

Technologies supporting Circular Economy in achieving United Nations SDGs

Standards and Regulatory Frameworks



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How Digitalization can support the Transition to a Circular Economy

**Opportunities
vs
Challenges**



**CIRCULAR
ECONOMY**



Link between Circularity and Digitalisation

Digital Technologies as a critical enabler
for attaining sustainability goals

**Establish a Connection
between Digital and Circular
Economy Policies**

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



The Strategic and Legislative EU Frameworks for Circularity & Digitalisation

Circularity

Circular Economy Action Plan
2020

Waste Legislation
2018

Chemical Strategy for Sustainability
2020

Digitalisation

Digital Strategy
2020

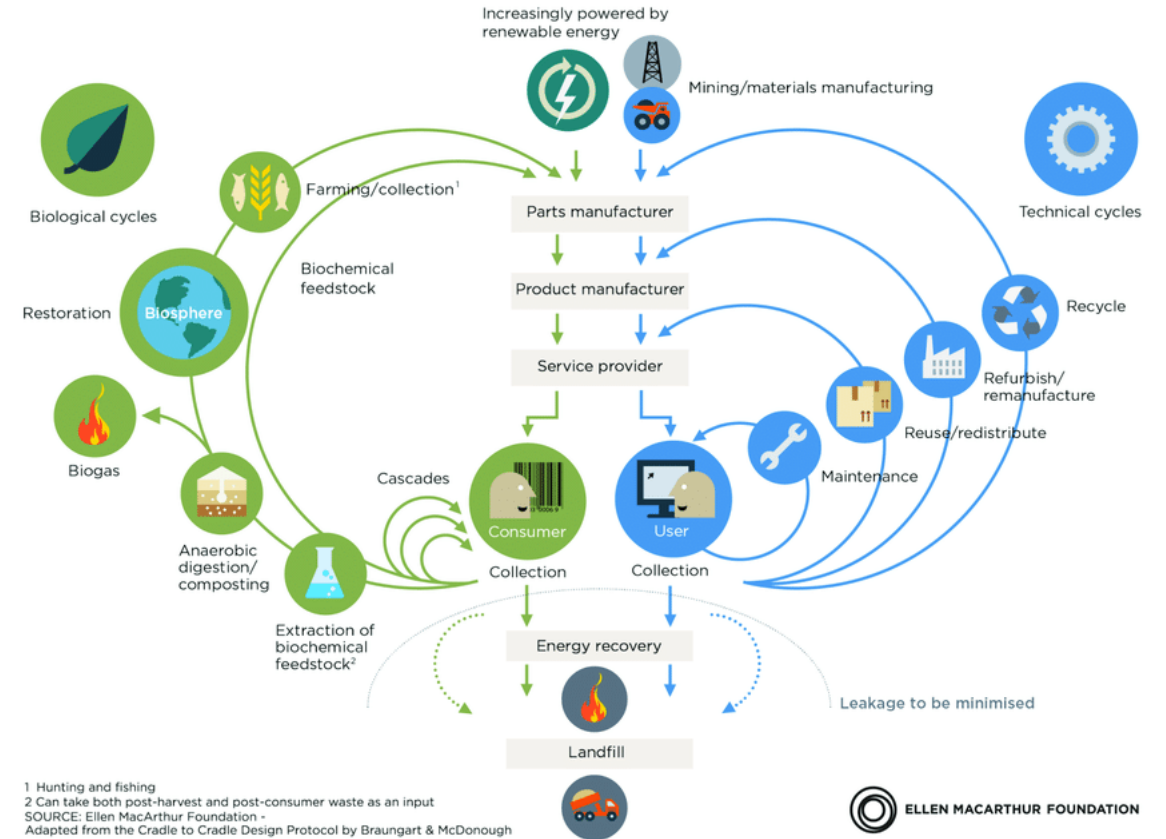
European Data Strategy
2020

White Paper on Artificial Intelligence
2020

EU Circular Economy Action Plan

Role of Digitalisation

- ❑ Enable Information to Travel across a Value Chain
- ❑ Make Business Models, Products and Processes more Circular
- ❑ Empower Citizens and Consumers to Make more Sustainable Product Choices



EU Waste Legislation

Waste Directive 2008/98/CE

Landfill Directive 1999/31/CE

Packaging and Packaging Directive 2005/20/CE

as Amended by Directives 850/851/852 of 2018

Waste as a Resource

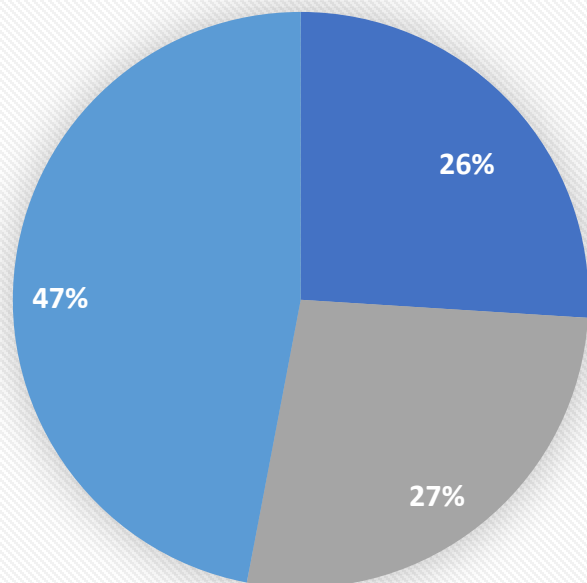
Transition to more
Sustainable Material
Management

COVID-19 Pandemic

- Challenges in Waste Management
- Status of Laws, Regulations and Policies
- Advanced Technologies for the COVID-19 Recovery

Digitalisation of Municipal Waste Management

Current Average European Baseline for Municipal Waste
How can it be further Improved?



■ waste landfilled ■ waste incinerated ■ waste composted or recycled

34% Packaging Recycled

47 Millions Tons Food Waste

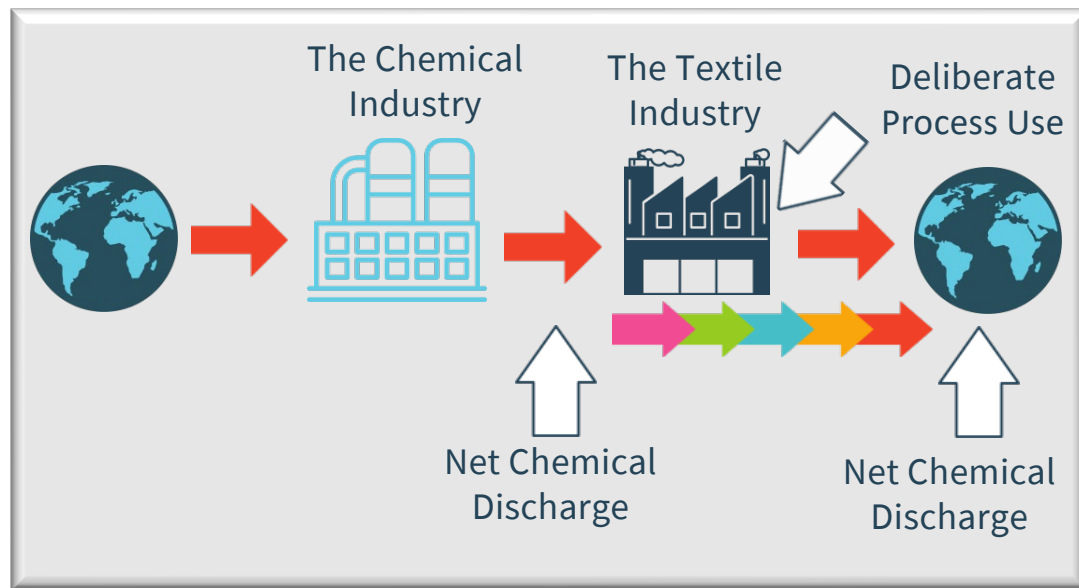


EU Chemical Strategy for Sustainability

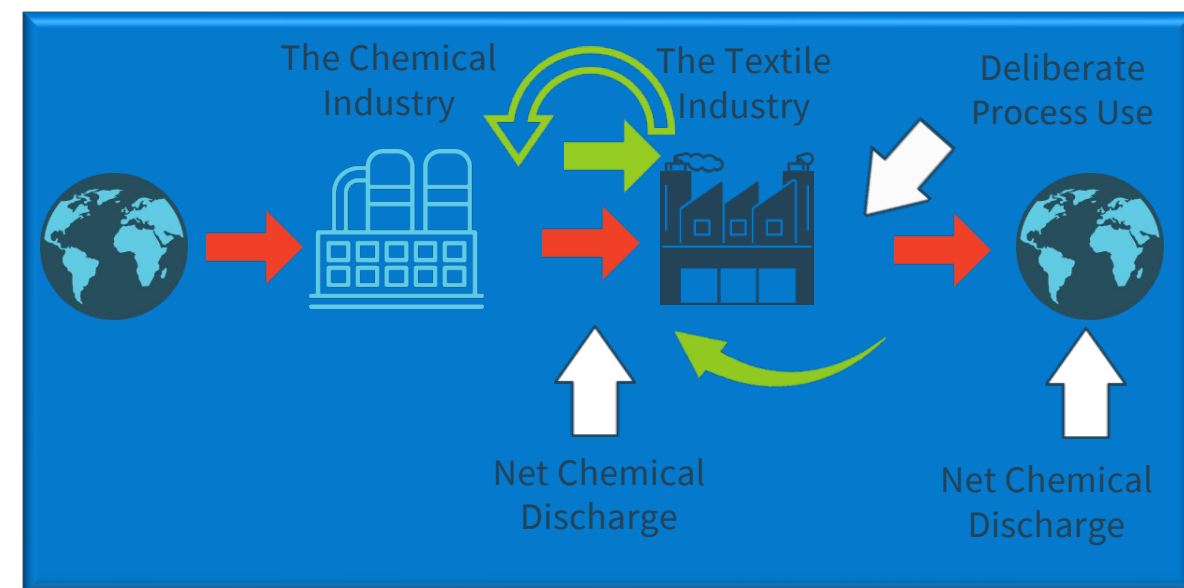
Encourage Innovation

Promote

- The development of safe and sustainable chemicals and materials, **clean production processes and technologies**, **innovative tools for testing and risk assessment**
- Modern and smart production processes, safe and sustainable uses and businesses models, **chemicals as a service**, **IT solutions for tracking chemicals**
- Safe and clean recycling solutions including chemical recycling, **waste management technologies**, decontamination solutions



Linear Single Use Model



Non-Linear Single Use Model

Digital Strategy

- European Data Strategy
- White Paper on Artificial Intelligence

OECD Council Recommendation on Artificial Intelligence

Principles

- Inclusive Growth, Sustainable Development and Well-Being
- Human-Centred Values and Fairness
- Transparency and Explainability
- Robustness, Security and Safety
- Accountability



Examples of National Digital and Circular Economy Policies

- German Environmental Digital Agenda and «Natural Digital Sustainable» Action Plan
- Finland Digital Framework
- Dutch Circular Economy Strategy
- Italian National Strategy for the Technological Innovation and Digitalisation of Italy 2025 and Industry 4.0 Action Plan



Initiatives fostering Circular and Sustainable Solutions through Digital Technologies

Blockchain Pilot under the UNECE Project

Enhancing Transparency and Traceability for
Sustainable Value Chains in Garment and
Footwear

**Implementing a Blockchain Technology for Traceability and Due Diligence in the
Cotton Value Chain in support of a Circular Economy**

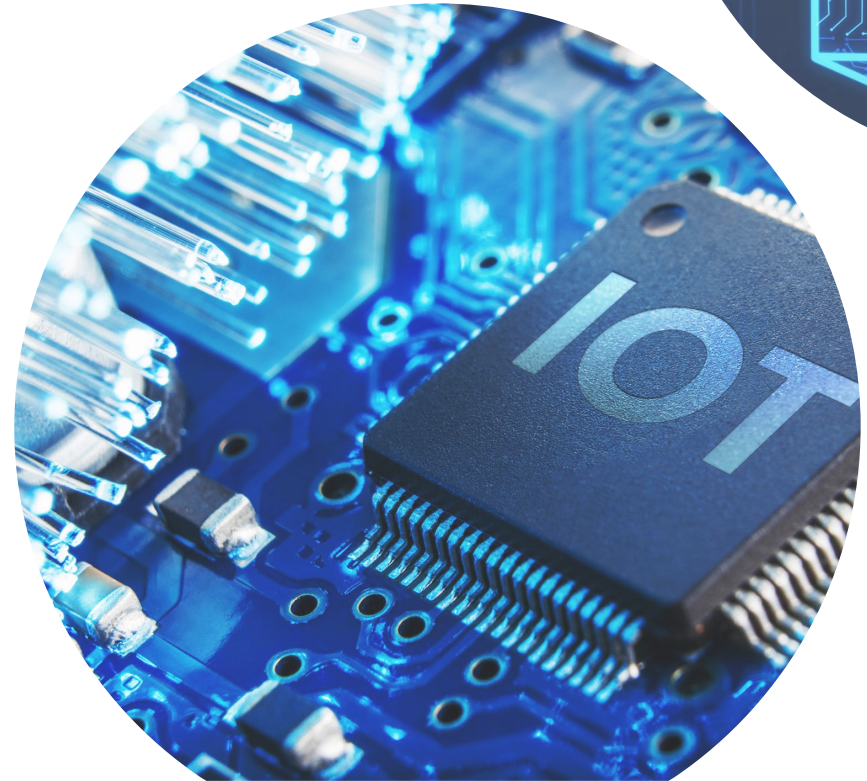
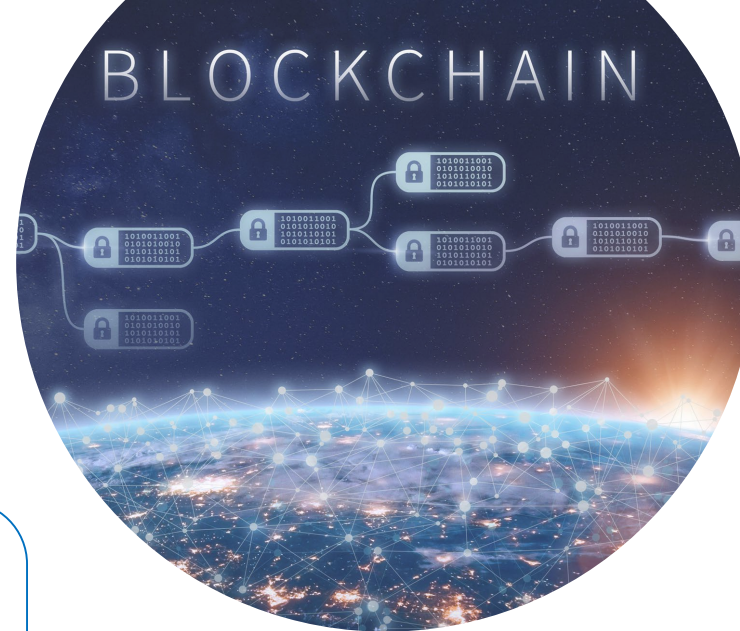
Key Advanced-Technology Challenges & Recommendations

Challenges

- Lack of Standards and Regulations
- Lack of Incentives
- Environmental and Social Impacts
- Implementation Costs

Recommendations

- Create Sustainability Standards and Regulatory Frameworks
- Harmonize Different Policy and Regulatory Frameworks
- Provide Incentives focusing on SMEs
- Leverage Initiatives that already Exist



How to Create a Circular Digital Economy

We Need

- Digital Agenda
- Sustainability Agenda





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Thank you!