

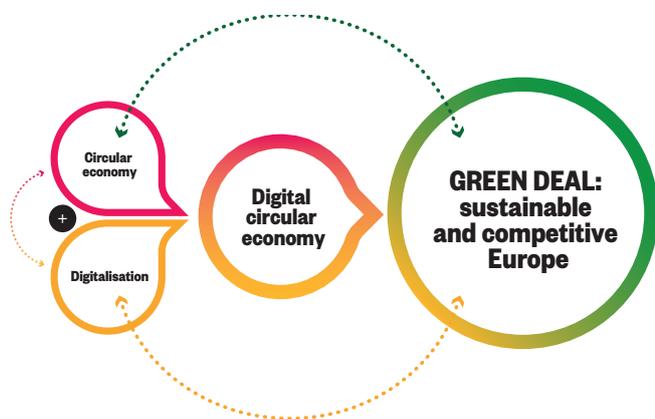
# The digital circular economy

## A driver for the European Green Deal

### Main findings of the EPC Task Force “A digital roadmap for a circular economy”

#### THE RATIONALE FOR ALIGNING DIGITAL AND CIRCULAR AGENDAS

Europe is facing an enormous challenge. The ongoing climate and environmental crises are threatening the planet, people’s well-being and business prospects. Moreover, global competition over resources is getting fiercer and European players are constantly being put to the test. Two ongoing transitions – the circular economy (CE) and the digital revolution – have the means to address these challenges. Until now, these transitions have been pursued separately. Combined, however, they hold the power to transform our economy and society.



The EU and national policymakers are making major efforts to promote circular and digital transitions. These are also reflected in the European Commission’s call

for a European Green Deal and its related initiatives for a CE, industrial action and a digital agenda. It is essential to ensure that these efforts are fully aligned to help the EU to become climate-neutral by 2050 and contribute to long-term and sustainable economic, social and environmental prosperity, in line with the Paris Agreement and the UN’s Sustainable Development Goals. Combining circular and digital agendas – resulting in a digital CE – should contribute to mitigating climate change, addressing environmental challenges like resource depletion and pollution, enhancing industrial modernisation, increasing competitiveness and innovation and supporting social cohesion. In a nutshell, achieving the European Green Deal.

Europe is off to a promising start: European businesses are global leaders in developing digital, innovative solutions for greater sustainability. Nevertheless, much potential is yet to be uncovered. EU leadership is fundamental for the enhancement of the creation of a data economy and the development, deployment and scale-up of sustainable, digitally-enabled solutions that are necessary for a more sustainable CE. This would bring multiple benefits. It would focus the EU’s digitalisation efforts to solve its greatest climate, environmental and societal challenges. Europe would gain a competitive advantage in providing the global market products and services for a CE that are increasingly in demand outside of the EU, too. However, to succeed, the EU must create the conditions in which Europe, its industry, member states and citizens can contribute to and benefit from the transition.

## DIGITALISATION WITH A PURPOSE

Digitalisation should not be seen as a goal but the means to achieve the EU's aim of creating a sustainable and competitive economy that benefits from more efficient use of resources.



If adequately steered, data and digitally-enabled solutions like digital platforms, smart devices, AI, 3D-printing, digital twins, IoT and blockchain can accelerate and boost the transition to a sustainable CE. They can help enhance connectivity and information sharing; make business models, products and processes more circular; and empower citizens and consumers to contribute to the transition by increasing their awareness and enabling them to make sustainable choices and co-create knowledge. They can improve different segments of the CE, including the use of natural resources, design, production, consumption, reuse, repair, remanufacturing, and overall waste management, including recycling, thus fostering dematerialisation. While helping to accelerate change in the economy and society, they can also improve the implementation of policies for a digital CE.

However, digitalisation will not automatically lead to greater sustainability. In fact, if it is not guided well, it may result in unwanted rebound effects, such as overdrive of a linear take-make-dispose economy and an increase in GHG emissions. It is in the EU's interest to ensure that digitalisation contributes to achieving its sustainability objectives and that the ICT industry and technologies (e.g. blockchain) become more sustainable.

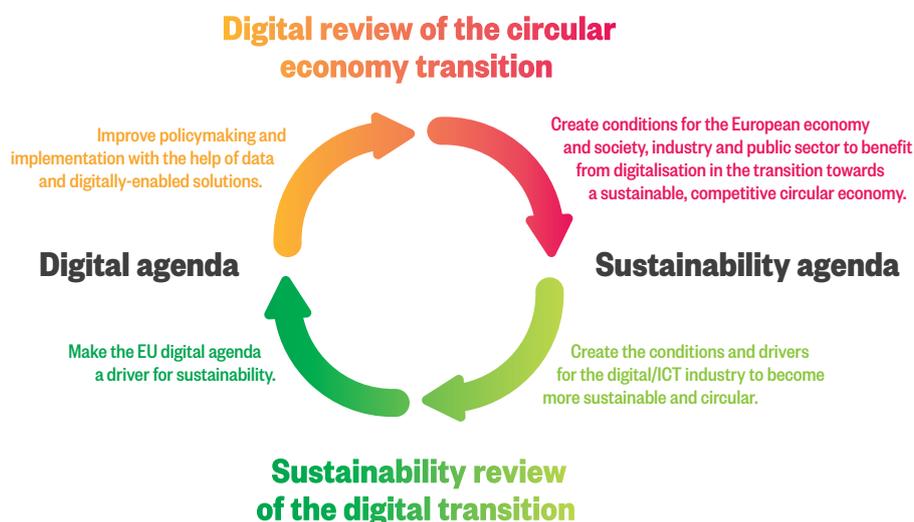
## Recommendations for the EU institutions

### 1. DEFINE A VISION AND ACT ACCORDINGLY

- 1.1. **Set a goal to make the EU a global leader** in utilising data and digitally-enabled solutions in achieving a sustainable CE.
- 1.2. **Define a vision for achieving a digital CE** where the value of products and materials is maintained for as long as possible and resources are used sustainably with the help of digitalisation. This

should entail maximising the value of data, and developing and deploying sustainable digitally-enabled solutions to improve products, services, production (e.g. design) and consumption patterns.

The vision must align with the SDGs and EU's climate commitments under the Paris Agreement – to become climate-neutral by 2050 – while contributing to the creation of a more innovative, competitive and socially-cohesive Europe. The transition must happen within



the limits of our planet while creating added value for the European economy and society and the conditions for European industry to lead the transition. The implementation of the Green Deal, including new CE, industrial action, environmental policy and digital agenda initiatives, should reflect this vision.

- 1.3. Tap into the synergies between the digital and circular agendas by carrying out a **digital review of the CE transition** and a **sustainability review of the digital transition**.

## 2. USE GOVERNANCE, POLICIES AND REGULATION TO PROVIDE A FRAMEWORK FOR ACTION

- 2.1. **Review the required data and indicators** for achieving a (digital) CE and update the monitoring framework for CE as well as the digital, consumer conditions and Single Market scoreboards accordingly.

- 2.2. Develop a joint dataspace for a CE that incentivises and enables **fair access to and sharing of data/information**.

- ▶ Ensure that under the revised Directive on open data and re-use of public sector information, **public data** that is pertinent for the transition to a CE is free and accessible without compromising data privacy interests. Encourage public administrations to provide businesses with practical examples of how data can be made available and shared while respecting GDPR and IPRs.

- ▶ Create an EU framework for a free flow of **non-personal data** that enhances the availability and access to data needed to achieve a sustainable CE and encourages innovative circular business models.

- ▶ Develop **guidelines for the tracking** of products, materials and substances across value chains while using lessons learned. They should be made feasible, with a set of minimum criteria for sharing data. They should balance between safeguarding companies' commercial and strategic information and providing, for example, consumers and waste operators access to needed information on a product.

- ▶ In the short term, 'coalitions of the willing' in the private sector should be encouraged to improve information sharing on the principle of freedom of contract (i.e. parties agree on the terms and conditions). By 2030, the long-term aim must be to establish a **standardised EU system for information sharing** across value chains that ensures both 'data sharing' and 'data protection' in B2B and B2C markets (via e.g. blockchain-enabled solutions). This could serve as a basis for the development of electronic product passports.

- 2.3. Explore how data and digitally-enabled solutions could be used, on a case-by-case basis to improve **extended producer responsibility (EPR)** schemes. The aim should be to foster trust and the sharing of relevant information between stakeholders on

materials and products to enable their sustainable use, reuse, repair and recycling, and minimise their environmental and climate footprint.

- 2.4. Ensure that **ecodesign** rules and principles contribute towards and benefit from a (digital) transition to a (digital) CE. Building on systemic assessments, the Commission should explore the possibilities of integrating digital tools (e.g. tags) into products to support information sharing in the value chain. Based on existing scientific evidence, it should consider the introduction of new product requirements and guidelines – including for new product categories on a case-by-case basis (e.g. ICT) – which support the design of sustainable circular products.

- 2.5. The upcoming review of the **e-Commerce** Directive must support a transition to a sustainable CE. Some of the major points to consider include enabling trade in secondary raw materials and used products, providing access to repair services and enforcing compliance with the EPR rules.

- 2.6. Reduce barriers that hinder the development and deployment of **digitally-enabled services** and new circular business models (e.g. 'servitisation') that can foster dematerialisation. Issues to consider are standards, service fees, geo-blocking, procurement and taxation rules.

- 2.7. Facilitate the **public procurement (PP)** of digitally-enabled circular solutions. The rules should not favour goods over (digital) services. Life-cycle costs and environmental and social sustainability impacts should be considered.

- 2.8. Facilitate legal **waste shipments** within the EU and put an end to illegal ones with the help of digitally-enabled solutions (e.g. finalise the harmonised electronic notification procedure).

## 3. USE ECONOMIC INSTRUMENTS TO ENCOURAGE AND ENABLE THE TRANSITION

- 3.1. **Consolidate the EU's financial tools**, including those under the 2021-2027 MFF, to support the development and deployment of innovative digitally-enabled solutions for the CE. EIB financing, the Important Projects of Common European Interest framework and ETS Innovation Fund should be used to leverage further private and national funding.

- ▶ EU investments in existing and emerging digitally-enabled solutions should be made **conditional** and contribute to sustainability and circularity goals. The aim should be to make digital/ICT industry more sustainable while using the solutions to accelerate change towards a sustainable CE.

- ▶ Invest in **digital infrastructure** for connectivity and Internet coverage, as well as cybersecurity measures to ensure that businesses and consumers are safely connected and benefit from digitally-

enabled solutions for a CE, both within and outside of urban areas.

- ▶ As the EU implements its industrial, CE and digital strategies, it must create the conditions for a **sustainable industrial transition**, helping the industry to reduce its environmental/climate footprint and develop and deploy solutions for a sustainable digital CE.
- ▶ Support the **public sector's** application of digitally-enabled solutions (e.g. robotics, asset tracking) to improve resource and waste management and reduce waste.
- ▶ Ensure that citizens, workers and SMEs have the necessary **digital skills** to contribute to the transition by building on existing initiatives (e.g. New Skills Agenda for Europe). The Cohesion Fund should especially be used to address the growing digital gap in Europe.

### 3.2. Create a market for existing and emerging digitally-enabled solutions for the CE.

- ▶ **Promote PP** as an investment and innovation tool at the EU, national and subnational levels.
- ▶ Explore and share good practices on **taxation and other fiscal incentives**.

## 4. STRENGTHEN PARTNERSHIPS AND EMPOWER CITIZENS

4.1. Use existing **stakeholder platforms** to increase the awareness of member states, subnational authorities, academia and businesses on the interlinkages between digitalisation and the CE. Use them to convene intelligence and facilitate the scaling up of existing solutions. Showcase good practices within the private (e.g. improving design, business models and industrial symbiosis with digitally-enabled solutions) and public sectors (e.g. using PP and tax

incentives to encourage development and deployment of innovative solutions). Encourage businesses to exchange on required standards and means to improve information/data sharing.

- 4.2. Increase **citizens' and consumers' trust** in new digitally-enabled solutions. Engage with them on the benefits of data exchange, and using digitally-enabled solutions for the environment/CE, and safeguarding ePrivacy.
- 4.3. Use **global fora** such as the WTO and OECD to showcase political leadership and promote global collaboration in the (digital) transition to a (digital) CE:
  - ▶ Adopt a set of **global ethical and sustainability guidelines** for emerging technologies (e.g. AI). Europe's global approach should build upon the work of the High-Level Expert Group on AI.
  - ▶ Establish **international norms for sharing information** across global value chains, building upon existing international standards and databases.

This handout builds on the findings of the EPC project "Digital Roadmap for a Circular Economy", which between 2017 and 2019 explored the linkages between digitalisation and the CE, the opportunities created by data and digitally-enabled solutions, and the challenges associated with harnessing their full potential for the transition to a CE. Beside the key findings in the handout, additional findings of the DRCE project are provided in the Discussion Paper "Creating a digital roadmap for a circular economy" and a book on the digital circular economy. The project has been kindly supported by Aalto University and the Natural Resources Institute Finland (Luke) (members of Helsinki EU Office), Central Denmark Region, EIT Climate-KIC, the Estonian Ministry of the Environment, Estonian Environment Investment Centre, HP, Orgalim – Europe's Technology Industries, the province of Limburg, UL, Fondazione Cariplo and Cariplo Factory. This handout is endorsed by these project partners.



With the strategic support of  King Baudouin Foundation  
*Working together for a better society*

 With the support of Europe for Citizens Programme of the European Union