EUROPEAN
COMMISSION

Brussels, 30.3.2022
SWD(2022) 82 final

PART 1/4

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Accompanying the document

Proposal for a Regulation of the European Parliament and of the Council

establishing a framework for setting ecodesign requirements for sustainable products and repealing Directive 2009/125/EC

{COM(2022) 142 final} - {SEC(2022) 165 final} - {SWD(2022) 81 final} - {SWD(2022) 83 final}

Table of content

1. Introduction 5
   1.1. Political context 5
   1.2.Legal context 6
   1.3.Coherence with other related initiatives 7
2. Problem definition 8
   2.1. What are the consequences? 16
   2.2. What are the problem drivers? 17
   2.3. How will the problem evolve? 19
3. Why should the EU act? 20
   3.1. Legal basis 20
   3.2. Subsidiarity: Necessity of EU action 20
   3.3. Subsidiarity: Added value of EU action 21
4. Objectives: What is to be achieved? 21
   4.1. The intervention logic 22
5. What are the available policy options? 24
   5.1. What is the baseline from which options are assessed? 27
   5.2. What are the policy options? 27
6. What are the impacts of the policy options? 37
   6.1. Introduction 37
   6.2. Analysis of Policy Option 2 37
   6.3. Analysis of Policy Option 3 41
   6.4. Analysis of Policy Option 4 45
   6.5. Analysis of Policy Option 5 48
   6.6. Analysis of Policy Option 6 50
   6.7. Analysis of Policy Option 7 52
7. Preferred option 54
   7.1. The preferred combination of policy options 54
   7.2. Impacts of the preferred policy package 55
   7.3. Relationship between legal act and subsequent SPI measures 57
   7.4. Feasibility and proportionate implementation 59
   7.5. Regulatory burden and simplification 60
   7.6. Overview of costs and benefits 61
   7.7. International competitiveness 62
   7.8. Impact on consumer behaviour 63
   7.9. Coherence of the preferred combination of options with other initiatives 64

7.10. European Commission Administrative setup 68
7.11. Administrative setup options 69
8. How will actual impacts be monitored and evaluated? 70

Annexes

Annex 1: Procedural information 74
Lead DG, Decide Planning/CWP references 74
Organisation and timing 74
Consultation of the RSB 74
Evidence, sources and quality 84
Annex 2: Stakeholder consultation 85
Feedback on the Inception Impact Assessment 85
Open Public Consultation 86
Workshops 91
First SME survey 94
Second Targeted SME survey 96
Targeted stakeholder survey 100
Stakeholder interviews 103
Annex 3: Who is affected and how? 106
Practical implications of the initiative 106
Table 13 Summary of costs and benefits 108
Annex 4: Analytical methods 115
Annex 5: Political Context 125
Position of the European Parliament and of the Council 130
Annex 6: The current Ecodesign framework 134
Background 134
Processes and role of the Institutions 135
Evaluation 143
Methodology 143
Market surveillance and border controls related to Ecodesign 149
Achievements under ecodesign and energy labelling 158
Annex 7: Problem Definition 160
What is/are the main problem(s)? 164
What are the consequences? 193
What are the problem drivers? 206
How will the problem evolve? 228

Annex 8: Why should the EU act? 234
Legal basis 234
Subsidiarity: Necessity of EU action 235
Subsidiarity: Added value of EU action 236
Annex 9: Policy Options and Measures 238
What is the baseline from which the options are assessed? 238
Description of the policy options 238
Annex 10: Impacts of the policy options 279
Introduction 279
Option 1 - Business As Usual – general assumptions in impact analysis 279
Option 2: Extension of the product scope of Ecodesign legislation 280
Option 3: Extension of sustainability requirements for products 294
Option 4: Sustainability information for consumers and B2B 314
Option 5: Reward more sustainable products through incentives 341
Option 6: Measures for circular economy and value retention 377
Option 7: Strengthened application of the Ecodesign framework 404
Annex 11: Comparison of the options 417
Option 2: Extension Of The Product Scope Of Ecodesign Legislation 417
Option 3: Extension of sustainability requirements for products 425
Option 4: Sustainability information for consumers and B2B 431
Option 5: Reward more sustainable products through incentives 437
Option 6: Measures for circular economy and value retention 447
Option 7: Strengthened application of the ecodesign framework 452
Annex 12: Preferred option 458
Preferred option 458
Overview of costs and benefits 462
How SPI will work in practice 480
Impact of the spi preferred policy options 483
Conclusion 494
Annex 13: Monitoring and evaluation of actual impacts 508
Monitoring of the implementation of the SPI and its specific measures 508
Monitoring and evaluation of progress and performance towards the desired impacts 508
Annex 14: Articulation with existing legislation and other initiatives 514
Relationship to linked initiatives: GCI, ECGT and SCGI 515
Relationship to other emerging initiatives 524
Relationship to existing legislative instruments 533

Annex 15: Evaluations of the Ecodesign/energy labelling legislation including the report of the European Court of Auditors 559
The 2012 review of the Ecodesign Directive 559
The 2015 review of the Energy Labelling Directive (2010/30/EU) and the Ecodesign Directive 560
European Court of Auditors special report; EU action on Ecodesign and Energy Labelling 561
Annex 16: Methodology for SPI 564
Introduction 565
Prioritisation of products (step 1) 566
Assessment of products (step 2) 567
Definition of requirements (step 3) 571
Monitoring the results of SPI (step 4) 575
Important remarks 575
Annex 17: Environmental impact variation within product groups 577
Assumptions on environmental impacts 577
Purchase decisions within same product category 577
Annex 18: the European Digital Product Passport (EU DPP) 583
A. Vision, concept, scope and strategy 583
B. The EU DPP Framework 600
Annex 19: SME Test 632

1. INTRODUCTION

This impact assessment considers the framework for improving the sustainability of products on the European market. It assesses the need for, and possible means of implementing, the sustainable product policy legislative initiative announced in last year's Circular Economy Action Plan[1] which, for the purpose of this impact assessment, will be referred to as the **Sustainable Products Initiative** (**SPI**).

As the analysis explores, at this initiative's core is a possible revision of the Ecodesign Directive (ED)[2], which currently covers energy-related products only. This impact assessment considers the additional products to which the Ecodesign Directive could usefully be extended[3], how its provisions should best be reinforced and how its application could be adapted to ensure effectiveness. It also examines ways in which sustainable product choices, by consumers and public authorities, could be incentivised. In its essence, this impact assessment seeks to identify a series of priorities and tools for improving the sustainability of products placed on the EU market, as well as for ensuring that the future legislative framework allows work to be efficiently undertaken. Given the range of products that could eventually be targeted, many of the more specific product rules will be laid down in a second stage, via SPI measures[4] supported by impact assessments and stakeholder consultation, and underpinned by a prioritisation exercise that will identify the order in which to tackle the different products.

1.1. POLITICAL CONTEXT

Europe is facing the interlinked and cascading effects of climate change, biodiversity loss, and pollution – a triple planetary crisis. Developing a circular economy will contribute positively to the fight against all three. An essential objective of the circular economy is to drive Europe's internal market towards production and consumption of more sustainable products, reducing environmental and social pressures while retaining value.

This objective is reflected in the **European Green Deal**[5], Europe's growth strategy to transform the EU into a fairer and more prosperous society, with a modern, competitive, climate neutral and circular economy. It recognises the advantages of investing in our competitive sustainability by building a fairer, greener and more digital Europe. This also entails engaging third countries and trading partners to ensure the sustainability of global value chains and ensuring that European emission reductions contribute to a global emissions decline, instead of pushing carbon-intensive production outside Europe. This will benefit citizens, providing them with high-quality products that are efficient and affordable, last longer and are better for the environment. The **European Industrial Strategy**[6] also clearly recognizes that Europe's industry must play a leading role in this transformation, reduce its carbon and material footprint and embed circularity across the economy.

The **Circular Economy Action Plan**[7] (CEAP) sets out what more needs to be done to speed up the transformation. It announces a sustainable product policy legislative initiative to make products 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 – in particular via a

[1] COM/2020/98 final
[2] Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products
[3] This assessment excludes food and feed as defined in the General Food Law (Regulation EC 178/2002), as well as raw materials as final products – all of which are to be considered outside the scope of the SPI impact assessment.
[4] The impact assessment report uses the term "SPI measures" to describe the secondary legislation to be adopted on the basis of the SPI basic act. Such SPI measures could be either implementing or delegated acts. To be decided when finalising the legal proposal.
[5] COM (2019) 640
[6] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1593086905382&uri=CELEX%3A52020DC0102
[7] COM/2020/98 final

revision and extension of the current Ecodesign Directive[8] to a wide range of products. The European Parliament and the Council strongly support these efforts to improve the sustainability of products in Europe[9, 10].

Eurobarometer surveys[11] show that the public supports action: they suggest the most effective ways of tackling environmental problems are to 'change the way we consume' as well as to 'change the way we produce and trade'; with responsibility shared by businesses, governments and the EU, as well as citizens themselves.

At international level, the EU has also committed to the implementation of the **UN 2030 Agenda for Sustainable Development**, including its **17 Sustainable Development Goals** (SDG). While a 2021 report[12] found that the EU has recently achieved moderate progress towards **SDG 12**, '*Ensure sustainable consumption and production patterns*', it also highlighted that absolute decoupling of both energy and material use has not been achieved by the EU, that waste generation has been increasing, and that average CO_2 emissions from new cars are not falling fast enough to meet targets – all suggesting much work remains to be done.

The CEAP emphasises that the EU cannot deliver alone the ambition of the European Green Deal for a climate-neutral, resource-efficient and circular economy. Therefore, SPI will contribute to EU efforts to lead the way to a circular economy at the global level[13]. It should be seen as a **key instrument** for achieving EU climate goals: it will synergize with and complement instruments with more direct climate focus[14] by going beyond the production of basic materials/basic material components to cover **final products** themselves. This will allow for taking action on negative impacts generated along the entire life-cycle and value chain of a product – not only e.g. direct emissions generated during a product's use phase, but also embedded emissions of a product throughout its lifecycle, or other negative consequences (e.g. on resource depletion; land use; ozone depletion etc.). This will directly support Green Deal objectives, by fostering the environmental optimisation of value chain management through footprint reduction.

1.2. LEGAL CONTEXT

Article 3.3 of the Treaty on the European Union (TEU) states that "The Union shall […] work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment.".

The EU's existing product policy framework[15] only partially addresses the sustainability aspects of products. The Ecodesign Directive regulates energy efficiency, environmental impacts and some circularity features of energy-related products, with a focus on product design requirements. Whilst the Ecodesign Directive is recognised[16] as having contributed to significant efficiency gains for energy-related products since it was first adopted, it is one of the only existing pieces of legislation

[8] Directive 2009/125/EC establishing a framework for the setting of ecodesign requirements for energy-related products

[9] See for example https://www.europarl.europa.eu/doceo/document/TA-9-2020-0318_EN.html ; https://www.consilium.europa.eu/media/47583/st_13852_2020_init_en-1.pdf, as well as Annex 5.

[10] It should also be noted that the new EU Strategy on Adaptation to Climate Change calls for improving water efficiency and reuse by raising the requirements for products subject to ecodesign and energy labelling.

[11] https://europa.eu/eurobarometer/surveys/detail/2257

[12] Monitoring report on progress towards the SDGs in an EU context, 2021 edition, https://ec.europa.eu/eurostat/documents/3217494/12878705/KS-03-21-096-EN-N.pdf/8f9812e6-1aaa-7823-928f-03d8dd74df4f?t=1623741433852

[13] In line with the Commission Staff Working Document "Leading the way to a global circular economy: state of play and outlook". SWD(2020) 100

[14] Such as those included in the recently adopted Fit for 55 package, in particular the EU Emissions Trading System (ETS) and the Carbon Border Adjustment Mechanism

[15] For an overview of the EU product policy framework and its contribution to circular economy, see SWD (2019) 91: Sustainable Products in a Circular Economy

[16] In particular with regard to energy efficiency. See, e.g. Energy Efficiency Policies around the World: Review and Evaluation, p. 48, World Energy Council 2008.

focused on fostering the sustainability of a specific product group. As evidenced in the CEAP, the European Commission recognises that to deliver its Green Deal commitments, it should replicate the successful approach of the Ecodesign Directive for other product groups: the scope of the Ecodesign Directive thus needs to be widened, and its provisions reinforced to further emphasise the need for circular product design and a holistic, whole life-cycle approach to product regulation.

From an internal market point of view, as there is currently no legislation at EU level that addresses in full the sustainability aspects of products (as mentioned above), creating a regulatory framework to gradually introduce sustainability requirements for more products will help avoid potential regulatory barriers between Member States.

As for existing and emerging EU legislation covering products that would be in scope of SPI, the SPI regulatory framework will ensure consistency and complementarity with them, in a similar manner to how this takes place under the current Ecodesign framework. A number of sections throughout this impact assessment, including the following section and in particular Annex 14, provide further details on how SPI would interact with other related existing and emerging initiatives.

1.3. COHERENCE WITH OTHER RELATED INITIATIVES

Due to its wide scope, both in terms of product coverage and type of legal requirements, SPI is intended to work in synergy with other initiatives announced in the CEAP or implementing the European Green Deal. These include, but are not limited to:

- the initiative on Empowering Consumers for the Green Transition[17] which, in particular, will improve information at the point of sale on the durability and reparability of products and provide better consumer protection against misleading practices in relation to sustainable purchases;
- the Green Claims Initiative[18], on the substantiation of environmental claims, which aims at reducing the risk of greenwashing and at providing reliable, comparable and verifiable information that enables buyers to make more sustainable decisions, in particular by strengthening and harmonising the framework for establishing in a reliable and comparable manner the environmental performance of products;
- the revision of the Construction Products Regulation;
- the revision of the Packaging and Packaging Waste Directive;
- EU Strategy for Sustainable Textiles;
- the Sustainable Corporate Governance initiative, as regards the possibility of requirements of due diligence on value chains;
- Proposal for a Batteries Regulation;
- the Circular Electronics Initiative;
- the Chemicals Strategy for Sustainability;
- the Right to Repair Initiative;

[17] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12467-Consumer-policy-strengthening-the-role-of-consumers-in-the-green-transition_en

[18] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12511-Environmental-performance-of-products-&-businesses-substantiating-claims_en

– the revision of the Industrial Emissions Directive;

– Proposal to reduce the release of microplastics in the environment and to restrict the addition of microplastics to product.

Together, these initiatives will help to foster a key objective of the CEAP and European Green Deal – namely to ensure that all products placed on the EU market become increasingly sustainable (*see also section 7.9 and Annex 14 for further details*).

2. PROBLEM DEFINITION

The main problem is that **consumption and production are not sustainable and not adequately addressed by existing EU product and internal market rules, leading to increasingly divergent national rules on the sustainability of products.**

Sustainable production and consumption[19] encompasses[20]:

– minimal use of natural resources and toxic materials during production and use;

– minimal pollution, including GHGs emissions, and minimal generation of waste over the product's life cycle;

– design allowing for products to be kept in use for as long as possible;

– not negatively impacting on quality of life and human dignity (i.e. impacts on health, deterioration of social conditions, violation of human rights, including labour rights);

– minimal compromise of a product's functionality and safety as a result of the above.

The above criteria provide a broad, working-level concept of sustainability – encompassing **environmental**, **social** and **economic** dimensions – for the purposes of this impact assessment. It follows that all of these dimensions should to be considered and addressed in a proportionate way when addressing the sustainability levels of a given product.[21]

Box 1: Problem Context

(For further details on the below, please see Annex 7: Problem Definition, section *What is/are the main problem(s)?*)

While some products in the EU meet the criteria set out at the beginning of this section, many products do not. An examination of the wider context of this problem shows that:

1) resources are being used too inefficiently;

2) some **environmental impacts of the consumption of an average EU citizen are outside the safe operating space for humanity**[22]**;**

3) the **EU economy remains largely 'linear' by design**[23];

[19] Consumption includes the use phase of products

[20] See for example: https://sustainabledevelopment.un.org/topics/sustainableconsumptionandproduction

[21] This is without prejudice to the full set of criteria that will be used to select, prioritise and set requirements for the products to be regulated under the future SPI – which will nevertheless be required to take the environmental, social and economic dimensions firmly into account. Please see Annex 16 for further details.

[22] Sala, S. and Sanye Mengual, E., Consumption Footprint: assessing the environmental impacts of EU consumption, European Commission, 2022, JRC126257, https://publications.jrc.ec.europa.eu/repository/handle/JRC126257.

4) and production is sometimes taking place **in poor social conditions**[24].

5) As a result of the above, attempts to improve the sustainability performance of products are being pursued individually by some Member States, leading to increasingly **divergent national approaches**.

****

1) Resources use: According to latest UN projections, the global population is expected to grow to around 9.7 billion in 2050, meaning the equivalent of almost three planets would be required to provide the natural resources needed to sustain current lifestyles[25]. Partly as a result, annual global extraction of materials is growing[26], posing a major environmental risk at global level. Natural resource extraction and processing generate about half of the total greenhouse gas (GHG) emissions and more than 90% of water stress and biodiversity loss[27]. European consumption trends in this respect are a cause for concern: if they persist, the European Green Deal goals of reaching zero net emissions of greenhouse gases by 2050 will be more difficult to meet. Europe is also relatively dependent on external sources of natural resources and energy, leading the Commission to develop policies to enhance "open strategic autonomy" when vulnerabilities were highlighted during the Covid pandemic.

One way to help tackle the above is to decouple economic growth from resource use. This occurs when resource use or pressures on the environment grow at a slower rate than the activity causing it (*relative* decoupling), or decline while the economic activity continues to grow (*absolute* decoupling). **The EU's progress in this respect in recent years is mixed**: despite some periods of absolute decoupling since 2000, starting from 2013 the use of material resources in the EU has been increasing again (e.g. 4 % in 2013-2017). As a result, we have moved from absolute decoupling to re-enter a phase of relative decoupling[28]. In addition Consumption Footprint[29] analysis shows that certain impact categories are showing a relevant impact *increase* (e.g. ozone depletion, mainly due to international cold chains transport; land use, due to increase of bio-based materials as input to different sectors, including textile, furniture etc.).

2) Planetary boundaries: The planetary boundaries (PBs) is a concept addressing Earth system processes which are affected by environmental boundaries in order to define a "safe operating space for humanity", as a precondition to achieve sustainable development. A recent JRC study[30] assessed the impacts of production and consumption in the EU and compared them with the PBs, finding that the impacts related to climate change[31], particulate matter[32], and fossil and mineral resources[33] were

[23] https://circulareconomy.europa.eu/platform/sites/default/files/circular_by_design_-_products_in_the_circular_economy.pdf

[24] In violation of Fundamental Conventions of the International Labour Organisation (ILO). The 8 Fundamental Conventions of the ILO are:
Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)
Right to Organise and Collective Bargaining Convention, 1949 (No. 98)
Forced Labour Convention, 1930 (No. 29) (and its 2014 Protocol)
Abolition of Forced Labour Convention, 1957 (No. 105)
Minimum Age Convention, 1973 (No. 138)
Worst Forms of Child Labour Convention, 1999 (No. 182)
Equal Remuneration Convention, 1951 (No. 100)
Discrimination (Employment and Occupation) Convention, 1958 (No. 111)

[25] https://www.un.org/sustainabledevelopment/sustainable-consumption-production/

[26] OECD projects that global materials use will be more than double from 79 Gt in 2011 to 167 Gt in 2060. See https://www.oecd.org/environment/waste/highlights-global-material-resources-outlook-to-2060.pdf

[27] Global Resources Outlook 2019: Natural Resources for the Future We Want: The International Resource Panel.

[28] EEA, Resource efficiency and the circular economy in Europe 2019 — even more from less.

[29] A life cycle assessment-based indicator that evaluates the environmental impacts of EU consumption by assessing five areas of consumption, namely food, mobility, housing, household goods and appliances

[30] Sala, S. and Sanye Mengual, E., Consumption Footprint: assessing the environmental impacts of EU consumption, European Commission, 2022, JRC126257, https://publications.jrc.ec.europa.eu/repository/handle/JRC126257.

[31] Staying within a climate change planetary boundary (such as the Paris Agreement goal of limiting global warming to well below 2°C and pursuing efforts to limit the increase to 1.5°C) requires reducing CO2 emissions to net zero globally, and achieving declining net non-CO2 radiative forcing. In pursuit of this, the European Climate Law has set the objective of balancing greenhouse gas emissions and removals in the EU regulated in Union law at the latest by 2050.

close to or had already transgressed global boundaries, and that in all other impact categories a **negative environmental impact** was occurring. This means that, with less than 10% of the world's population, the EU was close to transgressing the global ecological limits for the impacts measures.

3) The EU's linear economy: While the shift toward the green transition has started, **the EU economy is still far from being circular and progress remains slow.** Linear systems involve a fast throughput of resources in the economy, with the value of those resources (in the form of products and assets) being lost rapidly. Resources exit the economy in the form of waste, pollution and emissions. The costs of dealing with waste, pollution and emissions do not fall on those putting products on the market. EU industry still accounts for 20% of the EU's greenhouse gas emissions[34]. It also remains too dependent on a throughput of primary materials: though the circular material use rate[35] has been growing, progress remains very slow (8.2 in 2004 to 11.8 in 2019[36]). Demand for recycled materials also remains low: only 9.5% (0.7 billion tonnes) of materials processed from 2010-2018 were from recycled materials[37]. The share of market demand met by secondary materials also differs starkly: 50% or over for lead and copper[38], while for plastics it is only 6%[39] (of which only 2% is represented by single-use plastics[40]), and for materials such as indium[41], used in the touchscreens of smartphones, it is well under 10%.

4) Social conditions of production of products placed on EU market: Products, including those consumed in the European Union, can be produced under conditions that violate fundamental human rights[42]. These violations can take place within the EU or along the global chains supplying the products placed on its market. A 2021 report[43] of the ILO and Unicef warns that the number of children in child labour continues to rise. Some cases have been identified in sectors directly or indirectly linked to the products likely to fall within the scope of SPI, such as agriculture (i.e. farming of raw materials such cotton), mining and quarrying, and garments and textiles[44], while tens of thousands of children are reported to work in African open-pit mines, which supply niobium and tantalum to the global electronics industry[45]. Contemporary forms of slavery have also been cited as occurring in global supply chains of international brands in the garment and footwear sector,[46] and forced labour in the manufacturing of electronic goods has been the subject of recent research.[47]

---

[32] This refers to adverse impacts on human health caused by emissions of Particulate Matter (PM) and its precursors (e.g. NO_x, SO_2). Usually, the smaller the particles, the more dangerous they are, as they can go deeper into the lungs. The potential impact of is measured as the change in mortality due to PM emissions, expressed as disease incidence per kg of $PM_{2.5}$ emitted.

[33] The amount of fossil resources or mineral (e.g. metals) use for the production and the consumption of goods

[34] COM (2019), 640 final, p. 7.

[35] This measures the share of material recycled and fed back into the economy - thus saving extraction of primary raw materials - in overall material use. The circular material use rate, also known as circularity rate, is defined as the ratio of the circular use of materials to the overall material use.

[36] https://ec.europa.eu/eurostat/databrowser/view/cei_srm030/default/line?lang=en

[37] Eurostat Experimental Sankey Diagrams of material flows for the years 2010-2018; Eurostat (2018) Material Flow diagram for the EU-27 2018

[38] https://copperalliance.eu/benefits-of-copper/recycling/

[39] A European Strategy for Plastics in a Circular Economy, COM(2018) 28 final

[40] https://www.minderoo.org/plastic-waste-makers-index/

[41] Foresight on Critical Raw Materials for European Industry, March 2020, https://ec.europa.eu/info/sites/default/files/foresight_newsletters_collection_online_2020.pdf

[42] In particular one or several of the 8 Fundamental Conventions of the International Labour Organisation (ILO). These are:
Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87); Right to Organise and Collective Bargaining; Convention, 1949 (No. 98); Forced Labour Convention, 1930 (No. 29) (and its 2014 Protocol); Abolition of Forced Labour; Convention, 1957 (No. 105); Minimum Age Convention, 1973 (No. 138); Worst Forms of Child Labour Convention, 1999 (No. 182); Equal Remuneration Convention, 1951 (No. 100); Discrimination (Employment and Occupation) Convention, 1958 (No. 111).

[43] International Labour Office and United Nations Children's Fund, Child Labour: Global estimates 2020, trends and the road forward, ILO and UNICEF, New York, 2021. https://data.unicef.org/wp-content/uploads/2021/06/Child-Labour-Report.pdf

[44] ILO, "Implementing the Roadmap for Achieving the Elimination of the Worst Forms of Child Labour by 2016: a training guide for policymakers" (2013), p. 9.

[45] B. Vivuya, Equal Times, 16 October 2020: "As incremental efforts to end child labour by 2025 persist, Congo's child miners – exhausted and exploited – ask the world to "pray for us"", available at: https://www.equaltimes.org/as-incremental-efforts-to-end#.YLTEOagzY2w

[46] See, for example, Centre for Research on Multinational Corporations and India Committee of the Netherlands, "Flawed Fabrics: the abuse of girls and women workers in the South Indian textile industry" (2014) (www.indianet.nl/FlawedFabrics.html); **Anti-Slavery International, "Slavery on the high street: forced labour in the manufacture of garments for international brands"** (2012) (www.antislavery.org/includes/documents/cm_docs/2012/s/1_slavery_on_the_high_street_june_2012_final.pdf).

[47] ILO referred to the response of a major United States electronics company to allegations of forced labour in factories in China in its publication *Combating Forced Labour: A Handbook for Employers & Business*, Good Practice Case Studies, Part 7 (2008), pp. 5–7. See

Within the EU itself, 610,000 are estimated to be victims of forced labour exploitation across a range of industries and economic sectors, including agriculture, manufacturing and construction (2012 figures[48]), with migrant workers more likely to be found in such vulnerable situations[49].

5) Diverging national approaches: In the absence of overarching or harmonised rules at EU level, Member States (e.g. France, Germany, the Netherlands, and Finland) are pressing ahead with rules to foster the sustainability of the products placed on their markets and it is likely that the fragmentation of the internal market will continue to rise, as illustrated by the growing trend in the number of national environmental legislation entries that potentially have cross-border impact. Though Member State initiatives are a positive sign of their engagement with circular economy practices, they are leading to increasingly divergent national approaches, which is generating uncertainty for businesses. This in turn risks threatening their continued investment in innovation and sustainable product development (please see more information under sections on *Consequences* and *Drivers*, as well as in Annex 7).

Stakeholders agree to a large extent on topics closely related to the problem definition[50]:

- *Most respondents to the Public Consultation agreed or strongly agreed that **products do not sufficiently cover the costs of the harm that their production and use cause to the environment**, particularly in the non-industry-related stakeholder categories[51]. While less industry representatives shared this view[52], only a small minority of them disagreed or strongly disagreed[53].*
- *A clear majority of respondents to the Public Consultation, including SMEs[54], agreed or strongly agreed that there are **no harmonized requirements to foster the sustainable design of products**[55] and that **diverging national rules and lack of a harmonized set of EU rules discourage large businesses, which operate across various EU Member States, from offering more sustainable products**, compared to much lower numbers that disagree or strongly disagree[56]*

Three principle sub-problems can be identified as contributing to the main problem:

Sub-problem 1: Product design does not sufficiently take into account environmental impacts over the life cycle, including circularity aspects

Around 80% of a product's environmental impacts is determined at the design phase[57]. Designing products in a more circular way[58] can offset the negative environmental impacts of products and

also China Labor Watch, "Is Samsung Infringing Upon Apple's Patent to Bully Workers?" (2012) (www.chinalaborwatch.org/upfile/2012_9_4/Samsung%20Report%200904-v3.pdf) and "Beyond Foxconn: Deplorable Working Conditions Characterize Apple's Entire Supply Chain" (2012) (www.chinalaborwatch.org/upfile/2012_8_13/2012627-5.pdf); and Verité, "Forced Labor in the Production of Electronic Goods in Malaysia: A Comprehensive Study of Scope and Characteristics" (2014) (www.verite.org/sites/default/files/images/VeriteForcedLaborMalaysianElectronics2014.pdf).

[48] ILO 2012 Global Estimate of Forced Labour – Regional Factsheet European Union. https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---ilo-brussels/documents/genericdocument/wcms_184975.pdf

[49] European Union Agency for Fundamental Rights, Protecting migrant workers from exploitation in the EU: workers' perspectives, 2019. https://fra.europa.eu/sites/default/files/fra_uploads/fra-2019-severe-labour-exploitation-workers-perspectives_en.pdf

[50] For more information, please see Annex 2

[51] For example, 91% of EU citizens and consumer organisations (combined); 95% of environmental organisations and NGOs (combined); and 90% of EU public authorities.

[52] Overall, 40% of business associations and companies (combined) agreed or strongly agreed; isolating SMEs as a category, 58% agreed or strongly agreed

[53] 20% of business associations and companies (combined) disagreed or strongly disagreed

[54] Companies/business organisations with less than 250 employees were considered as SMEs in the context of the OPC

[55] 65% of business associations and companies (combined) agree or strongly agree (while only 18% of them disagree or strongly disagree); 66% of SMEs agree or strongly agree; 92% of environmental organisation & NGOs (combined) agree or strongly agree; and over 95% of EU public authorities agree or strongly agree.

[56] Over 65% or over of all of the following categories agreed or strongly agreed: business associations and companies (combined); environmental organisation & NGOs (combined); EU public authorities. 53% SMEs agreed or strongly agreed. Figures disagreeing or strongly disagreeing were far lower, e.g. 17% of business associations and companies (combined).

[57] "How to do EcoDesign?", a guide for environmentally and economically sound design edited by the German federal Environmental Agency, Verlag form, 2000

'close the loop' for different materials and products. **We are not yet there, however**: the 2020 Circularity Gap report identified poor design of products as one of the chief contributory factors to continued linearity and reliance on virgin materials[59]. In the EU, data on design-related dimensions such as *durability and reparability*, as well as *recyclability, reusability and re-manufacturability* appear to confirm this (please see Annex 7 for further details):

- *Durability and reparability*: reductions in the lifespan of some consumer products have been identified over recent years[60], in part due to the fact that design does not always take into account the need for products to be easily repaired. Aside from any reputational damage to the brand, the producer normally bears no costs or consequences for the post-sale performance, repair and end-of-life costs of its products. For example, the growing tendency to produce more integrated products has made disassembly of parts, and therefore repair, more difficult: batteries in the best-selling smart-phones of 2019 (48% of the European market) were all found to be fastened with adhesives (e.g. instead of joining mechanisms), meaning that removal is not possible without the intervention of experienced repairers[61].
- *Recyclability, reusability and re-manufacturability*: increasingly complex product designs (including substances of concern and compound substances) are creating barriers to recycling. In the case of plastics in products for example, mixtures of different polymers and additives or differing materials mean that recyclers are increasingly unable to separate components effectively, and the production of high quality secondary materials is being hampered[62]. For textiles, chemicals chosen during production sometimes remain in the products throughout the use phase, with implications for recovery potential[63]. In a market study[64] under the Horizon 2020 programme, one of the main barriers to wider roll-out of remanufacturing activities identified by the European Remanufacturing Network was "*poor design for remanufacturing: Particularly where remanufacturing is not embedded within the OEM culture, remanufacturing can sometimes be inhibited by poor design*".

The net result is that products are being replaced more frequently than before, involving **significant energy and resource use** in order to produce and distribute new products and dispose of old ones[65]. Significant jobs potential is also being lost in the repair, recycling, re-use and remanufacturing sectors[66]. Evidence suggests that the environmental impacts from life cycle stages other than use are significant for many sectors[67].

---

[58] This would mean designing products in a way that facilities the circular use of their materials (such as by ensuring recycling, reuse, refurbishment or remanufacturing can take place) and in a way that aims to reduce the generation of waste as well as our economy's dependence on extraction and imports of raw materials. See EEA, 2017, Circular by design: Products in the circular economy

[59] Circularity Gap Report 2020, p. 15, https://assets.website-files.com/5e185aa4d27bcf348400ed82/5e26ead616b6d1d157ff4293_20200120%20-%20CGR%20Global%20-%20Report%20web%20single%20page%20-%20210x297mm%20-%20compressed.pdf

[60] See:
- Öko-Institut in Germany, Prakash S. e.a., 2016.
- EEB (2019) Coolproducts don't cost the earth -full report. www.eeb.org/coolproducts-report;
- Report by the NGO "*Halte à l'obsolescence programmée – HOP*", "Lave-linge : une durabilité qui prend l'eau ?" (2019), https://www.halteobsolescence.org/wp-content/uploads/2019/09/Rapport-lave-linge.pdf
- Report for the Greens group in the German *Bundestag*, Geplante Obsoleszenz: Entstehungsursachen, Konkrete Beispiele, Schadensfolgen, Handlungsprogramm - Gutachten im Auftrag der Bundestagsfraktion Bündnis 90 / Die Grünen (2013), https://www.schridde.org/download/Studie-Obsoleszenz-aktualisiert.pdf

[61] Cordella, M.; Alfieri, F.; Clemm, C.; Berwald, A.; 2020, Durability of smartphones: A technical analysis of reliability and reparability aspects, p.7.

[62] Plastics Recyclers Europe, https://www.plasticsrecyclers.eu/challenges-and-opportunities

[63] Schmidt., A., Watson, D., Roos, S., Askham, C., Gaining benefits from discarded textiles: LCA of different treatment pathways, 2016

[64] Remanufacturing Market Study (Horizon 2020) European Remanufacturing Network et al (2015), https://www.remanufacturing.eu/assets/pdfs/remanufacturing-market-study.pdf

[65] EEB, 2019, Cool Products Don't Cost The Earth, https://mk0eeborgicuypctuf7e.kinstacdn.com/wp-content/uploads/2019/09/Coolproducts-report.pdf

[66] "How does the circular economy change jobs in Europe? Upskilling and reskilling for a just transition" SITRA, https://www.sitra.fi/en/publications/how-does-the-circular-economy-change-jobs-in-europe/

[67] E. Hertwich, and R. Wood, "The growing importance of scope 3 greenhouse gas emissions from Industry", Environ. Res. Lett. 13 (2018) 104013

Stakeholders consulted in the context of this impact assessment agree to a large extent that the way products are currently designed can act as a barrier to increased sustainability[68]:

- *Most respondents to the Public Consultation agreed or strongly agreed that **many products are not designed to be easily repaired or upgraded**[69]. While **EU citizens & consumer** organisations showed overwhelming support for this view[70], it was shared somewhat less strongly by representatives of **industry**[71].*
- *Most respondents also agreed or strongly agreed that **materials used in products are more and more complex and difficult to recycle**[72]. **EU citizens & consumers** showed strong support for this view[73], while representatives of **industry** did so to a lesser extent[74].*

Sub-problem 2: Too difficult for economic operators and citizens to make sustainable choices in relation to products

It is still too difficult for economic operators and citizens to make sustainable choices in relation to products given that relevant **information and affordable options** to do so are lacking. Information on product environmental characteristics is poor: 85% of people[75] are unsatisfied with the information available to them, yet most consumers want it so they can shift to buying more environmentally friendly products[76,77]. In a **business-to-business** context, economic actors along the supply chain report considerable problems related to product design, and information gaps, such as between suppliers, producers, and waste recovery managers on composition, recyclability and toxicological characteristics of product materials[78,79]. The magnitude of the problem is such that European industrial representatives have cited lack of available data as the main non-cost obstacle to higher demand and market competition for climate neutral basic materials and products[80]. This lack of information leads to missed opportunities for sustainability and for value-retaining operations, and negatively affects the quality of and demand for secondary materials[81], including inhibiting the adoption of Circular Business Models[82,83] (CBM). The European Remanufacturing Network has identified "*lack of*

[68] For more information, please see Annex 2
[69] Overall, approximately 66% agreed or strongly agreed with this statement, while 8% disagreed or strongly disagreed.
[70] Approximately 92% of EU citizens & consumer organisations (combined) agreed or strongly agreed, while only 4% disagreed or strongly disagreed.
[71] Approximately 47% of business associations and companies (combined) agreed or strongly agreed, while 12,5% disagreed or strongly disagreed.
[72] Overall, approximately 60% agreed or strongly agreed with this statement, while 14% disagreed or strongly disagreed.
[73] Approximately 77% of EU citizens & consumer organisations (combined) agreed or strongly agreed, while only 6% disagreed or strongly disagreed.
[74] Approximately 46% of business associations and companies (combined) agreed or strongly agreed, while 18% disagreed or strongly disagreed.
[75] See SWD(2019) 92 final, p. 66
[76] This is in line with the findings from the consumer survey conducted in preparation of the Empowering the consumers for the Green Transition, with between 42% and 60% of respondents (depending on the products category) reporting that they would be willing to pay about 5% of the price of a product to receive information on the environmental characteristics of the product. European Commission, *IA supporting study*, forthcoming. Binninger, A.S., Robert, I., Ourahmoune, N., *Etiquettes environnementales et consommation durable: des relations ambiguës en construction*. Revue de l'organisation responsable 9, 2014, p. 5-24.
[77] Nicolli F, Johnstone N, So¨derholm P (2012) Resolving failures in recycling markets: the role of technological innovation. Environ Econ Policy Stud 14:261–288
[78] Circular Business Models: Overcoming Barriers, Unleashing Potentials (squarespace.com); Circular Business Models: Overcoming Barriers, Unleashing Potentials (squarespace.com)
[79] Nicolli F, Johnstone N, So¨derholm P (2012) Resolving failures in recycling markets: the role of technological innovation. Environ Econ Policy Stud 14:261–288
[80] Sartor, O. (Agora Energiewende), Whittington, E., Markkanen, S. (University of Cambridge Institute for Sustainability Leadership (CISL)): Tomorrow's market today: Scaling up demand for climate neutral basic materials and products, 2021, https://www.corporateleadersgroup.com/files/cisl-clg-agora_tomorrows_markets_today_report.pdf
[81] Circular Business Models: Overcoming Barriers, Unleashing Potentials (squarespace.com); Circular Business Models: Overcoming Barriers, Unleashing Potentials (squarespace.com)
[82] Adisorn, T.; Tholen, L.;Götz, T. Towards a Digital Product Passport Fit for Contributing to a Circular Economy.Energies2021,14,2289. https://www.mdpi.com/1996-1073/14/8/2289
[83] Some companies have used data from product life cycle assessment to identify environmental focal areas or improve circularity along the supply chain (See Philips or Levi Strauss) while others report significant cost avoidance secured though comparative life cycle assessment (see Unilever reports over €700m of cumulative cost avoidance since 2008 through measures focussing on water, energy,

technical information on third party products…[where] *the knowledge necessary to remanufacture products effectively is not readily available to non-OEMs*" as one of the main barriers to wider roll-out of remanufacturing business models[84].

Stakeholders consulted in the context of this impact assessment agree to a large extent that lack of information is a barrier to more sustainable products and product choices in the EU[85]:

- *Most respondents to the Public Consultation agreed or strongly agreed that products sold in the EU are less sustainable because* ***economic actors do not have adequate and reliable information on their sustainability****[86]. This view was broadly shared amongst most* ***industry*** *representatives[87] as well as by EU* ***citizens & consumer organisations****[88].*
- *Most respondents agreed or strongly agreed that* ***requiring producers/importers to ensure information on reparability is provided on or with a product*** *would foster the overall sustainability of products[89]. While* ***EU citizens & consumer*** *organisations showed strong support for this view[90], it was shared to a lesser extent by representatives of* ***industry****[91].*

Another issue is the price gap vis-à-vis conventional, less sustainable products. Sustainable products are in some cases intrinsically more costly to purchase (in part because of market failures): whilst some consumers are willing to pay more for environmentally-friendly products and higher upfront costs can often be offset by extended product lifetime and/or lower usage costs, they need to be confident about the product's credentials.

Consumers make choices about whether or not to purchase a product. If it is a replacement this is associated with decisions about not repairing or choosing to discard an existing product, unless it is not possible to effectively choose repair. Evidence shows that a significant proportion of appliances are replaced when there is no functional reason to do so[92], for various reasons[93]. A lack of information on e.g. product reparability or durability can be a factor in deciding whether to replace a product. Similarly, whether or not consumers can effectively repair a product and the rights they might have in this regard, can play an important role.[94] Many products are purchased by consumers, but used only intermittently. In such cases access to product as-a-service would be a less costly option, as well as being more optimal in resource-use. The provision of such servitised or sharing models is growing, but hindered through poor product design (intensive use leading to more frequent need for maintenance and repair) and poor information.

In addition, when choosing between products the consumer will make a decision based on multiple factors that are likely to include the functionality of a product and its price. An illustration of possible

---

waste and materials, and a media company reached over €30m cost avoidance through a comparative life cycle assessment of packaging focussing on greenhouse gas emissions only)

[84] Remanufacturing Market Study (Horizon 2020) European Remanufacturing Network et al (2015), https://www.remanufacturing.eu/assets/pdfs/remanufacturing-market-study.pdf

[85] For more information, please see Annex 2

[86] Overall, approximately 58% agreed or strongly agreed with this statement, while 19% disagreed or strongly disagreed.

[87] 54% of business associations and companies (combined) agreed or strongly agreed; 22% disagreed or strongly disagreed. For SMEs, approximately 64% agreed or strongly agreed; 12.5% disagreed or strongly disagreed.

[88] 57% of EU citizens & consumer organisations (combined) agreed or strongly agreed, compared with 26% who disagreed or strongly disagreed.

[89] Overall, approximately 53% agreed or strongly agreed with this statement, while 12% disagreed or strongly disagreed.

[90] Approximately 74% of EU citizens & consumer organisations (combined) agreed or strongly agreed, while 11% disagreed or strongly disagreed.

[91] Approximately 40% of business associations and companies (combined) agreed or strongly agreed, while 13% disagreed or strongly disagreed.

[92] Premature Obsolescence Multi-Stakeholder Product Testing Programme: Product Lifecycle & Product Replacement reasons: replacement unrelated to reliability - 25% washing machines, 63% smartphones ; 63% TVs; 36% vacuum cleaners.

[93] https://www.becomingminimalist.com/fooled/

[94] The Commission is planning in 2022 an initiative to address consumers rights that promote a more sustainable use of products ('right to repair').

factors for the purchase of a washing machine are shown below[95]. Energy use and other environmental factors may be important considerations, although this research shows that they were not the most important ones. It also must be noted that the importance of different characteristics changes with the product under consideration. Nevertheless since it is clear that these characteristics are taken into consideration by consumers, reliable and accessible information is needed to have efficient consumer purchase behaviour.

Criteria	1. Priority	2. Priority	3. Priority
Price	**31.8%**	**21.2%**	**15.9%**
Equipment	**19.2%**	7.3%	8.6%
Energy Consumption	**11.9%**	**25.2%**	**17.2%**
Brand	9.3%	8.6%	8.6%
Water Consumption	7.9%	**11.9%**	**13.9%**
Wash Load Capacity	5.3%	10.6%	6.0%
Dimensions	4.6%	6.0%	4.0%
Design	1.3%	1.3%	3.3%
Short Wash Time	0.7%	3.3%	9.3%
Low Noise	0.7%	2.0%	7.3%
Dryer integrated	0.0%	0.7%	0.7%
Other	7.3%	1.3%	4.0%
Total	**100.0**	**99.3%**	**98.7%**
N	151	150	149

Sub-problem 3: Sub-optimal application of the current Ecodesign legislation

Although the Ecodesign Directive is generally considered successful[96], its full potential is not systematically realised. This has been for instance recognised by the European Court of Auditors, which concluded that EU actions contributed effectively to reaching the objectives of the Ecodesign and Energy Labelling policy, but that effectiveness was reduced by significant delays in the regulatory process and non-compliance by manufacturers and retailers[97]. Stakeholders have also raised concerns about the slow progress in reviewing Ecodesign product measures or addressing new products. A recent report[98] estimates the substantial potential benefits were product reviews not to have been delayed.

One of the reasons for this reduced effectiveness is the insufficient resources allocated within the Commission to manage the 29 product groups currently regulated. In addition, despite being identified as promising candidates, a number of energy related products are not yet regulated, largely because they have not yet been included in the Working Plan due to insufficient resources. For those regulated, a 2012 evaluation concluded that there may be additional "non-energy improvements" that have not been fully addressed as a result of the product scope, policy choices or the underlying technical analysis. These will not be addressed until the reviews can be carried out. There have also been significant delays in the adoption of new product regulations, leading to delays in achieving the increased energy savings and lower environmental impacts, in part due to the number and complexity of products that European Commission staff working on Ecodesign need to cover. Finally, lack of compliance is an issue, with some 10 to 25% of products estimated to be non-compliant, with around 10% of envisaged energy savings lost as a result[99].

[95] https://www.alexandria.unisg.ch/4941/1/A07_Sammer_Wuestenhagen_BSE_2006.pdf#:~:text=H1%3A%20The%20energy%20label%20positively%20influences%20consumers%E2%80%99%20buying,products%20that%20are%20characterized%20by%20low-involvement%20buying%20decisions.

[96] See, e.g. ECOS "Ecodesign is one of the greatest success stories of the EU climate policies in the last decades" (https://ecostandard.org/news_events/2021-resolution-the-eu-must-advance-ecodesign-upgrades-to-reach-its-climate-objectives/) and Energy Efficiency Policies around the World: Review and Evaluation, p. 48, World Energy Council 2008. ECOS calls. More elements in Annex 6.

[97] ECA Special Report on EU action on Ecodesign and Energy Labelling (2020).

[98] Delays in eco-design implementation threaten 55% climate target and cost citizens billions; EEB & ECOS; September 2021

[99] Ecofys, Evaluation of the Energy Labelling Directive and specific aspects of the Ecodesign Directive: Background report I: Literature review, December 2013, p.9.

2.1. WHAT ARE THE CONSEQUENCES?

The problems identified give rise to inevitable negative consequences, for the **planet**, for **citizens** and for **markets**.

For the **planet,** this results in inefficient use of resources as levels of high quality recycling and uptake of secondary materials remain low. The per capita consumption footprint of products consumed in the EU internal market is outside the safe operating space for humanity for several categories of impacts, including climate change, pollution (e.g. particulate matter) and resource use (i.e. fossil fuels, minerals and metals)[100] and rose by 4% on average between 2010 and 2018[101]. These environmental impacts are also contributing significantly to biodiversity loss and impacting health. Waste levels generated in Europe have also been growing, and rose from 2.2 to 2.3 billion tons from 2010 to 2018[102]. Union-wide net greenhouse gas emissions, although 25% below their 1990 level[103], need to fall to zero by 2050 in order to meet the climate neutrality objective of the European Climate Law and contribute to halting global warming. Finally, significant pollution is being generated – in particular at the production stage of products and along the product supply chain[104] - with short product life leading to high replacement rates and therefore further pollution. The most polluting production processes are regulated by the Industrial Emissions Directive, but this concerns only the production processes located in the EU, not in third countries.

For **citizens,** there are costs from reduced lifespan of their products and the difficulty to choose products tailored to their needs, including over the use phase. Whilst not wishing to incur the costs of replacing a product with a new replacement, consumers face a lack of relevant information on how to repair a product, lack of availability of spare parts and high repair costs, which act as dissuasive barriers to product repair[105,106]. On the whole, consumers are having to replace products sooner than expected, leading to indirect additional costs as well as to increased 'hassle costs'[107]. Resale value of used products is also reduced as poor residual values are reflected by markets. The difficulty to make informed choices (in particular due to lack of information on a product's environmental characteristics[108]) is also hindering them from fulfilling their growing levels of 'green' ambition[109,110] - i.e. their willingness to engage in sustainable practices and product choices. The loss of value and functionality to individual consumers is collectively a loss of wellbeing for society.

Markets are resulting in a sub-optimal consumption of sustainable products (see also section *2.2 What are the problem drivers?*): producers are not sufficiently taking into account environmental impacts, and it is difficult for economic operators and citizens to make sustainable choices. Taken together, this leads to a sub-optimal market result, which is inefficient. In part this stems from an under-internalisation of externalities at the product level. In addition, in the absence of overarching or harmonised rules at EU level, the Single Market is also being hindered by fragmentation, with a number of EU Member States already pressing ahead with rules to foster the sustainability of the products placed on their markets– – something which is already a cause for concern for businesses operating in the EU (see *Table on responses from businesses/business associations* in *Consequences* section, Annex 7). If left unchecked, such diverging approaches are likely to create further difficulties

[100] Sala, Serenella, et al., Indicators and Assessment of the Environmental Impact of EU Consumption, Joint Research Center Science for Policy Report 2 (2019), figures 58 and 70b.
[101] Sala, S. and Sanye Mengual, E., Consumption Footprint: assessing the environmental impacts of EU consumption, European Commission, 2022, JRC126257, https://publications.jrc.ec.europa.eu/repository/handle/JRC126257.
[102] Eurostat. Generation of waste by waste category, hazardousness and NACE Rev. 2 activity [ENV_WASGEN]
[103] EU Climate Action Progress Report, November 2020 *Kick-starting the journey towards a climate-neutral Europe by 2050*.
[104] E.g. for electronic products, see https://ec.europa.eu/environment/enveco/resource_efficiency/pdf/studies/issue_paper_digital_transformation_20191220_final.pdf
[105] European Commission, *Behavioural Study on Consumers' engagement in the circular economy,* 2018, p. 86.
[106] LE Europe, VVA Europe, Ipsos, ConPolicy and Trinomics: "Behavioural Study on Consumers' Engagement in the Circular Economy - Final Report" (2018), https://op.europa.eu/en/publication-detail/-/publication/5de64de7-f9d3-11e8-a96d-01aa75ed71a1/language-en/format-PDF .
[107] BEUC, 2015, Durable goods: More sustainable products, better consumer rights
[108] SWD(2019) 91 final, p. 66
[109] European Commission, *Behavioural Study on Consumers' engagement in the circular economy,* 2018, p. 10.
[110] https://www.ingwb.com/media/3076131/ing-circular-economy-survey-2020-learning-from-consumers.pdf

for businesses and hamper the level playing field. This is likely to increase the administrative burden for companies operating on the internal market, leading to sub-optimal outcomes in terms of innovation and sustainable production. Finally, significant valuable resources are being lost, given that the contribution of recycled materials to raw material inputs is low (e.g. for materials needed in renewable energy technologies or high-tech applications, secondary production makes only a marginal contribution to EU's consumption[111]; for plastics it accounts only for 6%[112]); that many products are still being designed for single use[113]; that many products contain substances and compounds that are difficult to recycle and contaminate and hence lower the value of recyclates, and that in some cases consumer products that are not sold are being destroyed[114,115].

Low rates of recycling lead to many lost **job** opportunities in the waste management sector, but far more job potential is foregone through poor product design and information reducing the viability of value retention activities before the waste phase. A study of examples in 16 countries by Gaia[116] revealed that the job intensity of re-use, repair and remanufacturing activities per 10,000 tonnes of waste is far higher than its disposal through landfill or incineration, with re-use generating more than 400 jobs, compared to 115 for recycling and 2 for incineration and landfill. A market study of remanufacturing in Europe estimated that in 9 sectors alone there is potential to generate between 450,000 and 600,000 jobs by 2030[117]. Looking at the production stage, a shift to higher resource efficiency implies a rebalancing of relative factor inputs, with more value being added to each unit of materials. This generally implies application of more labour input.

2.2. WHAT ARE THE PROBLEM DRIVERS?

Market failures

There is a **market distortion** in the shape of uncorrected externalities: environmental, health, social or other impacts generated by a product and not reflected in its price. This means that competitive market forces are not resulting in efficient prices, but instead are biased towards externality-generating products or activities. These externalities are only partially corrected through economic incentives, such as taxes, or fees, to "internalise" these products' externalities. For example, for air pollution, the degree of internalisation is estimated to be around 44% with unpriced externalities of around EUR 400 billion per annum[118] . The 'polluter pays' principle is not consistently applied across the EU, further aggravating the problem[119].

Imperfect communication in the supply chain about a product's energy and environmental information leads to market failure in terms of purchasing decisions (see also section *2 Sub-problem 2: Too difficult for economic operators and citizens to make sustainable choices in relation to products*). Although many consumers want to make more sustainable product choices, they often cannot do so. The market response to this issue has resulted in a proliferation of methods and initiatives and has boosted the number of environmental claims – in many cases based on different, inconsistent methods, with a varied level of reliability and coverage. This market failure has been identified in accompanying proposals on Empowering Consumers for the Green Transition and the Green Claims Initiative. The three initiatives complement each other to ensure that information on the

[111] Foresight on Critical Raw Materials for European Industry, March 2020, https://ec.europa.eu/info/sites/default/files/foresight_newsletters_collection_online_2020.pdf
[112] A European Strategy for Plastics in a Circular Economy, COM(2018) 28 final
[113] Circle Economics, "Circularity Gap Report 2020", https://www.circularity-gap.world/2020
[114] M6, "Capital" enquiry of January 2019 on Amazon: https://www.rtl.fr/actu/debats-societe/video-capital-quand-les-salaries-d-amazon-detruisent-des-tonnes-d-invendus-7796192959
[115] ITV News Investigation "Amazon destroying millions of items of unsold stock in one of its UK warehouses every year", June 2021, https://www.itv.com/news/2021-06-21/amazon-destroying-millions-of-items-of-unsold-stock-in-one-of-its-uk-warehouses-every-year-itv-news-investigation-finds
[116] Gaia "Zero Waste and Economic Recovery - The Job Creation Potential of Zero Waste Solutions" (2021)
[117] European Remanufacturing Network (2015)
[118] "Green Taxation and other economic instruments: Internalising environmental costs to make the polluter pay", IEEP et al, 2021 (forthcoming, will be published before the Summer)
[119] ECA, Special report 12/2021: "The polluter pays principle: inconsistent application across EU environmental policies and actions".

sustainability performance of products is reliable, credible, and clear (see *Annex 14: Articulation with existing legislation and other initiatives* for more details).

Overall, given that the market appears not to properly reward sustainability, and there is no direct request to pay for pollution (see recent report of the European Court of Auditors[120]), there is a **lack of incentive for producers to produce more sustainable products**.

As part of the latter two drivers, there is a **failure of markets and product design to properly enable the development of Circular Business Models** (CBM). It is not easy acting as a circular business in linear markets, value chains, regulatory and financial frameworks. CBMs include notably product service systems (product-based services, use-oriented services and result-oriented services), value retention and product life-extension activities. These CBMs face significant barriers, the principle ones being, firstly, split incentives in value chains which mean that (for example) a producer has little or no interest in designing a product for future value retention (repair, servicing, component harvesting, remanufacturing, recycling) or for multiple users. Secondly, organisational challenges in the supply chain, in particular related to loss of upstream information, and loss of contact with stakeholders further down the value chain, is also hindering progress. Developing these activities therefore depends to a large extent on physical design attributes of products, and on access to relevant data. The result is that sectors such as furniture, high impact intermediary products (e.g. chemicals, steel) and electronics & ICT have particularly low CBM market penetration: 3%, 4% and 4% respectively[121].

Regulatory and administrative failures

The EU regulatory framework for sustainable production and consumption is insufficiently developed. As outlined in previous section, there is currently no overarching, integrated EU policy instrument capable of covering the sustainable production and consumption of all products and/or the availability and reliability of sustainability information on these products. Rather, a 'patchwork' regulatory situation exists, which allows only certain aspects related to product sustainability and circularity to be addressed, and leaves certain highly relevant sectors (such as textiles and furniture) almost wholly unaddressed in this respect. This situation leaves room to national initiatives: as illustrated in Annex 7 (see in particular *Table on national level initiatives*), Member States have begun to press ahead with national-level rules to foster the sustainability of the products placed on their markets. While such initiatives are indicative of the growing momentum at national-level to engage with circular economy practices to foster sustainable products, they risk leading to growing uncertainty for businesses, increased administrative burden and potential barriers to the development of their economic activities (something businesses themselves have drawn attention to, see *Consequences*), thus exacerbating the main problem SPI intends to address.

Despite its successes, the Ecodesign regulatory framework could also benefit from a greater political focus and adjustments based on experience and evolutions of the wider legislative framework, from the Lisbon Treaty to reviewed Market Surveillance rules. Evaluations and stakeholders point to some **shortcomings of implementation and enforcement that lead to a sub-optimal application of the Ecodesign Directive**. Upstream, significant delays in the regulatory process, linked partly to its complexity and primarily due to the limited available staff resources, reduce the effectiveness of the policy, leading to delayed or missed opportunities as requirements become outdated or are applied too late. Downstream, there is a general agreement that the level of market surveillance and customs enforcement is too low and should be increased as it is economically beneficial for society (current investments in enforcement are estimated to be 0.05% of the value of lost energy savings[122]). Apart from the level of resources allocated to market surveillance and customs authorities, timely access to

[120] ECA, Special report 12/2021: "The polluter pays principle: inconsistent application across EU environmental policies and actions"

[121] Analysis of sectoral distribution of 2380 European companies with CBMs carried out in the context of the study to support this initiative.

[122] Ecofys final technical report p.159 referring to P. Waide et al., Enforcement of energy efficiency regulations for energy consuming equipment: findings from a new European study, Proceedings of the 6th International Conference EEDAL'11 Energy Efficiency in Domestic Appliances and Lighting

product documentation and EU Market Surveillance Authorities (MSA) cooperation could be improved.

Behavioural biases

Behavioural biases – including cognitive biases – are also relevant for better understanding the main problem and need to be taken into account in possible solutions. Such biases include the fact that some consumers take consumption decisions based on short-term costs and disregard the long-term costs of their choices (myopic behaviour). In addition, for consumers, a transition to more environmentally sustainable choices often requires a behaviour change, which is difficult because of resistance to change and the status quo bias. The result can sometimes be consumer choices that appear irrational, both at the individual level and in consumer trends, due for instance to perceived obsolescence, where despite being functional, a product is no longer perceived to be stylish or appropriate, so it is rendered obsolete by perception, rather than by function. In Annex 7: Problem Definition, four types of behavioural biases have been identified as important drivers for the problems analysed above: social norms, bounded rationality, myopic behaviours, and linear production and consumption patterns as the default options. While increased availability of information on the sustainability characteristics of products cannot be expected to remedy such behavioural biases in full, it is expected to play a role in increasing awareness and nudging consumers towards more sustainable choices over time. This may be of relevance in particular for undecided consumers (i.e. those who do not usually buy environmentally-friendly products but intend to/are considering doing so), given that the ease with which a sustainable product can be differentiated from other products appears to play a role in encouraging sustainable product choice[123].

2.3. HOW WILL THE PROBLEM EVOLVE?

The underlying drivers of the problem will continue, and show signs of strengthening rather than abating. As a result, the problems would also worsen over time in the absence of new policies. There is however an ongoing evolution of the EU policy landscape with a number of product related regulatory instruments (beyond the Ecodesign Directive) expecting revisions by 2022 (e.g. construction products, packaging and packaging waste, vehicles, chemicals in electric and electronic products, batteries and industrial emissions). In addition, new EU initiatives e.g. on Empowering Consumers for the Green Transition, the Green Claims Initiative, the Circular Electronic Initiative, and the Strategy for Sustainable Textiles will promote a clean and circular economy approach for selected products and increase transparency around sustainability of various products. The development of taxonomy screening criteria relating to circularity and other sustainability objectives will also incentivise access to finance for more sustainable production and products. Furthermore, a set of EU voluntary instruments (e.g. EU Ecolabel, Green Public Procurement (GPP), Environmental Technology Verification (ETV)[124]) and funding programmes for innovation, research, development and market uptake will continue to promote innovative products, solutions, and business models. The recently adopted Zero Pollution Action Plan[125] as well as the Chemicals Strategy for Sustainability[126] will also drive the development of cleaner, less polluting products or alternative services (e.g. through the 'safe and sustainable by design' approach).

Nevertheless, whilst these will all contribute positively to addressing the problem, and can be justified individually, they will not resolve the problem or its underlying drivers in full – actually the effectiveness of some of the above-mentioned initiatives (such as the initiative on Empowering Consumers for the Green Transition, the textiles strategy and the Right to Repair) will be enhanced

[123] *Flash Eurobarometer 367*, p. 6: "Respondents who do not buy environmentally-friendly products but intend to, are significantly less likely to believe that environmentally-friendly products are easily available compared with those who sometimes buy them (42% versus 54%). This suggests that environmentally friendly products should be more carefully presented so that they could be more easily differentiated from other products."

[124] https://ec.europa.eu/environment/ecoap/etv_en

[125] COM(2021) 400 final

[126] COM(2021) 667

by the presence of a regulatory framework setting sustainability requirements on products or groups of products, including for non-energy related products.

Importantly, the absence of an overarching framework to ensure product sustainability in the EU will undoubtedly mean that fragmentation of the EU Internal Market gains further momentum, as individual Member States continue their attempts to tackle the problem at national level.

Sub-problem 3 on the sub-optimal application of the current Ecodesign Directive is also unlikely to evolve positively: with no increase in resources, its application will be mostly restricted to updating existing legislation, with limited opportunities to cover a significant number of new energy related products or increase delivery speed in Option 1 (the Business as Usual).

More elements and analysis are in Annex 7: Problem Definition.

3. WHY SHOULD THE EU ACT?

3.1. LEGAL BASIS

The legal basis is Article 114 of the Treaty on the Functioning of the European Union. On the basis of this provision, the Union can take action to ensure the functioning of the internal market.

Section *2 Problem definition* of this impact assessment demonstrated that a number of problems hindering both the uptake of sustainable products and the functioning of the internal market currently exist. The absence of adequate and comprehensive internal market rules to regulate sustainable consumption and production, leaves room for solutions currently being developed by Member States or by industries and which contribute to the dysfunctionality of the internal market by generating potential barriers, fragmentation and incoherent approaches. Measures based on Article 114 TFEU aiming to build an internal market for sustainable products and ensuring that national initiatives do not hamper its functioning are therefore appropriate.

In addition to pursuing internal market objectives, the proposal will contribute to a high level of environmental protection (Article 3 TFEU), by unlocking opportunities for the circular and sustainable economy. However internal market objectives are predominant and environmental and social benefits are complementary.

Moving from the aims to the nature of the initiative, the main content of the future legal provisions is a mechanism for the setting of harmonised requirements for products to be placed on the internal market. The future legal instrument is therefore product-centred, built on a free movement clause and will contribute to the establishment and functioning of the internal market for sustainable products.[127]

As a consequence, Article 114 is the appropriate and correct legal basis, even if other considerations (environmental and social) are decisive for the choices made within that measure.

3.2. SUBSIDIARITY: NECESSITY OF EU ACTION

The necessity test is the question of whether the objectives can be sufficiently achieved by action taken by Member States alone. In this case, they cannot. In order to ensure a level playing field for manufacturers, recyclers, importers and economic operators more broadly in terms of the requirements to be met when placing products on the EU market, it is essential to put in place a common set of rules, which include harmonised requirements to ensure product design sufficiently takes into account environmental impacts and the obligation to provide reliable information to end-users. For these reasons, EU-wide legislation is necessary. Without an EU-level initiative and its

[127] This is a continuation of the approach used by the current Ecodesign Directive 2009/125/EC (although wider in scope and richer in aspects addressed) which also has Article 114 as legal basis.

effective application, the problems assessed in this impact assessment could not be fully and consistently addressed across the EU. National initiatives, while bringing certain benefits at national level, would inevitably further fragment the internal market and render consumer choices more complicated. Member States have indeed already started to address the issue as shown *inter alia* by the steep increase of notifications for national products measures linked to environmental considerations, and by various already adopted national legislation setting product requirements.[128]

This circumstance apart from substantiating the main condition, considered by the ECJ for the legitimate use of Article 114[129] , justifies the necessity of the EU action: not only to prevent the likely emergence of such obstacles but also to address a fragmentation that is already visible and to eliminate the distortions of competition deriving from it.

3.3. SUBSIDIARITY: ADDED VALUE OF EU ACTION

There is clear added value in setting common requirements at EU level, as this will ensure a harmonised and well-functioning internal market across all Member States and, therefore, a level playing field for businesses. With harmonised minimum and information requirements set at EU level, sustainable products and circular practices and business models will be promoted in all Member States, creating a larger and more efficient market and hence greater incentives for the industry to develop them.

In addition, the internal market size provides a critical mass enabling the EU to promote product sustainability and to influence product design and value chain management worldwide. Supporting measures to actively promote the uptake of these standards globally should also be envisaged.

The proposed measures will not go beyond what is necessary to provide regulatory certainty while ensuring a high level of protection of health and of the environment. EU action is therefore justified and necessary.

4. OBJECTIVES: WHAT IS TO BE ACHIEVED?

The general objective is to **reduce the negative life-cycle environmental and social impacts of products and improve the functioning of the internal market**.

This general objective responds to the problems and their underlying drivers. In particular, it reflects the fact that the EU's internal market includes products that are associated with unnecessary environmental and social impacts. The general objective builds on experience gained under the current Ecodesign Directive, which has proven that product performance can be improved, whilst usually delivering overall benefits for citizens. SPI also addresses the objectives of industrial policy. The industry needs harmonised requirements applicable across the board and adequate enforcement and reinforced market surveillance and customs controls. SPI will enable the EU industry to deliver on sustainable production strengthening a level-playing field and the demand for sustainable goods.

Following from the general objective, **the specific objectives** are to:

- Improve products sustainability
- Better access to sustainability information along the supply chain
- Incentivise more sustainable products and business models to improve value retention
- Improve application of sustainable product legislative framework

[128] See Annex 7, under the problem drivers related to regulatory and administrative failures, the extracts from the TRIS Database and the Table on national level initiatives. See also the Table on excerpts from the business replies to the consultation on the Inception Impact Assessment that underline the relevance of the market fragmentation issue.

[129] The likely emergence of obstacles to trade, together with the need to eliminate the related distortions of competition (Case C-376/98 *Tobacco Advertising*, paras 84-88

The specific objectives relate either to the problems directly or to their underlying drivers. For the behavioural drivers, it should be noted that these cannot be addressed directly but that their negative consequences can be tackled by the options (e.g. by restricting harmful choices). The progress to achieving the specific objectives can be measured through the monitoring indicators described in section 8 (and Annex 13). All specific objectives help to promote more sustainable consumption patterns in the EU. Operational objectives for specific product groups will be determined at a later stage and on the basis of impact assessments that accompany future SPI measures (see box 2 below).

4.1. THE INTERVENTION LOGIC

The intervention logic sets out the underlying reasoning of this Impact Assessment. The objectives are intended to channel the response to the problems within scope. Given the breadth of scope, problems and underlying drivers at hand, and their sometimes independent nature, **six options** for action (in addition to a 'Business As Usual' option) have been identified, with various sub-options considered under each. Based on an individual assessment of these sub-options, a preferred sub-option per main option is selected. The combination of the preferred sub-options for each of the main options forms the basis for the **overall preferred option,** which is then also assessed.

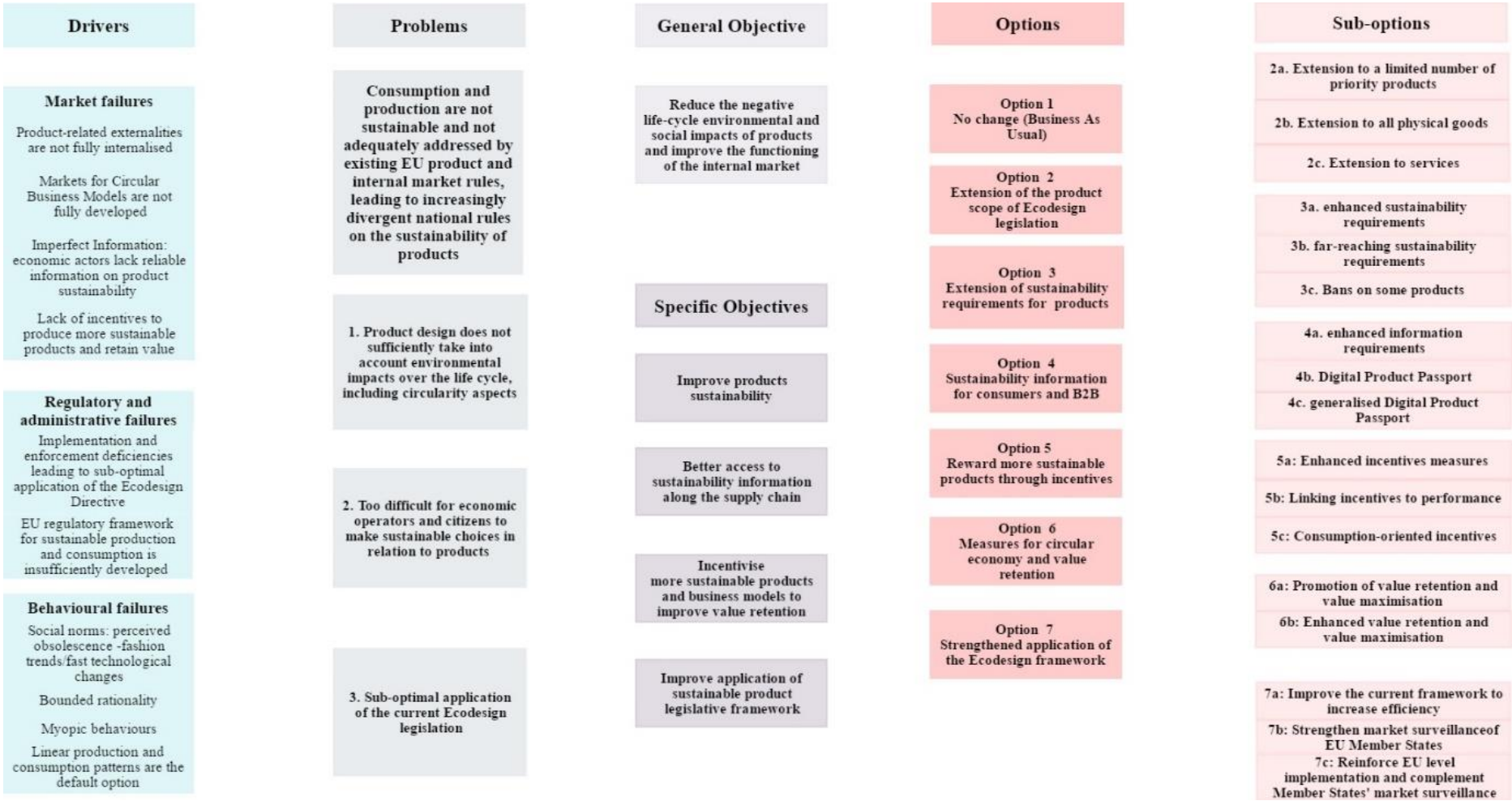

Figure 1 Intervention logic

The specific objectives aim either to address the identified problems directly or – where possible – to address the underlying problem drivers. As explained above for behavioural drivers, some of them can only be addressed indirectly. All retained options also aim to address the general objective.

5. WHAT ARE THE AVAILABLE POLICY OPTIONS?

Each option from Figure 1 (as further detailed in Table 1) responds to a Specific Objective, and through that to a problem or underlying driver. The options are not mutually exclusive but rather tackle separate issues. The content of each sub-option (i.e. the detailed measures that make them up) is the result of underlying analyses and/or stakeholder consultation. Sub-options group measures to keep the analysis manageable, but analysis of each individual measure is included in Annex 10. The groupings reflect step ups in ambition (i.e. effectiveness), and allow for coherent sets of measures.

Not considered explicitly as an option, but central to the delivery of the preferred option, is the question of the **administrative setup**. Essentially, ambitious choices can only be delivered if there are adequate resources in place to implement them (see section 7.10 and 7.11 below).

Box 2: ***Preamble to description of the policy options***

Architecture of the future SPI instrument

Given the centrality of the extension of the Ecodesign Directive to this initiative, it is important to note that the design of the future SPI instrument is likely to closely resemble that of the existing Ecodesign Directive. In essence, this means that detailed product rules (*such as on the minimum durability of a washing machine; what fibres a T-shirt should be designed with to ensure it can undergo high-quality recycling; or what sustainability information should be made available when a product is placed on the market, etc.*) will not be set out in the main legal act, but rather laid down in a second stage, via **SPI measures** dedicated to a particular product or to groups of products.

This architecture is thus built on product-specific rules, which allows taking into account the specificities of a particular product or group of products with sufficient commonalities. A theoretical alternative would be to introduce general horizontal rules that would apply to all products. Yet, given the huge number of different types of products and the large variety of their characteristics (and possible trade-offs), a set of horizontal rules would create legal uncertainty regarding what this would mean in practice for a particular product and ultimately require guidance for each product or group. Moreover, the risk of market fragmentation would remain as general rules would likely be interpreted differently across Member States for particular products. In light of these considerations, general horizontal rules would be unlikely to solve the problems identified and are clearly inferior to product-specific rules, which can be tailored to the characteristics of the products and the sustainability issues pertaining to them.

The SPI measures will in all cases be preceded by a thorough preparatory process, including inclusive stakeholder consultation and impact assessment. This reflects how the current Ecodesign Directive operates today, and acknowledges that such steps are necessary before the adoption of effective, proportionate and product-appropriate rules can take place.

Taking this architecture into account, it should be pointed out that certain decisions regarding the parameters of the future SPI framework legal instrument (e.g. its future scope and the categories of sustainability and information requirements it will lay down; *see options 2, 3 and 4*) are not in themselves expected to have a direct impact on the product sectors concerned. Rather their effects will be felt following the adoption of the above-mentioned SPI measures, to be preceded by a thorough preparatory process as outlined above.

Table 1 Policy options, sub-options and related measures

Sub-Problems	Specific Objectives		Option 1 - Business As Usual		
1) Product design does not sufficiently take into account environmental impacts over the life cycle, including circularity aspects **And** **2) Too difficult for economic operators and consumers to make sustainable choices in relation to products**	**SO1: Improve products sustainability**	**Option 2: Extension of the product scope of Ecodesign legislation**	**2a Extension to a limited number of priority products** (not addressed through separate legislation). **Energy Related products + Textiles, Furniture, High impact intermediary products, Chemicals**	**2b Extension** beyond sub-option 2a **to all physical goods**	**2c Extension** beyond sub-option 2b **to all services**
		Option 3: Extension of sustainability requirements for products	**3a Enhanced sustainability requirements** (for specific **products** in SPI measures[130]): • minimum requirement on the **durability** or **reliability** of the product or its components • minimum requirements on **reparability** and **upgradability** • restricting the presence of **substances** hindering circularity • minimum requirements on **recycled content** on the product or its components • minimum requirements to **reduce carbon and environmental footprints** • Requirements enabling **high-quality recycling**	**3b Far-reaching sustainability requirements** Sub-option 3a plus: • Adoption of **SPI measures** setting out **requirements** covering **groups of products** (e.g. reparability for electronics) • Minimum requirements on **re-manufacturability** • Requirements of **due diligence on the supply chain of products**	**3c Bans on some products** Sub-option 3b plus: • **Measures banning some products or some materials** in specific products
	SO2: Better access to sustainability information along the supply chain	**Option 4: Sustainability information for consumers and B2B**	**4a Enhanced information requirements** • **information requirement** on the **durability** or **reliability** of the product or its components • **information requirements** on **reparability** and **upgradability**, including a reparability scoring • **informing** on the presence of **substances of concern** and **tracing** them • **information requirements** on **recycled content** on the product or its components • **Information requirements** on the **environmental impacts** along the life-cycle of the product, for example in	**4b European Digital Product Passport** Sub-option 4a plus: • **Information requirements** in the form of a European **Digital Product Passport** through SPI measures • **Integrating** the **SCIP Database** (implementing Article 9 (1) (i) of the Waste Framework Directive) **with SPI information requirements**	**4c Generalised European Digital Product Passport** Sub-option 4b plus: • Direct implementation of "cross-sectoral" information requirements in a **European Digital Product Passport** applicable to all products in scope and based on **horizontal requirements** already included in the legislative act

[130] Could be implementing or delegated acts. To be decided when finalising the legal proposal.

			the form of an Ecological profile • **Information requirements** in the form of **sustainability performance classes** • **Information requirements** on a set of **social indicators**		
	SO3: Incentivise more sustainable products and business models to improve value retention	**Option 5: Reward more sustainable products through incentives**	**Sub-option 5a: Enhanced incentive measures** • **Member States encouraged** to introduce **reputational and economic incentives** and supported by the provision of **guidelines** • **Mandatory Green Public Procurement** requirements in SPI product-specific rules	**Sub-option 5b: Linking incentives to performance** Sub-option 5a plus: • **Member States obliged to use classes of performance** to introduce **reputational and economic incentives** • **Modulation of EPR fees** to classes of performance	**Sub-option 5c: Consumption-oriented incentives** Sub-option 5b plus: • **Bonus for EU citizen** to reduce carbon footprint. • Introduction of an **excise proportional to the life cycle environmental performance**
		Option 6: Measures for circular economy and value retention	**Sub-option 6a: Promotion of value retention and value maximization** • Provide **guidelines** on supporting circular business models • **EU-wide hub** supporting the uptake of circular business models	**Sub-option 6b: Enhanced value retention and value maximization** Sub-option 6a plus: • Introduce transparency obligation on the destruction of unsold consumer products, and a **ban on destruction** via SPI measures	
3) Sub-optimal application of the current Ecodesign legislation	**SO4: Improve application of sustainable product legislative framework**	**Option 7: Strengthened application of the Ecodesign framework**	**Sub-option 7a: Improve the current framework to increase efficiency** • **Streamline the procedures** for the development and adoption of Ecodesign implementing regulations • Introduce possibility to **collect data from manufacturers and retailers** regarding regulated products sales and usage • Expand provisions related to **third party conformity assessment**	**Sub-option 7b: Strengthen market surveillance by EU Member States** Sub-option 7a plus: • Make **product information digitally available** to Market Surveillance Authorities (MSA) and to customs authorities • **Structural technical support** to improve cooperation between MSAs and ensure sufficient capacities • Organise **common trainings** for staff of notified bodies, notifying authorities and MSAs • **Publish MSA penalties** decisions • Benchmark and **reporting** obligation for MSs • Establish **requirements for market surveillance checks**	**Sub-option 7c: Reinforce EU level implementation and complement Member States' market surveillance** Sub-option 7b plus : • **Complement national market surveillance** where needed • Product **monitoring and EU testing** capacity • **Assistance** to implementation for suppliers and MSAs • **Third party channel** for market **surveillance**

5.1. WHAT IS THE BASELINE FROM WHICH OPTIONS ARE ASSESSED?

Under the Business As Usual (Option 1), all relevant EU level and national policies and measures are envisaged to remain in force within the time horizon of 2030. The situation and problems would evolve as described in *Annex 9: Policy Options and Measures*, with a positive trend towards sustainable consumption recognisable, but progress remaining slow, as the rising trends of waste generation, consumption and environmental impacts detailed in Annex 7: Problem Definition indicate.

The Ecodesign Directive Work Plan for 2016-2019 added additional groups of energy related and ICT products[131]. However, because of the constraints explained in Sub-problem 3 (see section *Sub-problem 3: Sub-optimal application of the current Ecodesign legislation*), the number of new products that could effectively be regulated by 2030 will remain limited, with existing resources being rather focused on the necessary reviews of the most significant existing product regulations. It is likely that an increasing number of circularity and sustainability requirements will be covered for these product regulations.

Beyond that, the baseline also assumes that other EU and Member States' policies in preparation and relevant to sustainable products would be implemented. However, the impacts of those initiatives proposed in the context of the CEAP (in parallel to SPI) are described in a qualitative way only. Information on the baseline is provided in *Annex 9: Policy Options and Measures*, including further details each of the options.

5.2. WHAT ARE THE POLICY OPTIONS?

Option 1: Business As Usual (see section 5.1 above)

Option 2: Extension of the product scope of Ecodesign legislation

In order to achieve the objectives of this initiative, in particular specific objective 1 to 'Improve products sustainability', the first option relates to extending the product scope of the Ecodesign Directive beyond energy-related products, taking into account previous analysis indicating that significant sustainability benefits could be gained from such an approach, as well as general support from stakeholders[132]. The sub-options retained for analysis consider **2a)** an extension of the scope to a limited number of priority products; **2b)** a wide extension to all physical goods; and **2c)** an extension to all services.

Presented below are the three approaches to extending the scope of the Ecodesign Directive that have been retained for analysis. It should be noted from the outset that, given the architecture of the Ecodesign instrument (with detailed product rules laid down only in a second stage via implementing measures – please see Box 2 on *Architecture of the future SPI instrument*, section 7.3 and Annex 6), the decision to extend the scope is not in itself expected to have a direct impact on the sectors concerned. Rather the effects will be felt following the adoption of the SPI measures for particular products or groups of products, which in all cases will be preceded by thorough analysis, consultation with stakeholders and impact assessment.

In the case of all three sub-options, the order of product (or service) prioritisation will be decided based on specific criteria, similar to those already foreseen in Article 15 of the current Ecodesign Directive, such as their environmental, energy and social impacts and related potential for cost-

[131] Building Automation and Control Systems; Electric kettles *(currently in the legislative process); H*and dryers; Lifts; Solar panels and inverters; High-pressure cleaners; Gateways (home network equipment); Mobile/smart phones and tablets (*currently in the legislative process);* Base stations.

[132] See for example (SWD(2019)91); see also additional details in Annex 9.

effective reduction of these impacts[133]. The selection will follow a fully transparent process culminating in (multi-annual) work programmes outlining the priorities for the development of SPI measures. These SPI measures will set out product/service-specific requirements, or requirements for a wide group of products (if sub-option 3b is retained), following an analysis of the product/service group in question and an impact assessment of the proposed requirements.

Under **sub-option 2a: Extension to a limited number of priority products**, a targeted extension of the Ecodesign Directive, to a *limited* number of priority products[134], is envisaged. The products in question have been identified taking into account their **sustainability credentials** as well as their **general potential for improvement** from a sustainability point of view, including their circularity potential. This builds notably on the results of a series of studies detailed in the annexes. [135,136]

Following analysis based on the above-referenced sources, a key final decision criterion for inclusion of a product in the priority list was the **extent to which their sustainability dimensions are already covered, or capable of being covered, by existing EU level instruments**. While e.g. *certain* environmental impacts of some of the products included in the priority list are covered through existing EU level legislation (see *Annex 9* as well as *Annex 14*), **those for which significant regulatory gaps *vis-à-vis* sustainability dimensions still exist have been included**.

Based on the above, this sub-option proposes to extend the scope of the current Ecodesign Directive to enable the adoption of SPI measures for the following product categories (*further justification for each of the below is set out in Annex 9*):

- Energy related products (including means of transport[137]);
- Textiles;
- Furniture;
- High impact intermediary products;
- Chemicals[138].

As previously mentioned, detailed impact assessments will precede the adoption of any SPI measures for the above-mentioned products. SPI will only intervene for issues that no other instrument is addressing or addressing sufficiently.

Together, throughout their lifetime, the option 2a products are estimated to cover an additional 14% of GHG emissions, 38% of human toxicity impacts and 15% of primary energy consumption compared to the baseline as discussed in Annex 10. In total, including the baseline, the SPI would cover 63 % of

[133] Annex 16 sets out the criteria and process for prioritisation of products, building on the approach in Article 15 of the Ecodesign Directive. Application of this prioritisation would lead to an assessment of the value added for different product groups.

[134] This excludes food and feed as defined in the General Food Law (Regulation EC 178/2002) and raw materials, except as intermediary products for the production and use of goods that are placed on the market.

[135] See details on the findings and sources that have been used to identify these priority products in ***Error! Reference source not found.*** (section ***Error! Reference source not found.***). Annex 10 illustrates that for most environmental impacts, the products theoretically covered under Ecodesign (BAU) make up a sizeable fraction of EU-wide environmental impacts, while the addition of the product groups in sub-option 2a would further increase the coverage considerably, indicating that they are highly relevant for a wide range of environmental impacts.

[136] This impact assessment excludes food and feed as defined in the General Food Law (Regulation EC 178/2002), which are addressed through the Farm to Fork Strategy and raw materials as final products, meaning that raw materials are included only when they are embedded in other intermediate or final goods in scope of SPI.

[137] This corresponds to the product coverage of the Ecodesign Directive, with the addition of means of transport, which are energy-related products but currently excluded from Ecodesign scope.

[138] Understood as intermediate products (e.g. industrial solvents) or final products e.g. such as detergents or cosmetics. Where chemicals are destined/used for food related purposes and are not considered as food or feed, they will be subject to the relevant sectoral legislation, including the future sustainable food systems framework legislation, as announced in the Farm to Fork Strategy

GHG emissions, and 66 % of primary energy use and 60 % of human toxicity impacts resulting from European consumption[139].

Sub-option 2b: Extension to all physical goods would allow for the possibility, in principle, of adopting SPI measures for any physical good placed on the EU market[140]. As under sub-option 2a, such measures would only be adopted based on clear criteria, for instance where significant improvement potential from a sustainability point of view can be identified. As under sub-option 2a, this would only take place when EU sectoral legislation does not provide for requirements on similar product parameters or is not capable of achieving the objectives of sustainability pursued by SPI. The SPI multiannual working plan and preparatory studies for specific SPI measures would allow for this assessment, and for prioritising products based on their estimated environmental, economic and social impacts. In practice, the first priorities would likely be the products identified under 2a, based on an assessment of potential value-added[141]: but this sub-option leaves flexibility to also cover other products not included in 2a, including through horizontal measures. Articulation with other EU level legislation would follow the same principles as under 2a.

This sub-option was also developed taking into account the experience and limitations of the current Directive, and the likelihood that novel products will emerge in the future whose impacts are as yet unknown: sub-option 2b therefore provides for more future-proof legislation, capable of responding to the evolution of products and our understanding of them, and present the added value of not requiring a revision of the overarching legislative framework, should action need to be taken for new or future product categories. It would therefore lessen the likelihood of problematic regulatory gaps, such as those that currently exit, occurring in the future, by helping to prevent situations in which justified action at EU level is inhibited from taking place (as is currently the case). It was also developed with the internal market objective of this initiative in mind, given that a broader product scope would increase the potential of having harmonised rules where the need for regulatory action emerges, thus decreasing potential fragmentation.

Based on best current estimates, throughout their lifetime, the products considered under option 2b *could* cover an additional 16% of GHG emissions, 42% of human toxicity impacts and 18% of primary energy consumption compared to the baseline as discussed in Annex 10. In such a case, including the baseline, the SPI would cover 65 % of GHG emissions, and 69 % of primary energy use and 64 % of human toxicity impacts resulting from European consumption[142]. It should nevertheless be underlined that, given the wide scope of this sub-option, and the possible emergence of novel products with as yet unknown impacts, the full coverage potential of this sub-option cannot be calculated with accuracy and may be higher than the above-mentioned figures.

Under **sub-option 2c: Extension to services,** SPI would be extended to cover services (in addition to all physical goods), and their significant environmental impacts. Services have been considered under a separate sub-option due to their specificities compared to physical goods: the inclusion of services follows a different logic from goods as they do not necessarily imply the transfer of a physical article. Nonetheless, service provision often relies on infrastructure and on products which have their own environmental impacts. Services may either be provided in the context of goods so that sustainability features of that good could become relevant (e.g. "product as a service" or services incidental to manufacturing), or rather based on equipment and personal skills of the service provider (e.g. repair service, advisory service).

[139] As modelled in the SPI Impact Assessment Supporting Study.

[140] As mentioned, this would nevertheless exclude food and feed as defined in the General Food Law (Regulation EC 178/2002) and raw materials, except as intermediary products for the production and use of goods that are placed on the market. Where justified, a limited number of other product exemptions may also be required (e.g. military equipment). For a more detailed description of the potential product coverage and the interaction with existing product specific legislation, please see Annex 14.

[141] Annex 16 sets out the criteria and process for prioritisation of products, building on the approach in Article 15 of the Ecodesign Directive. Application of this prioritisation would lead to an assessment of the value added for different product groups.

[142] As modelled in the SPI Impact Assessment Supporting Study.

Option 3: Extension of sustainability requirements for products

The existing Ecodesign Directive provides for the setting of generic or specific requirements on the energy efficiency and other environmental aspects of energy-using products. In order to achieve the objectives of this initiative, in particular specific objective 1 to 'Improve products sustainability', these requirements will need to be complemented or reinforced.

The three sub-options retained to respond to this are: **3a)** enhanced sustainability requirements; **3b)** far-reaching sustainability requirements, and **3c)** bans on some products. The sub-options are cumulative: all measures included in sub-option 3a are also part of 3b and 3c; all measures included in sub-option 3b are also part of sub-option 3c.

The sub-options have been divided according to the following logic: sub-option 3a *reinforces requirements* of the existing Ecodesign Directive. Sub-option 3b *goes further beyond* the scope of the current Ecodesign Directive (e.g. by including measures enabling the remanufacturing of components and the setting of due diligence requirements in relation to specific human rights risks along the value chain of products). Sub-option 3c includes all measures presented in sub-option 3a and 3b, and *in addition* would include the possibility to introduce explicit prohibitions on some products.

Under **sub-option 3a: Enhanced sustainability requirements**, requirements to strengthen the environmental sustainability of products would be set, via SPI measures specific to individual product categories. Requirements would be set as appropriate to the product and would build on those possible under current Ecodesign rules.

The enhanced requirements would focus in particular on extending products' ***durability or reliability*** (where e.g. a minimum life duration for a product's use phase, or minimum reliability - e.g. expressed as Mean Time Between Failures - could be set), as well as ensuring their ***reparability and upgradeability*** (building on existing requirements under Ecodesign in relation to disassembly and spare parts and going further, e.g. requiring modular design, or a specific choice of materials to be used in a product). The requirements would also seek to ***restrict substances in products that hinder circularity*** (such as substances that inhibit recyclability, upgradability, durability etc.), ***set minimum levels of recycled content in products*** (or in their components), ***reduce carbon and environmental footprint*** (e.g. based on a full life cycle assessment of the product, possibly defined and calculated using the Environmental Footprint methods) and ***enable high-quality recycling*** (e.g. by restricting the variety of alloys in a product, so as to enable high-purity sorting).

The choice of which requirements to apply will be decided on a product by product basis, with no commitment to apply a type of requirement for all products. Through consideration in the preparatory studies (as discussed in Annex 16), they will be impact assessed in order to make sure that requirements are appropriate and proportionate.

Sub-option 3b: Far-reaching sustainability requirements would build on measures under sub-option 3a, and in addition introduce the possibility of setting ***horizontal requirements, applicable to large groups of products sharing common characteristics*** *(e.g. minimum recycled content)*, in the same SPI measure, as well as requirements to further boost ***re-manufacturability*** (such as requiring availability of a Bill of Materials, mechanical drawings / 3D printing files, software code etc.).

This sub-option is also intended as a more complete response to the working concept of 'sustainability' used for the purposes of this impact assessment (and set out in section 2), given that it encompasses not only the environmental but also the *social* dimension of sustainability, via concrete product requirements. It would allow for the setting of ***due diligence requirements in relation to specific social or human rights risks*** – ***where such risks are identified at the level of the product*** (for example, linked to the specific materials, components or production processes *of the product itself*). This empowerment is intended to be used where an SPI preparatory study identifies such specific risks and finds that other instruments, in particular the Sustainable Corporate Governance initiative (SCGI), are not in a position to sufficiently address them alone. The aim is to progressively reduce the risk that products available on the EU market are linked to human rights violations - identified on a product-per-product basis as most relevant for products' individual supply chains. Where specific risks exist for certain products that are not sufficiently addressed through existing instruments,

product-specific due diligence obligations will be able to ensure due diligence efforts are undertaken by the companies placing on the market a product linked to those risks. SPI due diligence requirements would be formulated with a view to ensure that companies already having due diligence systems in place are able to integrate compliance with SPI due diligence obligation into their overall system.

Sub-option 3c: Bans on some products would build on sub-option 3b, by also including the possibility to ***prohibit the placing on the market of some products, or products containing certain materials***. This would build on what *de facto* happens with the current Ecodesign Directive[143], by explicitly allowing for such a possibility, in cases where a set of clear criteria (to be defined in legislation) are met (see *Annex 9: Policy Options and Measures*).

Option 4: Sustainability information for consumers and B2B

In order to achieve the objectives of this initiative, in particular specific objective 2 to enable 'Better access to sustainability information along the supply chain', the following three sub-options have been retained for assessment: **4a)** enhanced information requirements; **4b)** the establishment of a European digital product passport at product group level; and **4c)** generalised application of a European digital product passport for all products in scope. The sub-options are cumulative: measures considered in sub-option 4a are also part of sub-options 4b and 4c. Sub-option 4c builds on sub-option 4b by complementing Measure 4b.1.

Sub-option 4a: Enhanced information requirements would create an obligation for those responsible for placing products on the EU market to make available the information necessary for consumers and economic operators along the value chain. The information requirements would, to the extent possible, reflect the sustainability requirements to be set for products under sub-option 3a, and where needed go beyond this[144]. Requirements, including the way the information should be made available, would be defined in SPI measures. This means that information requirements could be placed on the durability or reliability of the product or its components (e.g. taking the form of a requirement for a durability index, with classes of durability or reliability), on the product's reparability and upgradability (e.g. taking the form of a requirement for a reparability score), on the presence of substances of concern in the product and their tracing, on the recycled content in the product or its components (e.g. setting an open requirement to communicate recycled content levels, where a minimum requirement in that respect is not feasible), as well as the product's environmental impacts along the life-cycle (e.g. reflecting a requirement set in this respect, at process level or for the full life cycle, or setting an open requirement to communicate life-cycle environmental impacts, possibly in the form of a product's ecological profile[145]). Building on the latter, this sub-option would also allow for information requirements to be set in the form of classes of performance (i.e. the establishment of categories of product performance, to enable comparison of an individual product with other similar products on the basis of their environmental performance, in addition to functionality or price alone) and possibly displayed in the form of a label, in a manner similar to how the energy label allows for the setting of energy classes (for the articulation with the energy label and EU Ecolabel, please see Annex 14; for the articulation with Consumer Empowerment and Green Claims, please see section 7.9 and Annex 14).

In addition, this sub-option would enable the adoption of SPI measures to require information on a ***set of social indicators***. These will be based on an assessment of social aspects in the value chain of products, with a view to identifying hotspots (i.e. points along the value-chain that may have

[143] The Ecodesign legislation does not lead to banning products as such (neither materials nor technologies): it sets requirements to be respected in order for the products to be placed on the market. Products not meeting these requirements are de facto excluded from the market, unless their design is revised and improved to meet the requirements.

[144] Some measures will be implemented in synergy with measures foreseen in the Impact Assessment of the "Empowering consumers for the green transition" initiative and the "Green Claims Initiative". See ***Error! Reference source not found.*** for details.

[145] As provided in Annex I, Part 3 of the Ecodesign Directive. This has never been implemented so far: a review of the ecological profile definition and the use of e.g. the Product Environmental Footprint method could facilitate its implementation.

significant positive or negative social impacts). The specific set of social indicators would be established within the product specific SPI measures, in close coordination with relevant existing legislation (see Annex 14).

<u>Sub-option 4b</u>: European Digital Product Passport (EU DPP) goes further and would require that, in addition to any information to be provided in physical format under sub-option 4a, the information requested should be made available via a ***European Digital Product Passport***. The EU DPP would not automatically replace the information provided to consumers on printed labels. This is particularly important for the digitally excluded. It will rather complement this information and be more permanently available than tags or packaging that are removed after purchase. Moreover, the EU DPP would include a limited number of information requirements, common to all products, allowing extended visibility along the value chain (tracking & tracing information). Therefore, the EU DPP would consist in a structured collection of product-related data (with clear data ownership and access rights), and would be linked to products via a unique identifier (unique to each individual product or set at batch/model level). When relevant and appropriate, the EU DPP would also include dynamic data, thus allowing the collection and storage of product-related data along the entire lifecycle of the product. The data in question should reflect the data required under sub-option 4a (i.e. including the classes of performance), and where justified go further, e.g. requiring information on the product's origin, status, and other specific attributes. In addition to better informing consumers[146] and supply chain actors, the EU DPP would also be intended to facilitate customs and market surveillance authorities in their enforcement duties. The EU DPP requirements would be set out through the SPI measures, which would also determine the products in scope (see Annex 18 for more details).

It should be underlined that, while it will be possible to lay down certain key elements governing the EU DPP in the main SPI legal instrument, it will be necessary to complement these with more targeted technical precisions and details – e.g. adjusted to the needs of a particular product group – when laying down SPI measures in a second stage. For example, certain high-level principles – such as the need to connect the product passport to a unique identifier via a data carrier; the need to ensure this data carrier is physically present on a product/its packaging; and the need to ensure that all data included in the passport is written in standard, open, interoperable format etc. – are generally agreed on, and their inclusion in the main legal text is therefore likely to bring added value and clarity. The more technical solutions related to IT infrastructure and how the DPP will operationally work should be developed through global open standards. Other dimensions – such as where exactly the data carrier should be present on a given product; the type of data that should be accessible, and to whom (taking into account the data that may be particularly relevant, or sensitive, for a given product category) – are likely to require detailed examination, on a product-specific basis. These would be more appropriately laid down in a second stage, via SPI measures. The exact content of the information to be included in each product passport also merits consideration in a second stage, so that product-specificities can be adequately taken into account: while information content requirements may therefore vary across product groups – depending on the information deemed most relevant for a given product – products belonging to the same product group will have the same DPP information requirements, to be calculated and reported in the same way. For example, while DPP information requirements for washing machines and sofas will vary (given their different functionalities), requirements set for washing machines will be common to all of these products, and the same is true for sofas.

Also under this sub-option, synergies with existing chemicals and waste legislation would be built on, by ***linking to the extent possible information requirements, where they relate to substances of concern, and the Substances of Concern In Products (SCIP) Database*** (which implements Article 9 (1) (i) of the Waste Framework Directive), to ensure complementarity and reduce administrative burden for stakeholders. In particular, the EU DPP could include links to SCIP data and this would

[146] The provision of information to consumers under this option would be done in synergy with the measures foreseen in the Impact Assessment of the "Empowering consumers for the green transition" initiative. See Annex 9 for details.

reinforce the availability of information relevant to the management of chemicals and recycled materials, and be especially relevant for waste managers.

Sub-option 4c: Generalised European Digital Product Passport includes measures of sub-options 4a and 4b. The difference is that, under option 4c, there would already be in the main legal act, specific provisions identifying horizontal requirements (such as on governance, stakeholder obligations, technical features etc.) and a list of cross-sectoral attributes that each product in scope shall include in its EU DPP at the time of being placed on the market. The legislation could if needed provide for a differentiated schedule of EU DPP application, to take account of the various levels of complexity of its implementation for different products.

Option 5: Reward more sustainable products through incentives

In order to achieve the objectives of this initiative, in particular specific objective 3 to 'Incentivise more sustainable products and business models to improve value retention', this Option looks to reward more sustainable products. The sub-options retained for analysis are **5a)** enhanced incentive measures; **5b)** linking incentives to performance; and **5c)** consumption-oriented incentives. The sub-options are cumulative[147] and each correspond to an increasing level of ambition as well as complexity, while building on the information requirements and classes of performance developed under Option 4. Sub-option 5a and 5b build on already-existing national and EU-level mechanisms (e.g. Member States incentives; Green Public Procurement; Extended Producer Responsibility schemes), while sub-option 5c proposes a set of innovative instruments, which have not been implemented to date. All incentives considered under Option 5 need to be implemented in a way to avoid discrimination between the goods produced in the EU and imported goods.

Sub-option 5a: Enhanced incentive measures focuses on enhancing existing reputational and economic incentives, encouraging Members States to reward products based on their sustainability performance, **making use of the classes of performance developed under sub-option 4a**. This would be supported by the provision of ***guidelines*** including exchange of best practices and training between/for public authorities.

To boost demand for sustainable products, this sub-option would also include **mandatory *Green Public Procurement*** (GPP) requirements, to be set out in product-specific SPI measures that would go beyond the minimum requirements for placing products on the market. This would mean that, when contracting authorities and contracting entities are procuring products covered by an SPI measure, they would be obliged to follow a set of mandatory criteria (award criteria or technical specifications) in their procurement procedures in order to ensure the environmental and social impacts over the life-cycle of the product(s) in question are considered, with a view to ensuring that those finally selected have minimal negative impacts.

Sub-option 5b: Linking incentives to performance requires Member States - if they provide incentives for products covered by an SPI measure - to ***target those incentives at the highest performance classes*** in the same way that incentives for products with an energy label should target the products at the highest two significantly populated classes of energy efficiency. This has precedents, for example national taxes on vehicles where the vehicles are incentivised (or disincentivised) according to their emission class[148]. This sub-option would also include the possibility to require Member States – through product specific SPI measures – to ***modulate fees*** paid by producers in the context of existing or new extended producer responsibility schemes ***according to the performance class of the relevant products***.

[147] Except for measure 5b.1, which is alternative to 5a.1 – please see Annex 9

[148] There is also the case of the EU Energy labelling framework regulation that states that "where Member States provide incentives for a product specified in a delegated act, those incentives shall aim at the highest two significantly populated classes of energy efficiency, or at higher classes as laid down in that delegated act."

<u>Sub-option 5c</u>: Consumption-oriented incentives would involve a ***bonus for EU citizens who reduce their carbon footprint***. For each product covered, the environmental profile of a 'representative product' would be made available. Each product in scope would be assigned a carbon footprint score according to the methodology that will be selected and in full compatibility with other legislative instruments, and included in the European digital product passport (EU DPP). When the product is purchased, the bill would give the difference between the carbon footprint of the 'representative product' and the product bought. At the end of each fiscal year, each household could calculate the amount of carbon "saved" and Member States would then be allowed to compensate each of them proportionate to the amount of carbon saved (e.g. through eco-cheques or other financial incentives).

In addition, this sub-option would introduce ***an excise proportional to the life cycle environmental performance of the products placed on the EU market*.** The EU-level excise - calculated on the basis of the environmental performance of products- would be levied on the products placed on the EU market, irrespective of where they are produced. It would need to be first implemented at the pilot level for a few strategic products.

Option 6: Measures for circularity and value retention

In order to achieve the objectives of this initiative, in particular specific objective 3 to 'Incentivise more sustainable products and business models to improve value retention', this Option looks at measures for circular business models and value retention, in addition to those measures in Options 3, 4 and 5 which contribute already to circularity and value retention (for example requirements on reparability or product passport). The sub-options retained for analysis are **6a)** Promotion of value retention and value maximisation; **6b)** Enhanced value retention and value maximisation. All measures included in sub-option 6a are also part of 6b.

<u>Sub-option 6a</u>: Promotion of value retention and value maximisation would include the provision of ***guidelines on supporting Circular Business Models*** (CBM): such as product-as-a-service, maintenance, repair, re-furbishing, re-manufacturing, reverse logistics upgrading, and collaborative and/or sharing economy. The guidelines would present existing EU-level instruments and share best practices from national programmes, such as financial and technical support, reduced VAT rates for repair services, material brokerage services, public procurement, identification of circular opportunities and target setting. The guidelines could be used in combination with venture capital funding of the European Innovation Council (EIC) fund in projects eligible for the EIC accelerator supporting specific types of CBMs.

The Guidelines would be supported by an ***EU-wide hub supporting the uptake of circular business models***, channelling information and services including awareness raising, cooperation, provision of training, exchange of best practices, etc. This could follow the model of a one-stop shop that gathers existing information and services hosted / managed by other programmes and agencies at the EU and Member States level.

<u>Sub-option 6b</u>: Enhanced value retention and value maximisation would go further and introduce an obligation for economic operators to disclose information on the destruction of unsold consumer products as a dis-incentive for this practice, and would introduce a ***ban on the destruction of unsold consumer products***, via secondary legislation (SPI measures). This would include the prohibition of the destruction of returned/unsold products (making them instead available for donation, (re)sale or remanufacturing). The SPI measures would also determine possible exemptions to the ban on the destruction of unsold products (e.g. if justified for health, safety, quality or other reasons). In order to facilitate enforcement and dis-incentivize circumvention of such measures, they will be accompanied by 'light' transparency obligations, obliging economic operators to disclose - in a manner appropriate to their business environment - information on the fate of unsold products, in cases where they are

destroyed under applicable exemptions. Similar measures are already implemented in some Member States, for instance France and Germany[149].

Option 7: Strengthened application of the Ecodesign framework

In order to achieve the objectives of this initiative, in particular specific objective 4 to 'Improve application of sustainable product legislative framework', this Option considers sub-options to strengthen the application of the Ecodesign framework: **7a)** Improve the current framework to increase efficiency; **7b)** Strengthen market surveillance of EU Member States; and **7c)** Reinforce EU level implementation and complement Member States' market surveillance. The sub-options are cumulative: all measures included in sub-option 7a are also part of 7b and 7c; all measures included in sub-option 7b are also part of 7c.

The three sub-options progressively extend the number of actors directly involved: the first (7a) focuses on improving the processes leading to the adoption of SPI measures; the second (7b) focuses on better enforcement, with measures that focus on market surveillance; and the third (7c) proposes a model under which the European Commission is provided with executive capacities, to prepare SPI measures and to support and complement Member States in fulfilling their role.

Sub-option 7a: **Improve the current framework to increase efficiency** would focus on improving processes leading to the adoption of SPI measures. It would include measures such as ***streamlining of the procedures*** for the development and adoption of implementing regulations (changes in sequencing; ensuring information is collected efficiently; etc.). It would also introduce the possibility to ***collect data from manufacturers and retailers*** regarding regulated products sales and usage. The collection of sales data is part of the preparatory studies. Collecting them directly from manufacturers or retailers would allow for better estimation of market penetration of product types linked to sustainability characteristics at EU level, better informing the studies for the revision of product specific regulations. Trade secrets and other confidential information would be treated in a confidential manner. The sub-option would also expand provisions related to ***third parties in conformity assessment*** procedures to provide an extra safeguard for the correct application of those requirements to which they are applied, thereby increasing compliance and ensuring the availability of complete and verified documentation.

Sub-option 7b: Strengthen market surveillance of EU Member States would focus on better enforcement, with measures concentrating on market surveillance to ensure the effectiveness of all rules SPI, will set and ensure a level playing field for economic operators. The measures foreseen aim to take account of the specific challenges associated with enforcing sustainability requirements on products (rather than the challenges associated with enforcing product legislation as a whole). Specific measures would include: ***making relevant product information digitally available to market surveillance authorities*** (MSAs) and possibly to Customs authorities; providing ***structural technical support to improve cooperation between MSAs and ensure they have sufficient capacities***; organising ***common trainings for staff of notified bodies, notifying authorities and MSAs***; ***publishing MSA penalties decisions***; creating a ***benchmark and a reporting obligation for Member States*** and establishing ***requirements for market surveillance checks***.

While sub-options 7a and 7b would rely on the strengthening and reinforcement of existing capacities, **sub-option 7c: Reinforce EU level implementation and complement Member States' market surveillance** would allow the European Commission, where needed and appropriate while respecting the principle of subsidiarity, to organise and carry out ***complementary market surveillance***. This

[149] « Loi anti-gaspillage », https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000041553759?r=C3q8dVQuQS. The German Federal Government has agreed on a draft bill amending the Circular Economy Act (Kreislaufwirtschaftsgesetz, "KrWG"). Germany intends to introduce a so-called "duty of care" (Obhutspflicht) which will require distributors in case of distance sales to ensure that the goods remain usable if returned by the customer and do not become waste.

could be supported by reinforced ***product monitoring and testing capacity*** at European level[150], to assist with both upstream definition of product requirements and downstream market surveillance. There would also be a ***third party channel for market surveillance*** so citizens can report suspected cases of non-compliance. Finally, there would be ***assistance to implementation for suppliers and MSAs*** provided by a central EU level service (going beyond the current assistance that can be provided by the services of the European Commission in charge of Ecodesign), answering specific queries through non-binding advice, but also in the form of trainings and presentations for stakeholders, to facilitate the correct understanding and implementation of rules.

Discarded measures

Three measures are discarded and not analysed further in the main report. See also *Annex 9: Policy Options and Measures.*

Firstly, to have far reaching value retention and value maximisation in the form of **an obligation for companies to take back, or donate for use, unsold products** and to introduce detailed reporting requirements on the fate of unsold goods to foster greater transparency (this would have been a measure under Option 6). This would require creating dedicated registries in Member States for specific product groups to monitor the quantities of unsold products, leading to administrative burdens that are significantly higher than what results from the transparency obligation proposed under option 6b. It would also set obligations on relevant actors in the value chain (e.g. producers, importers, retailers) of all consumer products to take back or donate for use unsold products and to monitor and report their quantities to national relevant authorities. As a measure that is generally applicable to all products covered by the SPI scope, it would lead to considerable administrative burden, including for economic operators in supply chains for which destruction of unsold consumer products might not be prevalent. Overall, this measure seems to largely duplicate the ban on destruction, but in an inefficient manner.

The sub-option has been discarded at an early stage due to the costs and the administrative burden associated with it, which are not proportionate to the environmental and social benefits it could generate.

Secondly, to put in place a **Sustainable Products Framework:** this would have been a measure of Option 3 (building on sub-options 3a, 3b and 3c). This would take a longer-term view by establishing an overarching *framework legislation*, including a legally-binding set of *sustainability principles*[151] (intended to guide product design and foster sustainability and circularity of supply chains) and *long-term targets* for EU and Member States product policies, as well as requiring national implementation plans.

This sub-option has been discarded as it was concluded that the SPI instrument would not be best placed to ensure its effective implementation. For example, in order to fix and effectively implement the overarching *targets* foreseen, multi-layered policy intervention – including a combination of instruments active not only on the production but also on the consumption side – was deemed to be necessary. Even if it is expected that SPI rules will contribute to fostering more sustainable consumption choices in relation to products, it will remain a product-oriented policy tool, primarily capable of laying down rules at product level. It will therefore be unable to take the purely consumption-oriented measures that would be required for the success of this sub-option, such as to limit total amount of products produced/consumed in the EU. In addition, in order to be applicable to all products in scope of SPI, analysis indicated that legally-binding *sustainability principles* would need to remain relatively general in nature, leading to an increased risk from an enforcement perspective, including increased difficulty to verify product compliance and increased risk of non-

[150] E.g. relying, where necessary, on external laboratories, and acting in a coordinated manner with national market surveillance actors.

[151] Such as the principle that all materials should be sustainably sourced, or that information on the environmental characteristics of products should always be made available (see ***Error! Reference source not found.*** for more details)

compliance. In addition, a substantial risk of diverging approaches being adopted across Member States – due to potentially different interpretations of the sustainability principles – was identified, raising concerns that the general objective of this initiative would be jeopardised. All in all, while it is envisaged that SPI will contribute to long-term current or future sustainability targets at national or EU level (such as EU climate targets), the scope and nature of the envisaged instrument are deemed unsuitable for implementation of the above-mentioned sub-option.

6. WHAT ARE THE IMPACTS OF THE POLICY OPTIONS?

6.1. INTRODUCTION

This section presents the analysis of the policy options described in the preceding section, and assesses how they contribute to reaching the specific objectives. Each policy option has three sub-options, except for Option 6. Overall, approximately 50 specific measures are analysed individually in Section 10 and 11, but are presented here in sub-options to keep the analysis manageable. More details are provided in ***Annex 10: Impacts of the*** *policy options* and ***Annex 11: Comparison of the*** *options*.

For each of these policy options this section includes a proportionate analysis of:

- economic impacts (positive and negative) including opportunity costs, compliance costs and administrative burden (for businesses and for public authorities)
- environmental impacts,
- social impacts,
- stakeholder views.

The analysis considers the sub-options in a given policy option in isolation (i.e. 2a compared to 2b, and to 2c) and does not at this stage consider the interaction between sub-options across options. This is considered reasonable as the options have been constructed to be largely independent, but an analysis of the synergies between them and hence of the **overall preferred option** is presented later.

6.2. ANALYSIS OF POLICY OPTION 2

Economic impacts

As outlined in the previous section, taking into account the expected architecture of the future SPI instrument, the decision to extend the scope of the Ecodesign Directive is not in itself expected to have a direct impact on the sectors concerned. Rather, the concrete impacts of the chosen sub-option will be felt at a second stage, as SPI measures are laid down for the products concerned. In general terms, however:

For **businesses** the extension of Ecodesign to the products identified for **sub-option 2a** is likely to entail price increases due to product improvements and would likely lead to a reduction in the demand for primary materials and new products. At the same time the demand for spare parts and repair services – and related business opportunities – may increase, following the provisions for recycled content and extended product lifetimes. Where the scope extension affects products placed on the market by SMEs, it is likely to entail an additional burden on these companies due to limited resources. Other SMEs, in particular the many active in value-retaining sectors such as repair, servicing and maintenance are expected to benefit from the widened scope (and associated requirements) foreseen under this sub-option. In all cases, however, the administrative burden on economic actors will depend on the stringency of products requirements (see Option 3).

Contrary to the products currently in scope of Ecodesign, **consumers** of non energy-related products would not experience savings through energy demand reductions, but rather in the form of fewer purchases of new products (because products can be kept longer in use). At the same time the expenditure for spare parts and repair services will likely increase.

For **public authorities,** administrative burden will increase under this sub-option, e.g. as the European Commission will have to develop the relevant SPI measures. The scope extension under option 2a would imply a doubling of the number of products effectively regulated as of July 2021: the additional administrative costs would equal about EUR 5.8 million per year for the European Commission. For Member States, the new requirements may entail additional administrative burden and costs relating to market surveillance and controls performed by customs. However, compared to sub-option 2a, this sub-option would present the added value of not having to revise the overarching legislative framework should action need to be taken for new or future product categories.

The market share is expected to increase by about 13% as a result of the addition of the remaining physical products in **sub-option 2b**. However, the remaining product groups would add 3% of European domestic final demand (compared to sub-option 2a, increasing it to 26% overall) and 2% of employment (again compared to sub-option 2a, increasing it to 24%)[152]. In practice, whilst the first priorities would likely be the products identified under 2a, this sub-option leaves flexibility to also cover other products including through horizontal measures. As such sub-option 2b could be implemented in a more proportionate manner. It is this increased potential for flexibility to respond to new opportunities and new information which allows sub-option 2b to score higher for efficiency than sub-option 2a.

Both sub-options 2a and 2b would apply criteria for prioritisation that include (see annex 16 for more detail):

- Contribution to meeting environmental, climate and energy targets and political priority, including EU international commitments;
- the environmental impact of the product along its life cycle (including resource use)
- energy consumption;
- whether there are significant differences in environmental impacts within the product group;
- the potential for improvement in terms of its environmental impact, energy efficiency and circularity aspects without entailing excessive costs (notion of affordability);
- social impacts along its value chain;
- economic benefits expected from the product improvement;
- EU added value, by producing results beyond what would have been achieved by Member States acting alone.

The economic assessment for **sub-option 2c**, which adds to the scope services on top of all products in sub-option 2b, is challenging. Adding services would extend the scope of Ecodesign dramatically, with an additional 52% of European domestic final demand (compared to sub-option 2b, increasing it to 78% overall) and 53% of employment covered (compared to sub-option 2b, increasing it to 77% overall)[153]. The administrative burden is difficult to estimate for such a new measure (as for services so far only voluntary schemes exist). The impact would have to be assessed when looking at service-specific SPI measures.

In terms of impacts on the internal market, the broader the scope of the options, the bigger the potential to have harmonised rules that can avoid fragmentation. It should be borne in mind that the product scope of the Ecodesign Directive was therefore not restricted to specific categories of products but to all energy-related products. For this reason, sub-option 2b would have the potential to prevent fragmentation better than sub-option 2a and have the added value of not having to revise the

[152] See Annex 10 for more details
[153] See Annex 10 for more details

overarching legislative framework should action need to be taken to address the environmental impacts of new or future product categories. Sub-option 2c would have an even higher potential (as it would cover services).

Environmental impacts

As shown in Figure 2, all sub-options would improve coverage of all the analysed environmental impact categories. The improvement in **sub-option 2a** would range between 4 and 16%. The largest increase in absolute coverage, and hence largest scope for environmental improvements would be emissions affecting human toxicity, airborne particulate matter concentrations and ecotoxicity. The increase in coverage of GHG emissions is around 7%. Nevertheless, for this and the other sub-options, until further assessment has been done it is uncertain how large the actual improvement potential is for each specific product. This means that it is undesirable to artificially restrict the product scope.

Due to the additional product groups included in the scope, **sub-option 2b** displays a slight improvement in terms of environmental impacts compared to sub-option 2a in all categories, ranging from 5 to 18%. However, the wide scope of sub-option 2b – which may in the future include novel products whose impacts remain as yet unknown – makes it impossible to accurately calculate its full coverage potential, which could be far higher than the above-mentioned figures. In terms of readying the EU to address possible future (as yet unknown) product sustainability challenges, and lessening the likelihood of problematic regulatory gaps occurring (as is now the case), this sub-option scores better in terms of efficiency and it is more suitable than sub-option 2a due to being more future proof. There would also be additional positive impacts from developing horizontal measures applying to the products groups not covered in 2a. In practice, under this sub-option, following a prioritisation exercise, the first product groups tackled would likely be those identified under sub-option 2a (as not all products will be tackled at once, rather turned into a workplan over a number of years).

The marginal environmental improvement potential of **sub-option 2c** appears higher again, ranging from 7 to 22%.

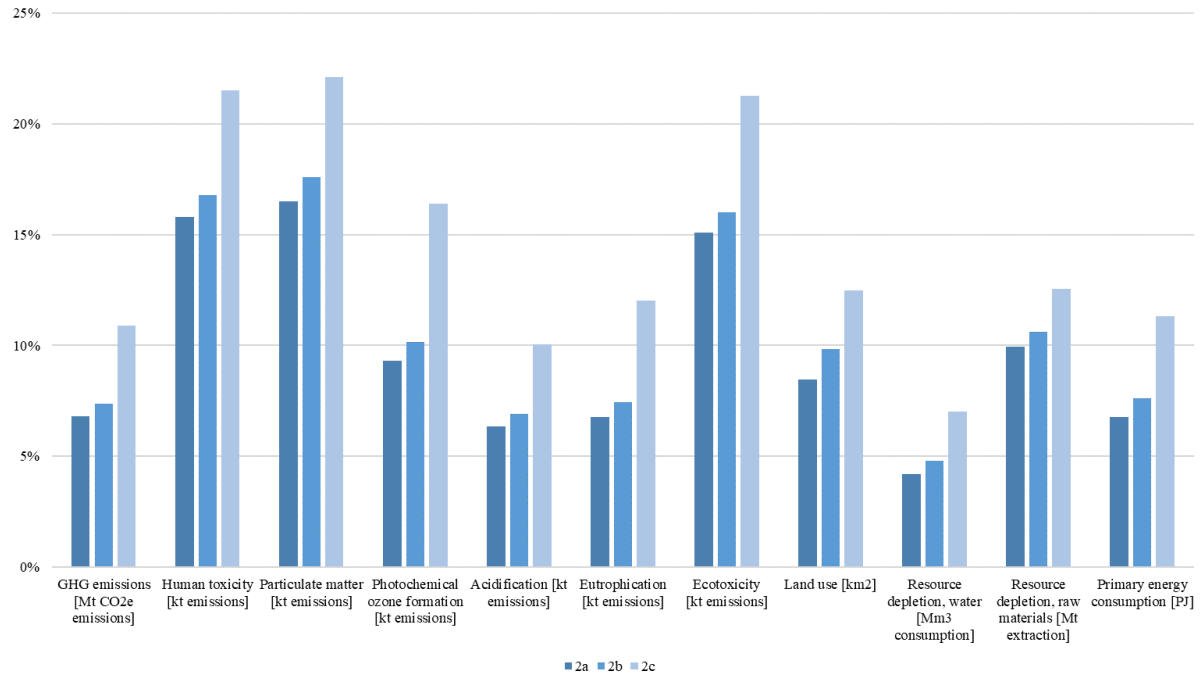

Figure 2 Yearly environmental reduction potential of the policy sub-options relative to baseline as percentages of EU totals; own calculations based on EXIOBASE v.3.8.1

Social impacts

Additional labour demand in the EU is likely to occur from the application of circular economy measures, e.g. in the recycling and repair sectors, but other job profiles could be affected (e.g. around extraction/import/management of raw materials). The impact would have to be assessed based on the exact requirements to be laid down under the product specific SPI measures.

Stakeholder views

Stakeholders showed some different views: while quite broad support for extension of the ecodesign instrument emerged from a number of stakeholder categories, some asked for the (initial) focus of SPI to be on the priority sectors of the CEAP, while others called for a broad extension to all products and for the future framework to retain flexibility so that updates to rules remain possible where needed. No particular support for extension to services emerged.

Industry representatives tended to cautiously support the extension of Ecodesign Directive in general, but many underlined the need to retain a product-specific approach if the needs and complexities of different sectors are to be taken into account. They called for individual assessments to be carried out before laying down concrete rules for each new product added to the scope.

In a dedicated workshop, **Member State** representatives expressed support for a wide SPI scope, while generally agreeing with the list of products suggested for priority action. They also felt the inclusion of services at this point in time would be premature. Other national level representatives – in particular Ecodesign practitioners from the public authorities – tended to be more conservative regarding the scope of Ecodesign: they considered that energy-related products have different features deserving different legislative tools to others products.

Stakeholders across the categories underlined the need to ensure synergies with existing EU legislation and avoid overlap on sustainability or design aspects, so as to avoid extra administrative burden. Enforcement within the single market and at the EU external borders and market surveillance activities (e.g. inspections or audits) are also viewed by all as necessary to accompany the implementation of the SPI: their robustness has an impact on how far to go to extend the scope.

In general, a majority of respondents to the Public Consultation, including **SMEs**, considered that products sold in the EU are not sustainable because there is no harmonised set of requirements to foster sustainable design of products – suggesting that a wider scope for the future regulatory instrument may bring added value.

Overall comparison

Table 2 Comparison of sub-options under PO2[154]

Overall comparison	Sub-option 2a	Sub-option 2b	Sub-option 2c
Effectiveness in delivering specific objectives	++	++	+++
Efficiency	++	+++	+
Coherence	++	++	++
Overall economic impacts (including benefits)	+/-	+/-	+/-
Administrative costs for Commission and MSs	-	-	--
Compliance costs for businesses	-	-	--
Costs / Savings for consumers	+/-	+/-	+/-
Overall environmental impacts	++	++	+++
Overall Social Impacts	+/-	+/-	+/-

6.3. ANALYSIS OF POLICY OPTION 3

Economic impacts

For **businesses**, **sub-option 3a** will likely entail some increased *compliance costs*. These could be offset in part for businesses by costs passed to consumers (though these in turn are likely to be reduced in other ways – see below), and via a potential reduction in the overall number of products manufactured per year (due to more durable and reliable products). Importantly, the requirements under this sub-option are likely to support and encourage businesses in developing new revenue streams and avenues of business such as in repair, refurbishing and remanufacturing. Additional administrative burden can be expected, for example for provision of information for market surveillance. For public authorities, administrative burden will likely increase under this sub-option, e.g. as the European Commission will have to develop the relevant SPI measures. For Member States, the new requirements may entail additional administrative burden and costs relating market surveillance and controls performed by customs. For SMEs, there are indications that some of the product sustainability requirements foreseen under 3a could give rise to medium to high administrative or compliance costs, but that these may be offset overtime due to material savings, reputation benefits etc. (see 'stakeholder views'). In addition, as the requirements under 3a are expected to increase the opportunities to further develop and harness the market for repair and refurbishment, this sub-option is likely to bring clear benefits for SMEs, as these are already predominant in these sectors. Consumers are expected to benefit positively from increased ease of reparability. Though the initial cost of new products could become higher, these additional costs are expected to be offset by extended product lifetime and/or lower usage costs in general. The impact assessments preceding adoption of detailed product rules will need to establish what costs are reasonable and proportionate from a consumer perspective, also taking into account the expected time

[154] See annex 10 for a more detailed breakdown of the scores

horizon for expected savings (e.g. from increased durability etc.) to take effect. While experience under the current Ecodesign Directive – where the cost increase in 2020 for Ecodesign products (21bn Euro) was about 5% of the total acquisition costs of these products (395bn Euro)[155] – is of interest, it cannot be said to be fully indicative of what may arise as a result of SPI rules, given its primary focus on energy savings. In addition, the time horizon for such a "break-even" point is product-specific and so are affordability aspects. Therefore the time horizon cannot be generalised and needs to be looked at in future impact assessments for detailed product rules.

Sub-option 3b would include all impacts listed above for sub-option 3a, though businesses have indicated (see *Annex 2: Stakeholder consultation*) that increased costs are likely to be incurred in particular for the measures relating to remanufacturing and due diligence. In relation to the latter, it should again be underlined that SPI will only take action where specific risks, at the *level of the product*, have been identified during preparatory studies, and where it is judged that these risks cannot be adequately addressed by other instruments – in particular the Sustainable Corporate Governance Initiative (SCGI). In essence this means that SPI will act as *lex specialis* to SCGI's more horizontal rules (see Annex 14). As such, given the close alignment between the two initiatives that will need to be ensured, certain opportunities for alleviating unnecessary burden for companies can be foreseen – for example, via provision of sectoral guidance to ensure coherence, and by formulating SPI due diligence requirements with a view to ensuring that companies already having due diligence systems in place under SCGI are able to integrate compliance with SPI due diligence obligation into these. For **SMEs** (who will not be subject to SCGI due diligence requirements, but who may be subject to future SPI due diligence requirements, depending on the products they place on the market), separate dedicated analysis of appropriate and proportionate measures will be foreseen in the context of the impact assessments that will precede adoption of all SPI rules. When deciding on these rules, the Commission will take account of the size of the companies the rules will apply to and the proportionality of the compliance costs they entail. Whether such requirements are feasible and whether the envisaged benefits (e.g. for the environment, but also for competitiveness including for SMEs) weigh up against the costs will be decided on a case-by-case basis, based on product-specific information and analysis. These decisions will be made also with input from industry (including SMEs and their representatives). *Where justified* based on this, certain mitigation measures could be considered: for example, SPI due diligence obligations could exclude specific steps for SMEs, or adjust those steps to decrease the associated administrative burden, e.g. by simplifying the reporting step or adjusting the required deadlines or timelines (see annex 14 for more details).**Sub-option 3c** would include all impacts listed above for 3a and 3b, plus costs associated with explicit bans on some products or materials in products. Where this takes place, it could lead to costs for businesses and consumers, and restrict the choices available on the market. As such, these bans would need careful justification.

In terms of impacts on the internal market, sub-option 3a would have a positive impact by establishing clear requirements. Sub-option 3b would extend this to additional aspects and thus further reduce the risk of fragmentation through national rules. Finally sub-option 3c would ban certain products or materials, thus restricting their access to the internal market, which could be justified for instance if these products compete on unfair terms with more sustainable ones.

All the sub-options under 3, are designed to be flexible as a means to ensuring proportionality. For this reason, no minimum requirement or bans will be applied unless they are justified on the basis of analysis. The alternative would be, for example, to committing to setting minimum environmental or carbon footprints under all SPI measures, which could lead to disproportionate requirements.

Environmental impacts

Sub-option 3a would effectively reduce environmental impacts compared to the baseline scenario. Products will be less frequently replaced, and their inherent value would be better made use of. The

[155] Ecodesign impact accounting annual report 2020

possibility for consumers to choose unsustainable products would also gradually reduce. In addition, the option is expected to increase the demand of secondary raw material (thus reducing primary resource use and waste generation), and the measure on high-quality recycling also included in this sub-option will help to feed the supply required for this. Overall the environmental benefits of option 3a are expected to be significant.

Sub-option 3b include all environmental impacts mentioned above but goes further because of more ambitious sustainability requirements and greater efficiently in their application. Minimum requirements on remanufacturing[156] would contribute to further reducing life cycle impacts and will bring benefit in third countries as well as in the EU.

Under **sub-option 3c**, the possibility to prohibit certain products/materials with significant environmental impacts would have immediate impact, but clear criteria would need to be met to make use of this possibility.

Social impacts

Sub-option 3a could trigger a shift in employment from manufacturing sectors to repair and refurbishing sectors, and an increase in employment in the second-hand sector (repair, refurbishment, remanufacturing), likely requiring new workforce skills. It is possible that this could provide increased job opportunities, including for people from vulnerable social groups. It is also possible that vulnerable sections of society with limited purchasing power could face difficulties in purchasing more expensive new products, though it is expected that better durability and increased repair opportunities will compensate for this over time, and more second-hand products of better quality should also be available. As mentioned, the impact assessments preceding adoption of detailed product rules will need to investigate what is reasonable and proportionate in terms of price increases for consumers, taking expected savings over time into account.

For **sub-option 3b**, the additional social impacts compared to 3a are due to the introduction of requirements on due diligence (3b) and are expected to result in improvement of working conditions across the value chains, both within and outside the EU, in particular if relevant SPI measures synergise well with other related requirements (e.g. under related initiatives) and are well enforced. The minimum requirements on re-manufacturability will create additional jobs.

Sub-option 3c: The social impacts for this sub-option are similar in nature in some respects to 3a and 3b but of higher magnitude. The possibility of introducing prohibitions on certain products could affect certain citizen groups more than others (see Annex 10, case of incandescent lamps), even if the necessary preparatory procedures (including consultation process and assessment of impacts) would help to ensure that any action taken in this respect is justified and proportionate.

Stakeholder views

As outlined under sub-problem 1, most respondents to the Public Consultation agree or strongly agree that many products are not designed to be easily repaired or upgraded, though agreement levels vary across stakeholders, being much stronger amongst **EU citizens** and **environmental organisations** than **industry** representatives, for example. Building on this, there appears to be **overall support for establishing binding rules on actions to be taken by producers to improve durability, re-usability, upgradability and reparability**: 59% of all respondents support or strongly support this action, but once again support is far higher amongst EU citizens and environmental organisations (87% and 91% respectively) than industry representatives[157] (36% only). For SMEs, just over a half (56%) would support or strongly support it. Other measures with strongest overall support from stakeholders include prioritising design to facilitate easy repair, upgrade, remanufacture etc.; and restricting substances inhibiting circularity - even if levels of support for these measures varied across to stakeholder categories along the same lines as described above.

[156] Reuse and remanufacturing, while less meaningful than delayed replacement, may still deliver significant environmental benefits (−1.36% GWP;−1.40% RME;−0.33% LU;−2.33% (source donate et al.)

[157] Business associations and companies

The targeted stakeholder consultation exercise found that introducing minimum sustainability requirements on products (e.g. via a revision and extension of current ecodesign rules) is considered by some – in particular **NGOs** and **consumer associations** – as the most effective means of reducing products' environmental impact, because not enough consumers are ready to pay more for sustainability. Some **industry** representatives expressed concerns about potential costs involved in testing such requirements (e.g., product lifespan or product environmental footprint requirements) and potential increases in the administrative burden (e.g. because of due diligence requirements). In general, however, corporate interviewees supported a product-specific approach to the requirements to be placed by the SPI and expressed readiness to comply with additional requirements, provided these are grounded in a robust prior assessment.

In a dedicated workshop, **Member State** representatives expressed general support for requirements under 3a, and were cautiously supportive of including the due diligence requirements foreseen under 3b, underlining the need to ensure coherence with other initiatives.

For **SMEs**, responses from a targeted survey of SME representative organisations suggest that while product sustainability requirements (such as those foreseen under 3a) may give rise to some negative impacts (such as medium to high administrative or compliance costs), these are likely to be offset over time due to factors such as reduced material use and expenditure, increased customer loyalty and increased reputational benefits etc. Compared to 3a, replies suggest that the impact of sub-option 3b on SMEs may be higher, due to the due diligence requirements it entails: while a fifth of survey respondents envisage that negative impacts of this measure could be offset over time with possible added value ensuing, just under a fifth point to the possibly high negative impact of this option for SMEs.

Further details on the above are set out in *Annex 2 and 10.*

Overall comparison

Table 3 Comparison of options under PO3[158]

Overall comparison	**Sub-option 3a**	**Sub-option 3b**	**Sub-option 3c**
Effectiveness in delivering specific objectives	++	+++	+++
Efficiency	++	+++	++
Coherence	+++	+++	+++
Overall economic impacts (including benefits)	+/-	+/-	+/-
Administrative costs for Commission and MSs	-	-	--
Compliance costs for businesses	--	--	---
Costs / Savings for consumers	+/-	+/-	+/-
Overall environmental impacts	++	+++	+++
Overall Social Impacts	+/-	+/-	+/-

[158] See annex 10 for a more detailed breakdown of the scores

6.4. ANALYSIS OF POLICY OPTION 4

Economic impacts

Sub-option 4a will require product manufacturers, suppliers, and importers to collect, store, and make available information. While some information required is expected to already be available to manufacturers and suppliers, it is possible that new information necessary to comply with SPI requirements will have to be generated. A digital product passport (as included in 4b and 4c) would streamline information sharing compared to the situation in 4a which does not include a harmonised digital infrastructure. Measure 4b.2 improves the provision of information requirements included in measure 4a.3, and ensures that tracing substances of concern is not duplicated between chemical and Ecodesign legislations. This should therefore result in higher efficiency for companies, limiting the risk of double reporting, and reducing their administrative burden.

An increase of costs for economic actors, compared to the baseline, can be expected for each of the three sub-options (see **Annex 11: Comparison of the options** for more details). **SMEs**, like other businesses, will have to face the cost of new information collection and reporting: for example, the respondents to the second targeted SME survey suggested that administrative and compliance costs associated with the requirement to provide information on the ecological profile of products could be medium to high for SMEs, even if there is a chance that these could be absorbed and offset over time. Option 4a would lead to a relatively higher administrative burden for **Member States** compared to the other two options, due to the lower level of harmonisation requirements related to which information to display and how to communicate it. The opposite would be true for **economic operators**, for which option 4b and 4c would lead to higher costs compared to 4a, as some of them[159] would need to set up an internal IT system to store the data to be made available through the EU DPP. However, this must be put in perspective with the overwhelming support, across all stakeholders (including SMEs) for a digital product passport and the potential reduction of administrative burden thanks to simplified compliance processes through the DPP. 42% of SME respondents expect higher economic return for EU businesses. In order to keep administrative costs for business and administrations to the minimum necessary, the DPP will have to rely as much as possible on already existing and used standards related to data format and transfer. Moreover, by linking the information included in already existing centralised database (e.g. EPREL or SCIP), the duplication of information provision and control would be avoided. The costs for the European Commission would be higher under sub-options 4b (and to a lesser extent 4c) due to the cost of deploying the necessary infrastructure to support the decentralised digital product passport, its supervision and ensuring the integration or coordination with existing EU databases. However, the EU DPP is expected to reduce the costs for market surveillance, also through possible synergies with the EU Single Window Environment for customs.

Under all sub-options, citizens will have access to a wider set of information than they currently enjoy when purchasing products. While the cost of providing information incurred by companies is likely to be transferred to the customer, they will be capable of choosing items that increasingly offer better value for money (longer lasting, easily repairable). Depending on their willingness to pay more for more durable products, consumers will see more or less benefit in the measure. According to a recent study, which measured willingness-to-pay based on information on reparability and durability, consumers will see the greatest benefits in large and expensive items. For other products such as clothing, the benefit is lower, but still positive.

In terms of impacts on the internal market, all sub-options create additional transparency facilitating well-informed choices, yet sub-option 4b would be more beneficial than 4a as it would allow market players to easily build on the information received digitally from others in the value chain and would follow more harmonised requirements. Sub-option 4b would also be more beneficial than 4c due to the importance of providing information that is specific and relevant to the products for which the EU DPP will be introduced.

[159] Many medium-large companies already have such systems in place.

Environmental impacts

The estimation of environmental gains that could be achieved through option 4, independently from the sub-option chosen, is as follows:

- Facilitation of more sustainable choices by consumers, thus reducing the overall impact of consumption
- Facilitation of the work of all players that intervene in the product lifecycle (maintenance, repair, recycling) due to:
    - 5% cost reduction of maintenance and repair[160]
    - 4-25% increase in the maintenance and repair rates[161]
    - reduction in the number of durable goods being sold per year by 0.1 to 0.2%, and hence a proportional reduction of their environmental impacts upon production[162]
    - increase in the quantity of high-purity recycled materials, leading to a potentially significant increase of the contribution rate of recycled materials to raw materials demand from 6% to 78% for plastics, from 13% to 84% for aluminium and from 24% to 81% for steel [163].

For sub-option 4a, the generation, storage and display of information will require the use of material and energy, which will generate some negative environmental impact, especially in the case of digitalisation of information (which is expected to happen, even in the absence of a digital product passport). In addition to the environmental impact estimated in sub-option 4a, further impacts would be added to account for the infrastructure needed to operate the decentralised system needed to implement sub-options 4b or 4c. Several technologies are available, with variable impacts. Nonetheless, benefit may also outweigh the costs, especially for sub-option 4b.

Social impacts

As purchasing practices and production processes change towards more sustainability, there will be a shift in the workforce from declining sectors and jobs towards growing sectors. For example, repair services are expected to be boosted by the proposed initiative. This results in an increased need to re-skill the workforce and mitigate the territorial aspects of the economic transition.

The introduction of information requirements on social indicators are expected to help improving working conditions across the value chains, both in and outside the EU.

Stakeholder views

There is **overall support for the introduction of information requirements** to improve the situation compared to the baseline: approximately 58% of respondents to the public consultation (PC) agree or strongly agree that economic actors do not have adequate and reliable information on the sustainability of products – a view broadly shared amongst most **industry** representatives as well as by **EU citizens** & **consumer organisations**. On the producers' side lack of awareness of sustainable production practices and methods was mentioned. On the consumers' side, the lack of education among citizens on issues related to sustainability was mentioned as a barrier to making products sustainable. Further, lack of adequate information for example, on the embedded carbon footprint in materials was considered a challenge.

There is **overall support for the introduction of a digital product passport** (therefore going beyond 4a): when asked which information should be included in a digital product passport, each of the 17 propositions received a positive answer of between 46 to 90% of respondents to the PC.

In the PC, stakeholders were also invited to choose which were **the biggest challenges to a successful establishment and implementation of a digital product passport**. The results provide an

[160] Deloitte Environment et al. (2016) "Study on socioeconomic impacts of increased reparability"
[161] SPI Impact Assessment supporting study
[162] Deloitte Environment et al. (2016) "Study on socioeconomic impacts of increased reparability"
[163] SPI Impact Assessment supporting study. Based on end-of-life recycling input rates (EOL-RIR), Eurostat

insight into what they consider to be of critical importance. Interestingly, the cost and the (negative) environmental impact of a digital product passport came last (with 147 respondents choosing it). The two biggest challenges identified were: "managing the complexity of products and value chains and the quantity of data that is required to make such a passport effective" (count: 469) and "Ensuring the relevance and reliability of the information included in the passport" (count: 440)

Member State representatives who attended the different stakeholder workshops related to this topic expressed a general view that increased product information will be key for advancing the objectives of SPI, and that consumers should also be a key target here. The idea of a European Digital Product Passport (EU DPP) was well received by participants, but some cautioned that such a passport should not be overloaded with too much information, and that it should remain simple to understand, also for consumers. General support was expressed for the possibility of setting classes of performance for products, and attempting to reduce administrative burden for economic operators by exploring if certain obligations (e.g. in relation to chemicals tracing) could be reduced via integration with the EU DPP/SPI requirements.

SMEs expressed cautiously optimistic to mixed views on certain measures foreseen under 4a: in the survey of SME representative organisations, for example, more than half foresaw that the potentially negative impacts stemming from the requirement to provide information on the ecological profile of products would likely be absorbed over time and bring added value from a business point of view. Approximately one fifth, however, signalled risk of potentially high negative impact from this measure. SMEs expressed quite high levels of support for introduction of a digital product passport (sub-options 4b and 4c) across consultations, even if the potential for some additional burden was recognised: in the first SME survey, for example, approximately three times more SME respondents agreed or strongly agreed that introduction of a DPP 'could contribute to higher economic returns for EU companies' than those that disagreed or strongly disagreed with this statement. According to respondents to the second targeted SME survey, the four most likely impacts of its introduction were identified, in the following order, as: promotion of greater transparency along the supply chain; better knowledge of own supply chain; encouragement to consumers to opt for more sustainable products; and possible additional IT costs/administrative costs to access the market.

Overall comparison

Table 4 Comparison of options under PO4[164]

Overall comparison	**Sub-option 4a**	**Sub-option 4b**	**Sub-option 4c**
Effectiveness in delivering specific objectives	++	+++	++
Efficiency	+	++	+
Coherence	+	++	++
Overall economic impacts (including benefits)	+/-	+	+
Administrative costs for Commission and MSs	-	-	-
Compliance costs for businesses	-	+/-	+/-
Costs / Savings for consumers	+/-	+/-	+/-
Overall environmental impacts	++	+++	+++
Overall Social Impacts	+/-	+/-	+/-

[164] See annex 10 for a more detailed breakdown of the scores

6.5. ANALYSIS OF POLICY OPTION 5

Economic impacts

Sub-option 5a may result in additional administrative burdens for economic operators as GPP and other pricing mechanisms typically require manufacturers to produce the information necessary to certify that their products meet the necessary requirements, as well as all operators along the value chain to keep the associated records and documents. In parallel, it will generate administrative burden for public authorities, in particular because of the need to monitor and enforce compliance with the new incentives and GPP requirements. The costs and the administrative burden for the European Commission to draft the legislative measure, the guidelines and supporting tools for the implementation of GPP in Member States are expected to remain limited. The direct economic impact for the more sustainable businesses and on contracting public authorities is expected to be positive. By sustaining demand for "greener" products, public procurement creates markets for environmentally friendly products and services. It also provides incentives for companies to develop innovative solutions with lower environmental impacts, creating markets and jobs, notably for SMEs. Depending on the product group, green public procurement can provide competitive advantage to environmentally-aware suppliers.

Sub-option 5b would reinforce the positive economic impacts identified for sub-option 5a, especially the increase of companies' turnover offering sustainable products, but would also entail further costs for companies (e.g. setting up information collection process, including access to testing facilities and training) and administrative burden. The gains would exceed the expenditure, as numerous companies have established that qualifying for reputational incentives is beneficial despite its cost. The increase in administration burden for Member States is higher compared to sub-option 5a due to the mandatory nature of measure 5b.1 (e.g. costs will also be incurred with monitoring uptake for the different products groups), however such costs are expected to remain limited in comparison to current product and waste statistics.

Similarly to sub-options 5a and 5b, **sub-option 5c** would imply an increased burden for companies, Member States and the European Commission. The administrative burden will increase significantly to manage, deploy and verify the three measures proposed, although a part of it could be offset for Member States with revenues from the excise duty under measures 5c.2. However, such measures have the potential to generate the largest negative impacts on companies, as the additional tax burden would unlikely be fully passed on to consumers.

In terms of internal market impacts, all sub-options would have a positive (and increasing from 5a to 5c) impact as they would lay down increasingly harmonised rules on how Member States would be able to incentivise the purchase of more sustainable products, thereby reducing the scope for national rules to fragment the internal market.

A more detail analysis of impacts on trading partners, citizens and SMEs for the three sub-options is provided in **Annex 10: Impacts of the policy options.**

Environmental impacts

Sub-option 5a is expected to have positive environmental effects compared to the baseline, in particular thanks to measure 5a.2: GPP is often identified as a tool that can address environmental problems such as deforestation, greenhouse gas emissions, water use, energy efficiency, waste, etc. As shown in Annex 10, for almost ten product groups frequently procured by public institutions in the European Union, the use of GPP produced a reduction of GHG emissions.

Sub-option 5b builds on sub-option 5a and is expected to generate larger positive environmental effects compared to 5a, due to the mandatory nature of measures 5b.2 compared to 5a.1. Moreover, Measure 5b.2 is expected to have additional positive environmental impacts: the literature reckons the effectiveness of Extended Producer Responsibility (EPR) schemes to address environmental goals and influence product design (e.g. reduced waste, increased recycling).

Sub-option 5c is expected to enhance the reduction of the environmental impacts more than under sub-option 5a and 5b. For instance, the excise duty, by encouraging companies to improve their product's environmental performance over its life cycle, is expected to generate effects similar to carbon taxation. When comparing Member States that have implemented a carbon tax with those that did not, it has been found that this mechanism has a positive and significant impact on stimulating the reduction of carbon emissions. A more detailed analysis is provided in **Annex 10: Impacts of the policy options**.

Social impacts

Sub-options 5a is expected to have positive effects in terms of job creation. Furthermore, economic and reputational incentives and GPP aim at influencing consumption habits and can assist consumers in drawing attention towards environmental impacts of products and services. However, the introduction of incentives may lead to price increases in the short term (if supply is inelastic), which are expected to decrease over time. Therefore, the issue of affordability of more sustainable products should be only temporary.

Sub-option 5b will significantly enhance the social effects identified for measure 5a.1. Incentives and eco-modulation in EPR schemes will be introduced at a faster pace, thus enhancing the job creation potential on the EU market in related fields, such as recycling or eco-design.

Sub-option 5c is expected to have a positive social impact as it would encourage a behavioural change leading to the selection of products of greater sustainability (measure 5c.1), while measure 5c.2, if accompanied by a shift of taxation on labour, has the potential to support the uptake of more labour-intensive and less resource-intensive activities, which would trigger job creation.

Stakeholder views

Overall, stakeholders express quite high levels of support for measures foreseen under **sub-option 5a**: in the Public Consultation, approximately 67% believed introducing mandatory Green Public Procurement criteria is either important or very important, with approximately 55% of **industry** representatives, 81% of **EU citizens & consumer organisations** and 58% of **SMEs** believing so. The second targeted SME survey appeared to confirm the results for this latter category, with 40% of respondents foreseeing a positive impact for SMEs from mandatory GPP criteria (6% foresaw either no or neutral impact and 9% potentially negative impact). In a dedicated workshop, **Member State** representatives also expressed cautious support for this measure, while underlining that mandatory criteria should be clear and easily applicable for procurements bodies, and should still facilitate innovation. They were supportive of the guidelines foreseen under this sub-option, indicating that additional information on successful economic instruments already in place in some EU countries would be useful.

Stakeholders also appear to have a positive view of measures linked to those under **sub-option 5b**: overall approximately 62% of Public Consultation respondents believed increasing transparency by identifying performance classes was important or very important, with this figure approximately 50% for **industry**, 74% for **EU citizens & consumer organisations**, and 59% for **SMEs**. Related to the latter, a majority of respondents to the second targeted SME survey indicated that linking incentives to classes of product performance may bring positive benefits for SMEs (with lower figures foreseeing either no or neutral impact - 11% - or potentially negative impact - 9%). **Member State** representatives also expressed support for this measure, even if the need to ensure smooth interaction with existing incentives was also underlined. High support for modulation of Extended Producer Responsibility schemes was also evident amongst stakeholders: overall approximately 66% of Public Consultation respondents supported or strongly supported it – around 58% from industry, 76% of EU citizens and consumer organizations and 64% of SMEs.

On sub-option 5c, though stakeholders tend to agree that the low cost of many products is a barrier to more sustainable product choices, some stakeholders (in particular Member State representatives) cautioned against extending the SPI instrument in this direction, given the risk of increasing complexity and questions surrounding legal base.

Overall comparison

Table 5 Comparison of options under PO5[165]

Overall comparison	Sub-option 5a	Sub-option 5b	Sub-option 5c
Effectiveness in delivering specific objectives	++	+++	+++
Efficiency	++	+++	++
Coherence	+	++	++
Overall economic impacts (including benefits)	+	++	+++
Administrative costs for Commission and MSs	-	--	---
Compliance costs for businesses	+	-	---
Costs / Savings for consumers	+	++	++
Overall environmental impacts	+	++	++
Overall Social Impacts	++	++	++

6.6. ANALYSIS OF POLICY OPTION 6

Economic impacts

Sub-option 6a is expected to generate positive -though limited- economic impacts, as the market for circular business is expected to grow. According to the analysis in **Annex 10: Impacts of the policy options**, the adoption of explicit policies to promote the circular economy will contribute to higher growth and employment levels in Europe by 2030. The provision of guidelines and the creation of an EU wide hub would incur limited administrative burden for economic operators, Member States and the European Commission. Economic operators as well as citizens would benefit from sub-option 6a measures to increase their knowledge on circular business models and they are expected to use them more frequently for their economic interactions.

Sub-option 6b, being cumulative to 6a, is expected to generate an additional increase in economic impacts as companies incur some costs relating to value chain management and stock management due to the ban on the destruction of unsold products and the transparency obligation. The measure may incentivize innovations to further prevent product surpluses by matching supply and demand, which could generate positive economic impacts. Compliance with the ban on the destruction of unsold products and the transparency obligation will lead to an increase in administrative burden (negligible in sub-option 6a) for economic operators. Limited impacts due to the transparency obligation are expected due to the flexibility provided to disclose required information by economic operators in a manner appropriate to their business environment, and because economic operators are likely to already keep an account of the number of unsold products they discard. Estimations (see **Annex 10: Impacts of the policy options**), by consulted industry associations, quantified a cost increase of less than 1% (estimated by 57% of industry associations) or between 1% and 5% (estimated by 43% of industry associations). The Member States are expected to incur administrative burden in terms of enforcement and compliance checks. The actual economic impacts of a ban on destruction will depend on the product scope of SPI measures that introduce a ban on the destruction of unsold products in practice and applicable exemptions. This shall be considered in the context of the impact assessment of these SPI measures.

In terms of internal market impacts, sub-options 6a would be neutral, while sub-option 6b would have a positive impact in terms of level playing field.

[165] See annex 10 for a more detailed breakdown of the scores

Environmental impacts

Sub-option 6a is expected to have positive environmental impacts, however the exact magnitude of such positive environmental improvements attributable directly to the policy sub-option and for all product groups within the scope of SPI may vary, as explained with several examples cited in the literature. The environmental potential of circular business models is found to be broadly positive (see **Annex 10: Impacts of the** *policy options*) as value retention activities extend product lifetimes, hence reducing material and energy requirements (and related impacts) from production of replacement products, whereas product-as-a-service and sharing models increase the optimisation and intensity of product use.

Sub-option 6b, being cumulative to 6a, is expected to have the same environmental impacts, plus some additional positive effect due to the ban on the destruction of unsold products and the transparency obligation. For instance, it is expected to reduce GHG emissions, by reducing resource consumption, limiting production as well as the end-of-life treatment. While no fully conclusive estimations on the total amount of unsold products being destroyed in the EU are available, the impact assessment accompanying the recent ban introduced in France estimated that the measure could avoid the destruction of 10,000 to 20,000 tonnes of textile a year (see **Annex 10: Impacts of the policy options**).

Social impacts

Sub-options 6a is expected to have largely positive social impacts. Value retention circular business models (CBMs) prevent waste, and are far more job intensive than waste management, with analysis of evidence from 16 countries suggesting more than 400 jobs generated through re-use and repair activities per 10,000 tonnes of waste, compared to 2 jobs in landfill and incineration activities and 115 in recycling[166]. Repair and servicing activities enable low-income families to continue to benefit from the functionality of products without the need to purchase replacements, whilst reuse activities provide access to pre-owned products at prices based on their residual value. Servitisation CBMs increase the affordability of more durable high-quality products as an alternative to low-cost, but less durable and less efficient products. Many circular economy enterprises are also engaging the socially excluded or vulnerable. This is true particularly in collection, sorting, repair, resale and upcycling operations, for example in textiles and food. Providing support for training in circular business models can open varied employment opportunities in the market, particularly as some sectors lack skills and staff (please see Annex 10 for more details and examples).

Sub-option 6b, being cumulative to 6a, is expected to have the same largely positive social impacts. They can be larger if companies increase their donations or sales at reduced prices as a result of the the ban on the destruction of unsold consumer products. Such donations and price reductions could have a positive social effect, making products more accessible for a segment of the population.

Stakeholder views

Based on Public Consultation results and discussions at a dedicated workshop, it appears that stakeholders would in general be relatively supportive of measures such as those foreseen under **sub-option 6a** to promote circular business models. **Member State** representatives also indicated that the idea of additional EU-level guidance on how to foster circular business models would be useful for them, as would the establishment of an information service (EU hub) on the subject.

There also appears to be solid level of support from some categories of stakeholders for the ban on destruction of unsold consumer products foreseen under **sub-option 6b**: Member State representatives, for example, saw merit in this measure. Most respondents to the second SME survey indicated that it would either have a positive overall impact on some SME business models, or have

[166] Gaia (2021)

neutral or no overall affect. Approximately one fifth nevertheless suggested such a measure could entail some additional burden for SMEs, while 6% indicated that destruction may be the only viable option for some SMEs in order to deal with these goods. Respondents to the first SME survey, however, indicated that incinerating of landfilling (i.e. destruction) were among the least likely options to be pursued by SMEs for dealing with unsold products.

Overall comparison

Table 6 Comparison of options under PO6[167]

Overall comparison	**Sub-option 6a**	**Sub-option 6b**
Effectiveness in delivering specific objectives	+	++
Efficiency	+	+
Coherence	+	++
Overall economic impacts (including benefits)	+	-
Administrative costs for Commission and MSs	+/-	-
Compliance costs for businesses	+/-	--
Costs / Savings for consumers	+	+
Overall environmental impacts	+	++
Overall Social Impacts	+	++

6.7. ANALYSIS OF POLICY OPTION 7

Economic impacts

Sub-option 7a is expected to decrease the administrative cost of preparing regulations for the European Commission. Member State market surveillance might be somewhat easier if third-party conformity assessment is used to a larger extent. This conformity assessment would however lead to additional cost for economic operators. This option should lead to more and better regulations and ultimately more economic benefits for consumers (estimated at a minimum of around EUR 3 billion annually, increasing depending on the number and kind of products additionally regulated)[168].

Sub-option 7b will increase administrative costs for the European Commission and the Member States, even if some efficiency gains might be achieved from better coordination of market surveillance at European level. This will however be largely compensated by the economic benefits stemming from reduced non-compliance in the internal market and from imported products, which will also benefit compliant businesses which will have to face less distortion from non-compliant products, while benefiting from increased support. For energy related products, the Ecodesign Impact Accounting Status Report of 2019 estimates the economic benefit for consumers from avoiding non-compliance to be in the order of EUR 12 billion in 2020[169]. Achieving 50% of these benefits from sub-option 7b would lead to additional savings compared to 7a of around EUR 6 billion annually (EUR 9 billion in total compared to baseline)[170].

Depending on the administrative setup used, **sub-option 7c** might lead to a significant increase in administrative costs for the European Commission related to setting up the necessary capacities for the wide range of products in scope. Businesses and consumers will benefit from a decreased market penetration of non-compliant products. As with sub-option 7b, the economic benefits from reduced non-compliance would be significant and probably higher with more involvement at a European level

[167] See annex 10 for a more detailed breakdown of the scores
[168] Estimation based on the 2015 Ecodesign and Energy labelling Impact Assessment.
[169] Ecodesign Impact Accounting Status Report 2020
[170] Estimation based on the 2015 Ecodesign and Energy labelling Impact Assessment.

(at an assumed level of reduction of non-compliance of 70%, benefits would amount to around EUR 2.5 billion in addition to 7b (EUR 11.5 billion in total compared to baseline).

As regards impacts on the internal market, the increasing stringency of the sub-options regarding market surveillance is expected to lead to increasing levels of compliance, thereby levelling the playing field in the internal market.

Environmental impacts

Better regulation from streamlining the Ecodesign process (**sub-option 7a**), will lead to regulations that are adopted earlier and are better suited to the current market situation, for example in terms of available technology. For energy related products, the current delays in the ecodesign process, which is on average 24 months, theoretically neglects 2.6% of regulation-driven energy demand reductions. Addressing these savings would allow a reduction of up to 1.3% of GHG emissions compared to EU totals.

By lowering non-compliance, **sub-option 7b and 7c** will have a direct positive impact on the environment. For energy related products, reducing non-compliance by 50% would lead to an overall decrease in GHG emissions of up to 1.6%, as well as other environmental benefits, such as a reduction of particulate matter emissions by 0.8% and of primary energy consumption by 1.7%. Assuming a reduction of non-compliance by 70% would bring a 1.8% reduction in GHG emissions, 0.9% for particulate matter emissions and 1.8% for primary energy consumption. It should be noted that these impacts are cumulative to the ones highlighted under sub-option 7a. Overall, the reduction of non-compliance could reduce GHG emissions by around 22 Mt CO2e in 2030, 8% of the GHG emission reduction from energy savings in that year.

Social impacts

As better regulation and market surveillance are a consequence of **sub-options 7a to 7c**, the market share of compliant enterprises could increase, as well as employment. For sub-options 7b and 7c, if it is assumed that companies complying with product regulations are also more likely to comply with labour laws, the overall social impact could be positive, promoting a level playing field.

Stakeholders' views

Stakeholders are generally supportive of the improvement of the ecodesign process, the reduction of delays and better market surveillance[171].

Overall comparison

Table 7 Comparison of options under PO7[172]

Overall comparison	**Sub-option 7a**	**Sub-option 7b**	**Sub-option 7c**
Effectiveness in delivering specific objectives	+	++	+
Efficiency	+	++	++
Coherence	++	++	++
Overall economic impacts (including benefits)	+	++	++
Administrative costs for Commission and MSs	-	--	---
Compliance costs for businesses	+/-	+/-	+/-

[171] See for example statement from ECOS https://ecostandard.org/news_events/industry-associations-challenge-ecodesign-package-measures-before-eu-court/, Applia https://www.applia-europe.eu/topics/121-joint-industry-letter-on-ecodesign.

[172] See annex 10 for a more detailed breakdown of the scores

Costs / Savings for consumers	+	++	++
Overall environmental impacts	+	++	++
Overall Social Impacts	+	+	+

7. PREFERRED OPTION

7.1. THE PREFERRED COMBINATION OF POLICY OPTIONS

Based on the assessment and comparison of sub-options and their impacts, the overall preferred option package is a combination of sub-options **2b, 3b, 4b, 5b, and 6b**. For Option 7, **sub-option 7b** is considered preferred for the purposes of the impact assessment. This package of measures is the best performing (including in terms of effectiveness and proportionality), with all of the different sub-options being coherent together: the different sub-options are all either independent of each other, or strengthen each other. Please see Annex 12 for more details, including two case studies describing how SPI would work in practice.

The sub-option retained for **Option 2** – extension of the scope of Ecodesign Directive – is **sub-option 2b**: Extension to all physical products. This will allow for the potential coverage of any products placed on the EU market, on the basis of clear criteria and a working plan, thus enabling prioritization of the most important categories and making the framework flexible and futureproof at the same time. In terms of the prioritisation, the products identified under sub-option 2a are likely to offer most value-added and so be tackled first. For construction products, the CEAP and SPI goals shall be mainly realised by means of the Construction Products Regulation (CPR). The CPR shall be able to mirror all obligations and requirements able to be set through the SPI, but for construction products – the same is explained in the Impact Assessment (IA) on the CPR revision.

For **Option 3** – extension of sustainability requirements for products – **sub-option 3b is preferred**. This means that the product scope extension will be complemented by **new and strengthened provisions on minimum requirements for sustainability and circularity** to be adopted through product-specific SPI measures. In addition, it will include the possibility to adopt **horizontal requirements, applicable to a group of products sharing common characteristics**, for example setting reparability and upgradeability requirements for all electronic devices or minimum information requirements for all products containing substances of concern. Sub-option 3b will also allow the European Commission to spearhead work on **social requirements**, a dimension of sustainability so far not directly tackled through Ecodesign. This new dimension and the use of environmental profiles will build on the reinforcement of the provisions related to third party conformity assessment under Option 7 and build on synergies with the improved consumer and business information provisions under Option 4. To ensure proportionality, each individual requirement will need to be justified for any product group before being applied.

For **Option 4** – sustainability information for consumers and B2B – **sub-option 4b is preferred**. The extension of the scope of Ecodesign to products that are not energy-using products will make the **provision of information related to the environmental impacts and circularity of products increasingly relevant**, so businesses can demonstrate that they meet relevant sustainability requirements and select sustainable inputs in their production processes, and so consumers can make sustainable choices more easily. This sub-option would also allow for information requirements to be set in the form of classes of environmental performance and will create links with existing databases, like EPREL or the SCIP Database on substances of concern in products. The revised horizontal framework legislation will introduce a **European Digital Product Passport**,and likely lay down some key objectives and principles governing this. As set out in previous sections, the operational details and IT infrastructure design will be developed through secondary legislation (and associated impact assessments), in close collaboration with stakeholders and also building on the results of a

number pilot projects currently funded under the Digital Europe and Horizon Europe programmes. These projects will represent a "proof of concept", applied to at least three product groups (batteries, ICT and a third group to be proposed by the participating consortia). The content of each EU DPP will be decided when developing product-specific SPI measures, with the objective of only requiring the most relevant information, additional to what is already requested though existing legislations. The quantity and typology of information could be minimal at the beginning and increase progressively with time, depending on product groups and the experience gathered when deploying the EU DPP concept. The EU DPP will be used for sustainability aspects of products where relevant and, when relevant and technically feasible, also as a tracking & tracing tool to bring transparency along the value chains and facilitate the role of enforcement authorities. Annex 18 presents some possibilities currently available in terms of "design options" of the EU DPP. This is not meant to prejudge the future decision, but only to provide some examples to allow better understanding of the concept.

For **Option 5** – Reward more sustainable products through incentives – **sub-option 5b is preferred**. This means that Member States, whenever they aim at boosting the demand for sustainable products through incentives, they will be required (as is the case for Energy Labelling) to link their product incentives to classes of performance (developed under Option 4). Public authorities will also be required to align their procurement with specific Green Public Procurement criteria or targets, to be set out in measures adopted under SPI, thereby leveraging the weight of public spending to support more systematically a sustainable and circular economy. They will also be invited to expand their existing Extended Producers Responsibility (EPR) schemes to products covered by the framework and to ensure that fees are modulated as a function of the environmental performance of products, with rules in this respect also to be set out in product-specific measures adopted under SPI.

For **Option 6, sub-option 6b is preferred**, which includes measures under sub-option 6a to support circular business models as well as the introduction of a transparency obligation and bans on the destruction of unsold consumer products through SPI measures.

For **Option 7** – Strengthened application of the Ecodesign framework – **sub-option 7b** is considered preferred for the purposes of the impact assessment. The extended scope of the Ecodesign framework with even higher sustainability ambitions can only be successful if resources of both the European Commission and Member States are strengthened to a level commensurate with the ambitions. The European Commission (directly or through an executive agency, see section *7.10 European Commission Administrative setup* below), can play a stronger role to support the design and enforcement of Ecodesign for sustainable product measures.

7.2. IMPACTS OF THE PREFERRED POLICY PACKAGE

The different sub-options chosen all combine well: none of the preferred sub-options needs to be changed as a result of another one. In more detail, building on the extension of scope (2b):

- The addition of sustainability requirements (sub-option 3b) will increase costs for producers, but this should be more than offset by the environmental benefits and financial savings for citizens. The impact assessments preceding adoption of detailed product rules will need to establish what cost increases are reasonable and proportionate from a consumer perspective, also taking into account the expected time horizon for expected savings (e.g. from increased durability etc.) to take effect. Additional administrative burden can be expected, for example for provision of information for market surveillance, though the possible introduction of a EU DPP (4b) is expected to help reduce this burden

- The wider scope of products and sustainability requirements means there is further benefit to the enhanced information requirements and the European Digital Product Passport (sub-option 4b). For example, minimum requirements to reduce environmental footprints (under 3b) combines well with provision of information on this footprint through an Ecological profile or EU DPP (4b): the sub-options chosen are mutually reinforcing.

– Similarly, the enhanced incentive measures in 5b will allow for more efficient and effective delivery of the objectives for the product groups in scope, and the wider sustainability requirements.

– Sub-option 6 will assist with delivery of the environmental benefits, and support the effectiveness of the other measures. For instance by supporting the uptake of circular business models, for instance in the second-hand market, the actual effects of requirements on reparability and durability (sub-option 3b) could be enhanced by keeping products in use longer.

– Sub-option 7b is similarly consistent with the other sub-options. The extended scope of the Ecodesign framework can deliver benefits commensurate to resources dedicated to its implementation.

Box 3: ***The SPI business case***

Concerning impacts on businesses and SMEs, in general SPI is expected to generate some additional costs, which would be likely to be absorbed over time, and to bring several benefits from a business perspective, especially for SMEs, including:

- **Reduced material use and expenditure**. EU manufacturing firms spend on average 40% on materials[173]. The reduction of material use that close loops (Option 3) and circular business models (Option 6) are expected to increase their profitability. This is confirmed by the targeted SME survey where 43% of the respondents (for sustainability requirements) and 53% (for requirements on minimum recycled content) indicated reduced material use as one of the factors that will offset the costs linked to those requirements being introduced by SPI.

- **Better functioning of the Internal Market and level playing field**. Harmonised sustainability performance and information requirements at EU level would replace several existing national requirements or prevent planned ones; this would result in easier compliance and in reduction of compliance costs for firms that are selling across the EU that would not have to face different and/or diverging requirements for their products. Manufacturers would benefit from an improvement of the level playing field through classes of environmental performance and harmonised requirements.

- **New business opportunities**. It is expected that in all manufacturing sectors there would be an expansion of business opportunities from production towards maintenance. Growth in the sector of repair services, refurbishment, and remanufacturing and thus jobs in these sectors to be expected as well. This would specifically favour SMEs as they are strongly represented in those sectors. Economic operators would benefit from the information made available by SPI measures[174] to increase efficiency (and hence lower costs and higher quality) of value retention activities.

- **Reputational benefits**. Less material dependency and sustainable circular business models, would increase manufacturers' reputation and their market share. For SMEs, responses from the targeted survey suggest that costs linked to sustainability requirements are likely to be offset over time also due to factors such as increased customer loyalty and increased reputational benefits. In addition, a better image of the manufacturing sector as contributing to the resolution of major environmental challenges would also attract young, qualified talent having a positive impact on innovation and would create opportunities for attracting significant long-term investments.

Thanks to this preferred approach, the Ecodesign scope will be extended to cover 65% of total GHG emission from products consumption in the EU, 64% of particulate matter emissions and 70% of resource depletion. Looking at GHG emissions only, assuming an improvement of 15% of

[173] 2020 Circular Economy Action Plan
[174] See for instance the "Business Case" section in Annex 18 dedicated to the EU DPP.

environmental impacts over the entire scope from SPI measures, would lead to globally reducing GHG emissions by around 471 Mt CO2e, the equivalent of the annual emissions of Italy and Belgium.

The impact assessments of the SPI measures for the various product groups will examine the best combination of measures for that particular product group. The impact assessments of the implementing measures will also analyse in a proportionate way to what extent third countries are affected by the EU measures. Deeper knowledge of these impacts will allow the EU to better assist partner countries in reaching higher sustainability standards.

7.3. RELATIONSHIP BETWEEN LEGAL ACT AND SUBSEQUENT SPI MEASURES

Considering the chosen combination of sub-options, and without prejudice to the Commission's decision on the legal proposal and to the legislators' decision on the final legislative text, the future SPI legislation should be implemented in a similar way as the current Ecodesign directive, with

- a legal act defining the framework for the application of sustainability requirements to products in the scope of the legislation, allowing their placing on the EU internal market,
- SPI measures, adopted by the Commission on the basis of the objectives and criteria defined in the legal act, and adopted in accordance with the procedure set out in the legal act, for specific products or groups of products sharing common characteristics.

The actual impact of SPI should therefore materialise when SPI measures enter into force, after dedicated impact assessments, consultations and adoption procedures. The preparation and implementation of SPI measures typically include the following actions:

- the prioritisation of product groups to be covered by SPI measures, so as to maximise the impact of the legislation and address policy priorities; this prioritisation will take the form of a (multi-annual) work programme to organise the Commission's work and inform stakeholders for their own anticipation;
- the assessment of product groups in specific studies, gathering all the information and data needed on the technical and market characteristics, environmental and social impacts over their life cycle, technologies and improvement potential, costs and benefits to be expected from regulation, opinions of stakeholders, so as to define potential sustainability requirements and impact assess different options implementing sets of requirements; The assessment of products will also investigate the existence of **potential policy trade-offs** (for example, if a potential SPI restriction on the presence of chemicals in a given product would limit the possibility of extending that product's lifetime, or of reducing its other negative environmental impacts). Should such trade-offs be identified, these should be presented transparently, and the most appropriate solution pointed out, while providing clear information on the pros and cons of alternatives. The assessment phase – in particular given that it will include targeted consultation with relevant stakeholders – will be key for identifying optimum ways forward in these cases. During that phase, the several "design options" for that product and their impacts will be evaluated. This analysis and evaluation will yield the most beneficial option, including trade-offs within the environmental field and between fields (such as social and environmental), and will be reflected in the Impact Assessment reports of the product specific rules. the final decision on requirements and the right balance between objectives is to be taken at the level of the Commission based on the conclusions of the full assessment including stakeholder consultations;

  It should be noted that, given the need to ensure consistency of approach and avoid unduly delays to SPI rules for the products already regulated, or soon to be regulated[175], under the existing Ecodesign Directive, the methodology to be adopted under SPI will enable certain distinctions to be made, in particular between *energy-related products for which energy consumption in the use*

[175] E.g. in the 2019 Ecodesign and Energy Labelling Working Plan, and 2022-2024 Ecodesign and Energy Labelling Working Plan

stage is dominant, and other products. Lifecycle assessment is likely to be the predominant methodological approach underpinning the assessment and regulation. For energy-related products for which energy consumption in the use stage is dominant, a dedicated life cycle assessment, in accordance with the MEErP methodology (and its ongoing revision[176]) currently used under the Ecodesign Directive, should be used ensuring a focus on energy without neglecting other product aspects or SPI objectives (for example reparability, durability or reuse). The different assessment methods will be jointly evolving to address all the SPI objectives considering the nature of the product groups in question as new rules are rolled out. Due to the variety of products in the scope of the proposed legislation and their different nature, not all requirements can be envisaged for every product group[177]. **Nevertheless, the clear objective will be to maintain a similarly high level of environmental ambition across all product groups regulated**. This will be achieved, amongst other factors, by placing clear emphasis on whole lifecycle analysis and fostering circularity for all products. The ongoing revision of the MEErP methodology will help further integrate such approaches for relevant energy-related products, and the proposed overall approach, presented in detail in **Annex 16**, seeks to ensure this.

- the implementation will follow the provisions of the legal act, in terms of obligations for relevant economic actors, verification and enforcement by Market Surveillance Authorities and Customs authorities, use of standardisation or self-regulation tools where appropriate; these provisions may be further detailed or complemented by provisions in the SPI measures as provided in the legal act;
- implementation of the legislation, as a whole and through each SPI measure, is monitored and evaluated so as to report on the results and review the legislation.

Annex 16 outlines the methodological considerations for enabling these actions, for instance the set of criteria to decide the order of priority for the development of SPI measures for products.

The measures identified in the chosen sub-options will materialise as follows:

- The product scope, as defined in sub-option 2b, should lead to the definition of the scope in the legal act and, at the same time, the assessment of impacts per product category undertaken in this IA should feed into the prioritisation exercise and work programme;
- Sustainability requirements, as defined in sub-option 3b, should be detailed as possible requirements in the legal act, and selected or not as actual requirements in SPI measures after the detailed assessment and consultation; sub-option 3b includes the possibility of SPI measures covering a large number of products having common characteristics;
- Information requirements, as defined in sub-option 4b, should follow a similar route as sustainability requirements of sub-option 3b. For the European Digital Product Passport, certain key principles and infrastructure rules should be defined in the legal act (e.g. the principle that all data should be written in standard, open, interoperable format) while the content specific to product groups (e.g. where exactly the data carrier should be located) should also be defined in product-related SPI measures;
- Measures on incentives, as defined in sub-option 5b, should be integrated into the legal act where such provisions are necessary for their implementation, and into SPI measures where incentives are linked to specific requirements such as performance classes. Policy measures such as guidance to stakeholders do not require a specific legal provision;
- Measures on the promotion of value retention and value maximisation, as defined in sub-option 6b, should follow a similar route as the measures on incentives; in particular, the ban

[176] https://susproc.jrc.ec.europa.eu/product-bureau/product-groups/521/home
[177] For example, a limit on the energy efficiency during use is appropriate for a boiler, it is probably not for a mattress

on the destruction of unsold consumer products should be introduced through SPI measures, while the guidelines and hub supporting circular business models will not need a specific legal provision in order to be implemented (but they could be called for in the SPI basic act);

- Measures to improve the efficiency of EU implementation and strengthen market surveillance, as defined in sub-option 7b, should be integrated into the legal act -where necessary- and implemented using empowerments granted in the legal act. Measures on market surveillance should also be reflected in the relevant provisions of SPI measures. Additionally, some measures foreseen in Option 7 will not need to be integrated in the SPI legal act.

7.4. FEASIBILITY AND PROPORTIONATE IMPLEMENTATION

Whilst the changes made through Option 7 and the improved administrative set-up including capacity will improve implementation, it will still be a challenge to respond to the expanded scope of the Ecodesign Directive. The longer list of product groups and environmental impacts to be tackled will require prioritisation: the SPI will use clear, transparent and effective methodological criteria for the selection of the product groups for which the SPI measures will be developed, based on those already foreseen in Article 15 of the current Ecodesign Directive and set out in Annex 16 to this IA (e.g. environmental, energy and social impacts and related potential for cost-effective reduction of such impacts). The selection will follow a fully transparent process, involving stakeholders, culminating in working plans outlining the priorities to give predictability to economic actors.

Importantly, the existing Ecodesign Directive approach of implementing measures being based on impact assessments carried out in line with the European Commission's Better Regulation Guidelines will continue. As such, there will be an analysis of the economic, social and environmental impacts of different options for each set of product requirements. This will allow for proportionality to be maintained in future actions: for example, the analysis will examine the use of different design measures, the EU digital product passport product-specific requirements, minimum requirements or defining performance scales etc. This means that the assessment and identification of improvement options will be done on a product by product basis or for a group of products sharing common characteristics, underpinned by a sound analysis, and that this will largely determine the ultimate impacts for producers and citizens.

The various consultation activities carried out in the context of this impact assessment have provided useful indications of the expected impact of future SPI requirements on **SMEs**, as well as the type of support most likely to help alleviate any potentially negative impact on these businesses (see Annex 2 and 19). Taking these findings into account, each impact assessment for an SPI measure will examine whether the impacts for SMEs are proportionate, and the possibility of accompanying the SPI measure with mitigating measures. As a result, impacts are expected to remain proportionate for SMEs, with any impacts offset over time by benefits.

This analysis is supported in particular by the findings of the second targeted SME survey[178] which, though pointing to possible negative impacts for SMEs notably linked to implementation of some of the product and information measures outlined under preferred sub-options 3b and 4b respectively, suggested that certain benefits could also accrue, both from these measures as well as those under other sub-options, such as 5b. This survey also suggested that appropriate support, such as assistance with environmental and carbon footprint calculation/life cycle assessment methods[179], dedicated SME provisions in the legal text (e.g. longer transitional periods or exhaustion of stock provisions), as well as simplified procedures for SMEs (e.g. for reporting), could be effective in offsetting negative effects and assisting SMEs, allowing the 'Think small first' principle to be applied. These aspects will be

[178] See Annex 2 for more details

[179] The Commission is considering possible measures to facilitate the preparation of PEF studies by SMEs, including free IT calculation tools to reduce the costs for carbon footprint calculation.

further analysed in the preparation of SPI measures and where appropriate, relevant mitigating measures foreseen. See Annex 2, 12 and 19 for more detail.

7.5. REGULATORY BURDEN AND SIMPLIFICATION

In terms of the overall **regulatory burden**, the financial costs and benefits of the overall package will depend on the SPI measures that follow. The experience from the Ecodesign Directive until now though is relatively positive, with win-win measures being identified. Overall, there are higher costs for business from applying the requirements and these translate into upfront costs for citizens that are more than offset over time. The cumulative costs for business (and citizens) are unlikely to be significant, being spread over a large market, and with the issue of cumulative costs revisited for the different product groups.

The preferred option includes **simplification measures**, in the context of policy option 7. This will allow for example for streamlining of the procedures for the development and adoption of Ecodesign implementing regulations (changes in sequencing; ensuring information is collected efficiently; etc). Policy option 7 ensures that the structures put in place allow for efficient implementation, market surveillance and enforcement.

This preferred option makes maximum use of the potential of **digitalisation** to ensure efficient application. In particular, the use of a digital product passport will allow for efficient delivery of its objectives by ensuring that information failures are corrected by passing the right information downstream in a way that can be understood and accessed. Digital measures are also explored to facilitate efficient implementation and enforcement with policy option 7, for example, including making relevant product information digitally available to market surveillance authorities (MSAs) and possibly Customs authorities.

Table 8 European Commission's regulatory fitness and performance programme (REFIT) Cost savings

REFIT Cost Savings – Preferred Option(s)		
Description	***Amount***	***Comments***
Streamlining of the procedures for the development and adoption of Ecodesign implementing regulations		Savings will depend on the number of products covered
Collecting data from manufacturers and retailers regarding regulated products sales and usage		Savings will depend on the number of products covered

The approach of implementing measures being based on impact assessments carried out in line with the European Commission's Better Regulation Guidelines means that there will be a systematic analysis of administrative costs generated for businesses, citizens and administrations. Administrative costs for businesses and citizens will be considered as part of the Commission's 'one in, one out' programme along with the possibility of their offsetting. Clearly, administrative costs will vary across sectors and businesses, but will be minimised and allowed only if proportionate (for example if necessary to generate significant benefits). Examples of possible administrative costs will include calculation of environmental footprints and provision of information by business through a Digital Product Passport, and labelling. Consideration will also be given to the reduction of administrative costs when one EU rule replaces diverging rules across the 27 Member States, which can lead to net benefits as the internal market is strengthened.

The Fit for Future Platform's opinion on Ecodesign[180] recognised the need to improve sustainability of products, and the necessity to introduce new obligations whilst keeping the burden on business to the minimum. The Platform made nine suggestions to ensure value added and proportionality: on scope; need to concentrate on key aspects of the environmental performance; that information requirements should be clear, comprehensible and comparable for consumers; need to consider implementability of the legislation and the roles of all the different actors; access to information and standardisation as a tool to reduce burden; planned obsolescence; transition periods; support for SMEs. These suggestions fed into the impact assessment process and were reflected where appropriate in the preferred policy option.

7.6. OVERVIEW OF COSTS AND BENEFITS

The overall impacts of the preferred policy option are assessed in Annexes 10 and 12. They include, **firstly**, the setting up of the overall framework, for which the main costs will be associated with setting up the European Digital Product Passport and strengthening of enforcement.

Strengthening of enforcement will take place through market surveillance and customs controls. It is assumed to require 210 FTEs of staff in the EU 27, with an administrative cost of around EUR 10.5 million per annum. In the Commission, there will be an additional 8 FTEs associated with market surveillance, customs controls and support to EU testing capacity.

With regards to the European Digital Product Passport, it is important to understand that the current proposal is a radically new approach and does not have precedents that would provide a good proxy for cost estimates. The costs for the Commission to set up the European Digital Product Passport are estimated at around EUR 8 million as one-off investment and at least EUR 1 million as annual maintenance cost. However, this is a preliminary estimate based on the information collected and the extrapolation of the costs for other decentralised systems currently under development. The costs for business will depend on the SPI measures and the lessons from first experiences (which will act as a

[180] https://ec.europa.eu/info/sites/default/files/final_opinion_2021_sbgr2_10_ecodesign.pdf

form of piloting). Additional costs will be incurred to support enabling measures needed for SMEs to adapt to new standards to be able to interact with the EU DPP. The European Digital Product Passport will though help saving money in terms of administrative burden for companies and of enforcement for public authorities, and improve the efficiency of information flows.

Under Option 7c, consumer savings through shorter lead times and through reduction of non-compliance could be EUR 11.5 billion per annum and would reduce GHG emissions by around 22 Mt CO2e in 2030.

Secondly, the administrative process for preparing SPI measures (not the implementation) for an additional 30 product groups (or horizontal issues) will trigger additional costs of around EUR 25 million per annum. These costs will be largely for manufacturers and Member States, and are a doubling from current levels. The timing of the costs will depend on the timing for the delivery of the 30 additional SPI measures they relate to.

Most significantly, **thirdly**, the impacts that result from those SPI measures for the Member States, EU businesses, EU consumers and the environment as well as impacts outside the EU on businesses, citizens and the environment. It is challenging to identify the overall costs and benefits before the analysis to underpin them is undertaken, but tentatively the additional costs of another 30 SPI measures (to deliver sub-option 2b) could be in a range of 30 to 60 billion Euros per annum when fully incurred. The Ecodesign Directive experience has been that costs of production are more than offset by financial savings for consumers. Under SPI, there is also clear potential for benefits from life extension and improvements in the production process. Furthermore, production cost increases could also be offset by savings along the value chain for other businesses.

There is likely to be net economic benefits overall at a global level; and any SPI measure with net economic costs will only go ahead if justified on the basis of its environmental impacts. Overall, a reduction of 15% of environmental impacts over the increased (i.e. just the additional) scope due to implementation of SPI measures would lead to reduced GHG emissions of around 117 Mt CO2e, with a monetary value of around EUR 12 billion per annum. Adding on the improvements from option 7, these figures increase to around 139 Mt CO2e, with a monetary value of around EUR 14 billion per annum.

It is not possible to place an illustrative monetary value on the wider environmental impacts, but assuming a 15% efficiency it would reduce 6% of EU particulate matter and 3% of EU resource depletion[181]. If the new initiative delivered environmental improvement over the whole scope, by improving sustainability for energy related products, these figures could of course be higher.

7.7. INTERNATIONAL COMPETITIVENESS

An assessment of the economic impact demonstrates that the proposed initiative would not affect production costs in a significant manner in the long term. As seen in the problem definition, more sustainable products in general imply more production costs compared to less sustainable alternatives. It is expected that the companies selling products in the EU will have to face a cost increase in the short term due to the compliance to the revised Ecodesign legislation. However, the SPI would generate a level playing field in the EU. Furthermore, in the medium/long term the requirements introduced by the SPI measures could become an international benchmark for the product groups concerned, as it is currently happening for products falling under the current Ecodesign Directive[182, 183].

[181] SPI Impact Assessment Study, based on EXIOBASE

[182] "[…] Many developing countries could model their regulations on existing ones (those of the European Union, for instance) […]", IEA (2020), Appliances and Equipment, IEA, Paris https://www.iea.org/reports/appliances-and-equipment

[183] "At least 45 countries outside the European Union have adopted minimum energy efficiency requirements for products, some of them in fact implementing ecodesign regulations in the context of association agreements or EU membership negotiations.", SWD(2015) 139 final

Requirements would not be more trade restrictive than necessary, and apply in a non-discriminatory manner to EU and non-EU companies, thus ensuring a level playing field for sustainable products in the EU market. Likewise, European producers would not be disadvantaged in their ability to function inside or outside Europe. In line with current EU international cooperation, the EU will provide continuous support to developing and least developed countries for the green transition. In particular, efforts will be made to mitigate possible adverse effects (via technology transfer and capacity building). Moreover, the SPI measures of the revised legislation will be developed in a transparent manner and third countries will be fully informed in the process. The preparation of the implementing measures will analyse in a proportionate way the potential impact of the measures in producing countries, including the possible effects on trade and investment flows.

The SPI measures would strike a proper balance between predictability and legal certainty and allowing for technological progress. This is important for products in fast changing markets, where there is a need to facilitate adaptability and regulatory responsiveness in line with technological and market developments.

7.8. IMPACT ON CONSUMER BEHAVIOUR

Consumer behaviour refers to the study of how consumers[184] make decisions about what they need, want, and desire and how they buy, use, and dispose of goods. The Sustainable Product Initiative will change consumer behaviour. It will respond to the problem (see 2.2) that it is still too difficult for economic operators and citizens to make sustainable choices given that relevant information and affordable options to do so are lacking. It will also nudge consumers towards more environmentally friendly purchases, by correcting market failures (see 2.5.1).

The legislation will restrict consumer choices through Option 3 by introducing minimum requirements for specific products on for instance the carbon and environmental footprints or minimum requirements on the aspects that affect the lifetime of a product such as reparability. These minimum requirements respond to cognitive biases such as myopic behaviour and bounded rationality (see 2.5.3) by excluding the least sustainable products from the market (therefore simplifying consumers' choices).

The legislation will aim to change how consumers actively behave. Price and quality are the most important decision factors for consumers when **buying products**. The majority of EU consumers consider themselves "occasional" consumers of environmentally-friendly products (56%) and more than a quarter pay attention to the environmental impact of all or most goods and services (23%). 67% EU citizens buy products that are better for the environment even if they cost more[185]. 43% of EU consumers declared that they would be willing to pay for environmental information[186], and 56% of consumers would use the information to buy more environmentally friendly products[187]. Providing more information on the environmental characteristics of products that is perceived to be robust may help to turn this willingness into actual sustainable choices. Moreover, this information would complement future measures[188] developed to incentivise sustainable consumer's behaviour when using products, by encouraging for example repairs or the purchase of second hand goods. Option 4 will respond and facilitate greener consumer behaviour by clearer and more accessible information, including for some products their classes of performance and possibly related labels.

The Digital Product Passport (*see annex 18*) would further enable and shift green consumer behaviour by changing the information available. In addition, digital product information, for example QR

[184] Consumer here is used as general term and includes economic actors along the value chain (including B2B).
[185] *Consumer conditions survey*, European Commission, 2021.
[186] Data extrapolated from the consumer survey for the impact assessment on Consumer Empowerment [*add reference when published*].
[187] Impact assessment on Consumer Empowerment [*add reference when published*].
[188] New Legislative Initiative on the Right to Repair as announced in the Commission Working Programme for 2022 (https://eur-lex.europa.eu/resource.html?uri=cellar%3A9fb5131e-30e9-11ec-bd8e-01aa75ed71a1.0001.02/DOC_2&format=PDF)

codes, would allow private providers to develop apps and services that greatly improve the ability of consumers to assess products and compare them.

Option 5 will be a further 'nudge' policy, working for example through reputational and economic incentives to shift consumer behaviour and respond to the underlying market failures.

The greening of consumer behaviour could be limited if there is an issue with the affordability of the more sustainable products on the market. The mechanisms affecting prices will be complex, and work in different directions. The economic measures proposed under sub-option 5b (mandatory GPP and Member States incentives assigned to best performing products) are meant to sustain the demand for more sustainable products. Moreover, increased reliability, reparability, and durability will extend the potential lifetimes over which purchase costs can be spread, including for some by facilitating repair, resale and second lives. Increased sustainability will often come at an increase in up-front costs. The current Ecodesign Directive has removed the poorest performing energy related products and led to significant savings for customers over the lifetime of energy related products, but with some upfront costs (around a half to a third of their energy savings)[189]. However, these upfront costs do not appear to have led to social impacts related to affordability, perhaps because the pay off period in terms of savings can be short for energy related products. However, affordability issues will differ between product groups and so the impact assessments accompanying implementation measures will examine this on a product-by-product basis. These issues will need to be looked at on a case by case basis in the impact assessments accompanying future measures, considering changes in upfront costs, quality, and lifetimes (taking into account the different impacts over the time horizon).

7.9. COHERENCE OF THE PREFERRED COMBINATION OF OPTIONS WITH OTHER INITIATIVES

Even if the success of SPI does not depend on the implementation of other related initiatives in preparation, the assessment of the preferred combination of policy options has confirmed the positive synergies that exist between them.

Indeed, in addition to playing a central role in achieving the objectives set in the European Green Deal, **SPI will contribute to ensuring overall coherence between these initiatives**: it will act as a key link between many of them and help to maximise their overall coverage. This will be achieved in number of ways:

- **It will fill key regulatory gaps**: SPI will be in a position to cover products whose sustainability aspects are currently unaddressed, or under-addressed, at EU level (e.g. textiles; furniture). This will remedy the existing 'patchwork' situation[190], which is resulting in certain products falling through the regulatory cracks[191]. In addition, with the wide scope preferred for SPI (sub-option 2b), it will be in a position to respond to novel products and future product trends, thereby avoiding the occurrence of problematic regulatory gaps in the future. This will also allow it to intervene with specific, complementary requirements, even for products whose sustainability dimensions are primarily regulated by other instruments. One example could be to define digital product passport requirements for products, in cases where the primary legislation that regulates them is not appropriate for doing so.

- **It will act as a bridge between horizontal and product-level rules** (see figure 3 below): SPI will be in a position to take targeted action, tailored to specific product/product value chain needs or problems. It will therefore be ideally suited to complement and concretely reinforce

[189] Under the current Ecodesign Directive there has been a EUR 60 billion (5% of the baseline) saving in 2020 on consumer expenditure (EUR 76 billion energy cost saving, EUR 7 billion consumables saved, EUR 23 billion extra acquisition costs). This is a direct savings per household of EUR 210 in user expenditure in 2020, expected to increase to EUR 350 per year per household in 2030 (See Annex 6)

[190] See SWD(2019) 92 final

[191] Conversely, products already covered or proposed to be covered by a comprehensive set of sustainability requirements (e.g. batteries) are unlikely to be priorities under SPI

horizontal initiatives (such as the initiative on Empowering Consumers for the Green Transition; the Sustainable Corporate Governance initiative; the Packaging and Packaging Waste Directive[192]), by acting as *lex-specialis* to their more general rules. In cases where product-specific sustainability problems are identified (e.g. related to the packaging of a *specific* product category, or the human rights risks of a *specific* product's value chain), or where more detailed rules on the provision of durability or reparability information to consumers for a *specific* product are possible, SPI will be able to elaborate on and further complement the general obligations set on these aspects in other instruments, at the level of the product itself.

- It will **synergise with and foster the objectives of other CEAP initiatives**: While the Green Claims Initiative will cover environmental claims made voluntarily on products and SPI's requirements will be mandatory, the two will nevertheless work in synergy to ensure reliable information on the sustainability and environmental performance of products is always provided to consumers and supply chain operators. SPI will also be the main instrument to develop the ecodesign measures that are central to achieving the EU Textile Strategy's objectives as well as the objectives of the Circular Electronics Initiative.

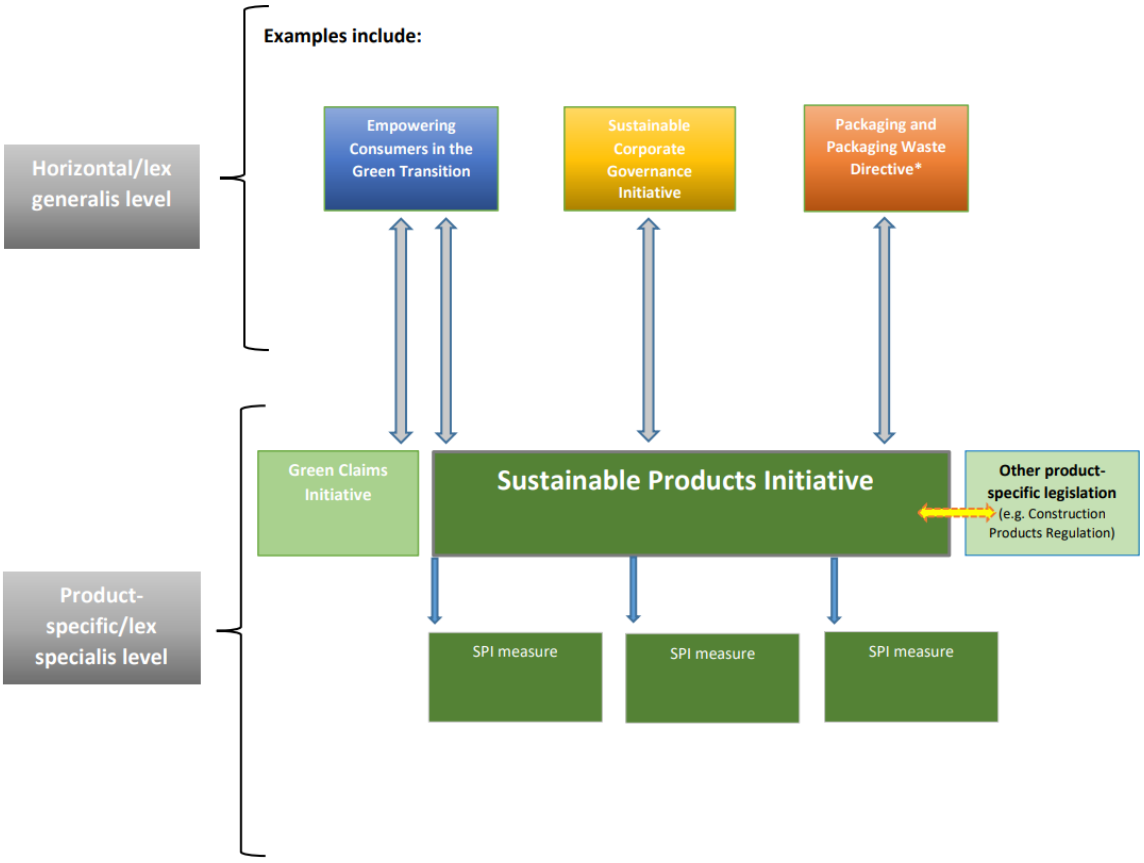

Figure 3 Illustration of horizontal and product level interaction with SPI as key bridge

** While the Packaging and Packaging Waste Directive will lay down both horizontal rules and rules for **packaging as a final product in itself**, SPI will take action on packaging associated with **specific** products.*

[192] It should be noted that while the Packaging and Packaging Waste Directive will be in a position to lay down rules for packaging as a final product in itself, SPI is intended to take action on packaging associated with *specific* products

Ensuring coherence

While the envisaged future interaction between SPI and other initiatives (including those mentioned above) has been set out in detail in Annex 14, it is clear that careful and continuous coordination will be needed, as well as legal and procedural clarity.

Such coordination has already begun internally within the Commission and will continue to be developed and expanded as the various initiatives come forward, with appropriate coordination structures to be set in place and formalised, for example through creation of a "sustainable product centre" (see also section 7.10 and 7.11 on future administrative set-up). Also, as the JRC will have a technical support role in SPI, the Green Claims Initiative, the EU Ecolabel[193], the IED revision and developments relating to Green Public Procurement and Environmental Footprint methods, this will be a source of coherence between these initiatives. Finally, preparation of the SPI measures – which will include targeted stakeholder consultation and dedicated impact assessments – will allow any remaining coherence issues to come to the fore and be addressed in good time and in advance of laying down product-specific rules. While concrete details of these future interactions are set out in Annex 14, some examples of the clearest synergies are set out below:

Table 9 Synergies between other initiatives and SPI preferred policy option

Other initiatives forming or supporting the SPPF	**Their synergies with SPI preferred policy option**
Initiative on Empowering Consumers for the Green Transition	• **Gradual, product-specific reinforcement** of the initiative on Empowering Consumers for the Green Transition's horizontal information requirements on durability and reparability (via SPI sub-options 3b and 4b) and reinforcement of its **general aim** of enhancing availability of product sustainability information (via SPI sub-option 4b's additional information requirements, e.g. on substances of concern; recycled content etc.); synergies between the SPI's DPP, which will require sustainability information to be available to consumers in digital format connected to the product, and the initiative on Empowering Consumers for the Green Transition, which will require certain information on durability and reparability to be provided to the consumer in a clear and comprehensible way before purchasing the product (via SPI sub-option 4b) • The initiative on Empowering Consumers for the Green Transition reinforces (enforcement of) possible SPI requirements on product's durability, reparability and availability of software updates, for example by defining as an unfair commercial practice the marketing of products that do not allow repair in accordance with product legal requirements established under the future SPI. Confirmed cases of such unfair commercial practices could allow the harmed consumers to have access to proportionate and effective consumer remedies.
Green Claims Initiative	• While SPI will set mandatory information requirements and prescribe the method to calculate the relevant information only for the products for which there will be SPI measures, GCI will **set requirements for voluntarily-made claims** on all types of products. • Both contribute to the **overall objective** of providing reliable, comparable and verifiable information to stakeholders on the sustainability and environmental performance of products, SPI through mandatory product information requirements (via SPI sub-option 4b) and GCI through

[193] Please see further details in Annex 14 and here: https://ec.europa.eu/environment/ecolabel/

	substantiation, verification and communication requirements on voluntary claims. • **Methodological synergies** expected, with PEF method used by GCI to substantiate green claims on specific impacts, life cycle or environmental performance, and likely to be used to underpin relevant SPI requirements. The development of the methods based on which GCI would establish further requirements in future (for example on reparability) will be done in synergy with the development of SPI requirements. The aim is to ensure coherence of methodological approach, without overlap or contradiction of actual measures.
Sustainable Corporate Governance Initiative	• Gradual, product-specific reinforcement of SCGI's horizontal due diligence rules, where specific social or human rights risks linked to a particular product (or its value-chain) and not sufficiently addressed through SCGI are identified in SPI preparatory studies (via SPI sub-options 3b) • Where SCGI is not sufficient to address specific risks SPI product-specific due diligence obligations are able to ensure targeted due diligence efforts on the part of the companies placing on the market a product linked to specific social or human rights risks. • SPI product-specific due diligence obligations will be tailored to the relevant risk and product to increase effectiveness and will be set in line with SCG's main definitions and procedures to allow for integrated compliance where relevant

Example regarding coffee machines: illustration of possible interaction between initiatives

Assuming there is an SPI measure on **coffee machines**, the interaction of that measure with the Green Claims Initiative (GCI) and the initiative on Empowering Consumers for the Green Transition (ECGT) could be described as follows (for an example related to the SCGI please refer to *Annex 14.1*):

1. In so far as related to the sustainability information on products:

An SPI measure could require that to be placed on the market, coffee machines must have a Digital Product Passport indicating, amongst other possible aspects, their (i) reparability score and (ii) carbon footprint[194].

Should the manufacturer of a coffee machine wish to voluntarily make claims on its environmental impacts in addition to these elements, the GCI would require them to observe certain requirements regarding substantiation and communication of the claim. E.g., if a coffee machine is advertised with a claim showcasing the reduced human toxicity impacts achieved during its production, such a claim needs to be underpinned by a PEF study quantifying a coffee machine's life-cycle environmental impacts and showing the relevance of human toxicity impacts.

The ECGT would lay down a general obligation on sellers to provide consumers, at the point of sale, with a coffee machine's reparability score, or where there is no such score established by EU law, other relevant repair information where available. The ECGT would also oblige the seller to provide the consumer with information on the existence (or absence) and length of a commercial guarantee of the coffee machine's durability if longer than two years.

2. In so far as related to the sustainability characteristics and performance of products:

An SPI measure (in addition to minimum requirements on e.g. energy efficiency and recycled content) could, for example:

[194] Using PEF as the baseline method to be used in compliance with Recommendation 179/2013 and its updates.

- exclude a specific technical solution found to be detrimental to the durability of coffee machines;
- require the availability of a list of spare parts;
- require that a coffee machine can be disassembled with a list of commonly available tools.

To reinforce this, the ECGT would define as an unfair commercial practice prohibited under Directive 2005/29/EC, amongst other things, the marketing of coffee machines without informing the consumer about the existence of a feature of the coffee machine introduced to limit its durability, or of the fact that the coffee machine does not allow repair in accordance with legal requirements. As a consequence, marketing coffee machines not complying with the listed SPI requirements can be confirmed as an unfair commercial practice, when the consumer is not informed thereof. Confirmed cases of such unfair commercial practices would allow the harmed consumers to have access to proportionate and effective consumer remedies.

7.10. EUROPEAN COMMISSION ADMINISTRATIVE SETUP

The preferred option, which enlarges the scope of the current Ecodesign framework, requires resources to prepare, adopt, implement, monitor and review product specific or horizontal product regulations. The key issue is to determine what level of resources is necessary for the level of ambition desired. The actual managerial arrangements is a matter for the Commission's internal decision-making.

Resource needs in the European Commission

Human and financial resources needed to prepare and follow-up on SPI rules depend on, in particular, the complexity of the product and requirements set and the exact definition of products subject to a measure[195]. The planning exercise that takes place when looking at the multiannual Working Plan is a key step to define product groups that make sense from a functional and regulatory point of view.

Between 2022 and 2026, the Commission needs to review 33 Ecodesign Regulations and the adoption of 5 new Regulations is planned under the current Ecodesign Directive. A reasonable estimate based on experiences is that around 0.5 FTE policy officers, on average, to cover one product, including work on standardisation. With around 11,5 Full-Time Equivalents (FTE) currently allocated to all aspects of Ecodesign[196], delays are experienced in the management of existing energy related product groups, and no new product can currently be tackled. Additional resources needed to deliver this properly would be around 24 FTEs, plus costs for studies.

The number of additional non-energy related product groups that can be regulated – and the speed at which they can be regulated - is a direct function of the resources available to deliver the preferred option of the additional around 30 SPI measures. The table assumes around 0.9 FTE per non-energy related product and envisages preparatory work to allow for 4 new SPI measures in 2024, 6 in 2025 and then starting work on 4 new SPI measures every subsequent year. The following table gives an indication of how human resource needs could evolve. This leads to an estimated need of 16 FTEs in 2023 and increasing progressively up to 28,5 FTEs in 2027, in addition to the redeployment of 8,5 FTEs currently allocated to the preparation of SPI or other tasks in the 3 lead DGs. Overall, the human resources available in the Commission would then need to increase considerably, phasing in with the adoption through co-decision of the SPI expected by 2023: eventually up to 54 FTEs would be required in addition to existing resources to deliver this level of ambition.

[195] The MEErP methodology provides an introduction to the issue under its task 1 section. https://ec.europa.eu/docsroom/documents/26525/attachments/1/translations/en/renditions/pdf. See also infra, under Annex 6, Methodology.

[196] Some of these resources are allocated to EPREL, support to Member State market surveillance, international cooperation and court cases

Table 10: Additional Human Resource requirements over time, European Commission

	2022	2023	2024	2025	2026	2027	2028	2029	2030
SPI Eco-design legacy products	13	24	23	21	20	19	18	17	17
SPI new products	0	16	21.5	23.5	25.5	28.5	29	29	29
Digital Product Passport	0.5	2	2	2	2	2	2	2	2
Circular business model hub			0.5	0.5	0.5	0.5	0.5	0.5	0.5
Support to market surveillance	0.5	0.5	2	2	2	2	2	2	2
TAXUD customs control		1.5	2	2	2	2	1.5	1.5	1.5
TOTAL	**14**	**44**	**51**	**51**	**52**	**54**	**53**	**52**	**52**

7.11. ADMINISTRATIVE SETUP OPTIONS

Within the European Commission, different administrative setups can be envisaged to implement the new legislative framework. A key element underpinning all options is an increase in staff resources commensurate with the objectives. As detailed above, in any case, **each additional product specific regulation, contributing to the objectives, requires human resources allocations, but provides a high return on investment**.

A **first option** would be to build upon the current situation, with competences spread among 3 DGs, and mobilising additional staff and financial resources in line with the increase of product groups and individual products and the activities which will need to be performed related to the adoption of SPI measures, their revision; preparation of guidelines; preparatory studies etc. While this option would enable to continue the current work, it would likely miss out on streamlining opportunities, knowledge sharing and synergies that could be brought from the other options.

A **second option** is to delegate some of the activities to an external agency. Under this option, the European Commission would delegate some of the work to an agency, including for example contract/studies management, some technical support to stakeholders, standardisation activities and DPP support. The ability to delegate a significant portion of the work to an agency should however not be overestimated as most of the work currently done by the European Commission under ecodesign is already related to core policy work that cannot be delegated. Only work that is currently subcontracted could be to a large extent delegated to an agency. On that basis, the estimated number of FTEs needed to implement the SPI does not warrant the overhead costs linked to the setting up of an agency. However, the mandate of an existing agency could be modified to add this function. Alternatively, an analysis of needs and potential efficiency gains in related policy areas could justify setting up such agency. This could be done in time for the mid-term review of the multiannual financial framework.

A **third option** would be to create a "sustainable product centre" within the European Commission. The difference would be that staff allocated to the sustainable product policy will function under a virtual "Sustainable Products Centre" inside the European Commission. While European Commission staff would remain under their DG of origin, they would also be part of a permanent centre/task force, with an overall coordination ensuring knowledge sharing and with responsibility for horizontal tasks. In that context, the delegation of the some of the workload to an agency could remain a possibility, mainly for the type of activities that are currently sub-contracted. This option could also build on and fully integrate the technical know-how of JRC which already contributes to ecodesign preparatory studies and horizontal/methodological work on circular economy strategies and carbon and environmental footprint.

8. HOW WILL ACTUAL IMPACTS BE MONITORED AND EVALUATED?

Monitoring will start right after the adoption of the SPI, focused on its **implementation**. A plan will be designed, allowing for a tracking of the implementation of actions and measures required against a specific timeframe. The objective is to have the SPI measures under the revised Ecodesign legislation adopted within two years from its entry into force – at least for a first set of product groups. Implementation reports by the European Commission should allow for an adequate monitoring of the SPI implementation.

Progress against impacts will likely be monitored on an annual basis at the level of a product group, starting two to three years after the entry into force of the SPI for the specific product group. Reporting by the Member States on the results of market surveillance, reputational and economic incentives, and green public procurement will provide the European Commission with data on enforcement actions and compliance rates. A comprehensive evaluation of the SPI, eight years after its entry into force, should build upon the product group-specific review studies and focus on the attainment of an enhanced environmental and social sustainability of non-food products in the EU market. The evaluation would also look into any potential need to extend the scope as regards the inclusion of services. See annex 13 for more detail.

The table below presents the **core indicators** that could be used to monitor the SPI progress in the attainment of the desired impacts and to evaluate whether the objectives of this initiative are being met. To ensure that the selected policy measures actually deliver the intended results and to inform possible future revisions, the monitoring and evaluation process includes indicators assessing the evolution of environmental and social impacts of product production and consumption, the use of secondary raw materials in product production and enhancement of circularity, the lifetime of non-food products, abiotic waste generation, and the socio-economic effects on industry sectors as well as consumers and users.

The indicators will build on existing data, possibly including Eurostat circular economy indicators[197], waste statistics, environmental accounting and business statistics. In most of the cases, these data will require further development on their scope and purpose to ensure that the indicators reflect the extended scope and requirements set on products and product groups in the SPI compared to current legislation. Additional coordination will be needed for this: at Commission level, such coordination is already ongoing, with the JRC fulfilling a technical support role, and further legal and procedural clarity will be provided via the main SPI legal text. Additional data will come from product-specific review studies.

Table 11: Core SPI indicators

Desired impacts	Indicator	Source
Coverage		
Increased number of products covered	Number of product groups covered by Ecodesign implementing measures	Ecodesign Impact Accounting, VHK for the EC

[197] For instance the Monitoring Framework for the Circular Economy, https://ec.europa.eu/eurostat/web/circular-economy/indicators/monitoring-framework

Desired impacts	Indicator	Source
Results in the environmental sphere		
Lower environmental impact of industrial processes manufacturing basic metals, materials and chemicals	Pollutants and Greenhouse Gas (GHG) emissions by the manufacturing value chains feeding the EU Internal Market	Eurostat (ENV_AC_AINAH_R2)
Lower primary material use in manufacturing processes	Increase in circular material use rate	Eurostat (ESMS-IP) on circular material use rate
Better energy and resource efficiency in the use phase of non-food products	Energy efficiency of durable goods placed or put in service in the EU Internal market; Water efficiency of those durable goods using water, placed or put in service in the EU Internal market; resource productivity (material efficiency)	Ecodesign Impact Accounting, VHK for the EC
Longer lifetime of non-food products	Average life duration of the durable products as a consequence of (1) its intrinsic durability, (2) the maintenance, repair and upgrade operations it was subject to, and (3) the number of its successive users	To be gathered by product-specific review studies for each implementing measure
Higher levels of sustainably-sourced renewable content	Contribution of post-consumer recycled materials to raw materials demand of the EU Internal Market - for non-precious metals, Critical Raw Materials, and plastics.	Eurostat (cei_srm010)
	Circular material use rate - Share of material demand satisfied by secondary raw materials (% of total material use)	Eurostat (online data code: env_ac_cur)
Less abiotic waste generation in EU	Volume of abiotic waste generated in the EU by manufacturing sectors and households	Eurostat (ENV_WASGEN)
	Generation of waste excluding major mineral wastes per capita and per domestic material consumption (DMC) / Percentage	Eurostat (cei_pc033)
Results in the socio-economic sphere		
Increase in investment expenditures for the design,	Value added and its components by activity, ISIC rev4	OECD.Stat

Desired impacts	Indicator	Source
production & after-sales services of non-food products		
Higher market share for more sustainable non-food products	Supply table at basic prices incl. transformation into purchasers' prices, filtered by industries categories of final uses and imports and categories of products and gross value added components.	Eurostat (NAIO_10_CP15)
	Green public procurement - the share of public procurement procedures above the EU thresholds (in number and value) that include environmental elements	Eurostat Circular Economy Indicators - under development
	Savings for consumers thanks to higher costs of products compensated by a higher use-value	To be gathered by product-specific review studies for each implementing measure
Increased economic value of the recycling and repair and reuse sectors	"Gross investment in tangible goods", "Number of persons employed" and "Value added at factor costs" in the recycling sector and repair and reuse sector.	Eurostat (cei_cie010)
	Number / evolution of enterprises involved in the repair of computers and personal and household goods"	Eurostat, Annual detailed enterprise statistics [SBS_NA_1A_SE_R2]
Improvement in working conditions across the value chains of non-food products	"Share of the working time performed along the value chains of the non-food products sold on the EU Internal Market where: - At least one worker is elected as their representative; - At least one collective bargaining agreement is applicable"	ILO Statistics on collective bargaining / ILO Annual review under the follow-up to the 1998 Declaration
Desired impacts		
Increase in environmental sustainability of products consumed in the EU	Reduced environmental impact associated with consumption of sustainable products covered by (revised) Ecodesign Directive, measured by: - CO-emissions - Organic Gaseous Carbon (OGC)-emissions	Ecodesign Impact Accounting

Desired impacts	Indicator	Source
	- Particulate Matter (PM)-emissions - Primary material contents	
Increase in social sustainability of products consumed in the EU	Number of occupational fatal injuries and deaths in the Value Chains supplying the consumption of non-food products in the EU	ILO - Data on fatal injuries and deaths in the mining and the manufacturing sectors