replace as many as half of all human jobs in the coming decades. For some developing countries it might mean that traditional routes to achieve economic development may no longer be available.

Others argue that new jobs will be created as in the past to meet the evolving be unbounded "human needs", while technological change could also improve how many existing jobs are done without displacing humans.

The overall effect will clearly depend on the specific circumstances within sectors and various local contexts.

Whatever the precise outcomes may be, we need to be prepared for different scenarios to unfold.

[Preparing for the impacts]

Some implications of the coming changes are already clear.

It is clear that 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 the mechanisms for life-long learning and for strengthening cognitive and creative capacities. Another area where we need to move early is in the design and implementation of our social protection systems.

Some of the TFM experts call for adapting the social contract to these evolving contexts. They suggest experimenting with proposals for technological unemployment insurance, guaranteed income policies, and a range of other compensatory social policies.

[Natural environment and breakthrough technologies for the SDGs]

In some other areas, we have greater clarity about the mechanisms and impacts.

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. Such technological innovations catalyse our move to sustainability.

At the same time, there can also be environmental costs. Large-scale AI systems require much power. This is especially so for multi-layered neural nets that bring software closer to processes used during human cognition and decision making.

The rapidly increasing electricity demand for cryptocurrency mining is a reminder that technologies that appear to be mostly 'virtual' may infact have an outsize and unwelcome 'real' footprint. As of May 2018, Bitcoin alone accounted for an estimated 68TWh of annual electricity use, comparable to the electricity consumption of the Czech Republic – six times the demand one year ago.

Despite efficiency increases, AI and all the other emerging technologies clusters will require ever-increasing electricity with its associated pollution. They also produce e-waste, nano-waste, and chemical wastes, all of which come with their own set of issues.

Unequivocally, then, it would be wise to incorporate environmental considerations into the design of these technology systems from the start.

[Strengthening the science-policy interface]

We need, therefore, to improve our knowledge and understanding of these trends as the basis for well-founded actions and policies. A forward-looking perspective, coherent and plausible scenarios, and more robust quantitative approaches can help us in this effort.

Unfortunately, there is limited work in this direction, especially with regard to developing countries, in contrast to the many models and scenarios for climate change or natural resource management. The IATT paper presents some promising examples of work, but it also highlights how much more needs to be done.

One appealing idea is to build partnerships and interfaces with universities, labs, innovation incubators, and private sector entities that are at the forefront of this technological change. This could be in the form of a "discovery lab" or a network of "observatories that could 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, capacity development, and much stronger science-policy interfaces at all level. A multiplicity of institutions, within and outside the UN system, in developing and developed countries alike, need to engage coherently in this venture.

[Norms and ethics]

Calls for a more responsible and ethical deployment of such technologies have to 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 these issues 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", as well as the 2030 Agenda on Sustainable Development.

These, coupled with better information on impacts and consequences, can help develop shared protocols, voluntary guidelines, good practices and other forms of guidance for countries and stakeholders that can help us to steer technological innovation in a desirable direction.

[Multi-sectoral and 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 and highly informative.

I am convinced more than ever of the need to foster policy coherence and multi-stakeholder dialogue in order to make headway. At the national level, this means coherence across policies for the macro-economy, science and technology, industrial development, human development and sustainability. The SDGs themselves are providing an impetus for improving policy coherence. Rapid technological change provides another.

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.

[Conclusion]

Ladies and gentlemen

Rapid technological change is among us, and it is not going away.

The scope and scale of its impacts, both positive and negative; and across the full range of economic, social, and environmental dimensions require us to engage actively with the issues.

These preliminary 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.

I am eager to see the further progress made in these areas.

I look forward to fruitful and constructive discussions through this session, and the rest of the Forum.

I thank you for your attention.