Advanced Technologies for Industry

Advanced Technology Policies for Green and Circular Industry

Online Policy seminar

Part of the #EUCircularTalks of the European Circular Economy Stakeholder Platform

10 February 2021, 09.45 - 12.30

Organised on behalf of:
European Commission DG GROW
Executive Agency for Small and Medium sized Enterprises, EASME
by Technopolis Group

The policy seminar on '*Advanced Technology Policies for Green and Circular Industry*' was the fourth in a series of 8 policy seminars organised within the Advanced Technologies for Industry (ATI) project (https://ati.ec.europa.eu) commissioned by the Executive Agency for Small and Medium-Sized Enterprises and the European Commission DG GROW.
The objective of this seminar was to discuss the challenges of better bridging technology and circular economy policies and present specific policy initiatives and policy experiences.
The event was part of the #EUCircularTalks of the European Circular Economy Stakeholder Platform.

The policy discussion was kindly moderated by **Ms Cliona Howie, Head of Circular Economy** at the European Institute of Innovation and Technology – **EIT Climate KIC.**

Presentations and key points:

1. **Introduction to the 'Advanced Technologies for Industry' project**
   Szabolcs Szekacs, European Commission DG GROW

   - The Advanced Technology for Industry (ATI) project results from the merger of two former projects of the European Commission DG GROW: the KETs Observatory and the Digital Transformation Monitor. The ATI project provides policymakers, industry representatives and academia with statistical data on the creation and use of advanced technologies, analytical reports on technological trends, sectoral insights and products, analyses of policy measures and policy tools related to the uptake of advanced technologies, and analyses of technological trends in competing economies.

2. **Advanced Technology policies for Green & Circular Industry,**
   William Neale, Adviser for Circular Economy and Green Growth, European Commission DG Environment

   - New Commission priorities include both the European Green Deal and digital transformation. "*It is a once in-a-generation-opportunity to ensure Europe leads the way on the twin ecological and digital transitions*"

- The circular economy is mostly about how to keep the value and create loops within a production system without losing anything essential.
- The butterfly diagram (Ellen MacArthur Foundation) is a powerful tool to illustrate the importance of safeguarding nature, enhance the usefulness of products, substitute finite materials with renewable ones and minimise systematic leakages and negative externalities.
- The Circular Economy Action Plan 2020 includes a new sustainable product policy, key product value chains, the principle of creating less waste with more value and are accompanies by a range of cross-cutting actions.
- The sustainable product policy framework focuses on the product design, the circular production processes and empowering the consumers. A key issue is that in a linear economy, some of the information about products are lost and hence customers cannot make informed decisions. Digital technologies can support capturing information and supporting decision-makers.
- Digitally enabled new businesses can develop 'product as a service'. For instance, precision farming is delivering benefits, but producers of pesticides and fertilisers are still quantity-driven. A new business model can be the protection of crop services enabled by the Internet of Things, satellite services images, GPS, drones and robotics.

3. **ATI project and results from the "Responsible digital transformation – the bridge between digital and circular economy policies" report**
   Kincsö Izsak, Principal Consultant at Technopolis Group, ATI Consortium

- Digitalisation has an enormous potential to boost the circular economy. On the other hand, as one of the drivers of growth of production and consumption globally, digitalisation is also a challenge for environmental and social sustainability.
- On the one hand, advanced digital technologies can lead to more efficient and flexible products (that replace less resource-efficient technologies) and circular economy processes (optimising resource sharing, circulation and longevity).
- On the other hand, if not properly implemented, the positive effects of digitalisation on reducing energy consumption, material use and greenhouse gas emissions can be offset by a drastic increase of electricity and water consumption by data centres and telecom networks, the production of dangerous waste, or unsustainable mining of rare earth metals.
- Potential rebound and adverse effects of digital technologies should be anticipated, continuously assessed and countered by policy mixes.
- Currently, there are few policy measures that aim explicitly at fostering the use of digital technologies to solve climate or environment-related challenges. The most common policy initiatives target energy, resource efficiency and mobility. It is also not yet common to assess the environmental impact of larger digitalisation initiatives.

4. **Basque Environment 4.0**
   Olga Martin, Director General at ACLIMA Basque Environmental Cluster

- ACLIMA, the Basque Environment Cluster represents the Basque environmental market and its main actors, including private companies, research institutions, universities and public bodies such Basque Government, public water companies, local authorities and city councils & towns. Key activity areas that they tackle include waste management, waste to energy, water, soil remediation, air pollution control, climate change and natural resources and biodiversity management.

- The Basque Environment 4.0 is a key strategic area, which brings new technologies together with the environmental sector with the objective to contributing to better resource efficiency. Advanced technologies that are particularly considered include sensors, robotics, big data, the Internet of Things, drones and serious games (supporting awareness-raising).
- Advanced technologies are specifically used to address the improvement of environmental management in areas such as the protection of natural spaces and biodiversity, industrial activities and sustainable cities.
- Some concrete project examples supported in this framework include the Waste4Think initiative that has been set up in order to create a decision support platform for long term planning. The project supports the online monitoring of containers and management of collection trucks.
- EEIKOA is a crowdsourcing platform application for control and eradication. It aims at providing a global vision about the distribution of invasive plants with the support of digital management tools.
- Lumiker is another project that developed an intelligent solar street system with server connection for consumption management.
- Key challenges include the systematic application of the capacities already generated through regional digitalisation policies to develop new environmental advanced services to meet the green deal's objectives.

5. **Linking green & digital policies in the Helsinki-Uusimaa Region**
   Venla Virkamäki, Senior Advisor, EU Affairs from the Helsinki-Uusimaa Regional Council and Pia Tynys, Chief Advisor, Climate Change

- The vision of the region is to make “the Helsinki Region a Cool & the Most Vibrant Region in Europe by 2050”.
- The regional policies are based on national targets such as the government programme of Finland.
- Some of the relevant policy tools that enable a digital green transition include the Carbon Neutral Helsinki-Uusimaa 2035 roadmap, the smart specialisation strategy and the recovery plan.
- 3 strategic priorities of the smart specialisation strategy include: ‘Climate Neutrality’, ‘Citizens’ City’ and ‘Industrial Modernisation’ (=digital transformation).
- The Circular Valley is a regional initiative to promote circularity via circular hubs. The Regional Council can act as an important orchestrator in the system.
- It is important to orchestrate the ecosystem (together with the stakeholders) and search for suitable partners by pooling of different areas of competences.
- The role of development companies is important in search of new innovation and fostering local hubs and networks.
- The city plays an important role as a service platform for piloting.

6. **Circular Economy powered by Smart Industry (CESI)**
   Willem Huntik, Programme Manager – Circular Economy, Region of Gelderland

- The manufacturing industry plays an important role in the transition to a more resource-efficient economy. ICT, data and new technologies are important enablers for growing ‘’circularity’’. The key business models include the circular design, more efficient production, lifetime extension of components and products and asset sharing.

- Some examples highlighted include the 3D metal printer at Kaak Terborg (industrial bakery equipment) can produce up to 600 small components at a time. The 3D printer delivers up to 50 % reduction in material use. Another example is e-bikes. The rapid developments and switch to e-bikes mean that Van Raam (adapted tricycles) can switch to circular business models. Batteries for e-bikes are leased making purchasing a tricycle much cheaper and at the same time creating excellent return logistics for batteries.

7. **Circular Economy and advanced digital policies: A perspective from civil society**
   Baiba Miltoviča, EESC member, Member of the Study Group on the EESC Opinion on "Digitalisation and Sustainability
   - The EESC opinion and conference on Digitalisation and Sustainability concerned inclusive digital wellbeing economy for workers, consumers, SMEs, large companies and non-profit economic actors to benefit alike. It also highlighted transparent, fair and green ICT production chains, the EU inventory of data centres and smart and circular city development to include innovative approaches to integrated mobility, energy and tourism.
   - Several private initiatives demonstrate the potential in connecting the green and digital transformation such as Karma that connects surplus food with consumers for a lower price or Concular that is a digital platform enabling circular construction.

8. **Towards a green, competitive and resilient EU economy: how can digitalisation help?**
   Stefan Sipka, Policy Analyst at EPC – European Policy Centre
   - The EPC conducted a research project commissioned by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety in 2020. It puts forward three recommendations for the EU to get the most out of the EU's sustainability and digital agendas.
   - Create a European 'data space' to accompany the implementation of the Green Deal. The aim should be to optimise the management and analysis of data relevant to climate action and the protection of the environment. Reducing barriers to the free flow of information across value chains will also be vital, as that will enable the development of a sustainable circular economy.
   - Develop and deploy digital solutions to support and accelerate the greening of our economy and society. This entails investing in digital solutions that can help to enhance climate neutrality, sustainable consumption and production, zero pollution efforts and biodiversity.
   - Address the negative environmental and climate impact of digitalisation. The EU must ensure that its digital infrastructure becomes more sustainable. It should introduce requirements and financial incentives for developing and deploying ICT equipment that is circular and energy-efficient.

Conclusions of the discussion:

- There is an urgency in integrating environmental considerations in industrial processes. Governments need to create a clear strategy to promote the joint development of circular economy models and digital transition.
- The Covid pandemic has accelerated the pace of digital transformation but it also shifted the attention to circular economy business models. Policy remedies should not only focus on tackling short-term economic problems but also long-term sustainable development.
- It is important to foster private-public partnerships to align digital and green strategies and agree on the ambitious objectives of the Green Deal.

- Voluntary local industry initiatives are powerful in bringing together circular economy actors and industrial players.
- Environmental and industry/digitalisation departments in governments still tend to work in silos and more connections are necessary such as special working groups that align digital and green developments.
- There is a need for more coordination between the regional and national level – one should not invent new policy tools but using existing tools to build upon them.
- Innovation vouchers can be one popular funding instrument that can support the emergence of more cross-cutting approaches and green-digital business initiatives.
- European Digital Innovation Hubs can be a relevant platform to be linked to environmental initiatives and support more alignment.
- There is a need for more awareness-raising and educating the consumers but also industry.
- Non-governmental organisations (NGOs) can play a critical role in orchestrating the community in connecting digital and green policies and the role of cities need to be highly considered as platform to pool actors together.
- Policies can be also digitalised to be more efficient – different digital technologies make help policymaking more efficient.
- Data collection and data sharing will be important and need more policy attention in order to facilitate better decision making for instance in waste recycling and to improve industrial processes.