Technologies supporting Circular Economy in achieving United Nations SDGs

Standards and Regulatory Frameworks

Claudia di Bernardino

Lawyer

UN/CEFACT project legal expert “Enhancing Transparency and Traceability for Sustainable and Circular Value Chains in the Garment and footwear Sector”
How Digitalization can support the Transition to a Circular Economy

Opportunities vs Challenges
Link between Circularity and Digitalisation

Digital Technologies as a critical enabler for attaining sustainability goals

Establish a Connection between Digital and Circular Economy Policies
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

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?

- 26% waste incinerated
- 47% waste composted or recycled
- 27% waste landfilled

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

Net Chemical Discharge

Deliberate Process Use

The Chemical Industry

The Textile Industry

Non-Linear Single Use Model

Net Chemical Discharge

Deliberate Process Use

The Chemical Industry

The Textile Industry

Net Chemical Discharge

Net Chemical Discharge
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
Thank you!