

Nebojsa Nakicenovic, Key Messages for The High-level Segment of the United Nations Economic and Social Council, Friday 19 July 2019, 10:00 to 13:00, ECOSOC Chamber

1. The world is at crossroads as we are currently experiencing signs of counter-transformations away from sustainable future for all – for example CO₂ emissions and inequality are continuing to increase. We are transcending planetary and human-development boundaries with affluence for a few while billions are left behind (TWI2050 2018).

I. What transformational changes are crucial for achieving the 2030 Agenda and the SDGs?

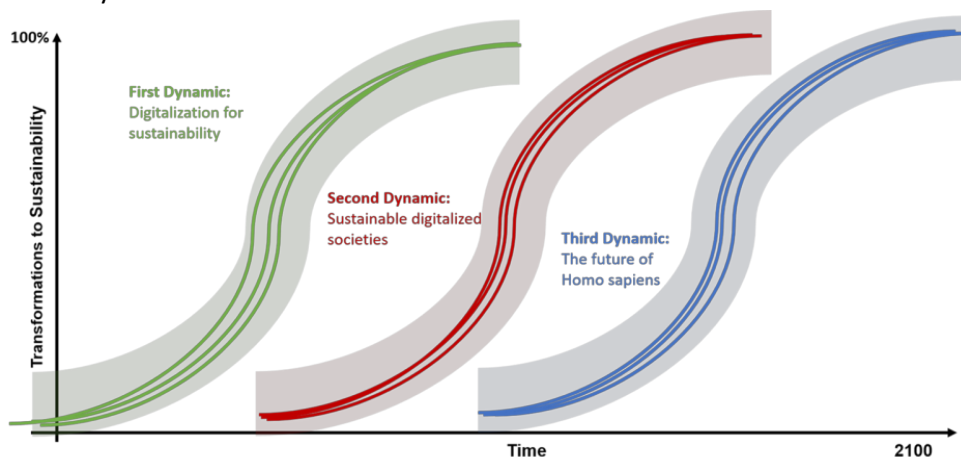
2. Transformation toward a sustainable future for all is possible but ambitious and urgent action is needed now and continued people and planet focus beyond 2030. Incremental change will not be enough. A disruptive transformative change is called for because we are heading toward emergency that must be avoided. SDGs give us an ambition and vision how to achieve sustainable future for all. They can be seen as a new ‘social contract’ for the world.
3. The World in 2050 (<http://www.iiasa.ac.at/web/home/research/twi/Report2018.html>) has identified Six Major Transformations necessary to achieve the 17 Sustainable Development Goals (SDGs).
4. They are: (i) Education and Health; (ii) Consumption and Production; (iii) Decarbonization and Energy; (iv) Biodiversity, Food and Water, (v) Smart Cities and Mobility; and the (vi) Digital Revolution. Together they reduce the complexity of 17 SDGs and enable more clearly achievement of synergies, possible multiple benefits and avoidance of conflicts among the SDGs.



TWI2050 focuses on Six Transformations that capture much of the global, regional, and local dynamics and encompass major drivers of future changes: (i) Human capacity & demography; (ii) Consumption & production; (iii) Decarbonization & energy; (iv) Food, biosphere & water; (v) Smart cities; and (vi) the Digital Revolution. Source: TWI2050 (2018, 2019)

II. How can future trends and scenarios influence the course of SDG implementation?

5. There is a large body of literature how future pathways and scenarios can achieve one or a few SDGs. Most focus on specific issues like energy, water, food and land use, cities or climate. There are only a few that look at achieving a wider range of SDGs. Quantitative modeling of all SDGs is still out of reach. TWI2050 has used a combination of transformational narrative and modeling to capture all SDGs in its Sustainable Development Pathway because some of the critical development such as governance are not amiable to quantification in the integrated assessment models.
6. The main conclusion is that achieving synergies and avoiding tradeoffs among the SDGs is the key. One example is that the costs of improving security of energy systems, avoiding indoor and outdoor air pollution and stabilizing climate change to 1.5°C in accordance with the Paris Agreement from 2015 would lower annual costs from \$1.7 trillion to \$1.2 trillion if policies were implemented in unison and not separately for each of the three objectives.
7. Another example is the urgent need to stabilize global climate at below 2°C and if possible 1.5°C that implies immediate emissions peak and decline to net-zero by midcentury from the current level of about 40 billion tons of carbon dioxide (GtCO₂) per year. Deep decarbonization is called for as an essential process for achieving the 17 SDGs and the Paris Agreement. In addition, net-negative emissions need to increase to almost half the magnitude of current positive emissions: A tall order. Carbon capture from biomass (BECCS) and land-use change such as afforestation are here the key. Third, biosphere carbon sinks need to be maintained as atmospheric concentrations decline. This again points to the need for synergies across the Six Major Transformations such as energy, land use and food.
8. With the Digital Revolution, a new era in human history is emerging after the Neolithic and Industrial Revolutions. (<http://www.iiasa.ac.at/web/home/research/twi/Report2019.html>) The two revolutions took place during the Holocene, a period of very stable climate the supported the first two gigantic leaps in human civilization. Digitalization can enable a disruptive revolution toward a Digital Anthropocene – another possible quantum leap for humanity.



Three possible Dynamics of the Digital Age. They are already emerging in parallel, albeit with different levels of intensity, but the chronological sequence is only indicative. Each consists of multiple pathways of different technology trajectories. The name given to each Dynamic reflects the priorities for action required in each case. For illustrative purposes, we show a simplified version that does not cover all emerging technology clusters and possible pathways. Source: TWI2050 (2019) adapted from WBGU (2019).

9. The paradox of the Digital Anthropocene is that digitalization is essential for achieving the Six Major Transformations, yet it is also endangering them for example through digital divide and because it is challenging the absorptive capacity of society. It is not even clear today whether the convergence of digital technologies and their diffusion are amiable to social steering. Achieving Digital Anthropocene sustainable for all is really the only option especially compared with undesirable futures of inequity and inequality with further dangerous transgression of planetary boundaries.
10. Thus, there is a need to build responsible knowledge societies capable of taking action towards sustainability in the Digital Age and for that inclusive governance urgently needed to steer Digital Anthropocene toward sustainability for all.

III. What do current scenarios tell us about our policy choices and how to accelerate SDG progress?

11. The main conclusion is that achieving synergies and multiple benefits while avoiding tradeoffs among the SDGs is the key.
12. Science, Technology and Innovation (STI) are essential for further progress and the Six Major Transformations should include Roadmaps for all Six Major Transformations and STI from local to global level.
13. Immediate and urgent actions is needed for all Six Major Transformations in unison and holistically.
14. We need to build responsible knowledge societies capable of moving toward sustainability in the Digital Age.
15. There are only 10 years left till 2030; thus, ambitious and urgent action is needed now and continued people and planet focus beyond.