

EU- ESPR and a Systemic Perspective on Barriers to Longer Product Lifetime



PhD SDC
SUSTAINABLE DEVELOPMENT
AND CLIMATE CHANGE



Finanziato
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PIANO NAZIONALE
DI RIPRESA E RESILIENZA

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“Well-being In a Dematerialized Economy (WIDE)”

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- Europe – 2.2 Billion tones waste in 2022 (EU Commission, 2024)

• **4 991 kg per capita**





Obsolescence

Product is no longer in use or is outdated (Butt, 2015)

Premature Obsolescence

Acceleration of Obsolescence by supply side strategies

What we did



CRITICAL ANALYSIS AND
DISCUSSION OF
LITERATURE



SETUP OF A FRAMEWORK



ANALYSIS OF EU POLICY

Literature Review

- **Obsolescence Types & Definitions :** (Jürgen Bertling et al., 2014; Keeble, 2013 ; Feldman & Sandborn, 2008; Guiltinan, 2009; Satyro et al., 2017; Mellal, 2020; Proske & Jaeger-Erben, 2019; Butt et al., 2015)
- **Consumer and Business Interviews:** (Cooper, 2004)
- **Lifetime of products expected vs actual:** (Cooper, 2004)
- **Barriers to long product lifetime:** (Jensen et al., 2021; Vermunt et al., 2019; Cooper & Salvia, 2017; Nazlı, 2021)
- **Simple policy overview:** (Maitre-Ekern, 2016; Polverini, 2021; Chevanaz, 2024; Hughes, 2017; Milios, 2018; Hartely, 2020; Hartley, 2023; Cordella, 2020; Spiliotopoulos et al., 2021; Puglia 2024)
- **Policy framework and EU policies analysis:** (Milios, 2021; Polverini, 2021)

Policies tackling “Premature” Obsolescence

1. Eco design Directive (Energy labelling Regulation) (2009)
2. CE Action Plan (2020)
3. **Eco-design Sustainable Product Regulation (July 2024)**



Research Question

How does the Eco-design for Sustainable Products Regulation (ESPR) address the systemic interplay of barriers to LPL that contributes premature obsolescence?



Framework

Premature Obsolescence

Types:

1. ***Forced functional*** - product can no longer perform its intended function
2. ***Technical***- product becomes undesirable due to advancements in technology
3. ***Economic***- occurs because of economic factors (financial)
4. ***Symbolic***- consumers view a product as no longer desirable due to a desire for novelty or perceive it as outdated

Barriers to longer product lifetime (Jensen,2021)

Businesses
B1. High cost of changing the business model
B2. Customer rejection of the business model change
B3. High price points of long-lasting products
B4. Vulnerability regarding short, fixed leasing periods
B5. Time-consuming changes in customer perceptions of products and brands

Product Developer
B6. Inability to follow fast-moving trends and fashions
B7. Technological innovation makes long-lasting products obsolete
B8. Change in societal behaviour makes long-lasting products obsolete
B9. Lack of focus on longevity in innovation

Consumer
B10. Short lifecycles promoted by retailers affects user behaviour
B11. Lack of attachment to the products
B12. Barriers to repair products
B13. Customers are partly unaware of material quality/ Lack of product information
B14. Evaluating longevity in a purchase situation
B15. Misperception of modularity in advanced products
B16. Product affordability

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Policy analysis: ESPR

ESPR

Based on Eco-design Directive
2009

Introduced 18 July 2024

Working plan 19th April 2025

1. Expanded Scope – Not
only energy-related
products
(e.g. textiles, ...)

**2. New and Clarified
Requirements** –
Clarification on existing
requirements

3. Horizontal Integration
–requirements
complementing
product-specific measures

**4. Enhanced Product
Information** – Emphasizing
transparency
(e.g. Digital Product
Passport, improved
labelling systems)

ESPR

Support to Business

- Financial support
- Guidance and Training support
- SMEs

Support to Consumer

- Financial support (e.g. incentives-eco-vouchers and green taxation)
- Compensation for damaged products

Information Requirements

- Transparent product data
- Digital Product passport (DPP)
- Environmental footprint details
- Repair and recycling info



Performance Requirements

- Product lifespan and performance consistency (Durable, reliable, reusable, upgradable)
- Ease of repair, maintenance, and refurbishment

Results

Barriers / ESPR Regulations	Support to business	Support to customers	Information requirements	Performance requirements
1. High cost of changing the business model	Direct			
9. Lack of focus on longevity in innovation	Direct	Indirect	Indirect	Direct
12. Barriers to repair products			Indirect	Direct

Barriers / ESPR Regulations	Support to business	Support to customers	Information requirements	Performance requirements
1. High cost of changing the business model	Direct			
2. Customer rejection of the business model change		Indirect		
3. High price points of long-lasting products	Indirect	Direct		Direct
4. Vulnerability regarding short, fixed leasing periods				Indirect
5. Customer perceptions of products and brands	Indirect	Indirect	Direct	
6. Inability to follow fast-moving trends and fashion	Direct	Indirect		Direct
7. Technological innovation makes long-lasting products obsolete				Direct
8. Change in societal behaviour makes long-lasting products obsolete				
9. Lack of focus on longevity in innovation	Direct	Indirect	Indirect	Direct
10. Short lifecycles promoted by retailers affects user behaviour			Indirect	
11. Lack of attachment to the products			Indirect	Indirect
12. Barriers to repair products		Indirect	Direct	Direct
13. Customers are partly unaware of material quality / Lack of product information			Direct	
14. Evaluating longevity in a purchase situation			Direct	
15. Misperception of modularity in advanced products			Direct	
16. Consumer purchasing power for durable products	Indirect	Direct		

Discussion



FUNCTIONAL
OBSOLESCENCE IS
MAINLY TACKLED



TACKLES FINANCIAL &
TECHNICAL
OBSOLESCENCE TO SOME
EXTENT



OVERLOOK
PSYCHOLOGICAL AND
SOCIOLOGICAL ASPECTS



LIMITATIONS IN SYMBOLIC
OBSOLESCENCE



Questions?



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Digital product Passport (DPP)

- DPP complements existing info (manuals, labels); not a replacement
- May include sustainability data from future EU laws
- Actors may update/create DPPs
- DPP based on decentralized systems, registry maintained by Commission

Digital product Passport (DPP)

- SME Support
- DPPs can strain SMEs; support measures proposed
- "DPP-as-a-Service" intermediaries to offer affordable access

- Data privacy ensured –

No selling or misuse of data (Art. 10) DPP Technical Aspects

- DPPs may apply to items, batches, or product models
- Can be linked to intermediate goods or materials
- Access via data carriers (e.g., QR code, watermark) on product, packaging, or docs



Digital product Passport (DPP)

- System Requirements-
- Standardized features: Data carriers & layout
- Unique IDs (product, operator, facility) Access control, data security, interoperability
- Product Passport Registry
- EU Commission to maintain registry of unique IDs
- Linked to EU Customs Single Window Exchange



Digital product Passport (DPP)

- Includes (depending on delegated act):
- Unique product ID & GTIN
- TARIC code
- Compliance documents
- Substance of concern info
- Manufacturer/importer info
- User manuals, eco labels
- Performance & repair guidance
- End-of-life treatment info

ESPR



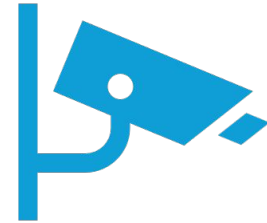
Green Public Procurement (GPP)

Mandatory GPP criteria via delegated acts for public authorities.



Unsold Goods

Transparency on discarded goods; potential bans on destruction for specific products.



Market Surveillance & Customs

Stronger controls, surveillance plans, check targets, and support for joint enforcement.