

# Sustainable Products Initiative

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## Introduction

The “European Green Deal” is the EU’s vision for ensuring a prosperous future for the European Union region in economic, environmental and social terms. To achieve its goal of constructing a modern, globally competitive, climate neutral and circular economy, as well as considering the unprecedented effects of the COVID19 crisis, the EU envisages a twin ‘green and digital’ transition.

The March 2020 Circular Economy Action Plan (CEAP) is a cornerstone of this twin strategy providing a roadmap for achieving a cleaner and more competitive Europe. The CEAP targets achieving 2030 climate and energy efficiency goals, climate neutrality by 2050 and ensuring economic prosperity without being held hostage to environmental, social and climate impacts.

The Sustainable Product Initiative (SPI) is a key legislation within the CEAP and aims to make products manufactured and traded in the EU region ‘fit for a climate neutral, resource efficient and circular economy, reduce waste and ensure that the performance of frontrunners in sustainability progressively becomes the norm’. The SPI will repeal the existing legislation on this front- called the Eco-design Directive. The latter is to be widened beyond energy-related products and make it applicable to the broadest possible range of products. The SPI will go hand in hand with other initiatives announced in the CEAP, with the initiative on empowering consumers for the green transition and the initiative on the substantiation of environmental claims using product and organizational environmental footprint.

The SPI regulation will address the mechanisms for setting eco-design requirements such as product durability, reusability, upgradability and reparability, the presence of substances of concern in products, product energy and resource efficiency, recycled content of products, product remanufacturing and high-quality recycling, and for reducing products’ carbon and environmental footprints.

## TCS’ Vision on SPI

At TCS we believe that the Sustainable Products initiative is a major opportunity to ensure that products designed, manufactured and traded in the EU region set a global norm for realizing a truly circular economy. Technology will be at the center of supporting durability, reusability, upgradability and reparability standards.

### 1. Repairability by Design

Repairability must be embedded in the design consideration to make it easier to dis-assemble and repair. The design must not be complex from the point of view of assembly or repair. Modularity of products must not be only from a point of view of assembly and construction of product but also in terms of repairability, i.e., modular assembly should allow access and replacement of parts, especially for components that are prone to failure. Examples of this are using removable fasteners instead of adhesives, parts that are most likely to fail should be the most accessible to remove, incorporating less complex, or modular designs, etc. Obsolescence by design or other such anti-repair behavior must be controlled.

Repairability by design would include ‘designing’ in access to the required specifications and design documents by the repairer. Repairability by design would include End of life (EOL) protocols for dismantling as well as legal protocols for sale of parts with certification. Digital passports tagged to products or components thereof will help in designating the critical parts

that must be made repairable and the protocols for it. This will be an invaluable technological means to advance circular economy goals, applied across a product lifecycle.

#### **Supporting technology**

- Data Modelling / Simulation platforms can be used when designing products to simulate working in real time
- Incorporating axiomatic design principles in the analysis and design process in the simulation platform will allow for inclusion of eco-factors into the design process as functional requirements and design parameters.

## **2. Access to defective/End of Life parts**

Access for replacements to defective or End of Life (EOL) parts must be accessible to the cross-industry ecosystem as well as the manufacturer's own ecosystem. To scale repairing for extending product life governing bodies need to have access to ecosystem which handles defective, end of life parts from multiple industries so that it can be disassembled for recycle/upcycle. Digital platforms will help qualify recommend, certify, repair and network- this must become a key part of OEM ecosystem. These will function as 'digital marketplaces' but governed by 3<sup>rd</sup> party accreditation and industry standards.

A clear guideline on classifying a part as repairable, recyclable or discarded can help in enabling 2nd life and responsibly disposing EOL parts. There must be access to a fault / repair database across the ecosystem to facilitate decisions on design feasibility. Common replacement techniques as well as tools and schematics would be a part of this.

There must be legal protection and clarity on liability and IP issues to make the above possible, including third-party access to OEM parts. Accreditation bodies can provide independent standards to support this.

#### **Supporting technology**

- Track and trace solutions and analysis supported by IoT sensors and platforms
- RFID and RTLS to signal repair / replacement requirements in real time
- Blockchain-based ecosystem developed by OEM's for publishing guidelines and supporting decisions on repairability and consequent actions for relevant players in the value chain.

## **3. Enable Seamless Repair**

Seamless repair is about making repair activities beneficial for planet, consumers and everyone involved in that ecosystem by making repairs sustainable and reliable.

Access to relevant data to anticipate, signal and identify repairs is critical to making seamless repair successful. Equally and critically, access to the tools and the skillsets required for enabling seamless repair must be designed into the product through the length of its lifecycle.

#### **Supporting technology**

- XR & Immersive technology supported by the attendant ecosystem

- Digital Twin technology will support testing and collection of data. Digital Twin Technology can be used to simulate finishing of products, access to specifications and critically also the access to required skillsets
- 3-D printing technology will provide access to spare parts as well as tools to enable decentralization of the repair process

#### 4. Consumer behavior

The SPI must include measures to extend product life cycles by incentivize appropriate consumption and repair behavior on the consumer side. For this tracking of repair rates at an industry level or other measures to estimate the footprint of repair behavior would be important.

Consumer purchase behavior could be used to predict requirement of parts by manufacturers. Maintaining contact with products/ assets once sold– and incentivizing customers to keep the contact as well as adopt appropriate EOL behaviors through warranty schemes etc. these are aspects that will be supported by technology.

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