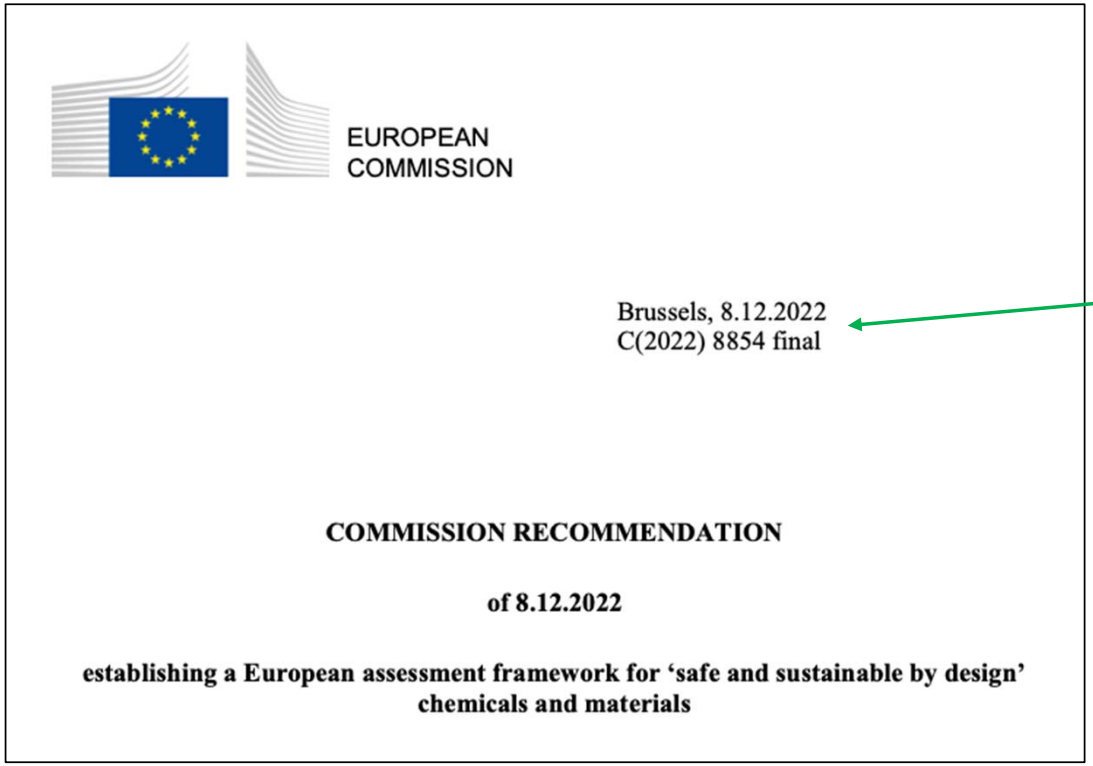
# Building Safe-and-Sustainable-by-Design Community in Electronics

**Dmitri Petrovykh, Corporate Expert**

**International Iberian Nanotechnology Laboratory (INL)**

# Safe and Sustainable by Design (SSbD)

## Regulatory Motivation and Timeline



EUROPEAN
COMMISSION

Brussels, 8.12.2022
C(2022) 8854 final

**COMMISSION RECOMMENDATION**

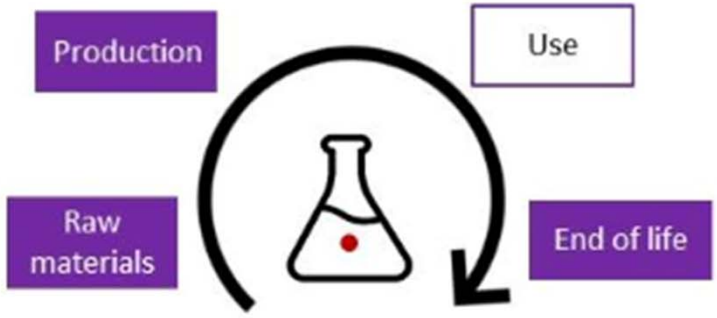
**of 8.12.2022**

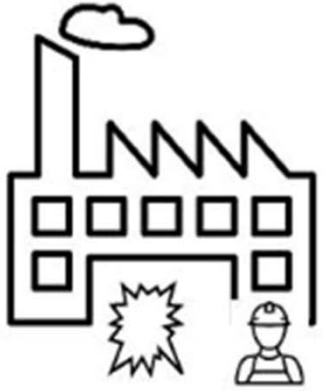
**establishing a European assessment framework for 'safe and sustainable by design' chemicals and materials**

This EC Recommendation started 2 years of the consultation process

# Safety and Sustainability Assessment

## Human H&S during production and processing

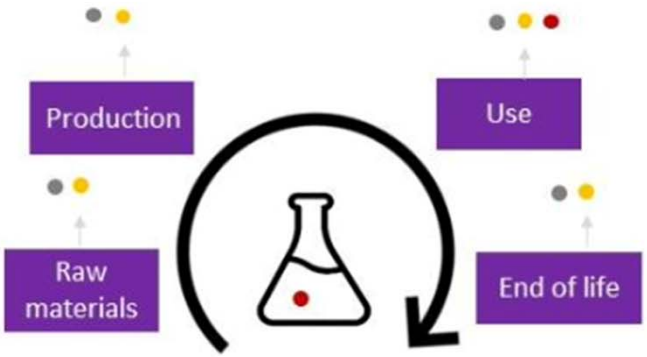


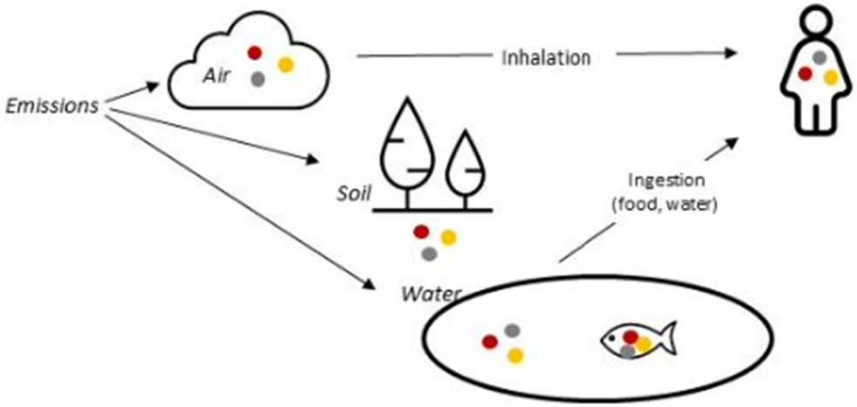



- **Raw Materials**: multiple critical raw materials in electronics
- **Production**: safety well controlled at advanced facilities
- **End of Life**: much of electronic waste is exported to low-income countries

# Safety and Sustainability Assessment

## Environmental impacts throughout the life cycle




- **Significant** environmental impact at all LC stages of electronics
- **Positive contribution** by enabling green/digital transition

# Challenges for Electronics in SSbD

## Unique features of electronics value chain

- Current framework refers to “chemical or material”
  - Chemical industry has a long history in safety and sustainability
  - Initial thinking about SSbD is strongly influenced by chemicals
- For example: impact or resources calculated per kg of product
  - 1 kg is a lot of chips!
  - Such metrics are poorly matched to semiconductor production

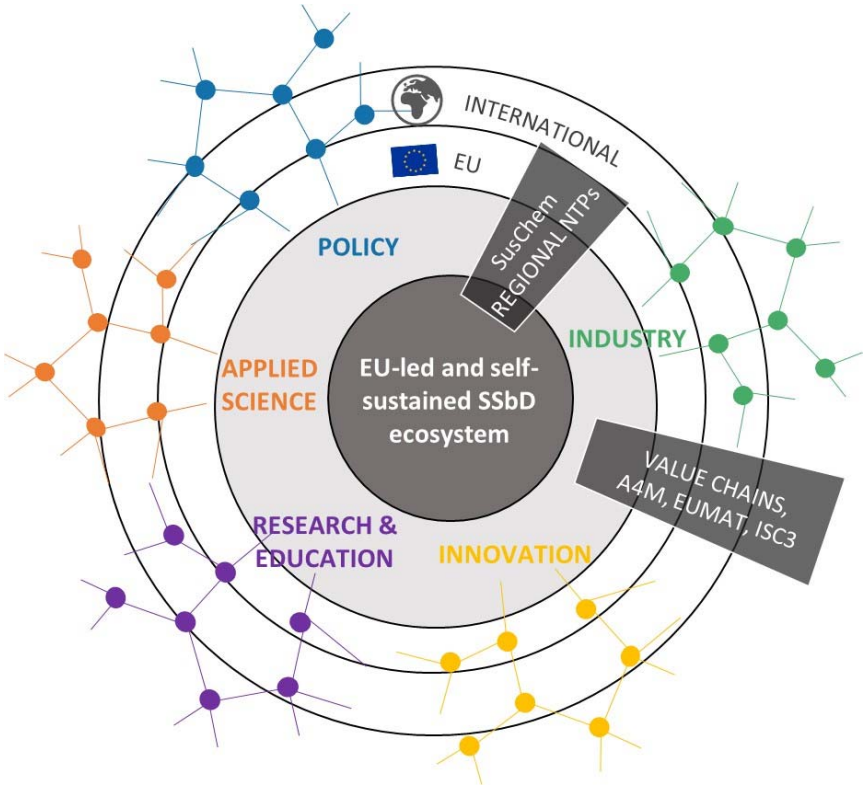
# Challenges for Electronics in SSbD

## More examples of unique features in electronics

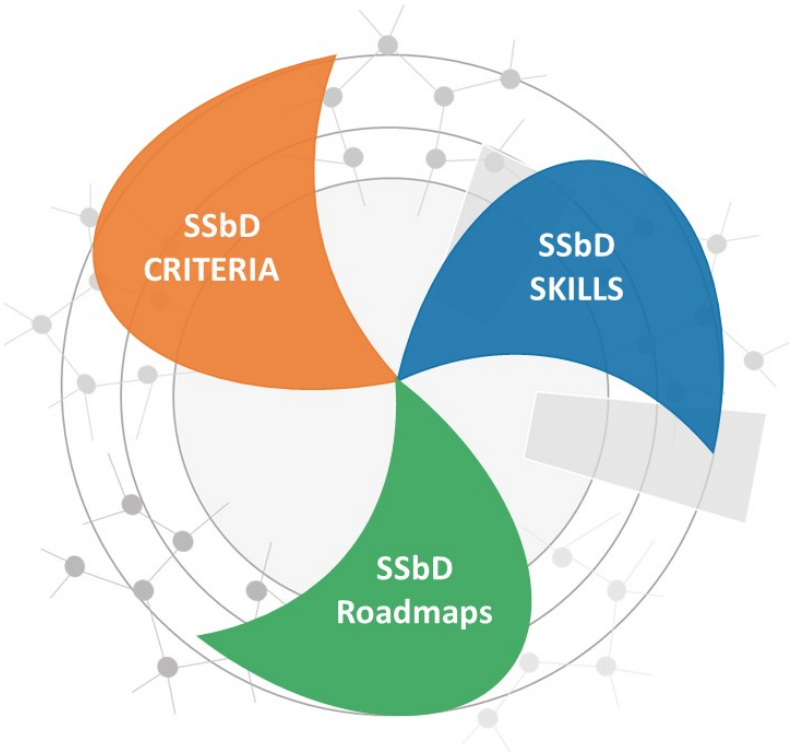
- Most impact is from materials transformation, not final product
  - By weight, electronics is often a minor part of products
  - Absolute consumption of raw materials is relatively low
  - Production requires significant energy, water, waste abatement
- Economics require increase in performance and quantity of chips
  - Moore's Law provides goals for electronics R&D and marketing
  - Strong consumer expectations of increased performance of devices

# IRISS Consortium

## Assistance for SSbD planning



# IRISS and Value Chains




- Roadmaps that ensure alignment between R&D, governance, and industry
- A common mechanism to engage, mobilize, and bring together diverse stakeholders
- Value chains in IRISS project:
  - **Electronics**
  - Packaging
  - Textiles
  - Construction
  - Automotive
  - Energy

# Get in Touch with IRISS

- Electronics Value Chain PoC

  Dmitri Petrovykh, *INL*

  dmitri.petrovykh@inl.int

- IRISS Project Coordinator

  Emma Strömberg,

  *IVL Swedish Environmental Research Institute*

  iriss@ivl.se

www.iriss-ssbd.eu

#IRISS_SSbD

IRISS – International SSbD network

Project IRISS receives funding from the European Union's HORIZON EUROPE research and innovation programme under grant agreement n° 101058245

UK participants in Project IRISS are supported by UKRI grant 10038816

CH participants in Project IRISS receive funding from the Swiss State Secretariat for Education, Research, and Innovation (SERI)


*This project has received funding from the European Union's Horizon Europe research and innovation programme under GA N° 101092562*