

Moving away from the throwaway society

Five policy instruments for extending the life of consumer durables

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About this report

This report is the result of a collaboration between Mistra Sustainable Consumption and Mistra Resource-efficient and Effective Solutions.

The project that this report is based on has aimed to identify and describe potential environmental policy instruments that can stimulate more sustainable consumption, with an emphasis on instruments that can incentivise an extension of life of consumer durables.

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Summary

The majority of all environmental impacts can be linked to our consumption. As real wages increase, so does consumption levels – more holiday trips, more clothing purchases, faster replacement of products for newer versions, etc. This trend poses a threat to the state of our planet. While the Nordic countries are high in the overall rankings of achieving the UN's Sustainable Development Goals, they stand out with unsustainable levels of resource consumption and waste generation, this is an issue when it comes to Goal 12 – Sustainable consumption and production patterns. The environmental impact from consumption in high-income countries, like Sweden, primarily arise in other countries where the manufacturing of products typically takes place. This presents challenges for the fulfilment of Sweden's generational goal, which emphasises that environmental problems in Sweden must be solved without increasing environmental impact outside Sweden.

Existing environmental policy instruments are not sufficient as means to achieve the Swedish environmental objectives, and that is why this report identifies, discusses, and suggests policy instruments that public actors could introduce to stimulate sustainable consumption. Its focus lies on policy instruments that could incentivise extending the lifespan of consumer products known as 'durable goods' or 'consumer durables', such as furniture, white goods, textiles, sports and recreational equipment, and home electronics. Emphasis is placed on five potential policy instruments which are described in terms of their design, potential environmental benefits, costs, and legal aspects. The aim with the report is to increase the knowledge on policy instruments and to stimulate a greater commitment to sustainable consumption among politicians, pressure groups, etc.

The five ideas for policy instruments presented and discussed in this report are the following:

- Repair vouchers and repair funds
- Information on the service life and repairability of products
- Minimum product repairability requirements
- Ban on destroying unused goods
- Ban on planned obsolescence.

Three of the ideas intends to promote repairs. Increasing the number of repairs would extend products lifespan and thereby reduce environmental impact through a reduction of purchases of new products. The other ideas for policy instruments are bans, whose main purpose is to send normative signals to market players that deliberately destroying new products or reducing the lifespan of products is unethical and unsustainable.

While the analysis in the report shows that there is a need for additional research on instruments for sustainable consumption of consumer durables, the authors assess that we now have sufficient knowledge on some of the new policies and their implications, and that Sweden could go ahead and assess if – and how – we should implement new policies.

However, it should be noted that none of the ideas discussed in this report can bring about major changes on their own. We need considerably stronger policy pressure, with both new policies and to strengthen existing policies across the European, national as well as local levels, in order to initiate a development towards sustainable consumption patterns.

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1. Introduction

1.1 Purpose

The purpose of this report is to identify and describe potential environmental policy instruments that can stimulate sustainable consumption, with a particular focus on instruments that can incentivise extending the life of consumer durables¹. As far as possible, the report aims to cover the potential practical design, potential environmental benefits, costs and legal aspects. The report will hopefully produce knowledge that stimulates a greater commitment to sustainable consumption among politicians, pressure-groups, etc.

The environmental policy instruments that exist today are not sufficient to achieve the environmental objectives of Sweden (Naturvårdsverket, 2020). A sister report from the Mistra Sustainable Consumption research programme analysed potential instruments for moving towards more sustainable food consumption (Röös et al, 2020). This report instead investigates instruments that could help to extend the life of the type of products known as consumer durables which includes furniture, white goods, textiles, sports and recreational equipment, and home electronics.

The focus of the present report is on *household consumption* because its negative effects are Environmental impacts arise during different phases of a product's life cycle and varies between product groups. However, it is outside the scope of this report to summarize the research in this very extensive research field, for more information, see for example (Sajn, 2019; EEA, 2014; Niinimäki et al, 2020; Forrest, Hilton, Ballinger, & Whittaker, 2017; Dalhammar et al, 2021). Nevertheless, here is a brief description of the environmental impacts of some product groups:

- Furniture and fittings: The extraction of materials and manufacturing cause the bulk of these products' environmental impact,

e.g., through the use of wood, metal (e.g., chromium), fossil-based plastics, water, energy, and various types of chemicals. Furniture is bulky and therefore also has environmental impacts emanating from its transportation and packaging materials. Hazardous chemical substances can also cause problems at various stages of the life cycle of furniture products. In terms of materials, wood generally has a lower environmental impact compared to other materials such as plastic, steel and concrete.

- Soft furnishings and clothing: The biggest environmental impact comes from the production process, such as chemicals used in cultivation and dyeing, as well as water and energy consumption. In 2015, European consumers are estimated to have purchased 6.4 million tonnes of new textiles (13 kg per capita), and discarded 5.8 million tonnes (European Commission, 2015; Sajn, 2019). The biggest environmental impacts from the consumption of textiles by the residents of Sweden stems from countries or upstream in the supply chain.
- White goods: The biggest environmental impacts arise in the use phase for most of these products, as they consume a lot of energy (and in some cases also water). Their production and waste phases also have significant environmental impacts (Dalhammar, Milios, & Richter, 2021a).
- Sports and recreational equipment: This product group is highly differentiated. It has some of the same environmental impacts as textiles, but it also uses different materials such as plastics and rubber, which comes with an additional environmental impact.

For the majority of these product groups, research indicates that longer life would be environmentally advantageous since these products have limited environmental impact during their use phase (Dalhammar, Milios, & Richter, 2021a). White goods have often been seen as the exception here, since new models are usually more energy-efficient, and this means that extending their life could have an adverse impact on the climate footprint and energy efficiency. However, there are a lot of information that indicates that it has

¹ Goods that are purchased less frequently than convenience goods such as food and personal hygiene products.

become environmentally justifiable to extend the life of white goods as well, especially in the context of Sweden. This is mainly an outcome of Sweden's electricity generation which is causing relatively low greenhouse gas emissions. In countries where electricity to a large extent is derived from burning fossil fuels electricity consumption has a greater impact on the environment.

Consumer durables are an interesting product categories from a sustainability perspective for several reasons:

- This category has long supply chains, often with a lot of the production occurring in Asia, where environmental regulations in general are not as strict and where working conditions can be inadequate.
- There is great potential for improving the environmental impact of consumer durables. Improvements can be achieved in a variety of ways, for example through the purchase of longer lasting or greener products, by repairing instead of buying new products, by sharing these goods instead of owning them oneself (gadget libraries and the like), by buying used products instead of new ones, and through refurbishing furniture and white goods.
- Many new policy instruments are being developed in Europe and the USA which aim to influence product life and repairability of durable goods.

1.2 Method

The combined efforts that led to this report transpired throughout 2021 and began with a literature review to identify existing and proposed instruments. Based on this, a gross list of existing instruments was produced. The list included both instruments affecting supply-side actors (producers and trade) and the demand side (consumers).

In April 2021, a two-day workshop was held with Swedish actors to identify potential environmental policy instruments with the potential to stimulate more sustainable consumption of consumer durables. In the material that was sent out before the workshop, we asked the participants to think about suitable instruments for the context of Sweden. The aim of the workshop was to

develop a number of potentially interesting policy instruments and to identify important aspects for further analysis.

In total, 18 representatives participated in the workshop, including representatives from governmental agencies, the private sector, interest groups, research institutes, etc. The first day had sessions aimed at generating new ideas for policy instruments, discussing the advantages and disadvantages they might have. On the second day participants discussed the potential practical design of a number of proposals that they had prioritised. These ideas were then analysed based on the following criteria: environmental or climate benefit, feasibility, and socio-economic effects. The workshop was followed by a survey, where each participant was given the opportunity to provide their individual assessments of the policy instruments and to contribute with further ideas and comments.

The project group (the authors of this report) then worked on and developed these into tangible policy instruments during the course of the project, resulting in the instruments described in this report (see Section 2).

1.3 Background

A sustainable level of consumption must ensure a dignified life for the whole world's population (Raworth, 2017) within our planetary boundaries (Rockström m.fl., 2009; Steffen m.fl., 2015). For the greatest part environmental degradation is linked to consumption, and as real wages have increased, so too has consumption levels – more holiday trips, more clothing purchases, faster replacement of products for newer versions, etc. This trend is a threat to the ecological stability of the planet.

The Nordic countries are high in overall rankings on achieving the UN's sustainable development goals, but when it comes to Goal 12 on sustainable consumption and production patterns, the Nordic countries have unsustainable levels of resource consumption and high rates of waste generation (Sachs, Kroll, Lafortune, Fuller, & Woelm, 2021). An increasing amount of Sweden's environmental impact from consumption, which stems from other countries, where the goods we

import are produced (Naturvårdsverket, 2020). 42% of Sweden's total consumption related climate impact originate outside of the EU, i.e., in countries where generally speaking, there are no strong instruments in place to govern the climate impact. For certain product groups, this figure is even higher; the corresponding number for clothing and footwear is 72% (Larsson et al, 2021). This poses a challenge in the realisation of Sweden's generational goal, which emphasises that environmental problems in Sweden must be solved without increasing environmental impact outside its borders.

Generational Goal

"The overall goal of Swedish environmental policy is to hand over to the next generation a society in which the major environmental problems have been solved, without increasing environmental and health problems outside Sweden's borders." [*The Swedish definition of the Generational Goal.*](#)

The environmental policy instruments that exist today are not sufficient to achieve the environmental objectives that Sweden has set. However, environmental policy has grown stronger and stronger in the last 50 years. Modern environmental policy was born in the 1960s, when the first 'modern' environmental laws were introduced. The first generation of instruments were mainly based on mandatory legal requirements and bans related to production processes, but these have been supplemented by economic instruments (such as taxes and subsidies), along with various information-based instruments, such as ecolabelling and certifications. There has been a growth of instruments regulating products – their chemical content, energy efficiency, recycling requirements, etc. In recent years, there has also been an increased interest in behavioural economics, with the aim of changing behaviour patterns (such as nudging).

The 1990s were the starting point for a more comprehensive approach related to consumption, and environmental policy instruments targeting products and consumer policy (see Table 1).

Table 1.

Examples of important initiatives in sustainable consumption in Sweden and the EU.

1995	Sweden introduces environmental objectives into its consumer policy
Early 2000s	Sweden lobbies for the EU to introduce environmental objectives into consumer policy
2001	EU's Green Paper on Integrated Product Policy COM(2001)68
2002	The WEEE Directive on producer responsibility for electrical and electronic equipment in the EU
2005	Swedish Government commission of inquiry on consumption: Bilen, Biffen, Bostaden – Hållbara laster, smartare konsumtion [Eat, live and travel smarter and more sustainably] (SOU 2005:51)
2006	Swedish Government publishes Think twice! – An action plan for sustainable household consumption. (Skr. 2005/06:107)
2008	EU adopts the Sustainable Production and Consumption Action Plan COM(2008) 0397
2014	EU adopts "Towards a circular economy: A zero waste programme for Europe" COM(2014)398
2015	EU adopts "Closing the loop - An EU action plan for the Circular Economy" COM(2015) 614
2016	Swedish Government launches a strategy for sustainable consumption (Regeringskansliet, 2017)
2019	EU adopts "The European Green Deal" COM(2019)640
2020	EU adopts "New Consumer Agenda Strengthening consumer resilience for sustainable recovery" COM(2020) 696

1.3.1 Environmental impacts of consumption

Environmental impacts arise when a product is consumed, to exemplify, the use of a refrigerator consumes electricity. But a consumption-based analysis also accounts for the environmental impact of the extraction of the raw materials, production processes, transportation, and storage for products – before they end up with the consumer. In addition, the environmental impact of a product arising after the customer has used it is also included, for example, when the product becomes waste and burned in an incineration plant.

Examining the overall effects of 50 years of environmental policy, we can indeed recognize some level of success. Greenhouse gas emissions from point sources (i.e., industrial processes) have been drastically reduced, some hazardous substances have been phased out entirely, and the price of producing renewable energy from wind and solar radiation has been reduced drastically. Despite these successes, trends in many areas are heading in the wrong trajectory (Steffen *m.fl.*, 2015; Folke *m.fl.*, 2021). One could say that ‘we are winning some battles but losing the war’ (Dalhammar, 2019). We have managed to reduce pollution and greenhouse gas emissions from point sources, but we are finding it much more challenging to deal with emissions from transport, tourism, agriculture, overfishing, the use of products, etc. (European Environment Agency, 2015).

Sweden has reduced its territorial emissions of greenhouse gases since the 1990s, but the majority of the greenhouse gases associated with our materials consumption emanate in other countries, of which a large proportion are in countries without strong climate policies (Larsson *et al.*, 2021). This includes the environmental impacts of cultivating cotton for clothing and the extraction of minerals for hardware products. Besides environmental problems, there are often social problems associated with the extraction of minerals and the manufacturing process.

Another way to articulate the consequences of demand- and consumption-based emissions is spill-over effects. Spill-over effects can be both positive and negative for the development in other



One could say that ‘we are winning some battles but losing the war’ (Dalhammar, 2019).

countries and relate to environmental, social and economic sustainability (Halonen, Persson, Sepponen, & Siebert, 2017; Larsen & Alslund-Lanthén, 2017; Bauer, Watson, & Gylling, 2018). Spill-over effects denote the effects that our consumption decisions can have in other parts of the world, where many of the inputs and components are manufactured. Negative spill-over effects, for example, arise when we consume goods whose manufacture has had a major negative impact on people and the environment in other countries. On the other hand, if we choose to consume goods that have been produced more sustainably in terms of their environmental and social impacts, our consumption can have positive spill-over effects. However, it is also necessary to consider how much we consume – simply consuming more sustainably is not going to solve sustainability issues due to rebound effects (rebound effects will be explained later in the report).

As a result of this – among other things – many actors have been pushing for Sweden to introduce demand-based or consumption-based environmental objectives for a long time. In October 2020, the Swedish Government instructed the Cross-Party Committee on Environmental Objectives to develop a strategy for reducing the climate impact of GHG emissions from consumption and to conduct preparatory work for the introduction of a new consumption-based interim target (Regeringskansliet, 2020).

1.3.2 How do you influence consumers and producers?

We consume because we experience needs and wants (or preferences) that can be satisfied by purchasing goods and services. But consumption is also about the social context. The products and services that individuals choose to consume have



an impact on the individual's life, their social relationships, and their identity. Consumers are influenced by factors in their social environment, such as the current political situation, socio-economic situation, and technological factors. These external factors affect internal factors such as the buyer's decision-making process, which leads to the buyer's consumption choices (Kotler, Armstrong, & Parment, 2013). Many consumption researchers believe that culture is the prevailing factor that influences the judgement and emotions of individuals when making purchasing decisions (Ng & Lee, 2015). The desire to 'fit in' and imitate people they admire can influence a particular purchase (Solomon, 2015).

Consumption behaviour can vary over time and it is influenced by the context in which individuals find themselves and their status in their social circle (Kotler, Armstrong, & Parment, 2013). The individual's personality, such as their propensity to take risks and their attitudes to material things, can be decisive in how the individual acts and consumes (Ang, 2000). A lack of self-control can lead to impulse purchases that the consumer later regrets (Baumeister, 2002; Östling, 2009).

There are many theories about consumption behaviour (Jackson, 2005), but neither can fully explain such a complex phenomenon as the individual's consumption behaviour. One important conclusion from the research is that – when designing consumption-oriented instruments – it is not self-evident that you should base your design on thinking about the individual and their priorities (Mont, Heiskanen, & Kuusi, 2013). There are many indications that consumption policy based on the idea of being able to influence consumer choices is ineffective, as it is difficult for individuals and households to make sustainable choices when the norms and culture in which they live are a contradiction. Instead, researchers believe that an effective policy should address unsustainable products and consumption levels directly, through the use of strong instruments, rather than appealing to consumers and providing them with more information (Power & Mont, 2010). Consumers face a number of obstacles to acting more sustainably, such as a narrow range of sustainable products, high prices, limited information and, not least, norms that support unsustainable consumption levels (Konsumentverket, 2020; Mont, Heiskanen, & Kuusi, 2013).

We also see signs that these insights have in fact influenced environmental policies in recent years, by regulating what can be marketed, thus, making it more difficult to consume products that are 'unsustainable'. For example, products with poor energy efficiency have been removed from the market as a result of mandatory requirements in the EU's Ecodesign Directive. EU's regulatory framework for chemicals means that certain chemicals are not permitted in products. Within the EU, regulation of product life and repairability by means of legislation is being discussed, and in France, instruments have already been introduced with the aim of influencing product life and repairability (see Section 2.2). This means that legislators – at European level and in EU Member States – are increasingly 'regulating' poorer products out of the market, meaning that the consumer cannot make 'bad' choices.

This is well in line with recent research, which argues that the consumer is somewhat 'locked into' an unsustainable infrastructure and find it difficult to make sustainable consumption choices (Sanne, 2002; Mont, Heiskanen, & Kuusi, 2013). The idea that consumers must make a difference by means of their individual choices suits producers, as it shifts the focus from stronger public policy instruments to individual behaviour.

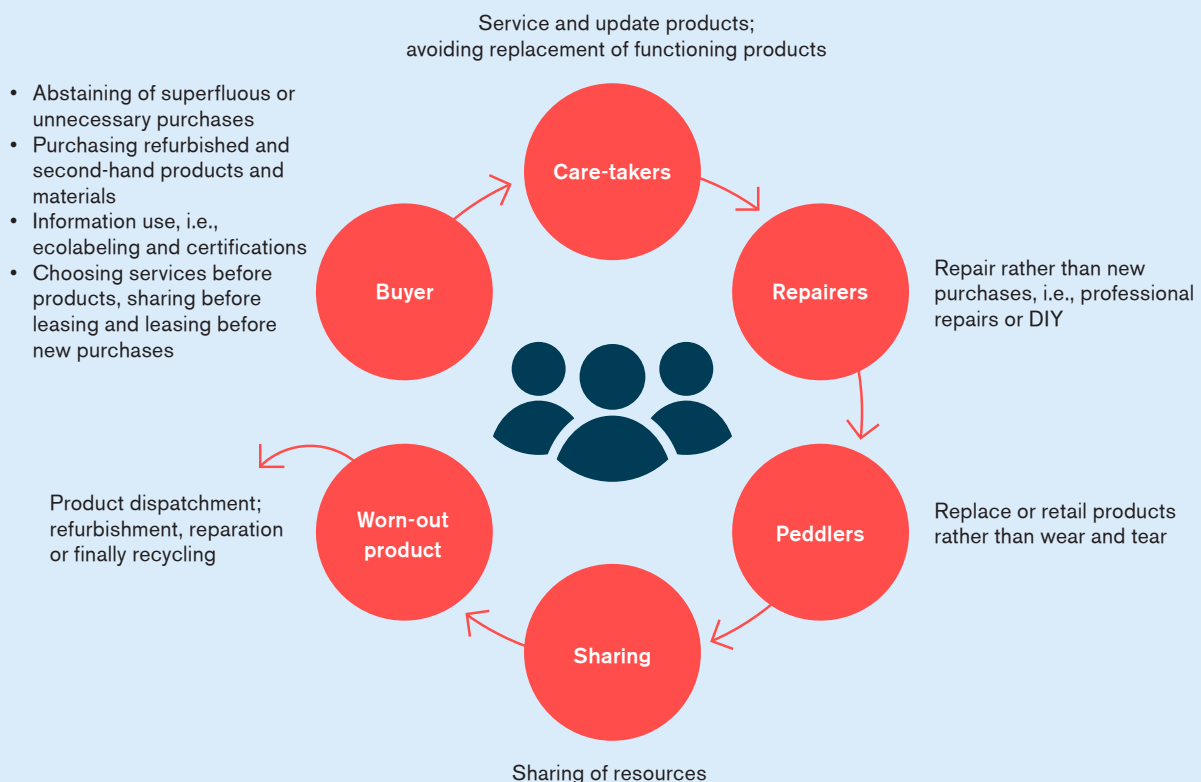
Furthermore, there are indications that many consumers are becoming confused by the increasing amount of environmental information and labelling schemes in the marketplace (Langer, Eisend, & Ku, 2007). Nevertheless, relevant information can make a difference. For example, educating consumers about the total cost of ownership can assist them in balancing price against quality when making purchases (Dalhammar, Milios, & Richter, 2021a). However, more information does not necessarily change attitudes, and even if it does, changed attitudes does not always lead to changed consumption behaviour. In addition, large amounts of information can be confusing for consumers, which means that we cannot expect consumers to act more sustainably just because we provide them with more information. This does not mean that it is a bad thing *per se* to provide consumers with more information; however, we cannot expect them to always interpret this information adequately and use it to change their behaviour. Therefore, it is crucial to also regulate what the producers put on the market, and it is also desirable

for producers to engage in competition of designing and producing the most sustainable products on the market. France's repair funds – discussed later in the report (see Section 2.1) – are an interesting instrument, since the idea behind them is that producers of low-quality products should pay part of the repair cost of their products.

This does not mean that the consumer/citizen is less important; in contrary, consumers have different roles to play that can be shaped to contribute towards sustainable consumption patterns (cf. Figure 1 below). The text in the figure identifies sustainable practices that need to become more common. These practices could grow through an interplay between politicians who introduce policy instruments, companies that change their assortment and marketing, influencers who advance new norms, and consumers who want to act as pioneers. The instruments discussed in this report mainly concern the consumer's role as 'purchasers' (e.g., if they use product life information when deciding on their purchases) and 'repairers' (e.g., if they use repair vouchers).



Figure 1. The role of consumers in circular consumption.
Source: Mont, Maitre-Ekern & Dalhammar (2021).



1.3.3 Policy instruments for sustainable consumption

Environmental policy covers various types of state intervention and intervention mechanisms, including environmental objectives, laws and regulations, other governing documents (roadmaps, action plans, etc.), and budgets. Here *policy instruments* refers to different types of public sector interventions which aim to change the behaviours of societal actors by using different types of incentives or rules.



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Table 2.
Examples of instruments in the area of consumption.

Type of instrument	Examples of instruments with great climate and resource potential
Regulation and administrative instruments	Existing instruments: Mandatory requirements on products (e.g., energy efficiency), bans on planned obsolescence and destroying unsold (new and unused) goods, requirements to collect and recycle products and recover materials, a ban on certain vehicles in certain urban areas, a ban on short trips by air.
Economic	Existing instruments: Environmental taxes including energy, climate, chemical, and congestion taxes; reduced taxes for the repairs sector (e.g., lower VAT), consumer subsidies (e.g., for electric cars and solar panels), public procurement of green cars, renewable energy, reusable products, remanufactured and refurbished furniture, and IT; reduced or zero VAT for sharing services and repairs; tax deductions for repairs; bonus-malus schemes for vehicles and products, and consumer repair vouchers.
Information	Existing instruments: Energy labelling of products (mandatory and voluntary), different types of voluntary ecolabelling schemes for products and buildings, repairability index for products (France).
Behavioural economics and nudging	Existing instruments: Some types of nudges make sustainable choices the default option, such as double-sided printing as the default option on printers. Another type of nudge operates in the decision-making environment, an example being how shops choose to display their goods. Informing people about socially accepted norms or choices that others have made is another form of nudging, such as notices in hotel rooms that most guests choose to reuse their towels.
Socio-technical systems (infrastructure, support functions, institutions)	Existing instruments: Infrastructure and support – for example for reuse, sharing, repairing (support for reuse depots, initiatives such as ReTuna (a Swedish recycling shopping mall), and repair cafés); agreements with building contracts on support for sharing, car sharing services and reuse/recycling; various support services such as energy advice and consumer advice.

This report focuses on instruments for extending the life of consumer durables. There are opportunities for introducing such instruments at different levels (primarily international, European, national, regional, and local) and to varying degrees. Here we are mainly interested in three levels:

- **European Union:** Some instruments need to be decided at the EU level, including all mandatory rules for products and chemicals, such as ecodesign requirements. EU regulatory frameworks are also important for some of Sweden's own policy instruments. For example, environmental requirements in public procurement must meet EU transparency and non-discrimination requirements, even though national authorities can decide themselves what sustainability requirements to impose. When Sweden lowers VAT for certain sectors – such as the repair sector – the EU's VAT Directive must be taken into account. Similarly, when working with national instruments, Sweden must take into account EU legislation governing waste and consumer law.

- **National level:** Sweden has a great opportunity to introduce some policy instruments at national level, such as taxes and fees, consumer law, public procurement and ecolabelling schemes².
- **Local and regional levels:** At the local and regional levels, sustainability requirements of various kinds can be set in public procurement. New reuse and recycling infrastructure can also be an option. Around Europe, we are also seeing some new local initiatives, such as the repair vouchers scheme in Vienna (see Section 2.1).

Table 3 presents a selection of relevant existing or proposed policy instruments to extend the life of products and make them more repairable. Many of these are described in more detail in Chapter 2 of this report.

² For example, the Nordic Swan Ecolabel in the Nordic countries.



Table 3. Existing or proposed instruments in Europe to extend product life and improve repairability. Source: Dalhammar et al, 2021.

	European Union	EU Member States	Regional and local instruments
Existing instruments	Ecodesign Directive: Mandatory requirements for marketed products, related to service life/ durability, repairability and the availability of spare parts. Standardisation that enables new requirements on product life, repairability, etc., enshrined in law. There are now new European product standards related to product life and repairability. You need standards to be able to impose legal requirements, since manufacturers must be able to demonstrate their compliance with the regulations. Consumer law: Laws that allow consumers to demand repair even when the seller would prefer to replace the product (Directive (EU) 2019/771).	Prohibition on planned obsolescence (France) Fines for planned obsolescence (Italy's competition authority) Repairability index to inform consumers about whether it is possible to repair the product (France) Enhanced consumer guarantees in the event of product failure (multiple countries) VAT reduction on repairs (Sweden) National accreditation scheme for recycling organisations (Belgium) Ban on destroying unsold, functional products and unsold food (France) Producer responsibility levies adapted to the product, rewarding products with characteristics that can prolong their useful life, while products with less desirable characteristics in this dimension pay a higher levy (France)	Public procurement of remanufactured IT products and furniture (Sweden) and recycled vehicle parts (USA) Recycling parks (e.g., Alelyckan in Gothenburg), recycling depots, and recycling shopping malls (ReTuna in Eskilstuna) Recycling networks with associated infrastructure and quality control and marketing (the Flemish reuse network) Network for repairers with support system (Repair Network Vienna) Repair vouchers that pay part of the cost of consumer repairs (e.g., Vienna) Quality labelling scheme for recycled products (ReVital, Austria)
Proposed instruments	Mandatory labelling scheme to provide consumers with better information on the expected life of products and their potential for repair, etc. In public procurement, criteria for remanufactured products.	National guidelines and framework agreements for remanufactured products (being developed in Sweden). Repair funds where producers pay part of the consumer's costs for product repairs (France). Durability index that gives consumers information on product life expectancy (France).	Right-to-repair (R2R) bills proposed by many US states. Subsidies for sharing services, etc., through land use planning, or other infrastructure and IT solutions (tool and car sharing services, clothes libraries, etc.).

1.3.4 Sweden's instruments related to repair (existing and proposed)

Section 2 below outlines the five ideas for policy instruments described in this report. Three of these five ideas concern instruments which aimed to extend the life of products by having consumers repair them. As the basis for discussing the ideas that we propose, we present here an overview of the instruments designed to stimulate repair that have been introduced in Sweden in recent years or drafted as government bills.

Since 2007, there has been a tax deduction for household work (RUT) which aims to increase job opportunities and thereby stimulate employment. It is in the form of a 50% tax deduction on the labour cost of the services covered. Over time, various types of repair services provided in the consumer's home have been added as eligible for RUT. Since the introduction of RUT, some repair and maintenance that deals with textiles in the consumer's home, such as mending clothes, bed linen, curtains and removable furniture covers, and taking up clothes and curtains have also been added as eligible for RUT. Since 1 August 2016, IT services in the consumer's home are also covered, such as repairing, installing, and maintaining computers, tablets, game consoles, TVs, and smartphones, as well as troubleshooting, and updating and installing operating systems and computer programs. Since 1 January 2017, the repair of white goods has been covered. Since 1 January 2021, this deduction also covers laundry services at professional laundries, which in addition to the actual washing/cleaning, also includes mending clothing and soft furnishings, as well as taking up clothes and curtains.

Differential VAT is also used as an instrument to stimulate repair. In 2017, VAT was reduced from 25% to 12% for repairs to certain product groups (including textiles, footwear, leather products, and bicycles). In the autumn 2021 Budget Bill, the Swedish Government presented a proposal to reduce VAT on repair services even further, from 12% to 6%³.

The inquiry *From value chain to value cycle* (SOU 2017:22) (Utredningen cirkulär ekonomi, 2017), proposed the introduction of a tax deduction for repairs, maintenance, servicing, upgrading and



reconditioning of consumer products (and even for renting and expenses for selling second-hand/used goods) comprising a tax deduction for 50% of the labour costs, which would mean a total price reduction on such services of 35%. A name for this deduction was coined from the words in Swedish for rent, second-hand, and repair (so called *hyber*) and has become a kind of slogan in Sweden for the circular economy. In this report, we will call it the “circular economy deduction”. The proposal also included a ceiling of SEK 25,000 per person per year for the total tax deduction for all the expenses combined that would be covered by this proposal. It was then drafted into a memorandum from the Tax and Customs Department of the Ministry of Finance (Fi2021/01820) in April 2021⁴. This memorandum proposed that repairs be removed from the RUT deduction and form a new, expanded tax deduction for repair services only, at a level of 50% of the labour cost and with a ceiling of SEK 10,000 per year in total for all such services combined per person.

³ [Proposed reduced VAT on repairs](#) – Regeringen.se

⁴ [Additional incentives in the circular economy area A new tax deduction for repairs and tax-free renting of personal assets - Regeringen.se](#) – Regeringen.se

2. Policy instrument ideas

The lifespan of a product and how it ages are determined by various factors, such as composition, functionality, cost of repairs and consumption patterns (European Parliament, 2017). We sometimes throw away a product because it has broken or failed, but at other times we buy a new product because we perceive the product we have as being outmoded and obsolete. We can do this because of the very high purchasing power that most Swedes have compared to the global average. Habitually buying new products is also expected and normalised in the consumer culture in which we live. In addition, we are exposed to very extensive advertising that is designed to induce people to buy things by stimulating dissatisfaction with what they have and what they look like. Various kinds of policy instruments that would limit these drivers of unsustainable consumption levels are conceivable, such as reduced working hours with a corresponding decrease in income, or regulating marketing. However, this report instead focuses on instruments that aim to extend the 'technical life' of products, which in this report can be understood as the period of time that a product is in working order before it has to be replaced with another product (for a detailed discussion on the concept of 'lifetime', see Dalhammar, Milios and Richter, 2021). We focus less on the question of what we can do to ensure that consumers do not throw away a product that still works because it is considered to be outdated, etc.

This section presents and discusses the policy instrument ideas that we consider to be the most promising in terms of their potential to stimulate more sustainable consumption of consumer durables. We identify the advantages and disadvantages of each policy instrument and compare them, and discuss whether and if so, how the policy instrument could be introduced in the context of Sweden. Based on the current state of knowledge, we have also drawn up recommendations for each instrument, focusing on what the state and other public actors could do to increase the pace of transition to a more sustainable consumption of consumer durables. The ideas for policy instruments that we present and discuss are:

- Repair vouchers and repair funds
- Information on service life and repairability
- Minimum repairability requirements
- Ban on destroying unused goods
- Ban on planned obsolescence

2.1 Repair vouchers and repair funds

One way to encourage consumers to repair products instead of buying new ones is to introduce a *repair vouchers*⁵ scheme. In practical terms, this means that consumers receive a repair voucher that they can use to receive a discount when repairing or upgrading their products⁶. Such a scheme could cover product groups such as consumer electronics, white goods, bicycles, furniture, clothing, footwear, and tools. This idea has been turned into a reality in Vienna where the city provides online repair vouchers that the consumer submits at the time of receiving the service, thereby, reducing the cost of the repair by 50% – up to a maximum of EUR 100 – each time and this is deducted directly at the point of sale (Piringer & Schada, 2020). You can use a maximum of one voucher per person per year. The voucher can only be used at repairers who are part of the official network of repairers (more about this below).

To finance the consumer's discount when using repair vouchers, a *repair fund* scheme could be introduced. In short, this means that the companies marketing the products in question must pay a levy to a fund, and it is from this fund that the repair vouchers are financed.

⁵ The repair vouchers scheme could be expanded to cover the second-hand sector as well.

⁶ Precisely which services are covered by the scheme needs to be defined. In SOU 2017:22, it was proposed that a 'circular economy' (*hyber*) deduction should apply to the repair, maintenance, servicing, upgrading, and reconditioning of consumer products.

2.1.1 Environmental benefit of repair vouchers with a repair fund

Repair vouchers are deemed to have the potential to reduce environmental impacts by providing consumers with information about repairing products instead of buying new ones and a cost reduction for doing so. In addition, differentiating producer contributions to the repair fund could also give producers incentives to sell goods that are more repairable and have a better life expectancy. A further advantage highlighted in interviews with representatives of the repair network in Vienna is that consumers often invest in high-quality repairs with high-quality spare parts when a large part of the labour cost for the repair is paid for by public purse⁷.

However, it is not easy at all to stimulate consumers to opt for repairs. A study has been carried out on the effects of the tax relief for repairs introduced in Sweden in 2017, where VAT was reduced from 25% to 12% for repairs in certain sectors⁸ (including textiles, footwear, leather products, and bicycles), it also included the introduction of a tax deduction on certain repairs and mending in the home (Almén, Dalhammar, Milios, & Richter, 2021).

The evaluation found no evidence that this tax relief had had any significant impact on the consumer's propensity to repair products (Almén et al, 2020). There are several possible explanations for this, including:

1. The public is not aware of the tax relief available
2. The reduction in VAT did not lead to price reductions, but instead simply increased the margins for [repairers](#)
3. VAT is a small expense for the sector compared to cost of labour
4. It is primarily the price and quality of the product that determine whether the consumer wants to repair it, not the price of the repair and,
5. Swedes are reluctant to repair certain types of products.

The repair vouchers were introduced in Vienna in 2020, and already in the first year about 8000 repairs were carried out⁹. This is considered a good result as the scheme is new. The city of Graz has had a similar scheme for a long time, but which is less financially advantageous for the consumer, it is

estimated that the proportion of consumer repairs has increased by over 20% in some sectors¹⁰. Both Vienna and Graz are working actively – through various activities – to strengthen their networks of repairers and increase their visibility among residents, for example by increasing cooperation between repairers and by providing consumers with information about the benefits of repairing.

In Sweden, according to some representatives¹¹ and commissions of inquiry, there are signs that repairing is becoming fashionable among consumers and that people are becoming disenchanted with the throwaway society (Västra Götalandsregionen, 2021). At the same time, public awareness of repairing and its environmental benefits needs to be increased (Lechner, Wagner, Tena, Fleck, & Reimann, 2021). The networks in Graz and Vienna have implemented initiatives to increase this awareness, but these efforts need to be strengthened (Ibid.).

All in all, repair vouchers can lead to a reduced need for new products and thus reduce the environmental and climate impact from their production. This is particularly true if repair vouchers are combined with information campaigns targeting the general public and tax reductions for the repair sector. In the 2022 Budget Bill presented to the parliament in September 2021, the Swedish Government proposed a further VAT reduction for the repair sector from July 2022 (Regeringskansliet, 2021). A package of instruments could lead to an increase in the proportion of products repaired by consumers.

⁷ Interview with Markus Piringer, March 2021.

⁸ Through amendments to Sweden's Value Added Tax Act (1994:200).

⁹ Interview with Markus Piringer, March 2021.

¹⁰ The difference is that in Vienna consumers can use the voucher directly at the repairer, while in Graz the scheme requires consumers to claim the discount from the city council themselves after the purchase (Interview with Markus Piringer, March 2021) (Lechner, Wagner, Tena, Fleck, & Reimann, 2021).

¹¹ Interview with Markus Piringer, March 2021.



2.1.2 At what companies can the vouchers be used?

In Vienna, the voucher can only be used at repairers who are part of a network of repairers that meet certain criteria. The criteria include being independent of any brand and servicing at least three different brands. This means that the repair vouchers could be seen as “anti-competitive” since not all types of repair businesses can accept them. This was considered controversial by some actors in Vienna, but the scheme was nevertheless introduced. In Graz there are also strict requirements on repairers who wants to become part of the network (Lechner, Wagner, Tena, Fleck, & Reimann, 2021). The reason in Graz was that local and independent repairers are in bigger need of support than authorised repairers of major brands. The criteria for companies who wants to be a member of the repair networks include a maximum price for an initial diagnosis, providing warranties for repairs, etc.,¹² the reason being that assuring quality in the repair sector is essential to increasing consumer interest in repairing products and to build a brand for repair networks (Lechner, Wagner, Tena, Fleck, & Reimann, 2021). Moreover, if these subsidies go to unscrupulous repairers, this would be a very real threat to the survival of the scheme¹³.

2.1.3 Financing of repair vouchers scheme and incentives for manufacturers

The repair vouchers scheme could be financed from public funds, as in Vienna. However, this could be seen as a problem if the cost is then borne by all taxpayers and not just the consumers who buy these goods (Almén, 2021). Tax-funded schemes also run a greater risk of being abolished compared to schemes funded by the specific industry (Lechner, Wagner, Tena, Fleck, & Reimann, 2021).

An alternative to tax funding would be for producers to fund the repair vouchers through levies (via an industry association, as is the case with producer responsibility). This kind of scheme was recently enacted in France in the form of what are called *repair funds* (French ministry for ecological transition, 2020). The fund is used

to reduce repair costs by certified repairers by funding repair vouchers or the equivalent. The details of how the fund is arranged can then be specified per product group and decided within the sectors concerned (Almén, 2021). This scheme will be introduced into France in the next couple of years. The product groups covered are electrical products (but not light fittings or solar panels), furniture, some home furnishings and textiles, footwear, and toys. The details of the scheme are still being ironed out, but the scheme is based on producers paying an additional levy for each product that they market. Under the French scheme, producer responsibility organisations will propose schemes for certifying repairers who then will be approved within the scheme (Ecosystem, 2021). The repairers must also comply with certain requirements, such as informing their customers about the repair vouchers scheme and offer a minimum three-month warranty on repairs. When consumers use the repairers, part of the price for the repair is deducted and the repairer claims this part of the price from the producer responsibility organisation. Repair funds will not be used for repairs carried out within the period covered by the statutory consumer warranty (guarantee), or the manufacturers or producers commercial guarantee. France has also proposed a differentiation of producer levies based on the lifetime and reparability of products (Almén, 2021). Its aim is to give producers incentives to sell goods with a longer life expectancy and better reparability. Getting producers to pay for repairs is in line with the principle of ‘the polluter pays’ – which under the EU’s Waste Framework Directive, Article 14¹⁴ – is to be a fundamental principle of waste policy.

¹² The repair networks in Austria consist of independent repairers, i.e., not the manufacturers’ authorised repairers. Independent repairers often find it difficult to access spare parts quickly and at a reasonable price. New requirements under the Ecodesign Directive have been introduced to give independent repairers better access to spare parts within a reasonable time frame (e.g., (Dalhammar, Milios, & Richter, 2021a).

¹³ Often, the manufacturer requires the consumer to use authorised repair shops during the statutory warranty or commercial guarantee period. After this period has expired, the consumer can then choose any one repairer.

¹⁴ Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

2.1.4 Summarising discussion and recommendations

Repair vouchers and repair funds can be seen as a combination of two instruments, and it is our assessment that it would be feasible to introduce them as national policy instruments in Sweden. The vouchers acting as an information instrument (informing consumers that repairing is an option), combined with a nudge where the voucher lapses if it is not used during the year. This could have a significant environmental benefit in the long term, and act as an economic instrument given the heavy subsidisation that the scheme entails. Furthermore, if differentiated producer levies can be introduced so that producers of lower quality products pay more into the scheme than producers offering products of higher quality that are more repairable, it also provides incentives for producers to design and market better products. Promoting repairs can also have other positive effects through the creation of jobs in the repair business, and we know that the repair sector suffers from profitability problems and difficulties in recruiting skilled labour.

We believe that a well-considered scheme could help to get the repair sector up and running in Sweden; currently its existence is tenuous. The average Swede spends less than 3 Euro per year on product repairs (Roos, 2019). The concept of repair vouchers could be tested on a smaller scale at the local or regional level in Sweden before introducing it on a national scale. Some factors that need to be tested and investigated more closely are how the repair voucher can be communicated effectively to consumers, what product groups the scheme should cover, whether all or only certain repairers should be covered by the scheme, how payments to repairers should be processed, how fraud can be minimised, and how the scheme should be funded. It is particularly important to study the French scheme, which will start being introduced from 2022, with different start dates for different product groups, to see what we can learn from the French experience. Experiences from the Vienna scheme are also important to consider before designing a scheme for Sweden.

If repair funds are to be used to pay for repair vouchers, a thorough investigation of how to design and ultimately to legislate a well-

functioning scheme is essential. Moreover, if the levy paid to the scheme is going to be differentiated to have a positive effect on environmental footprint, criteria need to be formulated with this purpose. Here, one can anticipate objections from producers since it will be to the advantage of some and a disadvantage for others. Therefore, it is interesting to see how this develops in France in the future.

All in all, we can conclude that:

- Reduced tax (through VAT reductions and RUT deductions) for the repair sector may lead to price reductions for repairs (or at least to no increases in the cost of repairs), but do not provide incentives for manufacturers to produce longer-lasting products that are easier to repair
- A repair fund reduces the price of repairs for consumers and provides some incentives for manufacturers to make products that are of better quality and do not need repair (if the scheme is properly designed)
- Repair vouchers reduce the cost of repairs for consumers. The voucher also has the advantage of ‘nudging’ consumers to repair rather than throwing away products.

The creation of local repair networks in Graz and Vienna offers some advantages. Repairing can be marketed to consumers in a better way when there is a broad network of repairers who meet requirements such as maximum cost for troubleshooting and by offering warranties on repairs. There are also signs that the companies in the network in Austria have started to cooperate, not just seeing each other as competitors, instead working together to build a scheme that benefits the repair sector as a whole. At the same time, there is no denying that networks restrict competition since consumers can only use the repair vouchers with the companies in the network and that only independent repairers can be part of the network. Compared with the RUT (household work) and ROT (building repairs and maintenance) deductions in Sweden, it does not limit these instruments to certain actors; these schemes are open to all (reputable) actors.

In the workshop conducted in our project, many of the participants felt it would be interesting to test some type of repair voucher scheme in Sweden. However, the participants were doubtful that only certain repairers should be included in the scheme. On the other hand, repair networks with a limited number of repairers are better for communicating their businesses to the public (Lechner, Wagner, Tena, Fleck, & Reimann, 2021). Above all, the workshop participants expressed that some form of quality control would be good so that the repair industry does not attract unscrupulous operators who carry out low-quality repairs. Quality control can be achieved through rules set by the network itself (for example in Vienna), or by the producer responsibility organisation (as planned in France). Sweden can of course choose to have a similar effect by means of consumer reviews or oversight, but the control function will then not be as strong as in the studied schemes¹⁵.

It will be interesting to monitor France's introduction of repair funds and it would be interesting to investigate a similar scheme in Sweden as a further development of Sweden's current producer responsibility scheme. We also believe it would be interesting to investigate a repair voucher scheme¹⁶, such a scheme could also be tested the local or regional level to gain valuable experience in the run-up to a possible introduction on a national scale.

¹⁵ There are plenty of examples of problems arising when new schemes are introduced without clear controls. These include 'profiteering' prices for taxi trips, and problems with the quality of solar panel installations for households when the market is experiencing rapid expansion.

¹⁶ This can also be combined with other schemes, such as vouchers for recycling and purchases of second-hand goods.



2.2 Information on service life and reparability

The lifetime of a product and how it ages are determined by various factors, such as composition, functionality, cost of repairs and consumption patterns (European Parliament, 2017). A compilation of the research in the area has shown that if more information is available on the life and reparability of products, it can be assumed and that this will lead to consumers choosing longer-lasting products and being prepared to pay more for such products, at least for certain product categories (Dalhammar, Milios, & Richter, 2021a; Europaparlamentet, 2017).

At the present, no information is virtually given to consumers on product life, and in other countries there are only a few initiatives to establish standards and methods for providing this type of information (Naturvårdsverket, 2020). Product life data needs to be based on predefined standardized criteria (Europaparlamentet, 2017). However, the issue is complex, since the life of a product depends on the *product design* and on *ease of a repair* (design for disassembly, availability of spare parts, etc.) and on *how the consumer uses the product*.

2.2.1 Mandatory sustainability labelling concerning product life and repairability

There are proposals to introduce mandatory labelling for product life and repairability in the EU, and a resolution the European Parliament has called on the Commission to ‘develop and introduce mandatory labelling, to provide immediately visible, clear and easy-to-understand information to consumers on the estimated lifetime and repairability of a product at the time of purchase’ (Europaparlamentet, 2020).

According to Eurobarometer data, 90% of EU citizens believe that a clear indication of the expected service life of the product itself should be stated (Europaparlamentet, 2017), indicating that acceptance for such an instrument is relatively high among the general public. Mandatory labelling would also be useful in that it would give producers stronger incentives to develop more sustainable products, but due to factors such as how the consumer uses and maintains the product, a product’s life can be difficult to determine, especially for certain product groups (Maitre-Ekern & Dalhammar, 2019). The European Commission has put together a proposal for the design of this kind of labelling scheme that focuses on products repairability, but it is currently unclear how this is going to be applied to different product groups (Cordella, Sanfeliix, & Alfieri, 2019).

A labelling scheme with information on product life could perhaps contain information on:

- Resistance to wear for materials, and resistance to wear and shrinkage for textiles
- Ability to repair and upgrade products, for example, to replace the battery in a mobile phone, upgrade RAM on a computer, or replace parts in white goods
- The availability of spare parts.

A labelling scheme indicating the expected life of consumer durables could also be combined with highlighting and strengthening consumer guarantees, making their rights under these guarantees easier for consumers to assert. This would also make it easier for consumers to demand that the manufacturer repairs or replaces the

product if it fails. It is also possible to combine this scheme with future minimum service life requirements for products under the Ecodesign Directive. So far, there are only ecodesign requirements of this type for two product groups – vacuum cleaners and lighting products (Maitre-Ekern & Dalhammar, 2016).

2.2.2 Common mandatory scheme at EU level

Concerning mandatory information about a product’s characteristics, we believe that it would be best to have a scheme that is common to the whole of the European Union, at least as regards mandatory labelling schemes for products that indicate their expected life and repairability. For example, the European Commission is currently exploring the possibility of providing such information via a product passport.

Product passport

A digital product passport (DPP) is essentially a unique product identifier (ID) linked to a database with a collection of structured, product-related data with a predefined scope, ownership and access rights. As this virtual passport accompanies the product throughout its life cycle, from design to end-of-life, information and data can be collected and added to it by different actors in the value chain (OECD, 2020). Some specific information could be made mandatory, such as warranty periods, guarantees, life expectancy, chemical content, and climate impact during production and use. Digital product passports have the potential to be used for a wide range of product groups, from white goods and electronics to bicycles and furniture.

2.2.3 France's repairability index and mandatory information on a product's repairability

France is the most advanced country in terms of useful life and repairability information. In 2021, France introduced a *mandatory labelling scheme on the repairability of products and a repairability index* for specific product groups (French ministry for ecological transition, 2020). To exemplify, the scheme covers electronics and white goods and in practice serves as a scoring system for a product's repairability based on five criteria:

1. how long the producer provides independent repairers and consumers with technical documents,
2. the product's ease of disassembly,
3. the availability of spare parts in years and delivery time,
4. the price of these spare parts, and
5. sub-criteria specific to the product group.

The main purpose of the index is to tell consumers that a product can be repaired, if it is difficult to repair, or cannot be repaired at all. In addition, introducing a repairability index can also create incentives for producers to design products that are more repairable. By 2024, France plan to develop the index so that, in addition to repairability, it will include product life expectancy information (French ministry for ecological transition, 2020).

The French repairability index has already had indirect effects, for example, producers have started to supply more information and repair manuals for their products and has made these more readily available (Almén, 2021). This indicates that a policy instrument in the form of a repairability index could result in quicker and more accessible information for consumers. In addition, it shows that important steps can be taken at the national level as well (Michel, 2017).

The French repairability index is generally seen as an excellent initiative, but there are also problems associated with the scheme (Almén, 2021). It has been shown that the scoring system can result in a product getting a high score, even though, it is not especially repairable, because the different criteria carry roughly the same weight. This has become

apparent, for example, when products that cannot be disassembled or repaired have received high scores because spare parts have been available for a long time or at a reasonable price. This in turn has led to producers sometimes putting great emphasis on the documentation and availability of spare parts rather than designing their products to be more repairable (Almén, 2021).

However, there are ways of getting past these obstacles, for example by having criteria in the index that need to be met to get a final score. Another option is to develop 'critical' criteria and sub-criteria that cannot exceed a given score. Furthermore, many experts argue that problems and incentives that have unintended consequences are common when introducing a new policy instrument and that these problems will be ironed out over time (Almén, 2021).

Spain, too, has now announced that it intends to introduce a national repairability index.

France's plans for product lifetime labelling by 2024

The idea is that the repairability index that already is in place will be included in the durability index. But it will also contain two new criteria, namely:

- Reliability: This may include aspects such as durability/hardiness, correct maintenance of the product and related consumer information, as well as requirements adapted to each product group.
- Upgrade: This may include aspects related to software and hardware upgrades, as well as requirements adapted to each product group.

France plans to have a proposal ready for how the scheme would work and what product groups that should be covered by it by the end of 2022 (ADEME, 2021).

2.2.4 France's mandatory scheme for communicating product life expectancy

France also plans to introduce a *mandatory scheme for communicating product life expectancy* in 2024. A 2021 paper outlines the need to develop product life criteria specific to each product group. This may include aspects such as durability/hardiness, correct maintenance of the product and related consumer information, as well as requirements adapted to each specific product group. Where relevant, it may also include aspects related to upgrading software and hardware (ADEME, 2021). The French experts we have spoken to say that they would prefer a common scheme for the whole of Europe, but that France does not intend to wait around for one and intends to go ahead with its own national scheme. The plans for the French scheme can also be anticipated to put pressure on the European Commission to propose an EU-wide scheme.

2.2.5 Life expectancy criteria in ecolabels in Sweden and the Nordic countries

Although a scheme at EU level would be preferable, there are things Sweden can do by means of other instruments. Criteria relating to life expectancy have started being added to existing ecolabels. Examples from the Nordic Swan Ecolabel and the EU's ecolabel (the flower) include certain requirements related to useful life, such as combating wear in furniture and textiles, requiring warranties for certain white goods, and requiring that TVs for example can be disassembled to facilitate their repair; and the TCO label which imposes certain requirements on the durability of certain product groups (Dalhammar, Milios, & Richter, 2021a; Nissinen & Suikkanen, 2017).

Research Institutes of Sweden (RISE) has also initiated projects in cooperation with Nordic industry to develop a more comprehensive voluntary labelling scheme on the 'circularity' of products, which can include criteria such as life expectancy, repairability, software updates and choice of materials. Voluntary labelling schemes

cost less than mandatory schemes, but they probably also have less impact because only some companies will choose to label their products. However, they can become a channel for producers with higher quality, repairable products with a longer lifespan to market them as such. The disadvantage is that there are already so many different voluntary ecolabelling schemes, and this has the potential to confuse consumers.

2.2.6 Information requirements in public procurement

Public procurement can also be used to obtain more information on the life expectancy of products. Public procurement rarely has life expectancy requirements for products, but discussions are under way on the possibilities of requiring that products have a minimum life expectancy (Naturvårdsverket, 2020). One proposal is to require producers to state the life expectancy of products in public procurements. The idea is that consumer durables – such as sofas, bookshelves, and electronics – would be tested for durability, quality and expected life. The manufacturer would then need to report these test results clearly when the product is included in a tender.

2.2.7 Summarising discussion and recommendations

If a mandatory European scheme for labelling products to provide information on their life expectancy and repairability is introduced, positive effects on the environment and climate can be achieved by extending the service life of product groups such as furniture and textiles (Dalhammar, Milios, & Richter, 2021a). With regard to the feasibility of such a scheme, we know that:

1. France already has plans for such a scheme, and
2. this type of labelling has strong support among the general public and in civil society.



These factors make it easier to implement a scheme, politically. The biggest problem is what form it should take in practice, and it is therefore important for Sweden to monitor what happens in France and other European countries. There is no reason for Sweden to design its own scheme with its own criteria if it is possible to coordinate such a scheme with other countries. For a small country like Sweden, it would also be best to have an EU scheme, as we can anticipate that Swedish producers would be unwilling to pay for the cost of labelling for a small market like Sweden.

At the workshop held in April, all participants were of the opinion that product life expectancy labelling is an important policy instrument. It ought to lead to consumers having a better understanding of products and allow them to actively choose a product that is intended to last, and to incentivise producers to design products with a long-life expectancy to gain a competitive advantage. However, most participants pointed out that although information to the consumer is important, it is not particularly effective unless it is combined with other measures. The market will not voluntarily implement measures that affect it profoundly and manufacturers will not improve the reparability of products or supply spare parts on their own initiative. Despite this, most workshop participants felt that the planned French scheme is a good first step that demonstrates a willingness to act and put pressure on the European Commission to produce a similar EU labelling scheme.

There are, however, a number of factors that Sweden should account for when resolving this issue.

As discussed above, we are doubtful as to whether it is a good idea for Sweden to introduce a national mandatory labelling scheme that provides consumers with information about a product's expected life and reparability; Sweden is a small country and the costs to producers and importers of a national scheme would be high in relation to the anticipated impact of such a scheme. However, Sweden could consider and analyse whether a new voluntary scheme might be introduced in this area. This would give progressive companies an opportunity to market their products as more sustainable, and since the scheme is voluntary, the economic consequences would not be as great.

France introduced a reparability index in 2021 and plans to introduce a durability index by 2024. Overall, it is easier to regulate reparability than durability or the expected lifespan, as reflected in the mandatory requirements in the Ecodesign Directive, and these measures also encounter less resistance from industry (Dalhammar, Milios, & Richter, 2021a). If Sweden contemplates the introduction of a specific voluntary labelling scheme of this kind, it is reasonable and desirable that durability or expected life and reparability should be integrated into one and the same labelling scheme, possibly also with a focus on what a 'circular' product is (in which case other matters such as choice of materials, etc., could also be included in the labelling). This could lead to consumers making better decisions in relation to these criteria and would simplify the administration of the scheme. Another aspect that would be interesting to explore is the different synergies of instruments, for example, using the criteria developed for a voluntary labelling scheme as requirements in public procurement.

2.3 Minimum reparability requirements

As described above, more products being repaired has benefits for the environment and the climate. Extending product life can have major positive benefits for the environment for certain product groups, although research in the field is limited (Dalhammar, Milios, & Richter, 2021a). Increasing the proportion of products that are repaired is one way to extend the life of these products. The European Environmental Bureau (EEB) has estimated that extending the life of some product groups could have a very large positive benefit for the climate (EEB, 2019). However, the possibility of repairing the products sold today is negligible or non-existent in many cases. Above we described policy instruments in the form of information on reparability and expected product life. In this section we instead focus on absolute minimum requirements regarding reparability. The 'reparability' of a product is determined by a large number of factors, and an effective policy package that aims to stimulate repairs must cover all dimensions. These include:

- **Product design:** A product's design is important because it affects the component failure rate and the ease or difficulty of disassembling the product and replacing the faulty component with a spare part. If this is complicated, the labour cost of the repair increases. The design also affects the need for advanced tools for disassembling the product.
- **Availability of spare parts:** Repairing is predicated on the availability of spare parts at an affordable price. Authorised repairers may sometimes have better access to spare parts, and/or obtain them faster and cheaper, than independent repairers. For some products, the consumer's willingness to repair is significantly reduced if it takes time to get spare parts or if these are expensive (e.g., for white goods)¹⁷.
- **Repairers' access to the right tools and repair manuals:** To make repairing possible or cheaper, access to the right tools and repair manuals can be vital. Here too, authorised repairers may be in a better situation. Some actors – mainly [iFixIt](#) – post generic repair guides¹⁸ online.
- **Product price and the price of similar (replacement) products:** Consumers are more likely to repair products that they have paid a lot for. They are also more likely to repair a product if the price of replacing it with a similar product is high.
- **Consumer attitudes to ownership and repairing:** Swedish residents spend very little money on repairing products. This is partly due to our generally high purchasing power, but also to other factors such as our knowledge of repairs, and the lack of a 'repair norm'. Although there are some signs that Swedish residents have started to think more about the environment when we buy clothes, we do not see a corresponding norm emerging when it comes to repairs. It is still considered 'OK' to buy new mobile phones, for example.

Currently, the EU Ecodesign Directive imposes certain requirements on the repairability of certain product groups (Dalhammar, Milios, & Richter, 2021a), often by means of requirements governing the provision of spare parts, tools and manuals to independent repairers, and spare parts being available for a certain number of years. In addition – see previous section – France has introduced a repairability index, and Spain is planning to do the same. Some voluntary ecolabelling schemes impose

requirements on a product's repairability, for example by requiring spare parts to be available for at least a certain period of time (Naturvårdsverket, 2020). However, there is still nothing to ensure that marketed products are actually 'repairable'; the Ecodesign Directive requirements have an influence in this context but do not offer any absolute guarantees. This can be remedied by introducing direct regulation of the repairability of products, i.e., mandatory legal requirements for marketed products to be repairable. The regulation of repairability would primarily affect producers, as it would steer them towards designing more repairable products. The regulation of a product's repairability can also be combined with a requirement for producers to inform consumers about the availability of spare parts and how long they will be accessible.

It is difficult to assess the feasibility of introducing minimal repairability requirements. This kind of regulation would be likely to encounter resistance from producers if it becomes EU law, as they will have to adapt their product designs. It would also be dependent on the criteria for repairability that are applied. However, the new Ecodesign Directive requirements on repairability – see above – (which, among other things, require access to spare parts, etc.), as well as France's repairability index and other instruments have without doubt prepared the industry for the possibility of new instruments.

¹⁷ For some IT products there is a market for harvested spare parts from used products.

¹⁸ Generally, original manufacturers' manuals cannot be freely distributed as they are subject to copyright. However, in recent years some manufacturers have become more inclined to distribute their manuals.

Table 4.

Examples of factors that can be scored to assess the reparability of a product.

Source: Own illustration with examples from the standard EN 45554:2020.

Factor	Example
Design for disassembly	Fasteners
Tools and interfaces	• What tools are required for the repair (generally available or special tools?) • What support does the manufacturer provide to enable repairers and customers to diagnose what is wrong with the product? • What kind of interaction is supported?
Repair environment requirements	Can the repair be carried out in the home or is a professional tool set/environment needed?
Expertise	What level of expertise is required to repair the product?
The impact of software and data on the ability to repair	How do manufacturers handle things like software, need for factory reset, etc.?
Options to return products	What options are there for returning the product for repair, recycling or upgrading processes?
Access to repair information	• Which actors get access to repair information (authorised repairers, independent repairers, consumers)? • How comprehensive is this information?
Parts availability	• How long does the manufacturer guarantee that spare parts will be available? • Are spare parts compatible with different models, software, etc.? • Which actors get access to spare parts (authorised repairers, independent repairers, consumers)?

It would be advantageous for an instrument regulating reparability to be based on a reparability index or equivalent (see previous section), where a product needs to attain a certain reparability score on the index before it can be marketed. The new European standard on reparability, recently developed by European standardisation organisations and commissioned by the European Commission¹⁹, provides for the possibility of giving the reparability of a product a score based on certain assessment criteria (see Table 4).

Where there are requirements on reparability, at what level do these need to be adapted to different product groups? For example, does reparability and the availability of spare parts differ greatly between furniture, electronics, and textiles? There may also be some purely legal obstacles to

implementing such requirements – they must be clearly formulated so that compliance with the law can be verified – but France has shown that it is possible to introduce a reparability index. The fact that these kinds of requirements are found in the Ecodesign Directive also suggests that they are legally feasible.

The French durability index (planned for 2024) is likely to put pressure on the EU to develop a European-wide scheme and harmonize practices for EU member states.

¹⁹ EN 45554:2020 General methods for the assessment of the ability to repair, reuse and upgrade energy-related products. This standard was commissioned by the Commission in part to form the basis for setting future ecodesign requirements.

2.3.1 Summarising discussion and recommendations

Our assessment is that Sweden is too small a market for it to be relevant to impose mandatory requirements on the reparability of products, however, there are different ways to improve reparability. One way of pursuing the issue further is to conduct pilot studies where reparability requirements are tested in public procurement. For example, a score of a products reparability can be included in the [criteria](#) for being awarded a contract in public procurement, thus influencing which products are chosen. For example, wear resistance criteria could be used when procuring textiles and requirements regarding life expectancy, reparability and the availability of spare parts could be set for some products. There are examples from Denmark of how wear resistance and mending of workwear have led to both environmental savings and lower costs for contracting authorities (European Commission, 2016).



2.4 Ban on destroying unused goods

Destroying unsold, new products is an unsustainable way of using valuable resources. Nevertheless, there are companies and shops that treat new, unsold, often fully functional products as waste and destroy them (Global utmaning, 2009). This extreme form of waste of resources has been reported in many industries, covering everything from clothing and sports and leisure equipment to TVs, computers, and other [electronics](#). Companies may have incentives for destroying products rather than giving them away or selling them cheaply, for example because they do not want to undermine the market for new branded [products](#).

A ban on the destruction of unsold and functional goods could be introduced (GOTS, 2020) with the aim of preventing this destruction, it is also highlighted as a proposal in the Environmental and Climate Policy Platform 2020 of the Commercial Employees' Union (Briland Rosenström & Palmgren, 2020). France introduced a ban on throwing away unsold food already in 2016 (Zero Waste Europe, 2020). France has recently decided to ban the destruction of unsold or returned clothing. This is a part of the comprehensive waste

reduction legislation in France (see below). The environmental benefits of this type of ban is that it can reduce the production of new goods, for example by companies planning more carefully in various ways to avoid having large quantities of unsold products; or by establishing procedures for selling returned goods instead of destroying them. This could also have positive social effects, where companies establish partnerships with charities for example.

Since a ban on destroying unsold but functional goods has already been implemented in France, it is probably possible for Sweden to implement such a ban in a similar way. If more European countries were to introduce similar bans, the introduction of EU legislation could eventually become a reality. Of course, it is uncertain how much a ban will affect companies' actions in the short term, but a ban can also send a signal to market players and thereby have a regulating effect. The media attention on Swedish companies destroying unsold goods may be an indication of broad public acceptance a ban. We would like to see an investigation on whether it can be introduced in Sweden. As part of this, France's experience should be taken into account.



French ban on destroying unsold goods

Under Article 35 of Law No. 2020–105 from 10 February 2020 on measures to minimise waste and promote a circular economy, it is not permitted to destroy unsold goods. The law stipulates that companies must prioritise the following actions (priority according to the waste hierarchy):

- ensure that the products are recycled (e.g., through donations to organisations that help the vulnerable)
- recycle the products themselves
- recover the materials in them

The law covers electrical products, furniture, certain textiles, footwear, toys, kitchen appliances, books, and hygiene products and cosmetics. These rules will enter into force on 1 January 2022 for certain product groups and will be introduced successively for other product groups. Products with very limited durability are excluded from the law, as are products that are difficult to donate. The law also requires that contracts are established with organisations that help vulnerable people, which needs to involve certain protective measures related to hygiene and safety (Art. R. 541–321).

2.5 Ban on planned obsolescence

Most studies show that the life expectancy of certain product groups is getting shorter (Dalhammar, Milios, & Richter, 2021a). This is mainly due to the fact that we live in a ‘consumer culture’ and because purchasing power is rising. Our consumption culture and purchasing power mean that consumers buy new products ever more frequently, even though the products that they are replacing are not worn out. A further cause of this problem may be planned or built-in obsolescence, which is a conscious process that aims to limit the life of a product in order to stimulate further consumption (Michel, 2017). Planned obsolescence can cause some parts of a product to fail earlier than other parts, or that the batteries of a product are unable to be replaced. It can also include software updates, marketing, and cultural and social aspects. Designing products that are intentionally unrepairable (e.g., software or materials used to block independent repair) is another example of this (HOP, 2020).

Many EU citizens want measures to prevent companies from systematically using planned obsolescence, as demonstrated by a survey conducted in 2019 where 90% of respondents considered it ‘very relevant’ to ban planned obsolescence (HOP, 2020). Despite this result, the phenomenon is not regulated in current European legislation, which is partly due to the fact that criminal law is normally decided at the national level.

However, France has legislation banning planned obsolescence that was introduced in 2015. It defines planned obsolescence as “*resorting to techniques whereby the entity responsible for the placement of a product on the market deliberately intends to shorten [that product’s] life span in order to increase its rate of replacement*”²⁰. Article L. 213–4–1 of the French Consumer Protection Code (*Code de la consommation*) establishes that deliberately planned obsolescence is a criminal offence that can result in a fine or up to two years imprisonment (Maitre-Ekern & Dalhammar, 2016). In addition, France has reportedly already banned deliberately making

²⁰ French Consumer Protection Code Articles L441-2. Unofficial translation.

a product unrepairable in its 2020 Anti-waste Law (HOP, 2020). Italy does not have a similar ban, but its competition law has been used to take action against planned obsolescence (Michel, 2017).

France and Italy were also the first in Europe to impose fines as punishment for planned obsolescence. Italy fined Apple and Samsung in 2018 for deliberately implementing measures to render hardware obsolete, totalling [EUR 15 million](#). This was followed by France fining Apple EUR 25 million in 2020 for deliberately degrading the performance of older smartphones by means of a software update (Les Echos, 2020). The software update caused serious malfunctions which forced consumers to replace their smartphones with newer [models](#).

In practice, however, it is difficult to penalise producers for using technologies for planned obsolescence. It is often a grey area where it is difficult to prove intent beyond reasonable doubt (Maitre-Ekern & Dalhammar, 2016). But one advantage of such bans may be that it sends an unequivocal signal to the market. However, there are clear cases of planned obsolescence (Holmberg, 2019). One such example that has received significant coverage from the Swedish media a few years ago concerned electric bikes that could only be charged a certain number of times. In that case, it appeared that the Swedish producer had had a subcontractor who supplied substandard [batteries](#) (Olsson, 2019). Legislation against planned

obsolescence can provide greater incentives for producers to impose stricter requirements on their subcontractors. An additional factor that could make compliance more difficult in practice and thus reduce the efficacy of this policy instrument might be that consumers and producers try to circumvent the ban by buying and selling from other countries not covered by the ban.

Since the criminalisation of planned obsolescence has already been implemented in other EU countries, it would probably not be too complicated for Sweden to introduce similar legislation. The introduction of a ban by several EU Member States would also have a bigger impact on manufacturers' actions. Such a ban could also be incorporated into the development of new technical standards. If more countries introduce such bans, it could also increase the possibility of a ban at EU level, making it more difficult for consumers and producers to get around the ban by buying and selling from other countries. Nevertheless, it remains difficult to pinpoint and prevent planned obsolescence. It is difficult to prove that the producer deliberately planned the obsolescence and also because it is unclear what legal sanctions are applicable (HOP, 2020; Michel, 2017; Maitre-Ekern & Dalhammar, 2016).



3. Additional policy instrument ideas

During the course of the project, a larger number of ideas for potential instruments were discussed by both the project group and workshop participants. However, there has been neither sufficient time nor opportunity to address all these ideas in this report. Below is a brief outline of each of the ideas which could not be included in this report, but which the project group nevertheless saw as interesting.

Longer guarantees and changes in rules governing burden of proof. In Sweden, there is a general three-year statutory warranty on products covering faults in the original product (Konsumentverket, 2021). Faults that occur during the first six months are automatically seen as faults that the company should fix. The burden of proof lies with the company if it claims that the fault has arisen as a result of the consumer's handling of the product. When more than six months have passed from the purchase date, the burden of proof passes to the consumer. There are currently proposals to extend the statutory warranty period and to extend the period in which the burden of proof lies with the seller of the product. For example, the inquiry SOU 2017:22 proposed that the burden of proof should remain with the manufacturer for 2 years from the date of purchase (Utredningen cirkulär ekonomi, 2017). [An amendment to this effect has now also been tabled by the Swedish Government as a proposal to the Council on Legislation as of November 2021.](#) Several countries have made changes to their statutory warranty rules (Maitre-Ekern & Dalhammar, 2016), but as far as we know, there have been no evaluations of the impacts of these changes.

Bonus-malus scheme for textiles for example. Those who sell products with good environmental properties (high levels of recycled materials, etc.) are charged a lower levy (in the producer responsibility scheme or otherwise). If life expectancy labelling of products becomes a reality, this could become a factor that can be taken into account in assessing the environmental properties of a product. The scheme could have positive effects in the form of changes made by producers to minimise what they have to pay in such levies. Differential VAT on products could also be envisaged as a way of influencing consumer choices. The aim would be to create a

way of internalising the environmental costs of the manufacturing of products, influencing producers towards marketing more sustainable products. France has introduced differentiated levies within its producer responsibility scheme, but these are not high enough to influence product design. However, there are plans to increase these levies (Micheaux & Aggeri, 2021).

Link circular economy requirements to sports clubs' allowances. Swedish sports clubs receive extensive support in the form of allowances or grants from the Swedish state. These allowances could be tied to requirements that the clubs conduct activities that stimulate new circular consumption patterns. This could include, for example, offers to loan, share, or rent sports clothing and equipment. It might also include education initiatives.

Product levy. Another possibility is a product levy which is refunded depending on the length of time the product remains on the market. Companies deposit the levy, which acts as collateral, and get the full amount back if the product is used for a long time, and only some of the amount if it is discarded after a short time. If product passports would be introduced, it would enable each individual product to be 'monitored' so that it can be steered towards an extended life.

Product deposit-refund schemes. The introduction of product deposit-refund schemes for consumers could be considered, for example for clothing, furniture, and footwear, but also batteries, mobile phones, and other electronics. In many cases, reusing or repairing a product is not an option, it is often a consequence of how the product is designed or that it is worn out. In such cases, it is important to ensure that the materials used in the product are recovered and recycled. Therefore, discarded products need to be collected in ways that make this possible. Sweden has several producer responsibility schemes – a policy instrument already implemented for certain product categories – which aims to fund the collection and management of waste. However, when it comes to certain product groups, especially those not covered by a producer responsibility scheme, there is obvious potential for improvement (Elander, Tojo, Tekie, & Hennlock,

2017). For example, when it comes to the collection of textiles, Sweden lacks a common national policy on their recycling, and many Swedish residents lack information about or access to recycling centers where they can leave textiles for collection. Collection via containers on the street also increases the risk of the textiles becoming unusable and the possibility of other non-textile materials being placed in the containers (Zhang & Rask, 2017).

The introduction of a deposit-refund scheme creates financial incentives to increase the rate of collection. This offers the potential to extract not only what is to be recycled, but also the products that are deemed to be repairable and/or can be reused from the products collected. This creates financial incentives for the public to hand in functional products, such as mobiles and other electronics, which have been left in their homes in a drawer or similar, and which are thus given the chance to be used again. SOU 2021:26 reported on a recent study on deposit-refund schemes for small electronics (Utredningen om pantsystem, 2021). However, the researchers themselves and a majority of the referral bodies were reluctant to introduce such a scheme. Nevertheless, it may be relevant for other product groups.

Supporting the sale of second-hand goods could be introduced to promote customer repair initiatives such as [ReTuna](#), [ReTuren](#), consumer repairs. Currently, some municipalities support this kind of initiatives and their support (e.g., access to materials and products from waste received) could be combined with other incentives, e.g., consumer vouchers that can be used for second-hand items and other reuse, etc.

Ban on sending products to recycling before an investigation of possible reuse. Another potential policy instrument would be to impose an obligation on companies that are intending to replace products, furnishings, etc., to investigate the possibility of reuse before these products can be sent for recycling. Similarly, recycling companies could be required to demonstrate that they have considered reuse before material recycling or incineration.

Additional proposals. There are, of course, many more proposals, for example, the French organisation HOP has produced a number of interesting proposals in a White Paper from 2020 (HOP, 2020). Among other things, it proposes better protection for whistle-blowers in companies when they

report unethical acts such as software updates that intentionally lead to hardware problems. The White Paper also addresses the problem of marketing. It is difficult to push consumption patterns in a sustainable direction when advertising is sending the opposite message. Proposals to improve this situation include a special tax on advertising, a ban on certain messages in advertising that advance unsustainable consumption patterns, and a requirement that certain information – such as where to fix a faulty product – must be included in advertising. A number of organisations are also running campaigns to ban advertising that relates to fossil fuels (New Weather Institute, 2021; New Weather Sverige, 2021).

The Circular Economy Delegation has proposed that the Swedish Government should appoint a commission of inquiry to investigate lower VAT for recycled materials and second-hand products (Delegation för Cirkulär Ekonomi, 2021).

In Sweden, steps have also been taken in several of the areas covered in this report, such as changes in statutory warranties, changes in VAT rates, and the need for product passports. Another proposal that has been mentioned is to promote services rather than products through differentiated VAT, and that we should instruct the Swedish Consumer Agency – in cooperation with other relevant government agencies – to identify and implement measures that push people to mend or fix, re-use, share or use the product as a service instead of buying new products.

Other proposals highlighted concerned promoting the sharing economy so that it is easy to share and co-own products, for example in the form of circular economy deductions²¹ and reduced VAT rates for car sharing services. There is also a willingness to support the development of the sharing economy by giving the relevant government agencies a formal mandate to analyse the needs of users.

In addition to the proposals outlined above, the possibility of introducing more general policy are likely to impact the consumption of goods, such as reductions in working hours and individual emissions allowances, were also discussed.

²¹ For example, the proposal for a circular economy deduction in SOU 2017:22 suggested that it should cover, among other things, renting and leasing consumer products for up to one year, and the collection or delivery of a consumer product in connection with the rental of this product.

4. Discussion and conclusions

The Swedish parliament has adopted a generational goal which is the overarching goal for Sweden's environmental policy and guides environmental initiatives at all levels of the community. The goal is to hand over a society where the major environmental problems have been solved, without increasing environmental and health problems beyond Sweden's borders. This means that instruments and measures to solve Sweden's environmental problems should be designed in such a way that Sweden does not simply export them to other countries (Naturvårdsverket, 2021).

Sweden has shown leadership in many areas of environmental policy, such as climate issues, renewable energy, and environmentally-friendly procurement. There have also been many initiatives in Sweden in the areas of circular economy and procurement. However, a significant challenge remains in how to reduce the environmental impact of Sweden's consumption of consumer durables. If Sweden wants to take the lead in establishing new drivers for manufacturers and consumers, and thus contribute to fulfilling the generational goal, new initiatives are needed.

At the moment, we are seeing a strong dynamic in support of new instruments related to consumer products. New instruments are being introduced or proposed at EU level and among EU Member States. If we are to take a giant leap forward, we need a strong package of instruments that are combined in various ways, such as:

- instruments targeting both producers and consumers
- instruments adopted at EU level (e.g. ecodesign requirements), but also national, regional and local instruments (such as economic instruments, information-based instruments, and reuse and recycling infrastructure)
- instruments that use different types of incentives such as ecodesign requirements for products; financial incentives for producers to go beyond the legal requirements in terms of product life and repair; and economic drivers to encourage consumers to change their behaviour; as well



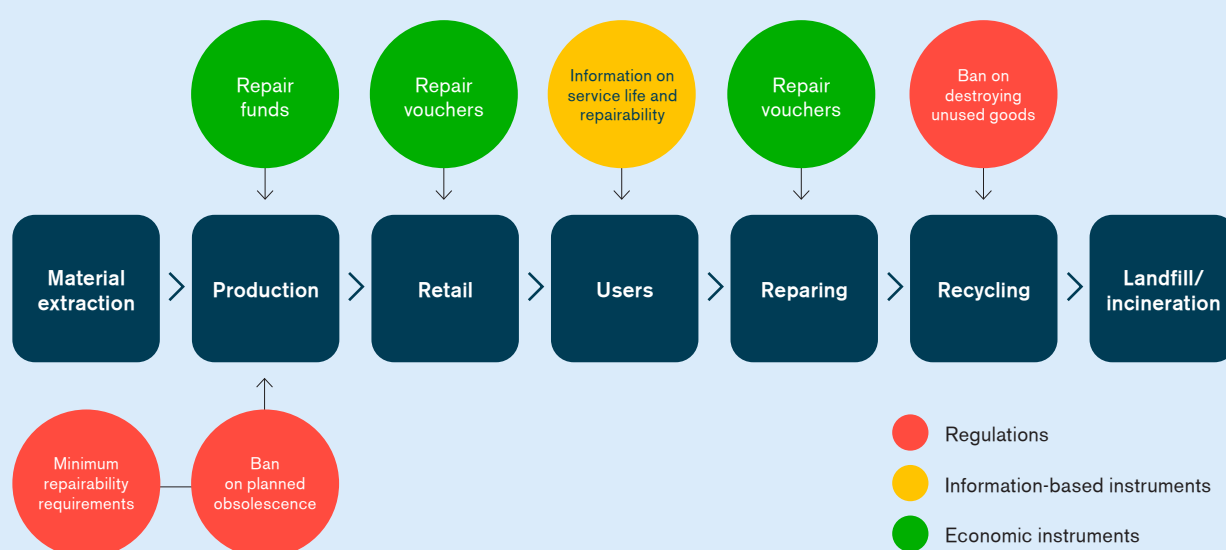
as work to provide information and influence norms.

In this report, we have discussed new instruments that in many cases have already been introduced in other European countries. We can note that:

- in many instances, these instruments show that legislators are no longer of the view that market forces and consumer demand alone can lead to products with a longer life (Maitre-Ekern & Dalhammar, 2016);
- many instruments, such as the French repair fund, have the potential to offer new types of financial incentives for manufacturers – provided that the instruments are well designed, and the financial incentives are strong enough.

In our view, the five ideas for policy instruments proposed, presented, and described in this report are of particular interest because of their potential to stimulate more sustainable consumption of consumer durables. These instruments affect several different steps in the product chain (see Figure 2).

Figure 2. The five ideas for policy instruments in relation to the value chain.



Three of these five ideas aim to specifically promote repair. Increasing the number of repairs carried out in Sweden is desirable since it is a circular solution aimed at retaining the value in the economic system while reducing negative effects on the climate (Singh, 2019). Other examples of such solutions are reuse, renovation, and remanufacturing. All of these solutions aim to extend the time during which consumers can use their products, i.e., to extend their useful life (IRP, 2018). This means that the consumption of repair services could replace consumption of new products.

However, when introducing requirements that promote longer product life, conflicts could arise. For example, such requirements might result in incentives for producers to choose materials solely on the basis of prolonging product life and not on the basis of other environmental and climate factors²². Requiring that products have a longer useful life could also lead to lower reparability, as is evident in the case of water-resistant electronics where products are often glued together and therefore difficult to disassemble and repair (Naturvårdsverket, 2020). However, in most cases longer product life has an environmental benefit.

In addition to instruments that promote repair, we have highlighted bans on the destruction of unsold

or unused products and planned obsolescence. However, common to all these proposals however is an uncertainty as to how effective such bans would be in practice. There are only isolated or very few examples of this type of measure to control the consumption of consumer durables, which means that knowledge and experience of the way in which such instruments work in practice is very limited. In addition, there is a risk that consumers and producers will circumvent the ban by buying and selling from other countries not covered by such a ban. Nevertheless, our assessment is that such bans can send strong signals and have a normative effect. Beyond that, the destruction of unsold products and planned obsolescence have been highlighted in the media recently, which may indicate that there is public acceptance of instruments to prevent this.

²² We believe, however, that for most consumer durables there is no direct conflict between longer useful life and other environmental factors. For passive goods such as clothing and furniture, it is generally always good from an environmental point of view to extend their life. The same applies to electronics. However, for products such as white goods, longer life can mean more energy consumption if their replacement with a more energy-efficient model is postponed. This conflict, however, is not as important in the Swedish context, since we have an electricity mix with relatively low climate impact (Dalhammar, Milios, & Richter, 2021a).

The proposals highlighted in this report consist of both voluntary and compulsory schemes. When it comes to mandatory product information schemes, for example in the form of product life and repairability labelling, a number of factors would need to be investigated before potentially introducing them. The costs to businesses and consumers need to be weighed against the environmental benefits that this kind of policy instrument can deliver. The scheme needs to be simple and adapted to global value chains and assure fair competition between European manufacturers exporting products to the EU. Difficulties may also be encountered when information cannot be obtained due to a long supply chain, for example when subcontractors are in different jurisdictions. In addition, final products often consist of a mixture of raw materials from different producers, which is why providing and reporting accurate information can be complex and difficult. The biggest problem then becomes what form the instrument should take in practice, which is why it is important for Sweden to monitor what happens in France and other European countries. For a small country like Sweden, it would be most advantageous to have an EU scheme, since we can anticipate that Swedish producers would be unwilling to spend money on producing information for just a national market like Sweden.

In many instances, voluntary schemes do not have as big an economic impact as a mandatory scheme, but they are also likely to have fewer environmental and climate benefits. Furthermore, there are already many voluntary schemes, for example ecolabels, which can be confusing for consumers. Introducing yet another environmental product labelling scheme could risk increasing this confusion. For the environmentally conscious consumer, however, the effect can be positive, as the new labelling scheme increases the consumer's chances of making their choices based on environmental considerations. However, Sweden is a small country and in some cases the costs to industry of a compulsory labelling scheme for example would not be reasonable in relation to the anticipated environmental benefits. New voluntary schemes in Sweden could give progressive companies an opening for marketing their products, and since the scheme is voluntary, the financial consequences would not be as great.



When designing instruments, it is also important to take account of cultural and social norms, because these are strongly linked to what, how and when we consume products.

Instruments can be introduced at both the EU level and national level. One challenge in developing an instrument is therefore determining the level at which it should be implemented. A number of the policy instrument ideas in this study ought to be an EU matter, especially if they are to be mandatory (Naturvårdsverket, 2020). Instruments introduced at EU level can make use of existing harmonised regulatory frameworks and schemes, and criteria and requirements could be produced jointly and developed into a standardised European scheme, which would have many benefits. Most product flows today are international, and if instruments are introduced at EU level, producers and other market players do not need to adapt their products to disparate national schemes with differing requirements. This would reduce complexity and therefore also costs (Naturvårdsverket, 2020). The main disadvantage of introducing instruments at the EU level is that this kind of regulatory framework is unlikely to leave much scope for adapting the design of an instrument to enable the achievement of national objectives (Naturvårdsverket, 2020).

However, if an instrument were to be designed as a voluntary initiative, and if there is no harmonised legislation for the product groups concerned, there would be more scope for a nuanced implementation at a national level (Naturvårdsverket, 2020). There are some benefits to be gained from introducing instruments at national level, such as greater scope for adapting the regulatory framework to national objectives and conditions. Implementation at national level can also be faster than the implementation at EU level. But introducing an instrument at the national level also involves taking up administrative and financial resources (Naturvårdsverket, 2020).

When designing instruments, it is also important to take into account cultural and social norms, because these are strongly linked to what, how and when we consume products. A shift in norms is necessary to achieve far-reaching change in our consumption patterns. However, indirect and longer-term effects on social norms, people's motivations to consume more sustainably, or trends in consumption are rarely part of the calculation when policy effectiveness is measured for instruments which aim to make consumption more sustainable. There are also claims that legislation and regulation tend to dampen people's motivation to behave and consume more sustainably (Frej & Jegen, 2001; Gneezy et al, 2011). On the other hand, legislation and regulation can in themselves send signals to consumers and producers which thereby contribute to changes in norms.

As mentioned, norms can be influenced by public policy instruments, but since there are many other influences on norms, it is difficult to distinguish what effect such an instrument actually has. Furthermore, the effects depend on the instrument's legitimacy and public trust in legislation (Tyler & Jackson, 2013). The way in which citizens perceive a policy instrument affects how their behaviour changes to a large extent (Nyborg et al, 2016). It is therefore vital not to forget the consumer perspective when designing a policy instrument – it needs to work in everyday life for large groups of consumers; and you need to take into account people's (lack of) time, and the extent to which they are interested in and capable of familiarising themselves with complex situations. All in all, this makes it very difficult to study the long-term effects of policy instruments and their impact on social norms. In addition, it is especially difficult to analyse instruments that are not yet implemented.

We can see that there are a lot of studies that have explored the effects and acceptance of established policy instruments for more sustainable consumption of consumer durables, one of these being ecolabels. However, based on the review and analysis done for this report, it is clear that there is a need for research on policy instruments aimed at encouraging the sustainable consumption of consumer durables.

This means that there is a need for empirical studies, as well as long-term impact studies and scientific evaluations of public and private initiatives in order to investigate more concretely the effects and impacts of the policy instruments proposed here, were they to be the proposed instruments. The very substantial changes required to achieve a system of sustainable and circular consumption requires public actors to start developing and implementing a range of policy instruments and to systematically evaluate them. Therefore, the real need for research lies in scientific analysis of large-scale strategies and instruments for achieving a sustainable consumption of consumer durables.

In parallel with research in the field, new policy instruments could be investigated and implemented. By systematically evaluating these instruments, they can be developed further to provide greater benefits in terms of sustainability. Many of the policy instrument ideas that we describe in this report are best suited for implementation at EU level, and in this context, Sweden can choose to act in various ways to encourage this. With regard to instruments that can be introduced at national level, we would like to highlight, repair vouchers and repair funds. It would be interesting to investigate the introduction of such a scheme in Sweden, and it could also be tested in a local or regional pilot project. This would enable Sweden, along with other progressive countries, to push for change at the EU level.

Finally, we would like to point out that none of the policy instrument ideas discussed in this report can bring about major change by themselves. It is therefore vital that we work with packages of instruments if we are going to get anywhere. We need stronger instruments at the European, national, and local levels. Regulating product design must be done at the EU level, while infrastructure for reuse is primarily relevant at the local level. It is important that instruments at these different levels all pull in the same direction. When implementing a package of policy instruments, communication efforts are also vital for explaining and legitimising the new regulations or economic instruments.

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