

Welcome and introduction

Szabolcs Szekacs, European Commission DG GROW

#EUCircularTalks

Responsible digital transformation

10 FEBRUARY 2021 - 09:45-12:30

Advanced Technologies for Industry

Hosted by

aclima
Basque Environment Cluster



European
Circular Economy
Stakeholder Platform





Advanced Technologies for Industry

Introduction to the ATI project



Advanced Technologies for Industry (ATI)

<https://ati.ec.europa.eu/>

- **Industry** is being **profoundly transformed** by **new-generation technologies**
- Aim is to **systematically monitor technological trends** and **provide data on advanced technologies**
- **Shaping Europe's Digital Future** - vision for how Europe can retain its technological sovereignty and be a global digital leader
- **New industrial strategy** - help Europe's industry lead the twin transitions towards climate neutrality and digital leadership
- **European Green Deal** - advanced technologies value chains play a key role by accelerating the transition towards clean technology solutions.

Advanced Technologies for Industry

Home **Tools** Technologies Latest About ATI

Data Dashboard Product Watch EU Reports

Technology Centre Mapping Sectoral Watch International Reports

Technology Watch Policy Briefs

EU27 strengths in producing advanced technologies

21,94% of advanced technologies global patent applications held by EU27

Technology Sector	Share of global patent applications held by EU27
Advanced Manufacturing	35.56%
Internet of Things	27.28%
IT for Mobility	26.36%
Security	23.78%
Advanced Materials	22.52%
Photonics	21.33%
Industrial Biotechnology	20.88%
Nanotechnology	19.13%
Robotics	19%
Artificial Intelligence	17.23%
Micro and nanoelectronics	14.86%
Big Data	10.24%

Share of global patent applications held by EU27

Data dashboard Technology Centre Mapping Technology Watch Policy Briefs Sectoral Watch Product Watch International Reports EU Reports

ATI Overview of tools

Advanced Technologies for Industry:

- Data dashboard
- Mapping of technology centres
- ATI Technology watch
- ATI Sectoral reports
- EU and international reports
- Policy briefs
- ATI Product watch

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

ATI reports – policy briefs



The policy briefs analyse an example of national and regional policy measures focused on a specific policy challenge, technological area or mode of implementation.



They explore policy tools that have been designed and implemented to foster the generation and uptake of advanced technologies.



Twin policy challenges of our times



GREEN TRANSITION

The European Green Deal is Europe's new growth strategy.

At the heart of it is the goal of becoming the world's **first climate-neutral continent** by 2050.

- Advanced (digital) technologies radically transform industrial value chains, business models, production facilities and society.
- **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).
- **But, if not properly implemented**, the positive effects **can be offset by negative side effects** such as the drastic increase of energy consumption.



DIGITAL TRANSITION

Digital technologies are changing the face of industry and the way we do business.

They allow **economic players** to be more proactive, provide workers with new skills and support the decarbonisation of our economy.

Impacts of digital technologies on the environment

Positive impacts

- *Efficiency improvements:* Smart energy infrastructure based on the Internet of Things can optimise energy consumption and help avoid unplanned downtime, e.g. adapting street lighting to real requirements.
- *Monitoring products and material flows:* Digitalisation enables remote monitoring of air and water pollution, deforestation, energy and material consumption. They support the creation of digital passports and transparent supply chains of products.
- *Enhanced decision-making:* Artificial intelligence can strengthen climate predictions, enable smarter decision-making for decarbonising industries from buildings to transport, and work out how to allocate renewable energy.

Negative impacts

- *Energy need:* Data storage, data processing and AI algorithms consume immense energy. Data infrastructure, as the key building block of the digitalised world, accounts for approximately 2% of global electricity consumption. IEA (2018). World Energy Outlook
- *Demand for critical raw materials:* The need for critical raw materials in digital products is significant.
- *E-waste:* The growing waste of discarded electrical and electronic equipment represents a hazard for the environment and our health.

Coupling digital and green policy objectives

- Circular economy and digital policies go in parallel rather than being explicitly connected although there are interesting initiatives and a growing understanding of the interlinkages between them.
- The areas where digital and sustainability are most often coupled relate to energy efficiency, and resource efficiency (smart cities, smart mobility).
- The use of artificial intelligence, blockchain and sensors appears among the referenced opportunities which can help monitoring, trace origins and secure quality and efficiency.

	Industrial strategy	Digital strategy	Circular economy strategy	Policy measures
 Austria	Energy efficiency		Track and optimise resource use and strengthen connections between supply-chain actors through digital, online platforms and technologies.	
 Czechia	Reuse of waste			
 Denmark		Smart City solutions and role of data		Digital circular options and data
 Finland	Sustainable economic growth	Intelligent energy, climate neutral industrial processes and smart mobility		Database to enhance the circulation of materials
 France	Digitalisation of mobility services	Smart cities Ecological mobility New materials Green chemistry	Enabling networking, access to information and data for citizens, support for decision-making and the production of new services	
 Germany	Energy transition			Environmental Digital Agenda
 Italy	Resource efficiency			Technologies for Living Environments Borghi di futuro
 Netherlands	Resource efficiency and raw materials	Flexible energy systems	Blockchain and the sharing economy, smart cities, industry and mobility	Energy optimisation Precision farming
 Spain	Ecological transition Boosting energy efficiency		Using digital technologies to increase the flexibility of productive processes and resource efficiency	Innovation projects Cluster policy (eg. Basque Aclima cluster)
 Sweden	Renewable material, energy, sustainable mobility		Resource efficiency	AI for energy Green data centres

Policy measures - examples

- **Research and innovation programmes fostering responsible digitalisation:** Austria: COMET Competence Centres; Italy: Cross-Tech Hub, SBIR pre-commercial public procurement competition in the Netherlands
- **Energy solutions:** Sweden, Germany, France: green data centres through sustainable energy, Eureka SENDATE data centres
- **Smart cities and clusters:** Italy: regional and local ecosystems for technologies and the environment, Spain: Basque Environmental Cluster and Environment 4.0
- **Monitoring resource consumption:** Denmark: supporting digital circular options by commercial use of data, Finland: data to enhance circulation of materials
- **Fostering voluntary industrial initiatives:** Estonia: AI-enhanced forestry

Thank you for your attention

<https://ati.ec.europa.eu>