

# World Series Events on Artificial Intelligence

## Event 3 Report

### Digitalisation Powering Environmental Protection



United Nations  
Educational, Scientific and  
Cultural Organization



International Research Centre  
on Artificial Intelligence  
under the auspices of UNESCO



REPUBLIC OF SLOVENIA  
MINISTRY OF FOREIGN AFFAIRS



## About the Series



*The Ministry of Foreign Affairs of the Republic of Slovenia, the Slovenian Presidency of the Council of the EU, and the International Research Centre on Artificial Intelligence, under the auspices of UNESCO (IRCAI), have joined forces to organise 12 events in close cooperation with Slovenian embassies and other permanent representations in 10 countries around the world. The aim of this effort is to set an active agenda for AI during the Slovenian Presidency, and to provide a basis for continuing and promoting bilateral discussions in the field of AI and sustainable development beyond the Presidency.*

### **International Events**

Showcasing government, research and business perspectives in AI and Sustainable Development across the world from Abu Dhabi, Ottawa, Tel Aviv, Genève, Bucharest, Tokyo, Paris with OECD and Berlin and ending at the main stage event for DigiEduHack 2021 in Slovenia.

### **Digital Education Hackathon**

Hosting main stage on AI and Education, themed across solutions for UN Sustainable Goals, as the final event of this international marathon. This is an EU flagship initiative, a two-day event made of 24 hours of ‘hacking’ and ‘generating ideas’.

### **International Network**

A distributed center of excellence for research, innovation and expertise, to become a world reference in AI that can attract investments in AI and Sustainability research and the best talents in the field, and provide in-depth work based on the multistakeholder global discussions coming from the events series.

### **International AI Award**

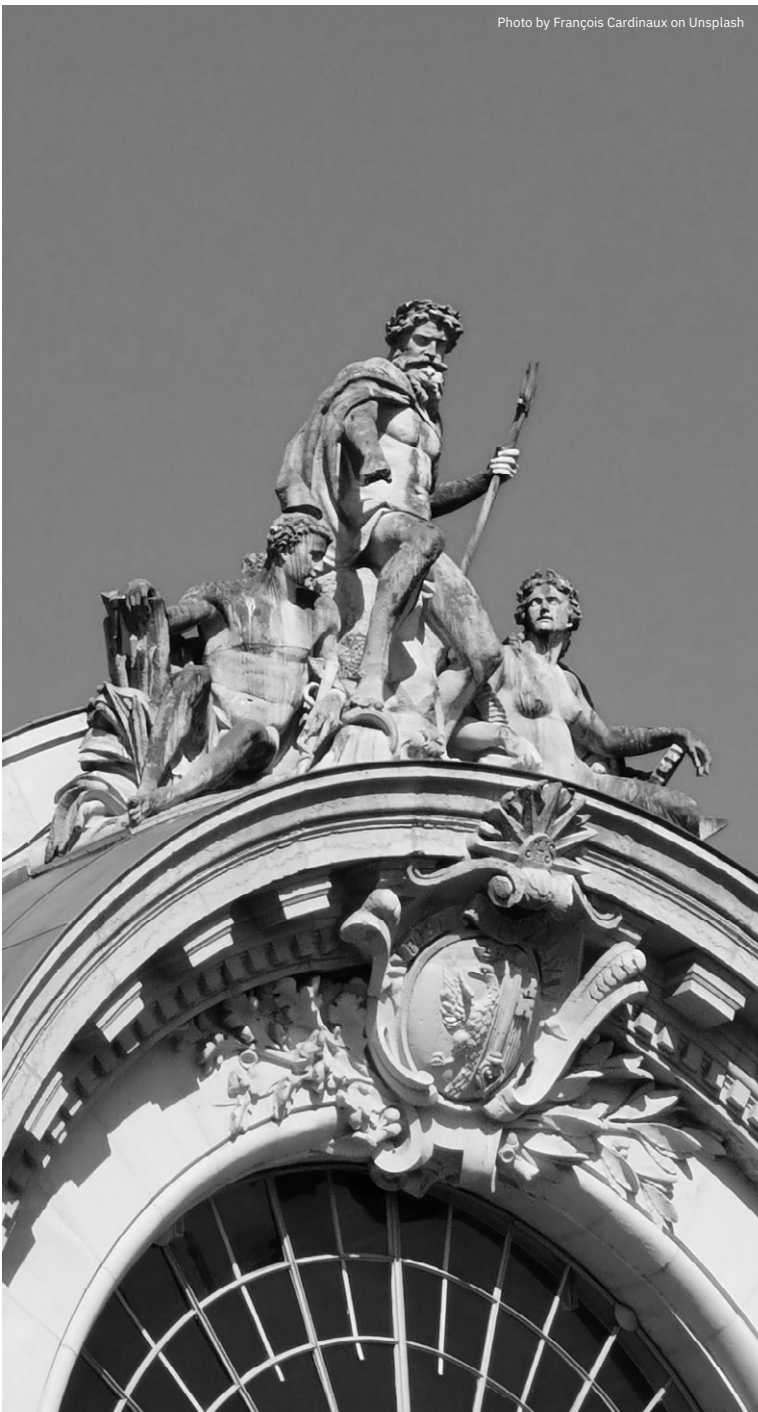
A pan-European and international award started by the Slovenian Presidency and to be presented annually.

## Event 3: Digitalisation Powering Environmental Protection

Geneva (CH) / online

14 October 2021 at 14:00 CET

This event is part of a series of dialogues titled “From Geneva: Reflections on digital future”. This panel discussion was facilitated by the Geneva Internet Platform (GIP) in partnership with the European Union Delegation to the United Nations in Geneva, the Permanent Mission of Switzerland to the UN in Geneva, the Permanent Mission of Slovenia to the UN in Geneva, and the International Research Centre for Artificial Intelligence (IRCAI).



## Agenda

Digital technologies are gaining an increasingly important role in our lives. It is becoming more and more difficult to picture a life without smartphones, web search engines, online banking services, online route planners or digital music libraries. Digital technologies are also increasingly being used to tackle broader issues such as environmental sustainability. AI, for example, can be applied to better understand our current global climate reality as it can help us gather, analyze, and monitor large amounts of raw data. AI-powered technologies can assist various stakeholders in reducing greenhouse gas emissions.

At the same time, the data produced from the use of digital tools can also have a negative effect on the environment: The energy consumption of data centres is growing at a steady pace. The smartphones we are using are also produced under environmentally harmful conditions, and after a few years of usage, transform into (toxic) e-waste.



Photo by Christopher Burns on Unsplash



## Event Proceedings

In this discussion, the panelists will therefore discuss how (1) digital technologies can be used for better environmental stewardship and (2) how to limit the adverse effects engendered by digitalization. Giving insight into how their organizations are working towards their environmental goals, the panelists put a particular emphasis on how collaboration can drive these ambitions forward.

Moderated by **Tereza Hořejšová** (Projects and Partnerships Director at Diplo), the roundtable is joined by representatives from a whole series of institutions based in Geneva, Brussels, and Ljubljana:

- **Ilias Iakovidis**, Advisor for Green Digital Transformation at DG Connect at the European Commission (EC)
- **David Jensen**, Coordinator of the Digital Transformation Task Force at the United Nations Environment Programme (UNEP)
- **Flurina Wäspi**, Independent Consultant to the Internet Governance Forum Policy Network on Environment and Digitalisation (IGF)
- **Reyna Ubeda**, Project Officer at the International Telecommunication Union (ITU)
- **Mitja Jermol**, Program Committee Chair in AI and Circular Economy at the International Research Centre for Artificial Intelligence under the auspices of UNESCO (IRCAI)

### How can digital technologies contribute to advancing environmental stewardship?

Our climate is changing at an unprecedented pace, while non-renewable natural resources are continuously being overconsumed. Losses in biodiversity have been higher than ever before, and natural disasters are making increasing parts of the planet uninhabitable. To counter these trends, numerous digital technologies have been designed. Many of these digital technologies are powered artificial intelligence (AI), an essential element to perform complex data analysis and

management, aimed at minimizing carbon emissions, for instance.

Mitja (IRCAI) states that AI can help stakeholders understand a lot of the vast information and data stored in the complex systems they are dealing with. By making use of digital twins, factories can, for example, run simulations to predict the carbon footprint in a selected production process scenario. However, the dream would be to make a digital twin of the entire earth: Eventually, we will “gain an introspective view of what humanity is doing” (Mitja).

In fact, this is precisely what the European Commission is working on under the Destination Earth project. As part of the European Digital Strategy, Destination Earth aims to develop a high-precision digital model of the Earth to model, monitor and simulate natural phenomena and human activities – which could then support policymakers in assessing the impact and efficiency of their environmental policies. David (UNEP) emphasizes that the Destination Earth project could be even more transformative if it were to embed environmental, social, and economic data of the UN, too.

Another digital platform projected to stimulate better environmental stewardship is the Digital Product Passport (DPP): The platform is supposed to provide information on every stage of the supply chain of a product, including information on its origin, composition, repair, dismantling and disposal. Although some producers fear that the Digital Product Passport would force them to share their technological know-how and confidential company data, Flurina (IGF) notes that it is an interesting initiative, especially when it comes to the aims of increasing transparency of supply chains for consumers seeking to make informed choices. Ilias perceives the Digital Product Passport as a solution to change the current business model: Currently, producers sell the product and thereafter “do not care

what comes next”, whereas the Digital Product Passport project would facilitate B2B, B2C and B2G communication channels for businesses that are willing to contribute to the transition to a more circular economy.

### **How can digital technologies have adverse effects on the environment?**

Digital technologies can have adverse effects on the environment too. Every year, data centres consume almost 200B kWh of energy – emitting more than 150M metric tons of carbon pollution. Moreover, the smart gadgets (that many of us use on a daily basis) contribute to the fastest growing portion of the world’s garbage problem: According to UN statistics, an estimated 50 million tons of (partly toxic) electronic waste are generated worldwide each year – and these numbers are still growing. Thus, digitalization itself can also be seen as a threat to the environment.

Flurina comments that there are currently “8 electronic devices for every person on earth”. Thereby, most of the e-waste resulting from the production of these devices is not properly documented and not treated through appropriate recycling chains and methods. Thus, circular economy thinking has not been fully adopted. David notes that we do not even dispose of sufficient minerals and metals to satisfy this high demand for electronic devices. As mentioned by David, the World Bank predicts that we would need a 500% increase in metal resources to power the digital economy and to power this green energy revolution “to make the ‘circular’ complete”. Thus, tracing and tracking the key minerals and metals should remain one of the top priorities – something the Digital Product Passport will come in handy for.

### **How does environmental protection fit into speakers’ agendas?**

Environmental topics are given an increasing importance in the field of data and digital technologies. Flurina (IGF), for example,

mentions that at the IGF 2020, the theme of “technology and environment” was met with a lot of interest and gave rise to an entire forum. The panelists have thereby given insight into how environmental protection plays a role in their agenda: Reyna (ITU) notes that in the ITU Connect 2030 Agenda for Global Telecommunication and ICT Development, there is a substantial focus on the use of technology for environmental sustainability. Ambitions stated include achieving a global waste recycling rate of 30% and to raise countries with e-waste legislation to 50%.

Meanwhile at UNEP, David focuses primarily on composing real-time, global environmental datasets. He distinguishes between two sets of data, namely (1) data to inform action and (2) data to measure progress. For the former, earth observation (EO) is used to compare disclosed performance information by governments and companies with observed performance. Meanwhile for the latter, David alerts that only 42% of global environmental SDG indicators are measurable – a gap UNEP seeks to plug.

Within the European Commission, Ilias focuses on digitalization policy for the circular economy to stimulate the tracking, tracing, and identifying of materials along the supply chain, to contribute to innovations like the abovementioned Digital Product Passport. Moreover, as part of the European Green Deal Coalition (EGDC), he puts a particular focus on the measurement of ‘digital’ on ‘green’ and the enablement of ICTs in this process.

### **The way forward: Collaboration, awareness and accessibility**

Flurina accentuates that “combatting climate change is one of the biggest multi-stakeholder tasks that we have to address, as a global community”. She acknowledges that many great initiatives have emerged in field of environment/technology, but it is challenging not to duplicate efforts. Thus, a particular emphasis must be put to truly build upon each other and reflect on where

the synergies can be most beneficial in making such digital innovations a positive reality. As asserted by Reyna, collaboration is key: Different actors have different roles, and their work has the potential to complement each other. Mitja remarks that AI-based predictive models and technologies for environmental sustainability as well as action plans have already been composed. What is missing, however, is an actionable agreement between a wider range of stakeholders, including players from the private sector, the public sector, civil society, and academia.

Therefore, various efforts have been made to bring together this wide range of stakeholders. For example, while developing standards on the requirement for a global digital sustainable product passport, ITU is cooperating with a wide range of institutional bodies - including UN agencies like UNEP, but also the European Commission. As mentioned in the UN Roadmap for Digital Cooperation, the Coalition for Digital Environmental Sustainability also includes a whole variety of public and private sector actors, as well as civil society and academia. David comments that the Coalition for Digital Environmental Sustainability is sincerely “trying to put together an acceleration plan, which is identifying for each of these stakeholder communities what has to happen, by when it needs to happen and who needs to do the heavylifting”.

Now, when presenting the abovementioned digital technologies to the general public, we have to be aware of the rather polarized consensus regarding the role of digital technologies in environmental sustainability, as asserted by Ilias. While a part of the public is very positive about the deployment of 5G, the adoption of IoT and AI applications in everyday situations, another part of the population is rather worried about the rising energy consumption in data centres and growing e-waste. Still, manufacturers, and consumers alike, sincerely want to be sustainable: Consumers are increasingly demanding the disclosure of the carbon footprint behind the products they buy, while manufacturers also want to be sustainable.

But often, they simply do not dispose of the information from the supply chain.

Another problem perceived by Ilias is the tyranny of convenience: People simply like to stick to their convenient habits and “they will discredit any of the progress we do on the green pathway” if it is to disturb their comfort. Therefore, David accentuates that companies should nudge sustainable options by default. For example, e-commerce platforms should design their user-interfaces in a way that people are automatically guided to make sustainable choices, a phenomenon also known as digital nudging.

David underlines that we need more transparency in terms of the algorithms that are now driving our incentives and behaviors, as currently we simply don't know what these algorithms are optimizing for, and we need a way to disclose that more systematically. As agreed by other panelists, we need to think how these algorithms help us take better decisions and more sustainable decisions. This way, we can begin to optimize for sustainability in those algorithms, and eventually, meet our environmental goals.

*[The full transcript of the panel discussion can be found here.](#)*

## Quotes



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*“AI is not just here to help us understand what is going on. It’s also to help us to bring us a mirror or an introspective view on what humanity is doing.”*

Mitja Jermol (IRCAI) on AI and the idea of digital twin of the whole Earth



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*“We simply don’t have enough out there to close the [digital] divide and shift to green energy without making the circular complete.”*

David Jensen (UNEP) on need for circular economy for digitalization



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*“We call for a global waste recycling rate of 30% and we seek to raise the percentage of countries with an e-waste legislation to 50%.”*

Reina Ubada (ITU) on ambitions stated in the ITU Connect 2030 Agenda



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*“How can we make sure not to duplicate efforts and to really build upon each other? How can we use the synergies that are there?”*

Flurina Wäspi (IGF) on collaboration in environmental technology



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*“Tomorrow, consumers would like to see not only the price, but also the kilometres travelled which you can convert into CO2 equivalents.”*

Ilias Iakovidis (EC) on the future eco-conscience among consumers



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*“Sustainability has to be seamless, simple, one-click and very painless with minimum friction.”*

David Jensen (UNEP) on digital nudging for sustainable behavior