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Product lifetime in European and Norwegian policies

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Summary

The objective in this report is to better understand how the increased product lifetime option has been positioned in policies over the past twenty years. By means of policy document analysis, we explore product lifetime positioning in the EU's circular economy policies, Norwegian political party programs and official documents, environmental NGO documents, consumer organisation policies and product policies. Overall, we find little focus on product lifetime between 2000-2015, however, there has been a massive increase over the past five years. There is still a long way to go in developing appropriate policy instruments to address product lifetime.

Keywords

Product lifetime, environmental policy, consumer policy, document analysis

Sammendrag

Formålet med denne rapporten er å få en bedre forståelse av hvordan produktlevetid har blitt posisjonert i politikken de siste tjue årene. Ved bruk av dokumentanalyse undersøker vi forekomsten og kontekstualiseringen av produktlevetid i EUs sirkulærøkonomipolitikk, norske partiprogrammer og offisielle dokumenter, dokumenter fra norske miljøorganisasjoner, forbrukerorganisasjoners politikk og produktpolitikk. Samlet finner vi at det er lite fokus på produktlevetid mellom 2000-2015, men at det har vært en stor økning i fokus de siste fem årene. Imidlertid er det fremdeles lang vei å gå i arbeidet med å utvikle tiltak som faktisk adresserer produktlevetid.

Stikkord

Produktlevetid, miljøpolitikk, forbrukerpolitikk, dokumentanalyse

Preface

To fulfil our obligation to reduce the environmental impact of current consumption patterns, we must undergo profound changes in what and how we produce and consume goods and services globally. One way of reducing overall consumption is to increase the lifespan of the products we use. Longer lasting products can reduce the total number of products we buy, which in turn has the potential to slow down the production rate. Consequently, longer lasting products can also reduce the volume of raw materials used to produce goods as well as the emissions from transporting goods around the world. This is in line with the current political paradigm in Europe, the "circular economy", from which environmental policies are crafted. At the core of a circular economy is what is known as the 3 R framework: Reduce, Reuse and Recycle.

The objective in this report is therefore to better understand how the increased product lifetime option has been positioned in policies over the past twenty years. The report is the result of analyses from the first work package of the international research project *LASTING: Sustainable prosperity through product durability*,[1] financed by the Research Council of Norway (grant number: 303080). The work took place between September 2020 – June 2021.

The authors wish to thank Harald Throne-Holst at SIFO for the internal quality control of the final report and the research group Sustainability and Technology at SIFO for their valuable comments to the introductory chapter.

Oslo, August 2021

[1] Website: www.lasting.world

Summary

Increasing the lifespans of the products we buy will reduce the environmental impact of consumption. One way of increasing product lifetime is to adopt regulations and other policy instruments that can prevent planned or early obsolescence, another is to encourage the design, production, and consumption of longer lasting products through regulations.

In this report, we analyse whether and how product lifetime has been discussed in (i) European and (ii) Norwegian policies over the past twenty years by means of policy document analysis. In addition to these two policy levels, we have analysed (iii) consumer-oriented and (iv) product-oriented policies in Norway and the EU. Four empirical chapters present our findings:

At the European level, we have analysed how product lifetime is conceptualised in EU's circular economy action plans and programmes within the timeframe 2011-2020. Ten years ago, the EU framed its environmental policies in terms of resource efficiency and waste management. In 2014, circular economy concepts started to gain foothold, and today they dominate all policies. While product lifetime was little discussed in the first half of the decade, attention has increased over the past five years. Although this increase is positive, there is still a lack of concrete policy instruments that go beyond recycling and waste management.

At the national level, we have analysed how product lifetime is conceptualised in Norwegian environmental policies as they appear in a selected number of pre-election programs from a set of political parties, and their development between 2001-2021. In addition, we review how product lifetime has been communicated to the public from the two largest Norwegian environmental NGOs. The main finding is that product lifetime suddenly seemed to pop up in 2017 for three of the parties, and that something similar happened to the NGOs in 2016-2017. Most suggestions from the parties concerned extension of warranty (regulation), or mandatory durability labelling, while some endorsed reduced VAT on repair (market instrument). The NGOs spread their initiatives wider, and their communication was more directed at consumers.

Within the consumption policy area, we have analysed how product lifetime is conceptualised in policy work by consumer organisations and governmental institutions, within the timeframe 2012-2020. The products consumed by citizens have for decades been important for consumer organisations working to strengthen and improve the rights of citizens as consumers. Hence, the quality and function of products is at the core of consumer organisations. It is only in the past 10 years that consumer policies regarding product quality have been coined in relation to environmental policies as part of sustainable consumption. In terms of product lifetime, the discrepancies between consumer and environmental policies represent a challenge to achieve longer lasting products, as it could in the short-term affect consumers negatively with e.g., higher prices for products. In the long term, however, it would probably be economically beneficial for consumers if high-quality products last longer and the need to replace products is significantly extended.

Within the product policy area, we have analysed how product lifetime is conceptualised in product specific environmental sustainability criteria for household appliances, furniture, and clothing and textiles. Further, it studies whether there are systematic differences between the regulations of three

product groups, furniture, appliances, and textiles, related to product lifespans. The results indicate that when implementing policies and proposals for a "green shift", the product durability aspects seem to lack detail. There seems to be a recent shift in policies where especially reparability of appliances has gained momentum. The review indicates that mandatory EU regulations at the product level have focused on energy-using appliances while criteria for other product groups such as furniture and textiles are still lacking. When lifespans are considered, there is more focus on technical/physical lifespans than factors that impact the emotional/social lifespans. Regulation should, however, attempt to include both aspects.

The report summarizes the findings in a conclusion in four ways. First, we draw a timeline for focus on product lifetime related policies over the past thirty years with a particular focus on the period 2000-2020. Second, we discuss the link between product lifetime and the concept of consumption. Third, we use a policy instrument matrix designed by Cooper (2010) to demonstrate what types of policy instruments designed to increase product lifetime. Fourth and finally, we discuss the difference between technical and social lifespans.

Sammendrag

Om vi klarer å øke levetiden for produktene vi kjøper og bruker, vil vi redusere miljøbelastningen av forbruket vårt. En måte å øke produktlevetid på er å vedta reguleringer og andre politiske virkemidler som kan hindre planlagt eller for tidlig foreldelse, i tillegg kan vi ta i bruk virkemidler som oppfordrer til design, produksjon og forbruk av produkter med lang levetid.

I denne rapporten studerer vi hvorvidt og hvordan produktlevetid har blitt diskutert i (i) europeisk og (ii) norsk politikk de siste tjue årene, basert på analyser av politiske dokumenter. I tillegg til disse to politiske nivåene, har vi studert (iii) forbrukerpolitikk og (iv) produktpolitikk i Norge og i EU. Fire empiriske kapitler redegjør for funnene:

På det europeiske nivået har vi studert hvordan produktlevetid har blitt konseptualisert i EUs handlingsplaner og programmer om sirkulærøkonomi mellom 2011-2020. For ti år siden dreide miljøpolitikken i EU seg mest om energieffektivitet og avfallshåndtering., men fra 2014 begynte begrepet sirkulærøkonomi å få fotfeste, og i dag dominerer dette begrepet all EUs politikk. Produktlevetid var lite i fokus i første halvdel av det siste tiåret, men fokuset har økt betraktelig de siste fem årene. Selv om denne økningen er positiv, mangler det fremdeles konkrete politiske tiltak som går utover resirkulering og avfallshåndtering.

På det nasjonale nivået har vi studert hvordan produktlevetid har blitt trukket inn i norsk miljøpolitikk slik temaet fremstår i et utvalg partiprogrammer fra de største partiene, og utviklingen av disse i perioden 2001-2021. I tillegg studerer vi hvordan produktlevetid har blitt kommunisert til offentligheten gjennom de to største miljøorganisasjonene i Norge. Vi finner at produktlevetid plutselig dukker opp i tre av partiprogrammene i 2017, og at det samme skjer hos miljøorganisasjonene i 2016-2017. Flesteparten av forslagene fra de politiske partiene dreide seg om å øke reklamasjonstiden og obligatorisk merking av produktlevetid, mens noen ønsket redusert moms på reparasjonstjenester. Miljøorganisasjonene hadde et noe bredere initiativ og prioriterte mer kommunikasjon direkte med forbrukerne.

Hvordan forbrukerpolitikken forholde seg til produktlevetid har blitt studert gjennom arbeidet forbrukerorganisasjoner og myndigheter har gjort i tidsrommet 2012-2020. Forbrukerorganisasjonene har alltid vært opptatt av å styrke forbrukernes rettigheter. Derfor har kvaliteten og funksjonen til produktene forbrukerne kjøper vært i kjernen av forbrukerorganisasjonenes virksomhet. Det er imidlertid bare de siste ti årene at forbrukerpolitikken faktisk har vært sett i sammenheng med miljøpolitikken, som et viktig aspekt ved bærekraftig forbruk. Når det gjelder produktlevetid representerer diskrepansen mellom forbrukerpolitikk og miljøpolitikk en utfordring mot å øke produkters levetid. På kort sikt kan økt produktlevetid føre til negative konsekvenser for forbrukerne, som økte priser. På lang sikt kan det imidlertid være økonomisk lønnsomt for forbrukerne dersom produkter av høy kvalitet varer lenge og behovet for å erstatte dem utsettes betydelig.

Hvordan levetid er konseptualisert i produktpolitikken har blitt studert gjennom produktspesifikke miljø- og bærekraftskriterier for forbrukerelektronikk, møbler, og klær og tekstiler. I tillegg har vi studert hvorvidt det finnes systematiske forskjeller mellom reguleringene for hver av de tre produktgruppene. Resultatene indikerer at når det iverksettes produktpolitikk for et grønt skifte, mangler det vesentlige

detaljer om produktlevetid. Imidlertid ser vi et skifte i produktpolitikken der spesielt reparasjon har fått betydelig mer oppmerksomhet. Obligatoriske EU-reguleringer på produktnivå har hittil fokusert på energibrukende produkter, mens kriterier for andre produktgrupper som møbler og tekstiler mangler fremdeles. Når levetid faktisk tas i betraktning er det mer fokus på den tekniske/fysiske levetiden til produktene enn emosjonelle/sosiale faktorer. Imidlertid bør begge aspektene tas hensyn til når produktenes brukstid estimeres.

Rapporten oppsummerer funnene i en konklusjon på fire måter. Først trekker vi en tidslinje for hvordan temaet produktlevetid i politikken har endret seg de siste tretti årene, med spesielt fokus på perioden 2000-2020. Dernest diskuterer vi forholdet mellom produktlevetid og forbruk. Den tredje oppsummeringen bruker en såkalt «policy matrix» fra Cooper (2010) til å demonstrere hva slags typer politiske tiltak som finnes for å øke produktlevetiden. Til slutt diskuterer vi forskjellen mellom teknisk og sosial levetid.

Contents

LASTING: Sustainable prosperity through product durability

This report is the first deliverable from WP1 in the Research Council of Norway (RCN) founded project LASTING, which aims to provide knowledge on how the lifetime of products can be increased. Increased product lifetime can be achieved through designing and producing products that are more durable than current ones, and we can extend a product's life through correct use, improved maintenance, and reuse. Increasing product lifetime holds a great potential for reducing total volumes and thus material extraction, pollution, energy use, overall production and consumption levels, and transportation (Cooper, 2010). However, for reducing the environmental impacts, the longer product lifespans must contribute to slowing down the replacement rate, and new products should only be acquired as replacement, not in addition to the old ones.

LASTING focuses on three groups of durable products in Norwegian households: (i) *clothing and textiles*, (ii) *furniture*, (iii) *household appliances*. These product groups all have high, and increasing, carbon footprint levels. We will implement solutions to extend the lifetime of products within these groups from three different perspectives, shown in figure 0.1. In this report, we focus on policy and regulations, which include environmental and consumer policies, and product regulations. In WP2, we focus on product design by establishing an overview of how different companies have implemented product lifetime in their designs, production, and consumer communication, as well as to study selected cases in-depth. In WP3, we focus on consumer practices by mapping practices that are significant to determine product lifetime and discuss these in focus groups with consumers.

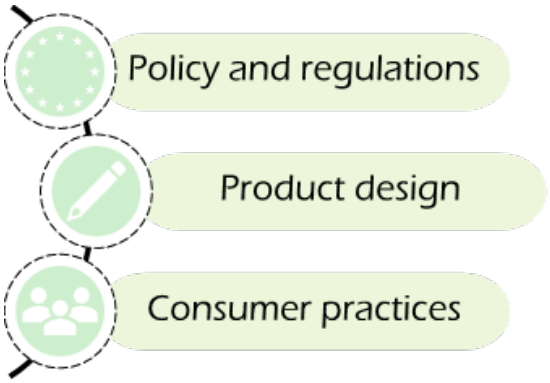

Figure 0.1. Three perspectives on product lifetime

In WP4, we study how product lifetime is understood in the global South and discuss how these insights might influence global North practices. In WP5, we quantify environmental impacts of the selected product groups. In WP6 we suggest and implement strategies that will contribute to increased product lifetime in practice.

LASTING will contribute to reinforce consumer rights and make clear-cut recommendations for new policies relating to product lifetime. We will enable consumers to make informed choices about the products they buy. Promoting requirements and certifications for the durability of a product, and sharing, repairing, and upgrading are effective tools to do so. We will strengthen business models for sustainability in Norwegian industries by working together with businesses on how they can reinforce product lifetime in their designs, production, and consumer communication.

In LASTING and in this report, we use different concepts to describe a product's life. In figure 0.2 below, we clarify the differences between three main concepts, "product lifetime" and "product lifespan", "longevity" and "longer lasting", and "durability".

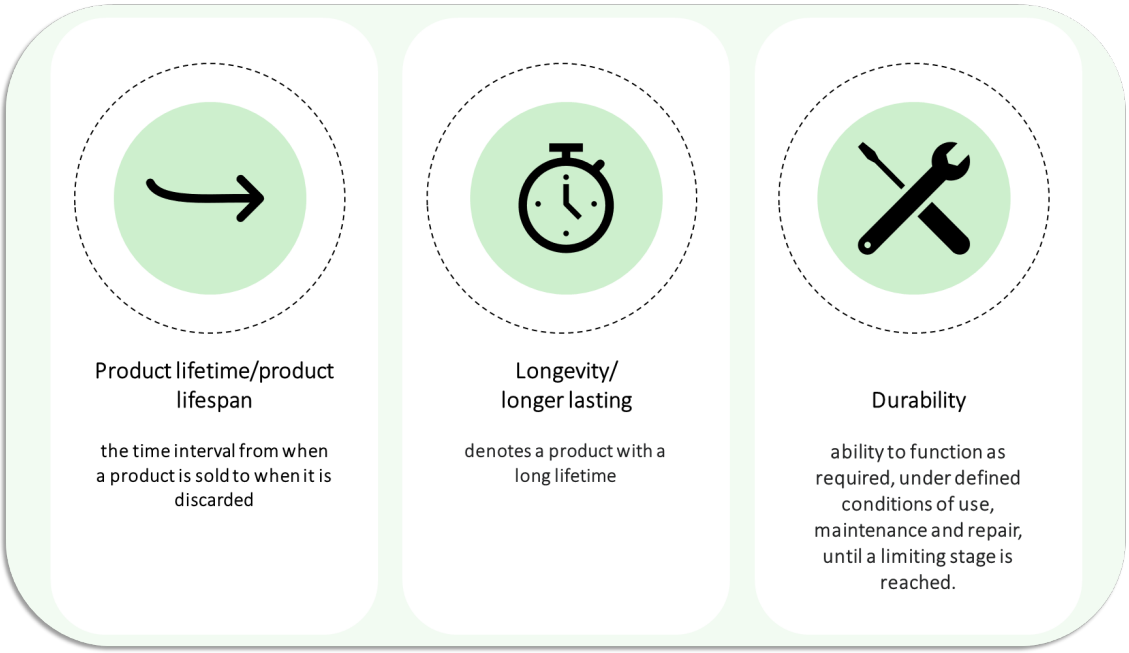

Figure 0.2. Key concepts

1. Introduction

Policies that address product lifetime are crucial if we are to reach the goal of more sustainable production and consumption patterns. Previous research has, however, observed a lack of focus on product lifetime and related commercial and ideal goals, policy instruments, and new innovative business models, when implementing policies for a "green shift" (Montalvo et al., 2016). Moreover, current Circular Economy policies have been massively criticized for focusing too much on waste management and too little on reducing consumption levels, even though reduction is very much at the core of circular economy ideas at a theoretical level (e.g. Geisendorf & Pietrulla, 2018; Gregson et al., 2015; Kirchherr et al., 2017; Stahel, 2013; Welch et al., 2016).

The main objective in WP1 is therefore to analyse how and why increased product lifetime tends to disappear from the environmental debate and stated policies, as well as contribute to the discourse in such a way that this can change. In the following report, we aim to answer the first part of the objective by analysing the status of product lifetime in selected policy documents from two *policy levels*: (i) the European Union (EU), (ii) Norwegian policy, and two *policy areas* (i) consumer policies, (ii) and product policies, illustrated in Figure 1.1.

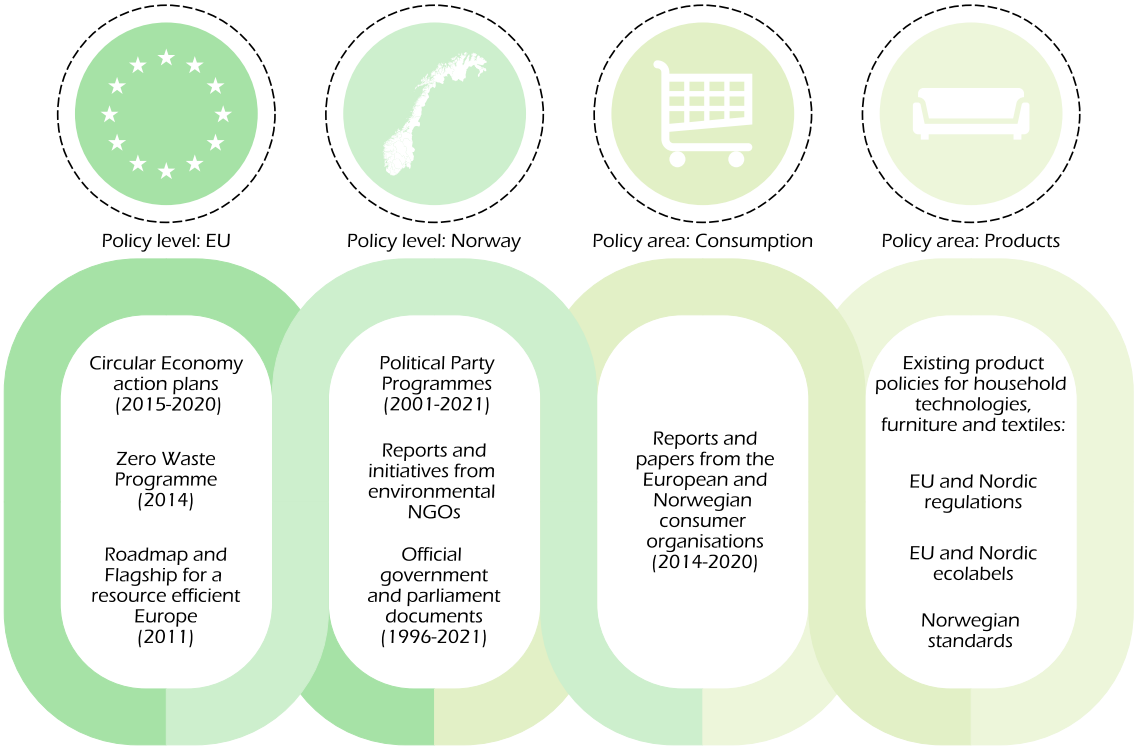

Figure 1.1: Policy levels and areas

The empirical chapters address each of the two policy levels and two policy areas. However, they are not mutually exclusive. Firstly, Norwegian policies are affected by what is adopted and not in the EU. Secondly, consumer level policies are often responses to EU and Norwegian policies, either as input to them or critiques of them. Both EU and Norwegian level consumer policies are covered in the consumer area chapter. Thirdly, product level policies are part of EU and Norwegian policies. The product area chapter presents a more detailed analysis of product regulations in the EU and Norway, and within

LASTING's three product categories: clothing and textiles, furniture, and household appliances. A concluding chapter aims to draw lines across policy levels and areas based on our main findings.

This introduction first accounts for how we conceptualise product lifetime, which is shaped by an understanding of consumption as part of everyday practices. Second, we present ecological modernisation, which is a theoretical framework that proposes to focus on the interconnectedness of the everyday practices with business models and overall societal structures to find solutions for a more sustainable production and consumption system. Third, we place product lifetime in relation to the circular economy, which is today's policy tool to make changes to the production and consumption of goods and services, and to the concept of sustainable consumption. After this conceptual and theoretical framing, we present our overall methodological approach and give a brief introduction to each empirical chapter.

1.1 Product lifetime

Consumption of products and services

Consumption is a major driving force behind economic as well as social development (Warde, 2014). However, consumption is not one unified term. It can be framed within different explanatory paradigms. This is important because how we understand consumption affects how we understand product lifetime and in particular the ways in which we can extend a product's life.

According to Warde (2014), the concept of consumption in the social sciences and humanities has developed through three distinct phases since the 1960s. In the first phase, consumption was explained in terms of production, which steered the driving forces of consumption. Based in Marxist thinking, culture (norms, values, taste etc.) was more or less determined by capitalist production forces. The consumer was understood as in economic theory, an actor in a market situation: the individual consumer purchases a product based on predefined intentions after a consideration of whether the product will meet the desired goal (Southerton, 2013).

In the 1970s, what is commonly referred to as 'the cultural turn' lead to an increased focus on the symbolic dimensions of consumption. Drawing on neo-Marxist thinking (such as the works by Adorno and Horkheimer), cultural studies engaged with the political aspects of contemporary culture (such as power relations, class formation, and ideology). In this second phase, consumption was understood as an act to construct and maintain self-identity, belonging to a culture (or sub-culture), enrich and maintain personal relationships, and constructing lifestyles. However, Warde argues that cultural studies' view of the consumer is little different from that of economics. It is still the individual who consumes as a result of an individual decision to do so.

A third phase of consumption research challenges the individual explanatory paradigm of the previous two. In economics, we have seen the development of behavioural economics, while sociological research has taken inspiration from neighbouring fields such as anthropology (e.g. Appadurai, 1988; Kopytoff, 1986) to better understand the materialities of consumption, as well as an orientation towards the habitual everyday life and the aspects of consumption that do not take place within the market (Gronow & Warde, 2001).

Our understanding of consumption can be placed in the third phase, and it is based on theories of social practice (Cetina et al., 2001). Within theories of social practice, consumption is understood as *the acquisition, use, and disposal of products and services through the practices everyday life is composed of*. In line with Warde (2005), we understand consumption not as something that is done in itself (an individual act) but as "a moment within almost every practice". We consume as part of performing a practice, for example doing laundry, which today often requires a washing machine, water, detergents, and clothes we consider dirty.

Shove et al. (2012) define a practice as consisting of three interconnected elements, shown in Figure 1.2. *Competences* are the resources we use to perform a practice. It includes formal knowledge such as written documents, education, manuals etc. and embodied knowledge, which is the how the body moves to perform a task, such as when measuring the correct amount of detergents. *Meanings* are the shared norms, values, beliefs of the culture and society in which a practice takes place, such as what clean clothes means for a specific occasion. *Materials* are all the stuff we use to perform a practice, such as the washing machine and tumble dryer, the water infrastructure, the clothes we wash, the laundry bin, the drying rack and so on. When we perform the practice of doing laundry, we combine our competences, meanings, and materials.

Figure 1.2: The elements of a practice (Shove et al., 2012)

A significant aspect of understanding consumption as part of our everyday practices is that much of it is done in a mundane manner, and a large share of consumption is regarded inconspicuous. Ordinary consumption is not oriented toward the individual and its motivations, desires, emotions or identity, rather it is motivated by convenience, comfort, habits, and the culturally and socially shared ways of consuming (Gronow & Warde, 2001; Shove, 2003).

Understanding consumption as part of social practices shapes how we think about why some products become obsolete and how we can produce, design, and use products that last longer. First, practice theory tells us that consumption should not merely be understood at an individual level. Although consumption clearly function as symbolic representations for individuals, such as belonging to a specific social group, the practice-orientation draws our attention to the overall increase in what is considered an acceptable living standard in today's world. Rather than focussing on conspicuous consumer goods and how they have become necessities in modern identity formations (luxury goods for example), it matters more that there is an increase in the price of and the extent of consumer goods that are considered to be basic and necessary to live a modern life. What we consider basic, or pragmatic, concerns (such as having a washing machine or a tumble dryer, or what is considered correct clothing in a specific occasion), is largely the motivation to consume. Second, practice theory tells us that

consumption is not done on its own but as means to perform a variety of practices in daily life. We must therefore study the whole practice (e.g. the competences, meanings, and materials of laundry) and interlinked practices (e.g. how laundry is connected to other practices through conventions of cleanliness, which is also found in personal hygiene practices, dishwashing, housekeeping etc. (Shove, 2003)) to explain why some products become obsolete. To extend a product's life, practice theory then tells us to look at how these practices are organised and carried out in society, and to look at how we can change for example what it means to be well-dressed at a party, or what clean clothes means. The practice approach offers to explain the growth and persistence of our "throwaway society" by the development of culturally and socially shared and accepted ways of performing our everyday lives. With this practice approach in mind, we take a closer look at different reasons for why products become obsolete.

Product obsolescence

In the highly influential book *The Waste Makers,* Packard (1960) problematises the rapid growth of (highly) disposable consumer goods within the American Post-World War II economy. In many respects, obsolescence is fundamental to capitalism and market driven economies. All products must become obsolete at some point to secure the continuation and expansion of consumption. As such, obsolescence is inherent in the commodification of modern capitalism both materially (through the production and consumption of products) and culturally (through cultural practices, norms, values, traditions, and knowledges) (Maycroft, 2009).

Packard outlines the ways in which consumer goods has been marketed in the U.S. to increase public consumption levels, as well as how some goods are produced to have a short life, so-called "planned obsolescence". A classic example of planned obsolescence was crafted by the Phoebus cartel, a supervisory body consisting of all the major lightbulb producers in the early 1900s. After a continuing sales drop, they agreed to design a lightbulb with a shorter lifetime (it dropped from approx. 2000-2500 hrs. to 1000 hrs.) (the full story of the lightbulb conspiracy can be found in Krajewski, 2014). Today, well-known examples include non-repairable consumer electronics, new models with minor changes, rapidly increasing fashion cycles, and irreplaceable batteries.

Packard identifies three forms of obsolescence, that can be planned or not. Strandbakken (2007) adds a fourth form, Obsolescence as a result of new consumer needs. The forms of obsolescence are shown in Figure 1.3:

Figure 1.3: Forms of obsolescence (Packard, 1960; Strandbakken, 2007)

Following this line of thought, how long we keep and use products is determined by both physical and social conditions. Cooper (2010) differentiates between absolute obsolescence (the physical life of a product, planned or not) and relative obsolescence (the social and cultural norms and practices for consumption).

The term “quality” exemplifies how the physical and social life of products are interlinked. Quality is a relative term that has a range of dimensions, such as performance, features, reliability, conformance, durability, serviceability, aesthetics and perceived quality (Garvin, 1988). These are often divided to two categories, objective and perceived quality. Objective quality dimensions are measurable and verifiable by predetermined standards, while perceived quality is subjective judgement that depends on individual context (Zeithaml, 1988). The quality can be evaluated through intrinsic cues such as material features, extrinsic ques such as brand and price, or by quality attributes such as use experience of the product (Steenkamp, 1990). A review of connections between various quality aspects and clothing use times showed that both the physically measurable as well as the subjectively perceived quality aspects are important and impact the use experience of products and therefore their lifespans (Aakko & Niinimäki, 2021).

Physical life denotes how long the product can be used before it is so worn that it is considered broken. It is also affected by how the product is maintained and used (Laitala & Klepp, 2020). How much wear and tear we will accept, depends on both practical considerations and how this is perceived. For example, a slightly worn garment may not be accepted as formal wear, while the same degree of wear is okay for leisure. A stained or worn sofa is likely to be more acceptable in the kids' room than the living room. Therefore, it is difficult to define physical service life without saying something about the cultural and social meanings that influence how much wear and tear is acceptable. Socially durable products are those that can be used over a long time and still be valued or accepted. How long this is, depends on many factors. For clothing, this phenomenon is often associated with fashion. However, many clothes become socially unacceptable for other reasons. These include clothes that no longer suit our age, body and taste or transitions in life such as pregnancy and work situations (Laitala & Klepp, 2020).

The differences between social and technical life are exemplified with the freezer in Figure 1.4. Compared to the scheme developed from Packard, we might say that obsolescence of quality, function and new consumer needs are covered by 'physical life', and obsolescence of desirability is covered by 'social life'.

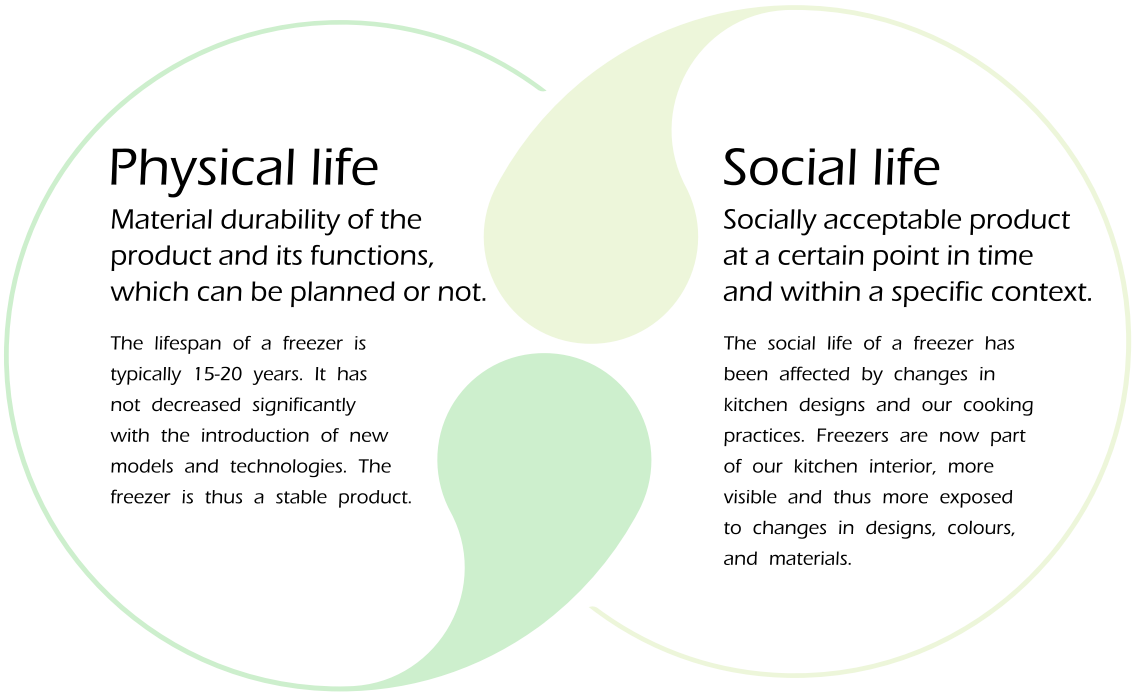

Figure 1.4: Physical and social life of the freezer

Chapman (2015) argues further that emotions play a significant role for a product's life, which is part of Packard's category "obsolescence of desirability". A lack of emotional attachment to products is a reason why they are thrown away. By creating what Chapman (2015, p.21) refers to as a "deeper, more sustainable bond between people and their material things", consumers might be less likely to desire new things. Richins (2008) points out that both positive and negative emotions are linked to consumption. A desirable product might be associated with hope and yearning that the product will fulfil an important goal in the individual's life, to look good at a party, or to have a specific styled living room for when hosting dinner. If the product "feels right", in the sense that it provides hope, boosts self-confidence and the like, it might have a longer life. Strong negative associations, such as anxiety in

pre-purchase situations and dissatisfaction if the product has failed to meet the consumer's expectation, might cause a product to last shorter. Richins also argues that the associated emotions shift during a product's life. For clothes, for example, fast-changing fashion might create negative associations to a garment that the consumer initially felt positively about.

While there is a substantial amount of research on why some products become obsolete and on planned obsolescence, we know much less about the factors that contribute to increasing product lifetime. According to Bakker et al. (2020), there is insufficient empirical evidence to support conceptual ideas and framings of how product lifetime can be increased.

Measuring lifespans

One of the problems when working with increasing product lifespans is that there is lack of common concepts and methodologies for measuring lifespans (Klepp et al., 2020; Murakami et al., 2010). They vary greatly between different product groups where some are more established than others. For some products such as fridges, describing the length of the use phase is simple, as they are usually in constant active use throughout the use phase, and when no longer functional, they can be replaced by a new one. However, for many other types of products, more detail is needed on the timespan products are in function and therefore supplemented with other measurement units, such as kilometres driven for vehicles. The lifespan of lightbulbs and other electrical products are measured in how many hours of use they offer. More emphasis is placed on duration in operation, than duration in stand-by (Masahiro Oguchi et al., 2010). This gets even more complicated for products like clothing where the use phase includes active and passive periods, and acquirement of new clothing does not necessarily replace an existing product but may expand the wardrobe of the owner (Maldini & Stappers, 2019). The concept of duration in use is therefore complicated. Klepp et al (2020) argue that clothing lifespans can be measured in years, number of wears, number of cleaning cycles and number of users, and that the suitable measuring unit is dependent on type of clothing and how it is used.

Lifespans are related to the functional units (FUs) that are used as measuring units in Life Cycle Assessments (LCAs), defined by the "'service delivered', a quantified performance achieved within a given period of time" (ISO 14040, 2006). For example, the functional unit for assessment of paint could be the coverage of a certain area over a certain time (m^2·year), rather than just litres of paint. It links the emissions or resource to function, and makes it possible to compare products (Rønning et al., 2011). A review by Arzoumanidis et al. (2020) showed that functional units are discussed and defined in different ways even within same sector, for example for the manufacturing of food products, the FU could be identified in terms of mass, product unit, energy, area, volume, nutritional or economic value.

In addition to measuring units, there are challenges related to how to measure lifespans and the service delivered. For some products, information about the lifespans can be found in official records, such as for vehicles where the driven kilometres are noted when the cars are going through the yearly controls[2], services and repairs are recorded in service logs, and the lifespan in years can be seen from manufacture date as well as the records for when the car has been wrecked. However, such systems are not in place for many other products such as clothing, where research on lifespans have generally been dependent

[2] Se the webpage of Vegvesen for more information

on information from consumers (Klepp et al., 2020). Methods such as wardrobe studies, surveys, logbooks etc have been used, but in addition, another way of looking into this is trying to measure the potential physical lifespans through durability tests of materials (Benkirane et al., 2019). This places the focus solely on physical lifespans and does not consider the social aspects that are very relevant for the use of many products. So far, these kinds of durability results have not been connected to length of use phase. It is likely that the availability of methods and difficulties in measuring lifespans of some product groups also impacts the way policies are formed.

1.2 Ecological modernisation

So far, we have framed the concept of product lifetime or durability, and the forms of obsolescence, within a social practice perspective on consumption and production. In the following chapter, we move on to talk about how product lifespans might be extended. We do so by drawing on the theoretical framework of ecological modernisation.

It is easy to say; *consume less*, when asked how we should reduce the environmental impact of consumption. However, we must lower consumption levels in a way that acknowledges that we live in a modern and developed world with specific economic, social, and political conditions. Such a prerequisite laid behind the Brundtland Commission's (1987) report *Our Common Future* and the concept of sustainable development. Theoretically, it is often referred to as "Ecological Modernisation" (Jänicke, 2008; Mol & Spaargaren, 2000). Within this paradigm, the sustainable production and consumption agenda must be followed through measures that are profitable (and therefore attractive) for businesses, and those which are based on the relations between consumers, industries, and governments, seeking consensus and gradual improvements. According to Strandbakken (2007), ecological modernisation is a shift from the 1970s environmentalism, which was based on the idea that consumption levels could only be reduced by returning to pre-modern production and consumption patterns or at least committed to the idea of zero growth. Instead, ecological modernisation follows five main arguments:

1. Environmental issues can be managed within the current socio-political conditions, there is no need for a revolution.
2. Environmental adaptions to production and consumption patterns can be financially beneficial.
3. There is a need to redefine the relationship between the state, citizens, and industries.
4. New technologies should be more actively used to make adaptions to production and consumption patterns.
5. The most significant environmental problems transcend nation state boarders.

Ecological modernisation approaches have, however, met substantial critiques. Recently, alternative markets and cooperatives have been given significant attention, in particular those that are run at digital platforms (e.g., sharing of food and clothes, direct sales from producers to consumers). This might mean that the ideas of environmentalism can be fruitful also today. Ecological modernisation approaches have often been unsuccessful in cases where the demand for economic growth has outweighed efficiency improvements. There is a need to realize that even though modern society holds the ability to improve efficiency, the total amount of activities increase. Moreover, sustainable business models are not always financially profitable. Over the past decade, we have also seen an increase in so-called greenwashing, where industries falsely label their product or service sustainable in order to meet the public demand

for sustainable products (de Freitas Netto et al., 2020; Delmas & Burbano, 2011). Finally, while ecological modernisation emphasizes the relationship between citizen, state, and industry, little is said about the consumer role. Thus, there is a need to expand its ideas from the production realm and onto consumption (Strandbakken, 2007).

Spaargaren (2000) meets the latter critique with a consumer-led perspective on ecological modernisation, shown in Figure 1.5. Here, consumption, which is understood as part of social practices, is connected to industry (new business models) and societal structures.

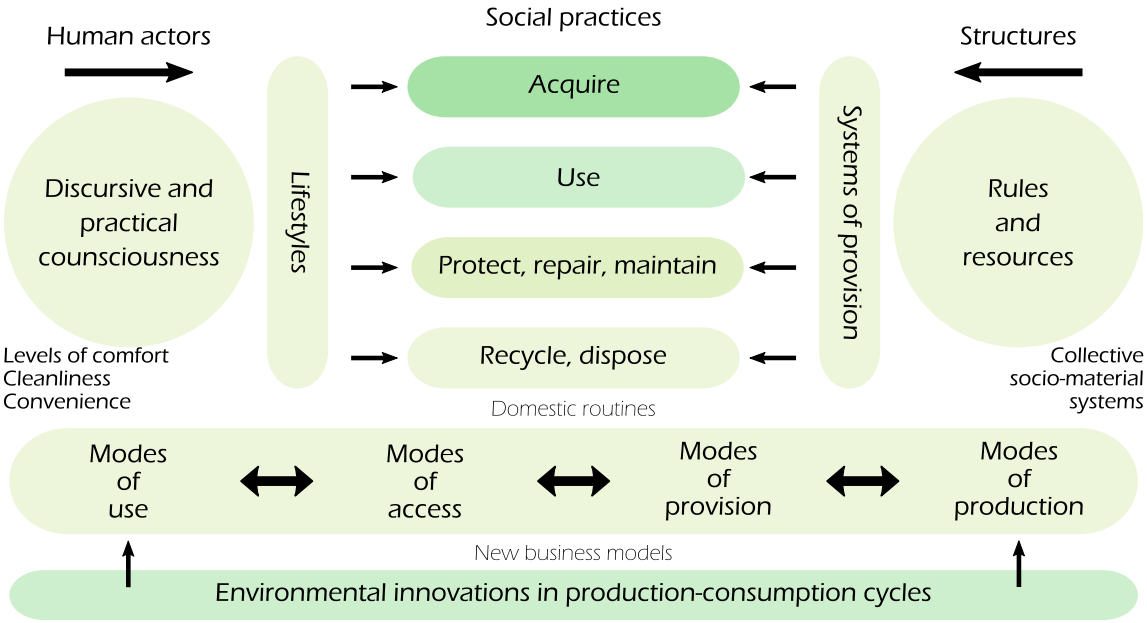

Figure 1.5: Conceptual model for analysing the ecological modernisation of domestic consumption (based on (Spaargaren, 2000).

Although the model is rather complex, it illustrates the continuous interplay between societal macro structures and micro interactions, and most importantly everything that goes on in between.

The bottom line of the figure shows environmental innovations (such as innovative business models for repairing products) that are designed to increase the level of sustainable consumption. The line above shows that these innovations are always embedded in specific socio-technical networks, shown here as different modes. These networks consist of specific groups and cycles of producers, retailers, consumers etc. (such as the fashion industry or energy sector). In the top half, the model accounts for how people adopt and use (or not) these new innovations. The general principle shown here is that the lifestyle of an individual is defined as an integrated set of practices that the individual partakes in and that are shaped by collective socio-material systems. This is important because it means that the analytical starting point is the practice and not the individual or the social structure (Spaargaren, 2000, pp. 328-329).

In sum, consumption-oriented ecological modernisation shows the interlinkages between actors in the production-consumption system. To increase product lifetime, we must account for the inherent logics of each of these actors as well as how they affect each other. There is a much greater potential for reducing environmental impacts from consumption if we consider these current sociocultural dynamics

and their trajectories (Southerton and Welch, 2018). The point about employing new technologies might have been seen as a tendency to endorse a kind of general techno optimism, but this is not a necessary bias of ecological modernisation as such.

When we address politics for the extension of product lifespans in an ecological modernisation perspective, it means that we try to conceptualise it in a modern, high consuming, high tech economy. This has little to do with the more romantic DIY environmentalism; we consider professional product development, new business models and professional repair services.

1.3 Political paradigm: The circular economy

The circular economy is the current political paradigm in Europe, geared to meet the challenge of transitioning to more sustainable consumption and production patterns with the use of new and innovative business models.

Economic growth, whilst raising incomes, has led to an increase in use of materials and energy, and related pollution and waste. The proposed focus of the circular economy has been to break this link, and longer lasting products is one of the promising solutions. In an assessment commissioned by the European Parliament, Montalvo et al. (2016) estimated that longer lasting products could increase economic activities related to extended use through maintenance, repair, and rental services by 7.9 billion Euros per year to Europe's economy. Studies that quantify environmental impacts of extended product lifespans show that, based on lifetime optimisation modelling, extending product lifetime is desirable in all instances, except for some energy consuming products where there is a significantly more efficient new product available (Downes et al., 2011). The basic argument of the circular economy is to move away from a linear model of production, consumption, and disposal, to a circular model generating resources from waste, shown in Figure 1.6.

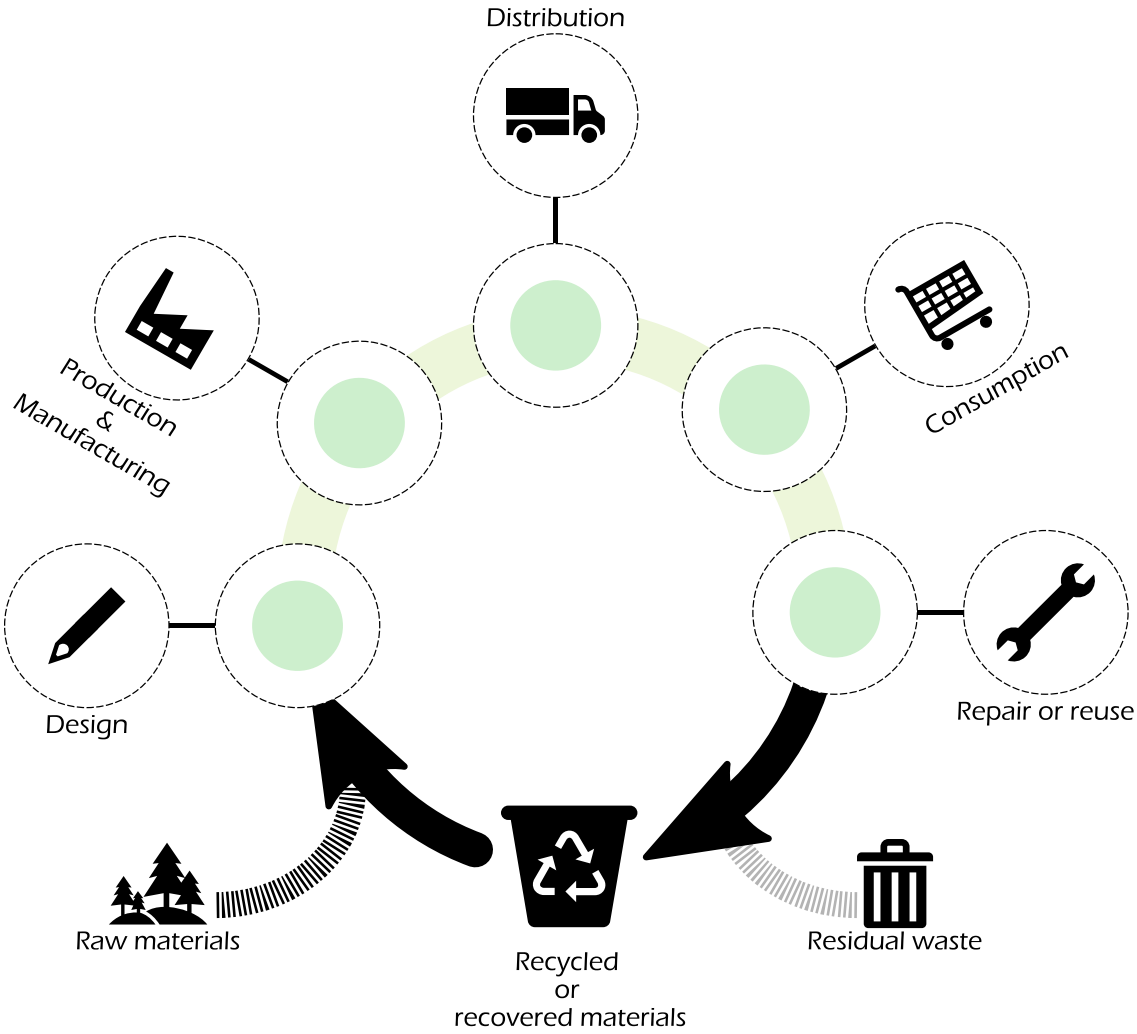

Figure 1.6. The circular economy

This represents an alternative economic model that ensures economic growth not by using raw materials but by using them again and again. Although there is no agreed upon definition of the circular economy, the most widely used comes from the Ellen MacArthur Foundation (2015, p. 2), as follows:

> The Circular Economy is one that is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times, distinguishing between technical and biological cycles.

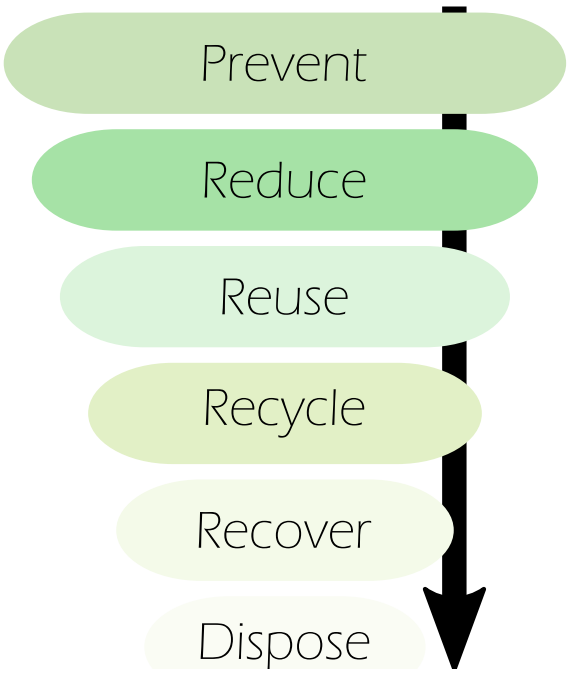

Figure 1.7. The waste management hierarchy

The core principles of the circular economy include concepts such as reduce, reuse, and recycle (known as the 3R framework), as well as redesign, remanufacture and recover. At a theoretical level, the circular economy moves up the waste management hierarchy, shown in Figure 1.7, by focussing on *preventing* waste, not merely using waste to generate resources.

Although the circular economy has gained momentum in academia, among practitioners, and in policy, it does not mean the same thing to all. Kirchherr et al. (2017) find 114 different definitions of circular economy. It might seem as though the concept encounters the same problem as "sustainability", it becomes a word that can mean almost anything (Geissdoerfer et al., 2017; Tierney, 2015).

In academia, the circular economy has a long history within the field of industrial ecology and ecological and environmental economics (Lieder & Rashid, 2016). It goes back to the 1960s discussions of Rachel Carson's *Silent Spring* (Carson, 2002[1962]) and also to the metaphor of "Spaceship Earth" by Ken Boulding (1966). Boulding argued that the economy of the future was a closed economy, comparing earth to a single spaceship with limited resources that had to be reused. A review of research literature on the circular economy by Reike et al. (2018) shows that the concept has regained attention in academia over the past decade. They find a 50 per cent increase in academic publications over the past five years. Geissdoerfer et al. (2017) similarly find that the number of scientific articles on the circular economy has increased from 30 per year in 2014 to more than 100 per year in 2016.

It is unclear to what degree product lifetime has been considered in these publications, but we do know that the establishment of the PLATE conference on product lifetime in 2015[3] and its continuation indicate a strengthened focus on this topic in academic research. Circular economy ideas were linked to the concept of product lifetime in the 1970s and 80s through the work by Robert Lund (e.g. Lund, 1977) and Walter Stahel (including Stahel, 1986, 1994, 1998; Stahel, 2010, 2013, 2016, 2019; Stahel & Reday-Mulvey, 1981; Stahel & Reday, 1976). Stahel presented the concept in the research report "The Potential for Substituting Manpower for Energy" to the European Commission in 1976. Their basic idea was shifting design, production, and consumption processes from a linear cradle-to-grave and towards a cradle-to-cradle principle where extended product life is considered in all phases.

In policy, the circular economy concept has been central in political debates in China and the EU (Pesce et al., 2020). The circular economy concept was politicised in China in the 1990s, responding to an extremely fast-growing economy and use of material resources (Winans et al., 2017). In 2008, China adopted legislative measures through the Promotion Law of the People's Republic of China, which was

[3] See the webpage of the PLATE conference

amended in 2018 (Pesce et al., 2020). At a global level, the circular economy was actualized in the United Nations Sustainable Development Goals (SDGs), in particular SDG 12 on sustainable consumption and production that explicitly addresses waste reduction through prevention, reduction, reuse, and recycling (see target 12.5).

In recent years, the circular economy has been given attention also in EU policy. The EU has since 2014 directly framed its overall policies on sustainability and climate change within the circular economy concept. Even without a formal definition, the EU bases the transition from a linear to a circular economy on changes in (i) materials and product design; (ii) new business models; (iii) global reverse networks; and (iv) enabling conditions such as policies and infrastructure (E. Maitre-Ekern & C. Dalhammar, 2019, p. 395). A first step was taken in 2008 with the Waste Directive (The European Parliament & Council of the European Union, 2008) based on the core circular concepts reduce, reuse, recycle and recover, before adopting the first circular economy action plan in 2015 and a new action plan in 2020. In Norway, the government launched a national strategy for a circular economy in June 2021, largely based on the EU action plan. [4]

The EU's use of circular economy concepts has been widely criticised from scholars across disciplines. Despite principal support of circular economy concepts, uptake in the EU is significantly lagging (Fitch-Roy et al., 2020; Hartley et al., 2020). According to Stahel (2013), the insights from product lifetime research have only now slowly started to transcend into policy-making and has continued to gain political foothold during the past ten years. Yet, policymakers still tend to focus on singular issues and less on holistic solutions across sectors, and they are, as Stahel (2013) phrases it; "geared to overcome economic problems by promoting growth in the industrial production economy" (p.1). According to Gregson et al. (2015, p. 220), the EU *economize* the concept: "the key move is to view nature not as an uncosted externality but as a set of stocks, potential resources, flows and services that can be measured an assigned a value".

Moreover, the EU is criticized for promoting and using certain aspects of circularity, such as material recycling and material flows, and ignore or underplay others (Hauschild et al., 2017; Saavedra et al., 2018; Winans et al., 2017). Domenech and Bahn-Walkowiak (2019, p. 28) argue that "policy binding objectives still largely concentrate on the output side of resource flows (i.e. emissions, waste) while the input side is either completely overlooked or addressed through aspirational, non-mandatory targets, scattered across policy documents". Kirchherr et al. (2017) further show that the systemic shift from linearity to circularity is often neglected in circular economy definitions, meaning that activities such as recycling, and reusing are in fact performed within the linear economy.

A further critique addresses the difference between idealised visions of the circular economy and the political reality in the EU, which to a large extent is "post-consumer waste management" (Gregson et al., 2015). Marrucci et al. (2019), for example, find that only five of 35 reviewed articles on sustainable consumption and production tools to implement the circular economy, concern "durability". The study also makes the point that words like repairability, remanufacturing, recyclability are predominantly related to the topic of material flow analysis. This is confirmed by McDowall et al. (2017), who argue that compared to China, the EU has a much more narrow focus on waste and resources in their

[4] The national strategy can be downloaded here: Nasjonal strategi for ein grøn, sirkulær økonomi (regjeringen.no)

interpretation of the circular economy. According to Kovacic et al. (2019), the "more than waste" idea of the circular economy is still very much underemphasised. The point is also made by Welch et al. (2016) that explore how consumption is conceptualised in the circular economy concept. They find that common definitions of circular economy tend to eliminate the domain of everyday life and consumption, even though the use phase of consumption is at the core of the circular economy concept. Consumption is present in the EU policies, and the role of consumers is argued to be important, however, few concrete measures that can enhance repairability, durability, and usability of products are made explicit.

In their conceptual critique of the circular economy concept, Gregson et al. (2015) demonstrate how the outline of circular economy in the EU is framed by particular moral economies and are based in the discourses of ecological modernisation. They conclude with the following:

> The concept is an endlessly recited ideal. Yet, to effect a circular economy driven by producers through either industrial symbiosis or cradle-to-cradle manufacturing would require radical transformations to the economic order, including fundamental recasting of manufacture, retail, consumption and property rights. Beyond the ideal, in the messy world of how circularity is being enacted in actual economies, post-consumer wastes have become the basis for circular economies (p.234-235).

The discrepancy between ideal and political reality is noted also in the recent anthology *The Circular Economy in the European Union. An interim Review* (Eisenriegler, 2020), which takes stock of the developments since the 2015 action plan on circular economy in the EU. Here, Cooper (2020) makes the point that closing the loop is not enough to fulfil the goals of the CE. He claims that the use of the words "closing the loop" has reinforced the EU's almost one-sided focus on waste management. Other loops, such as prolonging, reusing, redistributing, sharing, refurbishing, remanufacturing etc., which he re-frames as strategies not closing the loop but "slowing the flow", are underemphasised.

Although very briefly presented here, the main point is that the "circular economy" is not a unified concept to be taken for granted. Rather, it is adapted to the context in which it is used and mixed together with interlinked concepts (Geisendorf & Pietrulla, 2018). Figure 1.8 summarizes the main implementation challenges of circular economy ideas in the EU.

Figure 1.8. Challenges in the EU's implementation of the circular economy

Sustainable consumption and the circular economy

A significant component of the circular economy is to steer consumption patterns in a more sustainable direction. Non-sustainable production and consumption patterns have been on the environmental policy agenda for the past thirty years. The UN Guidelines for Consumer Protection from 1999, gave governments a comprehensive framework for policy settings for more sustainable consumption and production (Sonnemann et al., 2006). Sustainable consumption was also a top priority on the agenda for the World Summit on Sustainable Development in Johannesburg in 2002, resulting in a ten-year framework towards more sustainable consumption and production (Sonnemann et al., 2006). Sustainable consumption policies have a long history and have increasingly included the role of consumers and how they should contribute to pursuit sustainability goals (Mak & Terryn, 2020).

Sustainable consumption and durability are explicitly mentioned in EU policies in the EU Resource Efficiency Transition Platform (EREP), which objective is to provide high-level guidance on the transition process towards a more resource-efficient economy. The platform has done important work since its first meeting in 2012. Their Manifesto from 2014 gives an overview of a timeline for how the EREP platform worked with sustainable consumption, where durable products are mentioned already in their meeting from 2012. At this point, no consumer organisations had yet addressed product lifespan explicitly in their policy work. In 2012, EREP stresses the need to create better market conditions for products and services, such as durable, repairable and recyclable products and also to take the worst performing products off the market (EREP, 2014). In 2013, the platform continues to address durability by stressing that the EU should adopt a more coherent product policy, which cover warranties, durability, and upgradability. In its manifesto from 2014, EREP emphasises the need to develop product standards for the circular economy, which "include facilitating dismantling, refurbishment and repair, the efficient use of raw materials, renewable resources or recycled materials in products and extension of warranties for selected product groups." (EREP, 2014b, p. 10). It is likely that this work had an impact on how product lifetimes was to be included in the coming policy work termed under the EU circular economy strategy from 2015.

The political guideline of modern environmental policy is regulated by sustainability, while the traditional environmental policy was dominated by control of risks and damages (Beck, 1992). The modern way of environmental policy is not so much about government regulation and control, but about self-regulation and self-organisation (Beck et al., 1994; Mak & Terryn, 2020), which is where the consumer comes into play. A number of studies have looked at the role of consumers in product-oriented environmental policy (See for example Kasa, 2016; Eléonore Maitre-Ekern & Carl Dalhammar, 2019; Niva & Timonen, 2001), and particularly with regards to the legal perspective of consumer protection (Keirsbilck & Terryn, 2019). At the beginning of the decade, more emphasis was put on consumption in environmental policy. In the coming years, it was increasingly reflected in such policy that consumers are expected to be able and willing to consume more environmental-friendly (Niva & Timonen, 2001). Within this view, consumers can have a central role by changing their consumption patterns, making consumers more responsible for change. Consumers are therefore given much responsibility in current environmental policy, but measures that enable and facilitate for changes in consumption patterns, have been absent (Welch & Southerton, 2019). In addition, the role of consumers is also changing accordingly as new consumption models are formed (Eléonore Maitre-Ekern & Carl Dalhammar, 2019). EU and national policy have not taken approaches that force the consumer

into more sustainable lifestyles by reducing or changing consumption practices (Mak & Terryn, 2020), and recent product policies have shown how responsibility is also put on product manufacturers through measures such as the Right to Repair and Extended Producer Responsibility. The environmental debate has also included focus on products, as 'carriers' of pollution, energy and materials, also called integrated product policy (IPP).

1.4 Methodology: Document analysis

We use documents to study the status of product lifetime in European and Norwegian policies. In line with Atkinson and Coffey (2004), we understand documents as 'social facts', meaning that they are produced, shared, used, changed etc. within a social context. Documents are never neutral representations, they are always constructed within a certain set of conventions, norms, or within a specific paradigm (Atkinson & Coffey, 2004). Analysing documents is therefore not limited just to the document itself but also an understanding of the context in which these documents exist, their purpose(s), who they are written by and for (addressant and addressee of a document (Thwaites et al., 2002)), and how they relate to other documents and to the social and cultural practices they are part of.

There are several advantages of using document analysis. Documents comprise a data material that has been produced without the researcher's involvement and documents are non-reactive. Hence, document analysis requires data *selection* instead of data *collection,* which can be a time and financially efficient method compared to other qualitative approaches. The data already exists and is in many cases freely available online or in public archives, and it can be used without ethical approval.

Document analysis also holds several limitations. Documents might not provide enough detail alone and it is often argued that document analysis should be used together with other methods (Cardno, 2018). In some cases, relevant documents might not be publicly available, or researchers are not allowed access. Moreover, the researcher might only be allowed access to documents that are favourable to the entity of study. Another form of so-called 'biased-selectivity' is that of the selection process, as noted above, if researchers are "cherry-picking" documents in favour of their a priori argument (Yin, 1994). Therefore, it is crucial that the data selection procedures are explicitly described to validate the data material (Bowen, 2009, pp. 31-32). This is done in each of the empirical chapters.

In LASTING, document analysis provides a first step towards understanding the position of product lifetime in society. In the following WPs, our results will feed into analyses of how product lifetime is treated in industry business models (WP2) and how consumers engage with product lifetime in their daily life (WP3). In this triangulation, the documents and our analysis of them should not be used to validate or contradict empirical findings from other methods (Denzin, 2012). Instead, they offer a platform for discussing product lifetime policies and particularly how they are performed (or not) in organisational and everyday practices.

Policy documents

Policy documents is one document genre, which is defined by distinctive norms and conventions, including language and writing style, type of information, type of argument, design (length, use of

figures and tables etc.) and so on (Cardno, 2018). Taylor et al. (1997) propose to study policies from three aspects:

- *policy context:* historical, social, cultural contexts of the policy. What sort of societal conditions is the policy produced within and what issues gave rise to the policy?
- *policy text:* the document itself that can be analysed according to different theoretical and methodological frameworks.
- *policy consequences*: the implementation of the policy and how it is used.

Policy texts represent the outcome of political struggles over meaning in order to secure the maintenance of political consent (Taylor, 1997).

We have not followed one analytical framework for the policy document analysis. Rather, it has been a mix of content and thematic analyses, both based within the idea of language as something that represents societal *discourses*. The discourse orientation is common in policy analyses, most often drawing on ideas from Foucault or neo-marxist theories (Taylor, 1997). We apply a pragmatic discourse concept, widely defined as specific ways of talking about something (Jørgensen & Phillips, 1999). Following Foucault, a discourse is "a group of statements which provide a language for talking about – a way of representing the knowledge about – a particular topic at a particular historical moment (…) Discourse is about the production of knowledge through language" (Foucault cited in Hall, 2004). Discourses define and construct our knowledge about a topic and thus govern the way we think about the topic and the practices related to that topic.

Discourse analysis is concerned with the power and control over discourses because it affects the way we see and act in the world. We can for example talk about the circular economy as one discourse, which consists of many documents, images, speech acts, objects, systems, infrastructures, languages, and practices, that together shape and develop how we understand the world and perhaps particularly the climate crisis. The most important point we take from the discourse orientation is that knowledge is always constructed, given meaning, and governed through discourses, and that we give meaning to the world through discourses.

We have conducted a *content analysis*, which means that we have categorised documents and parts of documents according to our initial research ambition to better understand whether and how product lifetime has been included and positioned in policy over the past twenty years. This includes selecting certain documents to analyse based on whether they mention product lifetime or related concepts or not, whether they represent official policy or serve as background documents etc. The initial content analysis has identified the relevant documents for our analysis. Within each document, we have identified product lifetime terminology and comprised the text that regards such concepts. In the simplest form, we have searched for product lifetime and related words and phrases to count how frequently they appear in the document, as well as where they appear (and not). Subsequently, we have identified statements regarding product lifetime and what these statements actually say (Kohlbacher, 2006). The *thematic analysis* springs from the content analysis and involves the identification of recurring topics and patterns in the documents (Fereday & Muir-Cochrane, 2006).

For the concluding sub-chapters, we use a model or a matrix lifted from Tim Cooper's chapter *Policies for Longevity* in *Longer Lasting Products* (Cooper, 2010a, p. 227), where he presents a list of policies to

increase product life spans including regulatory instruments, market-based instruments and voluntary instruments, available to manufacturers, retailers, after-sales service providers and users, presented in the following table:

Table 1.1: A model for categorising policy instruments to increase product lifetime

	Regulatory instruments	Market-based instruments	Voluntary instruments
Manufacturers			
Retailers			
After-sales service providers			
Users			

We chose to employ a very wide definition of policy instruments, where even information campaigns from environmental NGOs encouraging consumers to repair bicycles and household appliances are regarded as 'instruments'. The list is supposed to be exhaustive, but policy instruments that governments or municipalities direct at themselves, such as deciding to buy only durable products for their activities "Durable Public Procurement", seems to be missing. Such measures will be directed at the market, supporting a desired set of products.

The main use of Cooper's scheme is to get an overall picture of main tendencies; what types of instruments and what types of recipients tend to dominate and what spots tend to be blank? We employ the matrix for each empirical chapter to summarize and discuss the material.

Data material

The report consists of four empirical chapters that analyses policy documents at the European, and Norwegian policy levels, and consumer and product areas. Each chapter accounts for their data selection (material), analytical procedure, and methodological limitations.

In addition to the documents, we have conducted expert/informant interviews with representatives from the waste industry, the Norwegian Consumer Council, two environmental organisations, and a consumer organisation. The interviews were informal and was used as background information for our analysis. The informants' expertise knowledge was used to test, discuss, and validate our initial findings from the document analysis.

In the following, we give a brief overview of the empirical chapters.

1.5 Overview of chapters

Chapter 2 analyses how product lifetime is conceptualised in the EU's circular economy action plans and programmes within the timeframe 2011-2020. The selected documents include the environmental strategies of the EU under the Europe 2020 strategy (2011), the Zero Waste Programme (2014), and the two circular economy actions plans (2015 and 2020). Ten years ago, the EU framed its environmental policies in terms of resource efficiency and waste management. In 2014, circular economy concepts started to gain foothold in the EU, and today they dominate all policies. While product lifetime was little discussed in the first half of the decade, attention has increased over the past five years. Product lifetime is linked to the 3R's of reduce, reuse, and recycle and most often to the design and consumption phases of the circular economy. Although this increase is positive, there is still a lack of concrete policy instruments that go beyond recycling and waste management. Much depends on the expansion of the Ecodesign Directive to cover all product categories. EU's work on policy instruments for increased product lifetime depends on how they understand the consumer role. Our analysis demonstrates that the EU conceptualise consumers as market actors that acquire products and services, and that their market choices can be changed by providing them with more, and more detailed, information about the products they buy. Moreover, Consumers are expected to take on a plurality of (conflicting) roles to partake in the transition to a circular economy, including being purchasers and sellers, repairers, sharers, collaborators, and sorters.

Chapter 3 analyses the presence of product lifetime themes in Norwegian environmental politics, as they appear in a selected number of pre-election programs from a set of political parties, and their development – if any – between 2001-2021. In addition, it reviews how product lifetime has been communicated to the public from the two largest Norwegian environmental NGOs. For the party program study, we picked out the two parties that, at opposing sides of the left-right divide, have been central in all Norwegian governments in this century. These two, plus the two parties, left and right respectively, that were most 'eco-profiled', until the green party appeared. For these four parties, we analysed all their pre- election programs after the year 2000; 20 in all (5 x 4). In addition, we reviewed the most recent (2017) programs of the green party and a right wing, partly liberalistic party, that until recently was part of the conservative government. Further, we analysed the environmental politics of the two largest and most important environmental NGOs. The main finding is that durability suddenly seemed to pop up in 2017 for three of the parties, and that something similar happened to the NGOs (2016, 2017). Most suggestions from the parties concerned extension of warranty (regulation), or mandatory durability labelling (ditto), some endorsed reduced VAT on repair (market instrument). The NGOs spread their initiatives a bit wider, in addition their communication was more directed at consumers.

Chapter 4 analyses how product lifetime is conceptualised in consumer policies and policy work by consumer organisations and governmental institutions, within the timeframe 2012-2020. The documents analysed include position papers published by BEUC and the Norwegian Consumer Council, in addition to policy papers on the consumer agenda published by the EU Commission and the Norwegian government. Consumer products have for decades been important for consumer organisations working to strengthen and improve the rights of citizens as consumers. Hence, the quality and function of products is at the core of consumer organisations, but it is only in the past 10 years that consumer policies regarding product quality have been coined in relation to environmental policies as part of sustainable consumption. Traditionally, consumer policies have worked to protect the interest of consumers and not environmental interests. In terms of product lifetime, the discrepancies between consumer and environmental policies represent a challenge to achieve longer lasting products, as it could in the short-term affect consumer negatively with e.g., higher prices for products. In the long term, however, it can be economically beneficent for consumers if high-quality products last longer and the need to replace products is significantly reduced. For consumers to take part in extending the lifespan of products, consumer policies, such as consumer protection, repair, and guarantee periods, should not be treated separately from environmental policies in the circular economy.

Chapter 5 analyses the role of product lifetime in product specific environmental sustainability criteria for household electronics, furniture, and textiles. Further, it studies whether there are systematic differences between the regulations of the three product groups related to product lifespans. It is based on a literature review of EU directives and regulations, Ecolabeling criteria (EU and Nordic), various standards, as well as environmental product declarations (EPDs), and industries' own sustainability tools/labels. The analysis includes thus both voluntary and mandatory criteria. The results indicate that when implementing policies and proposals for a "green shift", the product durability aspects seem to lack detail. For example, the EU Ecodesign Directive focuses strongly on energy efficiency but also specifies that the extension of lifespans should be used for evaluating the potential for improving the environmental aspects. However, the product-specific eco design directives or energy labelling requirements seldom set these detailed requirements. So far, only the eco design criteria for vacuum cleaners include such requirements for the operational motor lifetime (minimum 500 hours), while other product groups lack such criteria. There seems to be a recent shift in policies where especially repairability of appliances has gained momentum. The review indicates that mandatory EU regulations on the product level have focused on energy-using appliances while criteria for other product groups such as furniture and textiles are still lacking. Voluntary eco-labelling criteria do have physical durability requirements for "fitness for use", for example, water repellent finishes on textiles must function after a specified number of laundering cycles. The assessed criteria do still not specify how long products in total are expected to last. When lifespans are considered, all the above-mentioned documents focus more on technical/physical lifespans than factors that impact the emotional/social lifespans. However, policies and criteria that aim at extending service lifespans should attempt to include both aspects (such as EPDs and LCAs).

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2. Conceptualisations of product lifetime in EU Circular Economy policies 2011-2020

Nina Heidenstrøm

2.1 Introduction

Over the past ten years, environmental policies in the European Union (EU) have been, to varying extents, framed within the Circular Economy (CE) line of thought. In this chapter, we analyse how product lifetime is conceptualised in circular economy policies at the EU level, concentrating on the period 2011-2020. There are fewer policies relating to product lifetime prior to the establishment of the circular economy concept, than after. In the 1990s and early 2000s, integrated product policy (IPP) was the leading EU level initiative to reduce the environmental impact of products (Rehfeld et al., 2007). IPP was an important steppingstone for developing more product-related policies at the EU level. However, there were few concrete suggestions for how IPP could be accomplished. The communication on IPP was not legally binding and there were few initiatives with high impact (Farmer, 2012). Therefore, we have chosen to focus on the extreme increase in focus on product lifetime as a concept over the past ten years. Although the European Commission (EC) did not launch a circular economy action plan until 2015, we go back to 2011 analysing the transition from 'resource efficiency' (2011) and 'zero waste' (2014) to 'circularity' (2015-2020).

EU policies influence national consumer and product level policies both in terms of legislation, that EU member states or associated member states follow, and in terms of thematic focus, buzzwords, and agenda setting for environmental issues at all levels. In this chapter, we concentrate on five overarching environmental policy documents from the European Commission from 2011-2010, presented in the next section. We are aware that these documents are the results of long and complex policy processes including detailed impact assessments and supporting documents, as well as input from external stakeholders, including the public.[5] As such, they display political compromises. We have not analysed the underlying processes.

Reader's guide

In the following, we present the data material and analytical strategies. The remainder of the chapter is devoted to a thematic and language-oriented analysis of the policies. First, we frame product lifetime within each policy document (how often is it mentioned, in what context, related to which types of actors, and regulated through what sort of policy instruments). In doing so, we discovered that product lifetime is most often mentioned in connection with consumption and the consumer. The second sub-chapter is therefore devoted to the EU's understanding of consumption as an activity and the consumer role. We conclude that (i) product lifetime is

[5] How decisions are made | European Commission (europa.eu)

primarily discussed in relation to the design of products and services and consumption, (ii) the economic discourse that dominates EU policies affects how the consumer role is perceived, (iii) which again affects the policy instruments proposed by the European Commission to increase product lifetime.

2.2 Data material: five circular economy policies

Environmental policies in the EU

The EU started as a peace coalition in the aftermaths of the Second World War and into the cold war era, making peace the founding pillar of the EU. In the 1960s and 70s, in a time of vast economic growth across Western countries, the EU implemented trade benefits such as the removal of custom duties across member states to boost European economies.[6] The economic pillar of the EU has remained central, for example through the introduction of the Euro in 2000. A third pillar, environmental issues, has been on the agenda since it was first introduced in the *Single European Act* in 1986 (Massai, 2011). In the Treaty of Lisbon that entered into force in 2009, amending the Treaty of Maastricht from 1992, one of the main objectives states that the EU "shall work for the sustainable development of Europe" (Vedder, 2010).

The general framework for environmental policies in the EU consists of the Environment Action Programmes 1-7 (EAP). These programmes outline the overall medium and long-term goals defined in a basic strategy. The Treaty of Maastricht created a contractual basis for the adoption of these EAP's and they function as formal legislative acts (see Halmaghi (2016) for a general overview of the EAP's). The overall vision of the current 7th EAP (2014-2020), "Living well within the limits of our planet", is that:

> In 2050 we live well, within the planet's ecological limits. Our prosperity and healthy environment stem from an innovative circular economy where nothing is wasted and where natural resources are managed sustainably, and biodiversity is protected, valued and restored in ways that enhance our society's resilience. Our low-carbon growth has long been decoupled from resource use, setting the pace for a safe and sustainable global society (p.13).

All environmental policies launched by the Commission will promote the EAP strategy at that time and seek to create area specific pathways and strategies. In October 2020, a proposal for an 8th EAP was presented by the European Commission (European Commission, 2020b). The programme is expected to be adopted in 2021.

Selected documents

The environmental or sustainability focus of the EU has taken different shapes over the past decade. In their thorough review of the EU policy framework, Domenech and Bahn-Walkowiak (2019) quote the Treaty of Lisbon stating that the EU shall ensure "prudent and rational utilization of resources". The policy focus on resource efficiency in the early 2000s was a response to an

[6] The history of the European Union | European Union (europa.eu)

increase in material resource prices during the previous decade. Resource efficiency was therefore at the core of the *Europe 2020 strategy for smart, sustainable and inclusive growth* in 2010, shown in the *Flagship initiative on Resource Efficiency* and the *Roadmap to a Resource Efficient Europe* in 2011. The Europe 2020 strategy does not mention circularity or product lifetime at all and is thus excluded from our analysis. The 2011 flagship initiative and complementing roadmap therefore become our starting point. These policies laid grounds for the circular economy concepts that was first presented explicitly in the communication *Towards a Circular Economy: A Zero Waste Programme for Europe* in 2014, and then in the first circular economy action plan *Closing the Loop - an EU Action Plan for the Circular Economy* in 2015. In 2020, *A New Circular Economy Action Plan for a Cleaner and More Competitive Europe* was launched. The new plan serves as a continuation of the 2015 and is part of the European Green Deal.

Table 2.1: Data material

Title	Year	Reference
A New Circular Economy Action Plan for a Cleaner and More Competitive Europe	2020	Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions No. COM(2020) 98 final
Closing the Loop. An EU Action Plan for the Circular Economy	2015	Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions No. COM(2015) 614 final
Towards a Circular Economy: A Zero Waste Programme for Europe	2014	Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions No. COM(2014) 398 final/2
Roadmap to a Resource Efficient Europe	2011	Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions No. COM(2011) 571 final
A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy	2011	Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions No. COM(2011) 21 final

The documents are not all on the same policy level. However, we believe that our selection covers the major tendencies of the circular economy policy developments in the chosen period.

Analytical strategy and limitations

We have systematically evaluated how the concept of product lifetime is positioned in European environmental policy, based on a three steps procedure: (i) *selecting* relevant documents, (ii) *evaluating* their content by means of thematic and theoretical concepts, and (iii) *synthesizing* the content of the documents (Bowen, 2009).

The selection criteria are presented above. The evaluation and synthesizing have been of a thematic and discursive character (Fereday & Muir-Cochrane, 2006; Kohlbacher, 2006). We have identified the occurrence and placement of the lifetime concept in each document, their social, cultural and political contexts, the addressee and adressant, and the dominant societal discourses that lifetime is placed within, outside, or in the outskirts of. In doing so, we have produced in-depth knowledge of how one single concept, product lifetime, is positioned within

the much more general idea of environmentalism, sustainability, and circularity, as well as its development over time.

The analysis has several limitations to be addressed. Although document analysis is an efficient, cost-effective and easily conductible method, we are aware of biased selectivity in our focus on the circular economy and thematic focus on product lifetime. We are also aware of the fact that we have not spoken to any of the involved parties or analysed supporting documents to better grasp why the political compromise presented in the documents has been agreed on. Moreover, we have strategically selected the timeframe 2011-2020 based on an assumption that lifetime is little mentioned in the previous decades. However, there is a history of political initiatives to increase product lifetime prior to this period, such as IPP mentioned above that we do not address here.

2.3 Conceptualisations of product lifetime

A first step in our analysis was a simple word search in the selected documents, shown in Table 2.2. We have searched terms that are direct expressions of product lifetime (durability, product lifetime, lifespan, longevity) using different spelling and phrasing of the concepts (e.g., lifetime, longer-life, longer life, high-quality, quality, etc.), and terms that are linked to product lifetime (high quality, obsolescence, repair, reuse). We have also searched for "recycle/ing", which is a different circular economy strategy than lifetime, representing waste and material management, to contrast the findings on lifetime-related concepts. Note that all the documents are of similar length (14-26 pages).

Tabell 2.2: Occurrence of product lifetime related concepts in the policy documents

Title	Durability	Product lifetime	Lifespan	Longevity	High quality	Obsolescence	Repair	Reuse	Recycle
A New Circular Economy Action Plan for a Cleaner and More Competitive Europe (2020)	6 (durable 1)	1	1	0	5	2	9	9	40
Closing the Loop. An EU Action Plan for the Circular Economy (2015)	8 (durable 2)	0 (lifetime 4)	0	0	4	2	15	26	77
Towards a Circular Economy: A Zero Waste Programme for Europe (2014)	2	0	0	1 (long-lasting)	2	0	4	9	50
Roadmap to a Resource Efficient Europe (2011)	2	0	0	0	2	0	2	8	33
A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy (2011)	1	1	2 (life cycle)	0	0	0	0	4	16
Total	19	6	3	1	13	4	30	56	216

A first major finding is that product lifetime (incl. durability, product lifetime, lifespan) is mentioned much less than the related circular economy concepts repair and reuse, and the more waste-oriented concept recycle. We also see that recycle is by far most often mentioned throughout the period. This might be an indication of a waste management framing and a focus on materials rather than products.

However, we do find an increase in how often product lifetime is mentioned from the 2015 action plan, which confirms that the newest policies are in fact drawing a broader picture of how the European economy can be made more sustainable, going beyond the material and resource-efficiency focus of between 2011-2014. Nevertheless, while product lifetime concepts are mentioned 10 times in the 2015 and 2020 plans respectively, recycle or recycling is mentioned 77 and 40 times giving an indication of the principal focus in the documents.

In the following sub-sections, we review each policy document, starting in 2011, to identify *how* product lifetime and related concepts are framed when mentioned in each document.

A resource-efficient Europe – Flagship initiative under the Europe 2020 strategy (2011)

The 2011 flagship initiative on resource efficiency is the environmental policy of the Europe 2020 strategy on smart, sustainable and inclusive growth from 2010. In the Europe 2020 strategy, "sustainable growth" is defined as "promoting a more resource efficient, greener and more competitive economy" (p.3).

In the introduction of the flagship initiative, resource efficiency is argued leading to economic growth and securing jobs for Europe. This is done by:

> Develop[ing] new products and services and find new ways to reduce inputs, minimise waste, improve management of resource stocks, change consumption patterns, optimise production processes, management and business methods, and improve logistics (p.2).

Here, "reduce inputs" might imply reducing the overall level of consumption, or to utilize the raw materials going into production without reducing the number of products that are produced.

The resource efficient and low-carbon economy will help Europe to: (i) boost economic performance while reducing resource use, (ii) identify and create new opportunities for economic growth and greater innovation, and boost the EU competitiveness, (iii) ensure security of supply of essential resources, and (iv) fight against climate change and limit the environmental impacts of resource use (p.3). The economic benefits of a sustainable transition are by far the most used arguments throughout the text. Environmental sustainability seems not to be a sufficient argument and is treated more as a result of the economically beneficial transition. A focus on technological innovation and development is also found throughout the text. Technological improvements are understood to be the primary step towards a resource efficient economy. This is in line with the ecological modernisation perspective; even if it brings up the parts of ecological modernisation that has (rightly) been much criticized, namely the tendency to rely too much on a coming technological fix.

The circular economy is only mentioned once in this document, under identified measures to a resource-efficient European economy: “A strategy to make the EU a 'circular economy', based on a recycling society with the aim of reducing waste generation and using waste as a resource” (p.6). This is an example of how the Commission defined the circular economy in 2011, focusing largely on waste management. Even though “reducing” waste is one of the three objectives of the circular economy, nothing is said about consuming fewer products or making products last longer.

Product lifetime is first mentioned in chapter 3, entitled “exploiting synergies and addressing trade-offs”:

> improving the design of products can both decrease the demand for energy and raw materials and make those products more durable and easier to recycle. It also acts as a stimulus to innovation, creating business opportunities and new jobs. (p.4)

Here, lifetime is connected to the design of products, which is a new type of business model to boost the European economy. Another reference to lifetime is made in connection to the 2008 Waste Directive, where waste prevention, reuse, recycling, and recovery are key concepts. Within a decoupling logic, the document states that: “waste prevention plans must also be drawn up with a view of breaking the link between economic growth and waste generation” (p.7).

Roadmap to a resource Efficient Europe (2011)

The roadmap concretizes some of the aims stated in the Flagship initiative by proposing medium- and long-term objectives and measures to achieve these. It is founded on a green growth concept, demonstrated in the second sentence of the introduction: “But today it faces the dual challenge of stimulating the growth needed to provide jobs and well-being to its citizens, and of ensuring that the quality of this growth leads to a sustainable future” (p.2). We are introduced to product lifetime-related concepts as a solution to ensure decoupling; “(…) through product redesign, sustainable management of environmental resources, greater reuse, recycling and substitution of materials and resource savings” (p.2). Although significant attention is given to improving waste management and resource efficiency, nothing is said about the amount of waste generated in the first place.

As the title indicates, the roadmap focuses on resource efficiency. However, the Commission is also referring to circularity concepts, although briefly and mostly indirectly. Under the section on “minerals and materials”, for example: “As we move towards a genuinely consumption based, sustainable materials management or a “circular economy”, where waste becomes a resource, a more efficient use of minerals and materials will result” (p.13). Moreover, circularity is connected to the life cycle of products in the following sentence: “(…) measures to take life cycle impacts more into account, to avoid waste, reuse and recycle more (…)” (p.13). This is another example of the Commission’s core understanding of the circular economy; to transform waste into resources.

Resource efficiency is seen as the solution to reach climate change milestones and to create a sustainable European economy. To do so, the following identified barriers must be overcome:

Market-related barriers (prices, taxes, subsidies), plus, we need more long-term innovative thinking that will "lead to the uptake of new sustainable practices" (p.4), filling knowledge gaps, and dealing with international competitiveness. Although these are quite general, the use of "practices" instead of "behaviour" is interesting and might indicate a turn towards including the wider social and cultural context of consumption. We will address this below.

"Natural capital" and "ecosystem services" are concepts used to demonstrate the limited supply of raw materials. Chapter 2 details the challenges of ecosystem services, biodiversity, minerals and materials, water, air, land and soils, and marine resources. In chapter 5, the roadmap identifies three key sectors that needs to be addressed to maximize resource efficiency, shown in Figure 2.1:

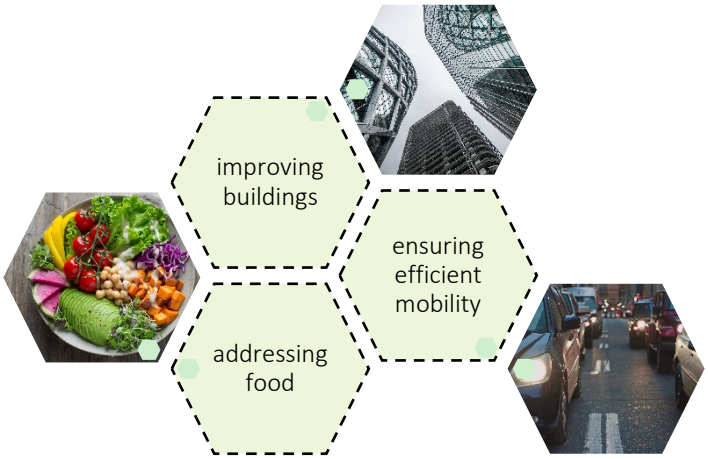

Figure 2.1: Illustration of "key sectors"

These sectors are emphasised in the roadmap because they "are typically responsible for 70-80 percent of all environmental impact" (p. 17). The only mentioning of lifetime-related issues is found under "improving buildings": "Life-time costs of buildings should increasingly be considered rather than just the initial costs, including construction and demolition waste. Better infrastructure planning is a prerequisite in achieving resource efficiency of buildings and also mobility" (p.18). However, it mostly addresses efficiency in all life phases of building materials, recycling of waste in all phases of the building process. Improvements of the design phase of buildings and planning might be related to longer product life.

Towards a circular economy: A zero waste programme for Europe (2014)

EU's environmental policies shift from resource efficiency to a more explicit focus on circularity from the 2014 zero waste programme. The first sentence of the introduction states that "valuable materials are leaking from our economies" (p.2), which is in many ways representative of the Commission's thinking about circularity in this programme: 1) waste is resources, and 2) circularity will benefit the economy. A couple of lines below, we read that "Europe can benefit economically and environmentally (…)". Perhaps random but we note that economy is placed prior to the environment. The argument is being held throughout the first two sections of the introduction. This is perhaps no surprise given the title of the programme; however, it indicates how circularity was understood in 2014. Circular economy systems are defined as to "keep the added value in products for as long as possible and eliminate waste" (p.2). In what follows,

elimination of waste comes first, and secondly, that the waste can be used as resources. However, we see no mention of product lifetime or related concepts in the introduction.

The environmental benefits of the circular economy (for the planet, nature, climate etc.) is not emphasised in the introduction. The environmental argument could be seen as an appendix to the economic one. Environmental and climate benefits might be taken for granted or understood to be obvious, and that the economy argument is more important to make for businesses and governments to adopt circular economy policies.

In the sub-section "Designing and innovating for a circular economy" we find the first mentioning of the product lifetime concepts; durability ("lengthening products" useful life"), repair ("developing the necessary services for consumers") and reuse ("minimising the costs of recycling and reuse") (p.4). Moreover, "Products can be redesigned to be used longer, repaired, upgraded, remanufactured or eventually recycled, instead of being thrown away" (p.4). What is peculiar about this section, is the sudden turn to a general description of the circular economy. The placement is striking and might say something about how the Commission prioritize in the text (economic versus environmental arguments) and how they understand circularity to start in the design phase.

Closing the Loop in the circular economy means to reuse existing resources and to keep materials in the loop as long as possible. Although the text reminds the reader about the EU's political commitment to reduce waste generation in the "Policy framework for climate and energy in the period from 2020 to 2030" (COM 2014), the remainder to the chapter is devoted to discussing waste management. None of the stated actions of the Commission regards *reduction* of waste (p.9). However, the Commission proposes to "promote direct investment in waste management options at the top of the waste hierarchy (prevention, re-use, recycling)" (p.10) when addressing the implementation of waste legislation. Waste prevention comes up as a first priority for "waste challenges", however, nothing more is said about reduction. In the section where the EU states what they will do to address these challenges, waste minimization is skipped, and they go directly to the second point on the list, which is marine litter (see pages 12-13). It is highly interesting that they just skip the top priority when they pinpoint how the challenges shall be met.

Closing the loop. An EU action plan for the circular economy (2015)

In 2015, the first circular economy action plan is launched. It starts with defining a circular economy: "where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimised" (p.2), which is seen as an essential contribution to develop "sustainable, low carbon, resource efficient and competitive economy" (p.2). A strong focus is laid on the advantage this has for the competitiveness of Europe, creating jobs at all skill levels, and opportunities for social integration.

Much of the action plan regards constructing a competitive economy for Europe, within the circular thinking. As in the previous action plans, the wording is often in an economic language. The Commission have then at least one defined addressee for this document; business actors in Europe. "Economic actors" such as businesses and consumers are seen as *key* actors (p.2). Here,

we can see the contour of how the consumer role is conceptualised, a point we will return to below.

On page three, we are introduced to "repair", which is directly linked to product lifetime:

> The proposed actions support the circular economy in each step of the value chain, from production to consumption, repair and remanufacturing, waste management, and secondary raw materials that are fed back into the economy (p.3).

The Commission's understanding of a circular economy is detailed in the four chapters that follow by describing the different phases in the life cycle of a product, starting with production. Each section ends with concrete measures the Commission will implement in each phase.

On *production*, the document states that "A circular economy starts at the very beginning of a product's life" (p.3). The phrase "product's life" is interesting, it is a particular way of thinking about products. That they have a life, or a biography (Kopytoff, 1986). However, it seems to be in a more technical than social or cultural manner when described in the action plan. The life of the product is understood to be the life of the material components of the product, and much less about how, when, and by whom it is used.

Product design is seen as a tool to make products more durable, repairable, and upgradeable. The problem within the current economy is that "current market signals appear insufficient to make this happen, in particular because the interests of producers, users and recyclers are not aligned" (p.3). There is no further specification about what this unalignment is, but the solution is to provide incentives for improved product design and enable innovation. Electronic products are used as a case in point, with reference to the Ecodesign Directive.

On *production processes*, business opportunities are in focus, how raw materials can be traded in better ways. A continuation of the material (rather than product) focus is also found in the chapter on *waste management*. There are new legislative proposals on waste management and a full chapter is entitled "from waste to resources". Although the chapter on waste management starts with the waste hierarchy, where prevention is the most favoured option, nothing is said about how the EU can reduce or prevent waste. All the identified problems and the proposed measures have the same starting point: waste exists and should be treated in a more optimal way within the circular economy. There is thus a strong discrepancy between the Commission's conceptual understanding of circularity presented in the introduction, and how it is being used to propose measures to implement it.

In chapter 5, we are presented five priority areas, illustrated in Figure 2.2.

Figure 2.2: Illustration of "priority areas"

Waste management (recyclability, recovery of raw materials, utilisation of materials) is very much at the core of all the priority areas. Product lifetime is mentioned indirectly a few times, for example under the plastics section on reduction: "It will also take action to fulfil the objective of significantly reducing marine litter" (p.14). In the construction and demolition section, product lifetime is addressed directly: "Given the long lifetime of buildings, it is essential to encourage design improvements that will reduce their environmental impacts and increase the durability and recyclability of their components" (p.17).

In the final sections of the action plan, we come across product lifetime again, this time in relation to business actors. Several EU funding programmes support business initiatives on reuse and repair (p.19). SMEs are highlighted as key contributors of recycling, repair and innovation services that will receive financial support from the EU.

A New circular economy action plan for a cleaner and more competitive Europe (2020)

From the first paragraph in the current action plan, the reader's attention is directed towards consumption of raw materials and waste generation. Then, the text turns to the benefits of circularity for the European economy. A European economy, as stated in the Green Deal, should be climate-neutral, resource-efficient, and competitive. This is to be accomplished by scaling up the circular economy. There must be a transition towards a "regenerative growth model" that keeps resource consumption within planetary boundaries. The circular material use rate should be doubled in the coming decade, and businesses must work together to create a framework for sustainable products. Keywords such as collaborative economy, digital technologies, sharing, and dematerialisation are used in the introduction.

Product lifetime is first mentioned on the second page, and in connection to citizens:

> For citizens, the circular economy will provide high-quality, functional and safe products, which are efficient and affordable, last longer and are designed for reuse, repair, and high-quality recycling. A whole new range of sustainable services, product-as-service models and digital solutions will bring about a better quality of life, innovative jobs and upgraded knowledge and skills (p.2).

However, in the section that follows, product lifetime is also connected to an overarching product policy framework that "will make sustainable products, services and business models the norm and transform consumption patterns so that no waste is produced in the first place" (p.3), which is stated in bold. The policy plan makes a connection between production and consumption patterns, providing a framework that will address the whole value chain. The next sentence is also stated in bold, which indicates another focus area: "(…) well-functioning internal market for high quality secondary raw materials" (p.3).

Product lifetime is further discussed in the details of the sustainable product policy framework. Here, a problem of no common regulation to ensure more sustainable products is recognised: "There is no comprehensive set of requirements to ensure that all products on the EU market become increasingly sustainable and stand the test of circularity" (p.3, bold in original). Until now, the Eco design directive is regulating energy efficiency of products, while the Eco Label and EU green public procurement (GPP) have contributed to reducing environmental impact as well, although they are voluntary. The solution to lack of coherence is a "sustainable product policy legislative initiative" that aims to widen the Eco Design directive beyond energy-related products and to make it applicable to as many products as possible. This is further discussed in chapter 5.

The Commission proposes a set of "sustainability principles" as part of the new legislation. The first principle is to improve durability, reusability, upgradability, and reparability. Secondly comes recycling, efficiency, reduce footprints, restrict single-use and premature obsolescence, ban on destructing unsold durable goods, and to give incentives to businesses for implementing a "product-as-a-service" model where they are responsible for the product throughout the life cycle, and finally to reward products based on "sustainability performance".

Interestingly, as the current product-specific policies have until now primarily focused on technical aspects of product lifetime, the Commission states in this action plan that they will assess the possibility of including social aspects along the value chain. While the formulations are rather vague, the Commission "will also increase the effectiveness of the current Eco Design framework for energy-related products (…)" (p.4), which is a concrete policy instrument to assess technical and social aspects of products life.

The sustainability policy framework includes so-called "key value chains", illustrated in Figure 2.3.

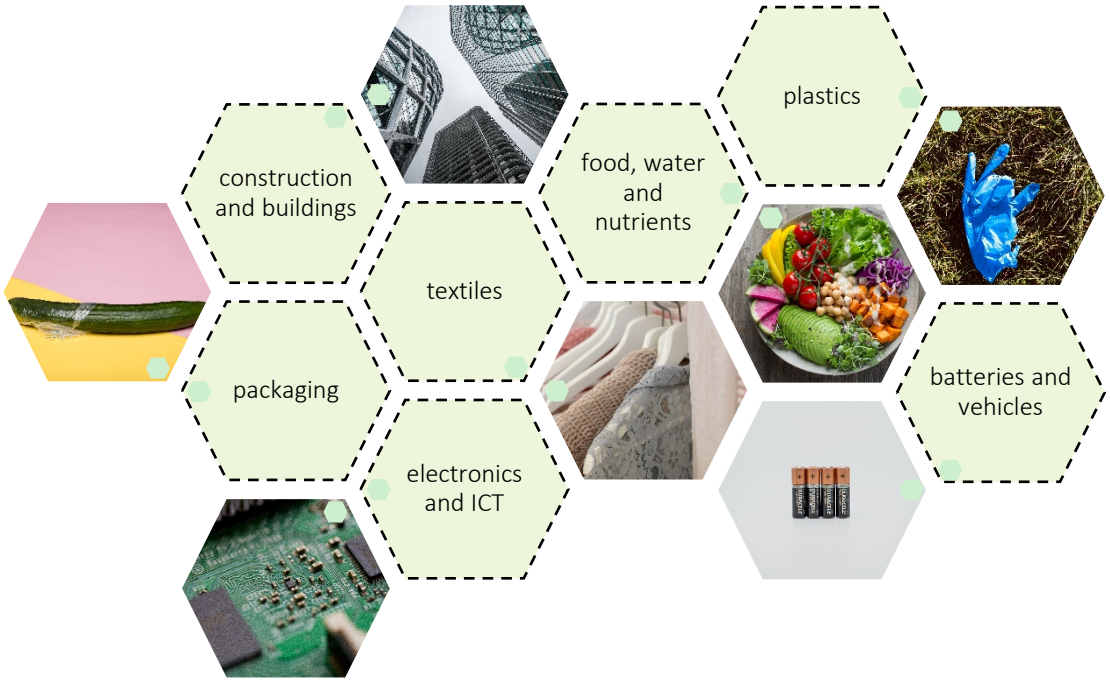

Figure 2.3: Illustration of the "key product value chains"

It is not made clear why these products categories are made priorities, how they are identified and by whom. We can also ask what product categories are *not* present in this list and why? For the LASTING project, it is relevant to note that furniture is mentioned only one time in a list of products that are prioritised: "but also furniture" (p.4). No more is said about it. White goods or appliances are not mentioned at all. They might be part of the electronics and ICT category, however, never mentioned directly.

Table 2.3 displays the seven key product value chains and their connection to product lifetime. The left column, "problems and solutions", summarizes the text from p.7-12 in the action plan, whilst the right column, "product lifetime" is our evaluation of the measures that target lifetime.

Table 2.3: Product lifetime in the key product value chains

Key value chain	Problems and solutions	Product lifetime
Electronics and ICT	**Problem:** Non-reparable parts (incl. batteries and software) **Solutions:** • A "Circular Electronics initiative" to promote longer lifetime by regulating electronics and ICT's under the Ecodesign directive and an Ecodesign Working Plan • Electronics and ICT a priority sector for implementing the "right to repair" • Regulatory measures for mobile phones (incl. a common charger) • Improve waste collection by exploring options for an EU wide take back scheme • Review of existing rules on hazardous substances in electronics	• Right to repair • Longer lifetime with repairable parts
Batteries and vehicles	**Problem:** Batteries are not recycled **Solutions:** • New regulatory framework focussing on;	• Focus on rechargeable batteries

	○ Improving collection rates and recycling, ensure material recovery, guidance to consumers ○ Addressing non-rechargeable batteries ○ Sustainability requirements (incl. facilitating reuse) • Revise rules on end-of-life vehicles • Improve recycling efficiency • Consider most sound treatment of waste oils • Strategy on sustainable and smart mobility	
Packaging	**Problem:** Record high waste packaging waste in Europe **Solutions:** • Review Directive 94/62/EC on packaging and packaging waste, focussing on: ○ Reducing packaging waste by setting targets ○ Driving design for re-use and recyclability ○ Reduce the complexity of packaging materials ○ Labelling ○ Rules for safe recycling into food contact materials ○ Make drinkable tap water accessible	• Drive design for reuse
Plastics	**Problem:** Consumption of plastics expected to double in the coming 20 years **Solutions:** • Mandatory requirements for recycled content and waste reduction measures for key products • Address the presence of microplastics by: ○ Restricting intentionally added microplastics and tackling pellets ○ Labelling, standardisation, certification and regulatory measures to increase the capture of microplastics ○ Measuring unintentionally released microplastics ○ Scientific knowledge about risk related to microplastics • Develop a policy framework on: ○ Sourcing, labelling and use of bio-based plastics ○ Use of biodegradable of compostable plastics • Implement the new Directive on Single Use Plastic Products	*No mention of product lifetime*
Textiles	**Problems:** Fourth highest pressure category for the use of primary raw materials, fifth for GHG emissions, less than 1% of textiles worldwide are recycled. **Solutions:** • Comprehensive EU strategy for Textiles to strength industrial competitiveness and innovation, boost the EU market for sustainable and circular textiles, including market for reuse, address fast fashion through the following measures: ○ New sustainable product framework, and develop Eco design measures to ensure that textiles are fit for circularity ○ Empower businesses and consumers to choose sustainable textiles and have easy access to re-use and repair services ○ Improve the business and regulatory environment for sustainable and circular textiles in the EU through incentives and support, international cooperation	• New Eco design framework for textiles • Easier access to re-use and repair services

	○ Guidance to achieve high levels of separate collection of textiles waste by 2025 ○ Boost sorting, re-use and recycling	
Construction and buildings	**Problems:** Accounts for about 50% of all extracted material and 35% of the EU's total waste generation, 5-12% of total GHG emissions. **Solutions:** • Comprehensive EU strategy for a Sustainable Built Environment, which includes: ○ Revise the Construction Production regulation, including recycled content requirements ○ Promote measures to improve the durability and adaptability of built assets ○ Using Level(s) to integrate LCA in public procurement and the EU sustainable finance framework ○ Considering a revision of material recovery targets ○ Promote initiatives to reduce soil sealing • Renovation Wave initiative, incl. longer life expectancy of build assets	• Promoting measures to improve the durability of construction and buildings • Renovation Wave initiative
Food, water and nutrients	**Problems:** Resource extraction and destruction of biodiversity and natural capital, 20% of the food produced in the EU is lost or wasted **Solutions:** • Target of food waste reduction • Launch analytical work to determine the scope of a legislative initiative on reuse to substitute single-use packaging, tableware and cutlery • New Water Reuse Regulation • Integrated Nutrient Management Plan	*No mention of product lifetime*

Our aim with this table is to illustrate when (under which value chains) lifetime is mentioned, and how it is translated from a theoretical concept into concrete strategies and measures.

For several key value chains, product lifetime is not mentioned. The food, water and nutrients value chain has of course a different focus as the products are not defined as long lasting. What is more surprising, however, is that there is little mention of product lifetime in several of the other categories as well. In particular, there is a lack of focus on reducing consumption levels. Product lifetime is mostly mentioned in connection with measures to extend the technical lifespan of a product, or with producing more sustainable product alternatives. Also, a significant share of the product cycle chapter is devoted to reorganising consumption patterns through new business models.

It is worth noting that there have been efforts made to reuse and recycle the materials used in batteries also from a security point of view. The EU is highly dependent on raw materials from countries such as China, this dependence is seen as a security issue.

Finally, the Commission's focus on material recycling is evident in the measures they propose. The subsequent chapter 4 in the Action Plan is entitled "Less Waste, More Value", where the European Commission recognises that decoupling waste generation from economic growth will require considerable efforts "across the whole value chain and in every home" (p.12). Interestingly, the household (home) is targeted directly here, as a responsible actor. No other actors are mentioned in this sentence or in the following sentences. Recycling and effective

separate collection of waste is in focus here. The European Commission will put forward waste reduction targets, and "provide incentives and encourage sharing of information and good practice in waste recycling" (p.13). It will do so by "enhance the implementation of the recently adopted requirements for extended producer responsibility schemes" (p.13).

2.4 Consumption and the consumer

Without changes in consumption habits, the likelihood of realising the circular economy is low. All new business models, services and products that aspire to transform the linear economy must account for the way people consume, their preferences, motivations, attitudes, and their day-to-day lives (Welch et al., 2016).

Our analysis shows that product lifetime is most often presented in connection with consumption and the consumer. Four of the five selected policies have a separate chapter addressing consumption, which are outlined in the following, before analysing their content and position across policies.

A resource-efficient Europe – Flagship initiative under the Europe 2020 strategy (2011) and Roadmap to a Resource Efficient Europe (2011)

In the Flagship initiative the Commission states that "consumption patterns" must change to increase resource efficiency, and that consumers will benefit through more sustainable products. It furthermore sets three conditions for a more resource efficient economy, including "(…) to empower consumers to move to resource efficient consumption (…) (p.3). Although consumption or the consumer is mentioned frequently, most often it refers to larger entities (such as economies), or to "energy consumption".

In the Roadmap to a Resource Efficient Europe, however, a separate sub-chapter (3.1) is devoted to production and consumption. It states that changes in consumption patterns will drive resource efficiency and to change such patterns; "accurate information based on the life-cycle impacts and costs of resource use, is needed to guide consumption decisions" (p.5). Providing information will aid consumers in avoiding waste and buying products that last. Moreover, new innovative business models can ensure that consumer needs are satisfied with less resource use. Other instruments include regulating the market through the EU's Lead Market Initiatives and the Ecodesign Directive. The Commission furthermore recognize the possible rebound effect of increased consumption as a result of cost saving.

The stated milestone of the roadmap is that by 2020:

> citizens and public authorities have the right incentives to choose the most resource efficient products and services, through appropriate price signals and clear environmental information" (…), "Minimum environmental performance standards are set to remove the least resource efficient and most polluting products from the market" (p.5).

The Commission states five activities to promote sustainable production and consumption: (i) Strengthen GPP requirements, (ii) establish a common method to assess and display an environmental performance benchmark that includes LCA, (iii) address the environmental footprint of products under the Ecodesign Directive and expand its present scope, (iv) ensure better understanding of consumer behaviour and provide better information, and (v) support networking and exchange of best practice between actors working on resource efficiency. Among other initiatives, the Commission encourages Member States to "extend producer responsibility to the full life-cycle of products they make (…) (p.7).

Contrary to using the term "sustainable practices" as was done in chapter 2, the Commission now uses "consumer behaviour", which depicts a different understanding of the consumer role.

'Towards a Circular Economy: A Zero Waste Programme for Europe (2014)

According to the programme, "conventional consumer habits" can hinder development of new products and services. Turning waste into resources requires new "modes of consumer behaviour" as well as "proactive consumers".

New service and product designs and innovation are key to implement the circular economy. Such actions include consumers through offering new maintenance and repair services, designing for high-quality recycling systems that will be used by consumers, encouraging wider and better consumer choice through "renting, lending or sharing services as an alternative to owning products, while safeguarding consumer interests (in terms of costs, protection, information, contract terms, insurance aspects, etc.)" (p.4).

The consumer role is further outlined in the sub-chapter "Harnessing action by business and consumers and supporting SMEs" (p.7). Here, consumers are stated to be "key actors" and should be "empowered to make informed choices through better information on green credentials of different products" (p.8).

The programme list initiatives that could be scaled up and applied more widely. The consumption phase: "collaborative consumption models based on lending, swapping, bartering and renting products, and product service systems to get more value out of underutilised assets or resources (e.g., cars, tools, lodging)" (p.7).

Information is a key measure to change consumer behaviour. Consumers should be provided with credible information. Also, greenwashing is mentioned: "The multi-stakeholder process launched in the context of the European Consumer Agenda has highlighted the need for effective tools against misleading and unfounded environmental claims" (p.7). The Commission will "apply the use of environmental impact measurement in product and process design and in providing consumers with better information on environmentally sustainable choices" (p.8).

The section ends with the statement that national, regional and local authorities and social partners have an important role and that they are "well positioned to facilitate a shift of consumer choice to more sustainable products and services, and encourage behaviour change" (p.8).

Closing the Loop. An EU Action Plan for the Circular Economy (2015)

In the introduction, consumers are presented as "economic actors" that are important drivers of the circular economy. Chapter 2, which is devoted to consumption, starts with:

> The choices made by millions of consumers can support or hamper the circular economy. These choices are shaped by the information to which consumers have access, the range of prices of existing products, and the regulatory framework. (p.6)

One such information is labels, which according to the Commission are difficult for consumers to navigate. Green claims, or greenwashing, is mentioned as one example of confusing labelling. To increase trust and reduce confusion, the Commission proposes a carbon footprint label on products, further develop the energy label, and develop a label with product life information. Moreover, the Commission suggests improving the use of date labelling on food and consumers' understanding of this label (p.15).

Price incentives and taxation is proposed as an incentive to affect purchasing decisions. Higher prices on more sustainable products should be argued better for. Here, legal guarantee of two years is relevant. The Commission will "consider possible improvements" (p.7) to the consumer legislation, and "work towards better enforcement of the guarantees on tangible products (…)" (p.8).

The use phase is related to reuse and repair and to avoid waste. Repair information "will be considered" (p.7). The Commission will "specifically consider proportioned requirements on durability and the availability of repair information and spare parts in its work on eco design, as well as durability information in future Energy Labelling measures", and "propose new rules which will encourage reuse activities" (p.8). Planned obsolescence is mentioned explicitly: "through an independent testing programme, the commission will initiate work to detect such practices and ways to address them" (p.7).

The Commission states that innovative forms of consumption such as sharing, collaborative economy and service economy are initiative by others than the EU (businesses or citizens), but that they will support such initiatives.

A New Circular Economy Action Plan for a Cleaner and More Competitive Europe (2020)

In the current action plan, economic actors and consumers are separated categories, both understood to be important actors in the circular economy. The presented policy framework will "transform consumption patterns so that no waste is produced in the first place" (p.3).

In chapter 2.2, the consumer (together with public buyers) is in focus. They should be "empowered" and provided with cost-saving opportunities. Moreover, consumers should get trustworthy information about lifespan and repair services. Information is the key measure to increase purchase of longer lasting products. The Commission will "consider further strengthening consumer protection against greenwashing and premature obsolescence, setting minimum requirements for sustainability labels/logos and for information tools" (p.5).

The Commission will furthermore "work towards establishing a new 'Right to Repair' and consider 'new horizontal material rights for consumers" (p5), (availability of spare parts). They will also "explore the role guarantees can play in providing circular products" (p.5).

Footprint methods to substantiate environmental claims are proposed to be included in the EU Ecolabel in a systematic way. The Commission also proposes that there should be a minimum mandatory GPP for public authorities in the EU.

The EU's conceptualisation of the consumer role 2011-2020

In Table 2.4, we have summarized how the consumer is described in the selected documents and the actions the EU proposes to implement.

Table 2.4: The EU's conceptualisation of the consumer role

Document	Description of consumers	EU actions towards consumers
A New Circular Economy Action Plan for a Cleaner and More Competitive Europe (2020)	• Should be empowered • Provided with cost-saving opportunities • Get trustworthy and relevant information about product lifespan, repair • Be involved in material recycling solutions	• Share information and provide guidance • Consider strengthening consumer protection against greenwashing and premature obsolescence • Work towards establishing a "Right to Repair" • Consider "material rights" • Explore the role of guarantees
Closing the Loop. An EU Action Plan for the Circular Economy (2015)	• Key economic actor • Make choices that can support or hamper the circular economy • Choices are shaped by information, prices, and regulations • Confused by labelling	• Work with stakeholders to make green claims more trustworthy • Ensure better enforcement of the rules in place • Test the Product Environmental Footprint • Examine how to increase the effectiveness of the EU Ecolabel • Proposed an improved labelling system for energy-related products • Consider possible improvements to the consumer legislation • Repair information will be considered • Initiate work to detect planned obsolescence • Member states should be encouraged to provide economic instruments

Towards a Circular Economy: A Zero Waste Programme for Europe (2014)	• Have conventional consumer habits that can hinder new products and services • Key actors • Should be empowered to make informed choices through better information • EU's policies rely on proactive consumers	• Provide consumers with better information on environmentally sustainable choices • The European Consumer Agenda shall provide credible information to consumers
Roadmap to a Resource Efficient Europe (2011)	• Have not yet realised the scale and urgency of the required transformation • Have consumption patterns • Can save costs by avoiding waste, repair, and recycle • High consumer demand for more sustainable products and services	• Better understand consumer behaviour • Provide better information on the environmental footprints of products, including preventing use of misleading claims • Refine eco-labelling schemes • Member states should reflect on incentives to support consumer choices in favour of resource efficiency
A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy (2011)	• Primarily "energy consumption" • Have consumption patterns • Have behaviours • Must be empowered	• Making energy prices transparent to consumers • Better information to consumers

According to Kirchherr et al. (2017), consumers are often viewed as enablers of the circular economy. How are consumers understood by the EU in these policies?

First, consumers are understood to be economic actors that act according to market logics. By almost exclusively focussing on the market, consumption is reduced to acquisition of products and services. In the documents, the consumer role is outlined together with other economic actors, such as "public buyers" (COM 2020), "business" and "SMEs" (COM 2014), and "producers" (COM 2011). Consumption is thus placed in the market domain. According to Mylan et al. (2016), the policies lack attention to the domestic domain, which is crucial to the enactment and change of consumption practices. While the endpoints including design, production and waste are given much attention also in the form of concrete actions and legislations, the use phase of consumption is downplayed. Welch et al. (2016, p. 25) note that "the centrality of the domain of use and consumption is routinely acknowledged in reports and policy statements", whilst offering no political instruments to address the use phase. Interestingly, even though the consumer is placed within a market logic, none of the documents use the phrase "customer".

Second, consumers are understood to be rational actors and consumption a purposive act. Consumers have a set of behaviours that are defined by their values and affect their choices in the market. Often, these choices are seen to be driven by financial incentives, as stated in the 2011 Roadmap to a Resource Efficient Europe: "Market prices are the primary guide for purchasing choices and investment decisions (…)" (p.9). This understanding is evident in the use

of “consumer behaviour” and “consumer choice” in the policies, individualising consumption. It is also evident in the measures the Commission proposes towards consumers. In all the policies, *information* is fundamental to change consumption patterns. This correlation between information and behaviour change that often appear in policy documents has been widely criticised by social science scholars (e.g. Shove, 2010; Shove et al., 2012; Southerton, 2013; Southerton et al., 2004; Spurling et al., 2013; Strengers & Maller, 2012). These scholars have argued that we cannot understand the consumer as (a) rational and hence reflexive, and (b) an individual that makes choices. They point to the significance of consumption habits and routinized everyday lives, meaning that most of what we do is not done in a reflexive manner, as well as the underlying social, material, and cultural structures that set boundaries for how consumers act. Still, information is used as one of the primary regulatory instruments to change consumer behaviour within circular economy policies.

Third, consumers are understood to be incorrect and should be corrected. This point connects to the previous focus on information. If the consumer is provided with accurate information about the products and services they use, he would choose the alternatives that according to the information is most sustainable (and thus being “empowered”). Such a top-down understanding ignores the socially shared stability of consumption patterns over time and the habitual rhythm of how we consume. Information is now increasingly given by the industries themselves and not only by the authorities. The industries are hence given a double agenda where they market their own products as well as inform consumers about what they consider to be correct choices. If the EU shifts the responsibility of informing consumers from the authorities to industry actors, this will affect the information given to consumers and not least the information that is withheld.

Fourth, consumers are given a plurality of *conflicting roles* and expectations. E. Maitre-Ekern and C. Dalhammar (2019) have mapped the different roles of consumers in the circular economy in general and found that they are expected to act as purchasers, maintainers, repairers, sellers, sharers and collaborators, as well as engaging with waste, sorting and reuse. Similarly, the policies see consumers as active agents (they make choices in the market, they must engage with circular innovations), as well as passive agents (they are confused and must be provided with accurate information). By referring to a myriad of so-called innovative modes of consumption, including sharing, collaborative economy, service economy, local community initiatives and so on, the EU envisions the consumer to radically change their consumption patterns in the future (Welch et al., 2016). However, the complexities of such transitions are not addressed and there is a lack of attention to the issue of upscaling. How many consumers are willing to become active prosumers, to spend their time repairing, sharing, and collaborating?

2.5 Conclusion

This chapter has presented an analysis of how product lifetime is positioned in five overarching environmental policies in the EU between 2011-2020. While previous research has engaged with how the EU conceptualises the circular economy in these policies and the shortcomings of such conceptualisations, outlined in the introductory chapter, we have here analysed the implications for how product lifetime is conceptualised, positioned, and connected to contexts and responsible actors. In Figure 2.4 below, we have summarised the main findings.

Figure 2.4: Summary of key findings across policy documents

There has been an enormous increase in product lifetime focus after the first circular economy action plan in 2015. Product lifetime and related concepts are mentioned more frequently, however, mostly at a theoretical or general level. Often, we find the lifetime-related concepts in the introductory chapters of the policies, where the ideas of the circular economy are presented. The concept is primarily linked to product and service design and to consumption.

The circular economy policies are framed within an economic discourse. Economic transition is inherent in the concept itself. However, it is still worth noting some of the consequences this framing produce. First, we find that the economic benefits for transitioning from a linear to a circular economy are much more present than the environmental benefits of transitioning. This might not be a substantial issue if the environmental benefits are understood to be widely known and needless to explicitly define. However, if economic benefits are sought without regarding environmental ones, or if circularity is used as means to market unsustainable products and services – greenwashing or green marketing -, it matters. Nevertheless, marketing the circular economy within economic terms might engage more actors, in particular business actors, that would otherwise not engage in sustainability or environmental issues.

The overarching economic discourse greatly affects how the policies comprehend consumption and consumers. Consumers are considered economic actors that acquire products and services in a market, and policy instruments are designed to impact the market in terms of consumer choice or new and innovative business models. The economic conceptualisation of consumers does not include non-market activities such as the use of products, and we argue that the conceptualisation is not suitable to understand the complex relations between acquisition of

products and services and other everyday life activities, which contribute to explaining the current lifetime of products and why products are wasted.

In accordance with previous research, we find that the circular economy in the EU is still very much oriented towards waste management, waste as resource, and materials rather than products. Although product lifetime is increasingly included in the policies, the concept is not linked to actual reduction in consumption levels. Circular economy shares this weakness with the theories of ecological modernisation, which also tends to operate on an overall, production centred level. But the approach of the policy documents considered here clearly reflects an ecologically modernised version of environmental politics.

Finally, it seems like increasing product lifetime through EU regulations relies heavily on a renewal of the Ecodesign Directive, which is one of few explicitly defined policy instruments that will affect the (technical) life of products. Additionally, there has been a focus on a Right to repair and extended warranties. There is however still a need to discuss policy instruments that can extend the social, cultural, and psychological lifetime of consumer products.

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3. Consumer oriented environmental policies and product lifespans in Norwegian politics 2000 – 2020

Pål Strandbakken

3.1 Introduction

This chapter studies if, and to what degree, the longer product life option has been present in Norwegian politics and Norwegian political debate, and if the theme has been more or less important at different times. Even if the importance of product lifespans has been acknowledged and studied since the Seventies, we have restricted this examination to the previous 20 years, i.e., since the turn of the century. The rationale for this study is that the environmentally beneficial potential of the longer life option has been known for years, but that it regularly has failed to materialise in legislation, reforms etc. This study of 'mainstream' Norwegian politics aims at tracing the development of positions on environmental issues in the most central political parties, in two environmental NGOs and in policy documents from the Norwegian parliament to see if the theme appears and/or disappears from their policies.

To gain such insight, we have chosen

1. To analyse a set of party programs published in this period; programs formulating the respective parties' positions on the total range of political issues ahead of parliamentary elections (every fourth year). There is obviously not a simple and one-dimensional relation between the mentioning of something in a party program, and the political practice and priorities of the party. We know that some politicians have a rather loose relation to these formulations, but we nevertheless must presuppose that these written statements mean *something*.
2. To analyse the activities and initiatives in the durability themes for two of Norway's most important environmental NGOs, as these organisations do initiate public debate and formulate and influence citizens' concerns.
3. Finally, we have performed a quick check of the presence of durability phrases in environmentally relevant policy documents from the Norwegian Parliament in the relevant period.

Data material and collection

We have chosen pre-election programs for the period for four parties; Høyre, a liberal conservative party, Venstre, a liberal party, Arbeiderpartiet, a social democratic party and Sosialistisk Venstreparti/SV; a socialist party. Høyre and Arbeiderpartiet have been the dominant parties in the period; they have been the bases for coalition governments, while the Venstre and SV have aimed at becoming the main environmental alternative on right and the left side, respectively. For these four parties we try to identify any form of development in positions over time.

In addition, we look at the most recent party programs of Fremskrittspartiet; a "right wing" and partly liberalist party and Miljøpartiet de Grønne, an environmental or "green" party. Fremskrittspartiet has been important in some of Høyre's governments, but it has not been very profiled on environmental issues, while

Miljøpartiet de Grønne (MDG), which is defined by its environmental commitment, wants to transcend the left-right division. The party has a rather short history as a player on the national level; hence a historical analysis of its positions on the longer life option seems less relevant.

The programs are either available online or have been sent to us by the party administrations. 22 programs have been examined.

Most parties tend to give general, overall statements like:

> The road to a sustainable development is through a more just distribution globally, but also presupposes changes in production and consumption. Countries should commit themselves to reduced emissions and to the protection of nature.

For climate and general pollution issues, we observe some ideological nuances between emphasising regulation or free choice etc., but what we look for here is mainly more specific positions regarding product life spans, repair, consumption and consumption change, circular economy, and the like. Most parties do not have a strong consumer or life-style focus in their environmental policies, so product life and repair are not very visible either. All parties cover energy, transport, and waste. Most of the measures tend to be a bit removed from the consumer or the household, however. We do not comment on all these policies unless they come reasonably close to our overall interest.

This review is *not* organised as a competition between political parties as to who has the most relevant or "correct" environmental policy. Hence, we do not use a strong common grid in the analysis of the programs. If product lifespans and repair is missing, we expand our search and look for formulations that are or might be considered as relevant.

A small note about language: The statements in the programs tend to be rather dense, and they often refer to indigenous phenomena and local Norwegian themes. Sometimes the text feels as untranslatable as poetry, but we try to take some detours to transmit the meaning.

We have analysed the durability themes in the praxis of two important environmental NGOs. The review of The Future in our Hands was developed in cooperation with employees from the organisation; so is the text on Naturvernforbundet/Friends of the Earth.

To consider a possible impact of the party programmes, we conducted s search for product longevity ("produktlevetid" and "produkters levetid" in Norwegian) in official documents using the official websites of the Storting, the Norwegian parliament, and the Norwegian government.

Reader's guide

The political parties' text is organised chronologically (2000 – 2020) for each party, with a general introduction to the party and its environmental stance. A certain amount of repetition is unavoidable. We give a short conclusion for each party, and an expanded conclusion for the whole party program material at the end. The presentation of the environmental NGOs is also followed by a short conclusion. To consider the interplay between party programmes and national politics, we have searched for product longevity ("produktlevetid" and "produkters levetid" in Norwegian) in official documents using the official websites of the Storting, the Norwegian parliament, and the Norwegian government. We review what we

consider to be the most relevant documents, defined by their connection to either environmental or consumer policy, and that consider product longevity. In a concluding chapter, we try to consider the three sub studies together, aiming to give an overall assessment of the role of product longevity in Norwegian environmental politics.

Theoretical framework

We use Tim Cooper's chapter *Policies for Longevity* in *Longer Lasting Products* (Cooper ed. 2010) to organise our analysis. On page 227 (Table 10.1) he presents a list of policies to increase product life spans; regulatory instruments, market-based instruments and voluntary instruments, available to manufacturers, retailers, after-sales service providers and users. This list indicates what we look for in the programs. It is more an overall, pragmatic approach than a theoretical one. The theoretical underpinnings are accounted for under chapter 1. The rhetoric of circular economy gradually becomes more visible in the later documents. The ecological modernisation perspectives reveal themselves by a gradual change from nature conservation to a more industry and (to a lesser degree) consumption in a modern, affluent society.

In the programs we search for specific concepts and formulations. Obviously, *product life spans*, but also *quality/product quality*, *durability*, *warranty*, *repair* and *producers' responsibility*. If these are not present, we might expand into *product focus* or even *consumers' focus*. In the most recent publications *circular economy* will appear.

3.2 The party programs

Høyre

The conservative party, Høyre, like the other parties, present their political programs prior to the parliamentary elections every fourth year. We have looked at five programs; the first one covers the period from 2001-2005, the most recent covers the period 2017-2021. We use the table of contents to identify the relevant chapters where environment and energy are treated in the rather voluminous booklets. The program for 2017-2021 contains 81 pages and covers the whole range of policy areas. The programs are usually rather clearly organised, however, and the environmental themes are often presented under one chapter. We are not aiming at a general evaluation of this, or the other parties' environmental policy, we just give a broad overview of which areas that are highlighted and what policy instruments that are preferred.

We are looking for suggestions that might fall under Coopers list of policies, but we are very inclusive, as we suspected that direct reference to product lifespans would be rather few. This means that we also include elements of product policy and consumer focus, if they appear.

Høyre's program 2001-2005

In this document, the environmental issues are presented in multiple chapters, but most of them are collected under chapter 9, The environment for future generations.

> Høyre will ensure that future generations will get the same access to nature/wildlife and affluence as the present ones. The management of nature is an obligation over the generations. Every

> generation is obliged to leave our earth to the next generation in a condition at least as good as it was when the present took over (9.1).

Highlighted problems are noise, pollution, reduced access to natural habitats and the threat to biodiversity. The program is concerned with long range air pollution and man-made climate change, and it emphasises international agreements and it wants Norway to be a driving force for international cooperation. Høyre will: Increase appropriations for environmental research and development of environmental technology, introduce cost effective measures to give environmental value for money, work actively for binding international agreements and finding a good balance between use and protection of natural resources.

> It is important to increase the use of economic incentives to reduce waste and to stimulate recycling and reuse of different types of waste. The Conservative Party will work for deliberate public procurement, tax exemptions for recyclable products, plus fees and other incentives that stimulates reduced amounts of waste. The Conservative Party will let consumers, businesses and public institutions pay waste disposal fees based on the amount of waste and the level of sorting.

Generally, and unsurprisingly, Høyre's program from 2001 is concerned with terms and conditions for business, and private ownership. It is hard to find any policy initiatives covering product lifespans, product quality, repair etc. at the outskirts of product policy we find a claim for "recyclable goods".

> Høyre is opposed to a comprehensive use of bans and punitive measures. It favors positive measures like tax relief, stimulating investment in environmental technologies and schemes for financial support for return of waste[7] to encourage people to act environmentally benign and reduce emissions.

There is an element of consumer- and product focus in this formulation about waste return, but the focus for the party's environmental policy in 2001 is not there.

Høyre's program 2005-2009: New possibilities

Like four years earlier, the generational perspective from the World Commission on Environment and Development introduces the environmental program, with a slightly different wording. Ownership and market-based measures are of course still highlighted. Buying and selling of quotas to reduce GHG emissions, plus use of new technology and adjustments of the taxation policy remain. In the field of biodiversity, it is more detailed and mentions management of the predator populations and Atlantic wild salmon. New since 2001 is a removal of 'energy' from the rest of the environmental policy.

Relevant here, and new compared to 2001 is a statement on consumption:

> Good environmental protection is the sum of all individuals' actions. Høyre wants to make it easy for individuals to choose environmentally friendly solutions and facilitate an environmentally responsible consumption.

[7] "Pant". A system whereby the government puts a tax (like one thousand Euros) on a product, i.e., a car, which is returned to the owner if he returns it to a wreck collection point. Norway used to have similar system for glass bottles; today it is in use for drinking cans and plastic bottles (return to the grocery store).

There is yet no specific product policy, and of course no policy for product lifespans. There are, however, at least elements of a consumer focus, even if the formulation is isolated and not developed further in the document.

Høyre's Program 2009-2013: Opportunities for all

The program was adopted at a Party Convention in 2009. Again, it starts with generational principle from the Brundtland report, and the focus remains on nature, outdoor life, large predators, and politics for the coastline. It states that climate change is "also influenced by human activity" and it recommends market-based solutions (taxation, quotas, international cooperation), while warning for what they call symbolic measures.

Most of the product and/or consumer-oriented measures concern mobility (electric vehicles, hydrogen vehicles, public transport), plus waste: "Increase effort for full recycling and develop a more comprehensive scheme for collection of more types/fractions of waste than today, i.e. through more and better take back schemes[8] ", and "develop a plan for waste management in order to reduce waste, in addition to using it more for energy and bio fuel"

Further, the party wants a ban on installing oil furnaces in new buildings. Of 30 specific points under the heading "To guard the environment, the Conservative Party will", 13 suggestions have to do with transportation/mobility. In section 13.7 «Measures to fight man made climate change" they introduce a proposal to test out climate labelling of products. In addition, there are some household and dwelling oriented proposals in the sub section on energy.

Høyre's program 2013-2017: New ideas, better solutions

> Norway is fortunate to have a varied, lush and clean nature. Norwegians have strong outdoor life traditions, based on the right to freely use the habitats not set aside for agriculture (the right of public access). Høyre aims at delivering nature to the coming generations in a condition equal to or better than today and to secure the habitats of endangered species.

The program tends to become more detailed and enlarged, but it is hard to identify any significant changes. The party wants to reduce the volume of waste and to recycle or incinerate more of it, strengthen research on environment and climate, especially on renewable energy, introduce energy saving, carbon capture and storage. It wants Norway to take a particular responsibility for the development of climate friendly technology, support the transition to zero- or low emission cars through tax exemptions and introduce efficiency claims for vehicles. It will prioritise infrastructure for electric charging and hydrogen, demand zero emission vehicles for governmental and municipal actors, introduce smart meters and smart grids, promote thorium etc.

The proposed measures that come closest to consumers and/or products still deal with transport/mobility, with domestic energy saving, smart grids plus waste.

[8] The aforementioned financial support for the return of waste

Høyre's program 2017-2021: We believe in Norway

Environmental issues are presented under the chapter heading 'Green transformation and sustainability'. As in previous programs, international cooperation on climate and Norway as a frontrunner for renewable energy is highlighted. "Høyre holds a zero-emitting vision for the transport sector", and "Høyre claims that public transport in urban areas should be zero emitting by 2025".

The 2017/2021 program tends to be slightly more specific than its predecessors, even if it deals with similar themes. A chapter on circular economy is new, however, and brings us somewhat closer to "our themes". There is even a mentioning of lifespans here, but in a rather awkward context and meaning. The turn towards CE is mainly concerned with food waste reduction, recycling, and reuse, but more directed at business, and business models for making these more attractive for households and businesses.

This most recent program is slightly more consumer oriented than the others, perhaps even product oriented, but the material is largely outside the focus of the Lasting project.

Conclusion for Høyre

Product life spans, product quality, durability, repairability and warranty are absent from Høyre's environmental policy in this century (and it is unlikely that it was more present in programs from the previous century). We observe, however, a slight increase in what we have called consumer focus, perhaps also in product focus.

Venstre

The liberal party Venstre has for years tried to brand itself as the environmental alternative on the non-socialist side, mirroring a role SV has had on the socialist side. This positioning is perhaps changing with the recent success for Miljøpartiet de Grønne, which refuses to take sides on the left-right dimension. Again, we have looked at five programs; the first one covers the period from 2001-2005, the most recent covers the period 2017-2021.

Venstre's program 2001-2005: Personal freedom and social responsibility

There is much text on environment and nature in the program, and the generational perspective from the Brundtland report is presented as part of the party's "ideological foundation":

> 'Venstre's community perspective goes across generations. Man has a stewardship responsibility for leaving a good environment and a good society to future generations.'

In our perspective, the environmental policy of Venstre at the start of this century is quite 'traditional' (which says nothing about ambitions etc., just referring to the proposed measures and the designated areas). It is concerned with energy policy (alternative sources, energy saving), transportation (public transport, bikes, city planning), nature conservation (biodiversity), international cooperation on climate and so on.

It is possible to identify elements of a consumer orientation, but the main focus is not there.

> Environmental pollution and consumption today are too cheap to reflect real costs. This leads to overconsumption, pollution, and incorrect use of resources. Venstre will use the market to the benefit of the environment. Through a correct pricing of resources, we will achieve better utilization of resources and reduced taxation of business and citizens.
>
> Venstre trusts citizens' ability to make individual choice beneficial to themselves and to the community. Hence, it is of utmost importance to remove constraints for people wishing to choose eco-friendly, and to make environmental information available locally, nationally as well as internationally.

It is hard to identify any product orientation and we see no signs of a breakthrough for durability, quality, or repair.

Venstre's program 2005-2009: More freedom, more responsibility

Venstre's parliamentary program for 2005-2009 was approved by the party organisation in April 2005. The Report of the World Commission remains the starting point:

> Venstre is an environmental party because we want to secure the livelihood of future generations and all over the world. As a social liberal party, Venstre aims at creating equal opportunity for all. This means a commitment to establish an environmentally equal starting point for future generations. The natural environment is the basis of life. To protect this livelihood - earth, air, water and the living biodiversity - is essential to our existence. Environmental policy is to consider long term environmental effects' even if pollution and overexploitation of resources might yield short term profit.

The program defines GHG emissions, toxic pollutants, and loss of biodiversity as the main challenges. When it comes to measures and tools is consumption, households, and products not very central, except from some isolated sentences concerning mobility/transportation and toxins.

There are some elements of consumer oriented and product-oriented policies in the 2005 program; it suggests ecolabelling of cars, use of taxes to stimulate purchase of more energy effective boat motors, a right to environmental information, better labelling, and more availability of organic food etc., but durability, product quality and repair is not present.

Venstre's program 2009-2013: Freedom and responsibility. A social liberal society

This program was approved by the party organisation in April 2009.

The most important environmental goals for Venstre in the next parliamentary period are:

- To enter the low emission society
- To change from being a fossil nation into a modern society based on renewable energy
- To preserve nature, the environment, and our resources for a sustainable future (p.5).

In a list of eight environmental principles, only number seven really targets consumption: "The right to environmental information. Information on health and environment should be made available, so that citizens and businesses might make choices considering the community and the future".

Overall, it is an environmentally ambitious program, and it seems slightly more focused on consumption and everyday life than the previous one. The party wants to reduce electricity consumption by 20 percent before 2020. Some of the measures to achieve this concerns households. In addition, they endorse take-back schemes (the aforementioned financial support at the return of waste) for a wider range of products and they want to develop standards for date labelling (best before-schemes) on food in order to reduce food waste.

This increased consumer focus does not include a clearer product focus and/or questions of durability/product life, however.

Venstre's program 2013-2017: Freedom. Future. Community

The program was adopted by the party in April 2013. It is very much in line with its predecessor. The environmental policy builds on the third of a series of 10 "liberal principles", still within the 'Brundtland perspective':

> 3. Everybody is responsible for all of us, for the environment and for future generations. We are responsible for each other and for securing that future generations will have the same possibility for free unfolding as we have.

The program is especially ambitious and detailed on energy issues, like tax exemptions for energy saving measures in the home, a ban on using fossils for heating, implementation of smart meters and the development of smart grids etc. Further, it will change Norwegian transportation policy to make an easier, safer and more eco-friendly every-day.

The program is critical of our high consumption of resources, and states that it is not possible to continue with it and simultaneously satisfy the needs of a growing population without damaging the environment. Hence, production- and consumption patterns will have to be changed. It aims at increasing the use of waste as resources and at the same time reducing GHG emissions and emissions/leaks of toxins from the waste. "Venstre will lead a clearer consumer policy, making it easier for people to choose climate or eco-friendly". The consumer and household focus remain, but product life etc. is not present.

Venstre's program 2017-2021: Together for the future

The program was approved by the party in April 2017. The environmental profile is very visible in this program. Of 21 chapters, as many as seven directly targets different aspects of the environment, climate and sustainability. In the sub chapter 3.4, Recycling and reuse of waste, they claim:

> A large part of the global problems with overuse of resources are due to too much consumption of products with short lifespans. Because of this, Venstre will stimulate the development of more durable products. One measure will be increased focus on national eco labelling. We want to see that all waste first should be reused, then recycled and finally energy recovered. Venstre will work for making the whole economy more circular, so that all waste is transformed into resources in other processes (p. 24).

Beyond this, the program is strongly directed at consumption, households and everyday life, energy efficiency, refurbishment of older dwellings, smart meters, digital control systems, solar panels, and local energy production.

They want to make it easier for consumers to take green choices by labelling schemes and information from neutral sources. “Lack of knowledge about product contents, potential damage and climate effects makes green choices difficult”.

More consumer focus under 4.7:

> Easier to be an environmentally friendly consumer.
>
> Today, large parts of the consumers’ GHG emissions are related to energy use in homes, transportation, and food. In short, this means that our emissions stems from everyday logistics and everyday economy. It should not be necessary to choose between the economical sustainability of the household and environmental sustainability. Venstre will lead a consumer policy that makes it easier for households to select the climate- and environment friendly options.

As mentioned, in this program there is an environmental component in almost all policy fields; transport, business, agriculture, local communities etc., and the durability theme is introduced.

Conclusion for Venstre

A rather ambitious environmental profile has been present since the start of the century. It seems as if the consumer/household/everyday life perspective has been growing steadily in the 20-year period, but that product durability did not appear until the 2017 programme.

Arbeiderpartiet

Traditionally a large social democratic party, even if its support has declined recently. Traditionally also a “ruling” party, it has led multiple Norwegian governments in the last 70 years. Arbeiderpartiet has had a sort of environmental “aura” because its leader, Gro Harlem Brundtland led the World Commission on Environment and Development, but the Commission’s report was published as early as in 1987. Here we are focusing on policies and policy formulations from this century.

Arbeiderpartiet’s program for 2001-2004

The program was approved by the party in November 2000. Generally, it targets global justice, lifestyle changes and international cooperation:

> The road to an ecologically sustainable future is via a more just distribution globally. However, changes in production and consumption are also necessary. The different nations have together to commit themselves to reduced emissions and nature preservation.

In the field of lifestyles, the program is concerned with advertising and consumer knowledge:

> Improved consumer rights. Today’s consumers experience a significant purchase pressure. Consumers must be better informed about goods and services on offer, and knowledge of how to

> proceed when these goods and services fail to fulfil promises made in advertising campaigns. Arbeiderpartiet will establish a consumers' fund financed by a tax on advertising. This will be an important step in the direction of developing an improved consumer protection.

They propose labelling schemes for child labor, workers' conditions, environmental issues and contents in products that are harmful to health: "We find it important to provide information on how goods are produced. This might be achieved through a labelling scheme".

The program touches upon themes relevant for product durability when it targets waste, and here it even comes rather close to an approach that resembles circular economy:

> The amount of waste is closely connected to the outtake of natural resources. By putting a tax on this outtake, producers will have to take responsibility for the total life span of the product. This will make recycling profitable for the producer and reduce the outtake of raw materials for manufacture. Through taxation, Arbeiderpartiet will make it more profitable to buy and produce recyclable goods.

With the formulation on producers' responsibility for the whole life span of the product, there is a small step to focus on product quality and product life spans, but this step is not taken. Instead, the program ends up on a recycling strategy.

Arbeiderpartiet's program 2005-2009: New solidarity

Here it might seem as if the environmental themes have become less important. "Environment" and "ecological balance" is occasionally mentioned, but in the top priority "five big tasks" the environmental theme is absent.

On page 6, "ecological balance" is said to be a "basic social democratic idea", while on page 8 the program states that solidarity with future generations presupposes that we do not inflict "social, economic or environmental problems" on our descendants.

Environmental aspects are mentioned in the reviews of transport- and energy policy, but mainly on an overall (and perhaps slightly noncommittal?) level. It is about Norway as a pioneer country, international cooperation, creating broad eco involvement in the population etc.

Neither "consumption", nor "waste" or "households" are mentioned in the index; "environment" is mentioned four times, "biodiversity" two while "wind power" and "ecological agriculture" is mentioned once.

The quite clear focus on consumption, purchase pressure and waste in the previous program seems to have disappeared from the 2005 program, and the environmental policy is lifted to a higher or more overall level. This does not necessarily mean that the party has chosen a less ambitious environmental policy, but that the consumer and household angle is weakened.

Arbeiderpartiet's program 2009-2013: Generate and share

The program for 09-13 has much in common with the previous, but the environment is now presented as one of five prioritised tasks:

> We want a society in ecological balance. We need the community to secure or most important welfare benefits: clean air, a clean ocean and a nature in balance. We will meet the challenges with stronger measures and increased efforts. Norway should take significant responsibility home and abroad. The climate challenges must be confronted at all social areas, locally, nationally and internationally.

Further, the program announces a partial comeback for the consumer and everyday life approach in the environmental policy. The focus remains on climate- and climate agreements. The climate angle contains a consumer dimension as well, however, for mobility and for consumption at large:

> GHG emissions from the transport sector are large and growing. Arbeiderpartiet will change the sector in a climate friendly direction. Emissions from road traffic and air traffic increase most. Arbeiderpartiet will stimulate a quick adoption of low- and zero emission technologies. Emissions from private vehicles will be reduced by incrementally stricter regulations of emission levels and tax rewards for low polluting cars. We will reduce the amount of travel to work in private cars in the urban areas by development of communal transport, parking at communal transport hubs and parking restrictions in the city centre.

And

> The environmental and climate impact of Norwegian consumption exceeds what would be a sustainable level globally. This is mainly due to domestic energy, food and mobility. Consumption must be changed in an eco-friendly direction in order to become sustainable. The increased focus on climate questions leads to Norwegian consumers being more concerned with reducing their climate impact. Arbeiderpartiet wants better labelling schemes to help Norwegian consumers to the knowledge and information they need to take better climate decisions.

In addition, the program wants to "maintain the Consumer Council".

There are no policy initiatives here that explicitly targets product durability, but as mentioned, we observe a return to a more consumer oriented environmental policy.

Arbeiderpartiet's program 2013-2017: We take Norway further

In the program for 13-17 the environment is once more dropped from the list if five priorities, but the ambitions for climate and environment is present at an overall level. The party wants a society in ecological balance, focuses on solidarity with future generations etc.:

> Arbeiderpartiet will not leave a society that is in debt, is unfair, polluted and deprived of wild nature. The precautionary principle is basic for Arbeiderpartiet.
>
> Together with poverty, man-made climate change is the number one challenge of our time. It is a global challenge that asks for global solutions through international organisations like the UN and EU. In addition, we need to act nationally and locally.

Practical policy measures are mainly focused on energy production and energy saving, but there are some elements of policies directed at households and/or consumers in the energy field; mainly building requirements and support for energy saving refurbishment.

Similarly, in the transportation field, where community transport, bicycles and walking are supposed to account for the growth in person transport in the urban areas and continue to use taxation on private vehicles to reduce emissions from the sector.

Finally, there are some elements of an ecological twist in the more general consumer policy; digital display of price and product information, action plan for a non-toxic everyday life for consumers, strengthening of the information to house buyers and so on.

The overall impression is that the consumer focus in the previous program is reduced. And, as before, product durability, quality and repair are absent from both environmental policy and consumer policy.

Arbeiderpartiet's program 2017-2021: Everybody is included

"The years ahead will test our capacity for change. New, green industries will be established". In the list "The five most important priorities", climate and environment are now present in all five. Most of the rhetoric is now based in the idea of a circular economy.

> In a low emission economy, resources must be reused. This means that we need a more efficient use of resources in industry, better use of by-products from industry into new raw materials and better use of plastic and other forms of waste. This is called "a circular economy". We will speed up the development of a circular economy for the sake of the environment, and because it will help create new businesses and jobs.

But here product life spans and the related themes also appear:

- Contribute to more reuse and resource efficiency
- Demand more eco-friendly product design and materials use, repair and increased capacity utilization
- (----)
- Increase ambitions for materials recycling and reuse
- (----)
- Consider better warranty schemes to secure longer lifespans for products (p. 44).

The product durability perspective is present inside a logic of circular economy, and it is a program that priorities consumption and products.

Conclusion for Arbeiderpartiet

It seems as if over time, and with a few setbacks, Arbeiderpartiet has developed an environmental policy that is gradually more focused on households, consumption, and products, and that it now (2017) also has added the durability perspective into the circular economy. Without this perspective, we believe that the circular economy might be unnecessarily energy intensive. In this context, long product life could contribute to a slightly slower circulation.

Sosialistisk Venstreparti (SV)

SV has sought the position as the leading environmental alternative in the socialist block. In our 20-year period the party advocates an ambitious environmental policy with detailed suggestions over a wide range of policy areas like energy, food production, transport, environmental protection etc. We do not want to

expand the text too much, so we try to limit the review to phenomena closely related to product life spans, product policy and consumer-oriented measures, even if leads to a slightly less comprehensive take on the general environmental policy. After all, our focus is and should remain on product life spans.

SV's program 2001-2005

Environmental matters make up large parts of the 2001-2005 working program. Most of the themes relevant for us are placed in sub chapter 3.3; "Reduce the amount of waste and remove environmental toxins". Very much text deals with waste, and even if the term circular economy was not in use at the start of the century, it is this way of thinking that dominates.

Buildings: In this period, SV will seek solutions with reuse and then recycling of building materials, even establishing plant for materials recycling (---) work for increased use of renewable building materials in new public buildings, in refurbishment and other public work (---) including waste reduction in all plan processes that deals with more than 500 square meters building area.

Further, there is much focus on toxic waste like endocrine disruptors, organochlorine compounds, suggestions for municipal handling of waste etc. At a listing of the eight most serious environmental challenges that Norway faces, the program points to "reduction of the amounts of waste" and to "change the patterns of production and consumption".

Under the program's point 3.3 the program states that:

> The waste problem will not be solved by collection, cleaning and recycling alone. The total waste production in society must be reduced. SV claims that an important instrument for waste reduction would be to expand the producers' responsibility in more areas.

This producers' responsibility approach might lead in the quality/warranty/durability direction, but this step is nor spelled out. In the environmental field, SV's work program for 2001-2005 is very ambitious and detailed, but not much of it seems directly relevant for the durability theme.

SV's program 2005-2009: Different people. Equal opportunities

Like in its predecessor, the 2005 program is environmentally very ambitious.

> Our goal is a fair and ecologically balanced world. This implies a fair distribution today, without impeding the chances for our descendants to satisfy their needs. New knowledge and new technology are central to solving our environmental problems, but it is also necessary to change the driving forces that lead to the devastation of nature that mainly impacts the world's poorest.

To meet the environmental challenges, we will have to:

- Maintain biodiversity and man-made landscapes
- Stop the emissions of non-degradable toxins, reduce GHG emissions and reduce air pollution in the most exposed areas
- Reduce our consumption, particularly limit the use of non-renewable resources, and avoid overuse of renewables.

The environmental policy is centred around energy, transport, outdoor life/biodiversity, nature protection and cultural heritage, in addition to what deals with consumption, under 5.3, "An environmentally friendly everyday":

> SV wants it to be easier to be a politically conscious consumer. As consumers, we have a right to be informed about what we buy, but also on how a product is manufactured. Better labelling and consumer information will make more people able to act more according to their attitudes. SV will work towards reducing purchase pressure, particularly the pressure aimed at children and youth. Hence, SV wants to reduce the advertising volume.

The program wants to use public procurement to make eco-friendly products more profitable and to support eco-friendly technology. Many suggestions could have relevant for product durability, like consumer information and labelling, but durability, product quality, repair and warranty are not explicitly mentioned.

SV's program 2009-2013

Chapter 2; "Climate and environment" is, like before, comprehensive, ambitious, and detailed, focusing on climate, on objectives and measures, energy policy, transport policy and biodiversity. The parts about eco-friendly everyday seems to have been transferred from the previous program, almost verbatim, but a paragraph on "reuse" has been added on waste reduction under the subchapter 2.4; "An environmentally friendly everyday":

> An environmentally friendly waste management is an important contribution to reduced GHG emissions and to protect nature. This increased waste production will not be dealt with by collection, cleaning, and recycling alone (this is lifted from the 2001-2005 program).

New here is the sentence: "SV will strengthen the efforts for changes that reduce the production of waste and contributes to reuse".

Further, it must be arranged for materials recycling, energy recovery and secure final treatment of the waste.

The consumer-oriented measures deal with information, toxins, advertising and – again – waste. Referring to Cooper's list, measures directed at producers and retailers would probably be subsumed under "everyday", as claims from the consumer to the product. Neither in 2009 is SV's environmental policy much linked up to product life and product quality.

SV's program 2013-2017: Share the benefits

The program, called "Share the Benefits" or "Share the Goods" (tricky translation), is organised into as many as 17 chapters. Volume wise, environmental policy fills less space than earlier, but the theme is also included under business/industry development and global justice.

The regular themes are climate policy, transport policy, biodiversity, and renewable energy. New sub chapters cover green industry, petroleum industry. In addition, the theme of roads and road traffic is given a separate sub chapter.

In the sub chapter «An eco-friendly everyday life" there appears to be few changes:

> It must be easier for ordinary people to choose eco-friendly. SV works for better labelling and consumer information, so that consumers easily might chose more environmentally friendly products.
>
> SV will reduce the amount of advertising and work for less purchase pressure, especially at children and young people.
>
> SV will reduce the amount of waste by stimulating more environmentally friendly production and consumption. As much waste as possible should be reused and recycled.

Product lifespans, quality and repair are not prioritised parts of SV's environmental policy in the program from 2013.

SV's program 2017-2021: Engage in the struggle for a warmer society

SV opens the 2017 program with the generational principle from the report of the World Commission, with a *rise* where it insists that the globe should be handed over in a *better* condition:

> SV will hand over the globe in a better condition than when our generation took over. Nature should supply livelihood, pleasure, and welfare for our children as well. Then we will have to stop climate change, extermination of plants and animals and reduce the pressure on Earth's limited resources. SV will ensure zero GHG emissions, clean air, protection of nature and end to littering on land and in the sea.

The program targets climate, zero emissions, railways, other forms of transport, nature protection and loss of biodiversity, measures like energy efficiency programs, phasing out of fossil energy etc. Unsurprisingly, the program covers the same themes as the previous programs, which are the same themes as other parties cover. As always SV is environmentally radical and, just as unsurprisingly, the party is critical of business and more positive to public measures.

Interesting here, however is a much stronger focus on consumers, everyday life and what we have called a product perspective, in addition to targeting the durability themes. Under the sub chapter "Eco friendly everyday life" the part now states:

SV will:

- Give consumers expanded warranty/right to complain. To have manufacturers make products with increased durability and quality, we will increase warrant to six years, compared to the present two and five years. We also want to increase the retailer's burden of proof from 6 months to two years
- Make it easier to repair our things. We will have more competition in the market for repair. It should be possible to have products repaired by professionals without affecting the warranty.
- Have more take back schemes ("panteordninger" in Norwegian; financial support for the return of waste; see note 1) and more reuse. We will introduce more take back schemes and eco taxes on products with significant environmental impact in production. Further, we will impose on the municipalities to establish good recycling schemes and to facilitate for the establishment of reuse and repair workshops.

With this program SV takes a qualitative leap in its environmental policy towards durability and the environment. In this most recent program, product durability, quality, warranty, repair, and reuse has made its mark on a political program.

Conclusion for Sosialistisk Venstreparti (SV)

SV has promoted a consistent and rather ambitious environmental policy over the years, with some focus on consumers and households. The durability theme did not appear until the 2017 program. When it appeared, however, the program related to the rather wide spectrum of durability relevant measures.

Fremskrittspartiet (FrP)

Fremskrittspartiet is a right-wing party that was part of the non-socialist government until recently. Its: "ideological basis, liberalism, claims that people are more able to decide what is best for themselves than politicians are". Politically, FrP has historically focused on law and order, tax reductions, immigration, and care for the elderly. Based on the party's program of 2017-2021, its environmental policy is rather conventional, environment is not among its core concerns.

The program warns against measures that weakens Norwegian business and against so called "symbolic acts". It is a staunch defender of Norwegian oil production, also in principle in the arctic areas.

Despite Fremskrittspartiet's focus on individuals and individual agency, the consumption and everyday life approach has not influenced its environmental policy. Consequently, product durability, product quality and repair are absent from the 2017-2021 program.

Miljøpartiet De Grønne (MDG)

Translates into "The Environmental Party, the Green ones". The youngest of the Norwegian parties to reach a certain size and to achieve a presence in Parliament and in the municipal councils. The party is obviously based on environmentalism, and it has so far refused to choose position in the left-right divide. In the municipalities it collaborates with the block that gives most to MDG in the negotiations. We have reviewed the Working Program for 2017-2021.

We expect to find (and find) a very ambitious and detailed environmental program, with a clear critique of Norwegian overconsumption. This means that the program has to deal with consumption, lifestyles etc. Has MDG also embraced product durability and the connected themes?

It has. The program covers almost all aspects of durability, product, and consumer issues.

- Minimum demands on product lifespans for products marketed in Norway
- Remove VAT on repair, reuse, and public transport
- Strengthen warranty in the Marketing Control Act
- Legislate "the right to repair", including demand on the manufacturer to produce repairable products and make spare parts and handbooks available

MDG has a clear perspective on everyday life, consumption, products, and product durability in its overall environmental policy.

Conclusions for the Party Programs study

We have seen that for three of the parties we have followed from 2001 on, the durability theme appears at the end of our period, in the 2017-2021 programs. The focus is perhaps a bit weaker for Venstre and Arbeiderpartiet than for SV. For MDG the presence is distinct, but here we have no history.

It is not clear if, and to what extent, the appearance of durability in 2017 will change the political and societal discourse, but negatively, the absence of durability focus from 2001 to 2017 says that these perspectives have not dominated. Among researchers, product lifespans have been seen as important at least since the 90ties, and so far, we have no explanations for its sudden appearance in 2017.

It should also be noted that a mere mentioning of a set of concepts, ideas and measures in a party program says little about the party's real priorities. This goes even for SV and MDG. In their day-to-day politics they might prioritize other environmental tasks, like public transport in urban areas or production of renewable energy over the lifespan theme. Party programs contain many themes and measures, and it is not possible to prioritize everything. This is not a claim that durability will not dominate future eco politics, but it is a reminder that the appearance of the theme, positive as it is, is no guarantee for a political breakthrough.

However, product durability has (at last) entered one arena for debates on environmental policy.

3.3 NGO's

FIVH/Future in our hands

Pål Strandbakken with Liv Thoring (FIVH)

This is Norway's largest environmental NGO (the organization has about 38.000 members in Norway), founded in 1974. The initiative was based on a book with the same title - "Fremtiden i våre hender" – written by Erik Dammann and published in 1972 (English version "The future in our hands" was published by Pergamon Press in 1979). Future in our hands is (stakeholder) partner in the LASTING project. The book, and the campaign/organisation was based on the linking of the exploitation of the Third World with an environmental critique of rich world consumption:

> We are committed to the global environment and a globally fair distribution of wealth. We believe the two are inseparably linked, in a way that requires us to work on both subjects in an integrated way. The organization has about 38.000 members in Norway.

and

> Consumption
> Create support for the need for a reduced consumption of natural resources in Norway, to protect the environment and the world's poor. Create a longing in the population for a less commercialized society, and a lifestyle with a reduced focus on materialism (both quotes lifted from the organisation's homepage).

In our perspective, the organisation historically has been the environmental NGO that has been most concerned with consumption, not limiting itself to nature conservation and industrial pollution. The

organisation introduced product durability in a report from the early nineties (Hille1993), and it maintained a product lifespan focus for some years, but the present review is concerned with initiatives after 2000.

Durability initiatives and reports 2000-2021

In this century, the durability focus seemed to disappear from FIVH's communication and campaigns for a period. When it returned, it was first concerned with clothing.

In a report from 2007 (Germiso & Tajet 2007), FIVH analysed the effects of the export of used clothes from Norway to Africa. The question was whether the huge volume (12 000 metric tons exported pr. year in the nineties, but some of it to Eastern Europe) imported to African countries had hurt domestic textile industry. Negative effects on local production were reported by trade unions in a country like Kenya. The report did not arrive at a clear conclusion.

The dilemma for FIVH was that the collection from Norwegian consumers of used clothes for extended product life is regarded as a positive thing, and that the potential problems for the receiving countries were seen as soluble:

> For environmental reasons it is not an option to ask consumers to stop delivering their used clothes to recycle/reuse. We will, however, encourage consumers to buy fewer clothing items and to use each garment for a longer period, so that less textile waste is generated. Further, we encourage Norwegian consumers to, to a larger degree, buying used garments, so that market actors get less need for exporting. Finally, we would like to motivate authorities and the collectors of clothes to develop new applications for collected textile waste, most notably if the ban on deposition of organic waste should lead to a huge increase in the amount of used clothes.

Clearly, the focus here is on north-south relations more than on Norwegian consumption, but it is interesting that product durability is brought into the analysis, even if it is not really highlighted and (here) only concerns garments. A second report on textiles; this time on the handling and reuse of unsold garments (Granum 2013) was published six years later, but this did not really treat quality as an option for prolonging life and reducing waste.

Every year, FIVH published a very comprehensive report on (i.e.) Norwegian consumption, as a kind of "state of the nation" -input to political processes. These reports did not target durability, product life and repair, however, even when they were worked out by the same author as the 1993 durability report. As a result, the longer life option was not really re-included in the organisation's policy, campaigns, and research until 2017.

A 2017 report (Lindahl 2017); "Politics for a greener consumption", grasped the whole set of durability themes. The report was:

> based on an ideas workshop arranged by Future in our hands in April 2017, where representatives from research institutions, CSO's, business and some political parties participated. The aim was to receive suggestions for policies that might contribute to more sustainable consumption, and insight into at what level measures should be introduced to be efficient.

The report introduced political approaches and suggestions on warranty, repair, and product quality, promoted elements of sharing economy (renting products instead of owning), which all were supposed to influence product quality/longevity. Financial measures (fees and taxes, i.e., reduced VAT on repair), legislative measures (warranty) and durability labelling were suggested. The report also referred to some survey questions about Norwegian consumers' attitudes to willingness to reduce consumption, willingness to share products etc.

"Politics for a greener consumption" was followed two years later by a large report on circular economy, CE, "Circular future – on the transition from a linear to a circular economy" (Boye 2019), where renting, leasing, and sharing was at the centre, explicitly demanding better quality/more durable and more repairable products (without which, sharing would be less successful):

> When the producer of office printers is leasing out the service 'copier' to a business, it suddenly becomes profitable for the producer of the copier to manufacture high quality machines with long product life, that are easy to repair and with easy access to spare parts (Boye, p. 13).

This business model is transferable to privately owned washing machines, dishwashers, refrigerators, and freezers as well.

> Cheap raw materials, cheap labor, transport and energy have made this model (the present, 'linear' business model) too profitable, and this makes it difficult to survive competition for businesses that want to go for quality and repair. Many consumer products have to become more expensive, in return they will last longer. **For a circular economy to survive, it must become cheaper to repair than to buy new products.** The question is whether this is achievable inside a market economy. We argue that it is possible if authorities change the economic framework (p. 49, bold added by the author).

Generally, the proposed measures were the same as in the 2017 report; labelling schemers, better warranty, reduced or removed VAT on repair, access to spare parts, eco design directives targeting durability and so on.

Prior to the 2017 report, a rather comprehensive article was published in the organisation's magazine for members (Børja 2016), and from 2017 on durability and the related themes have been part of FIVH's communication and campaigns, promoted at home pages, in the magazine and in newspaper articles. During 2019 and 2020 FIVH held a strong focus on different aspects of durability, and on the different challenges for different products. Generally, on repair, they published news articles connected to a climate campaign; "klimadugnad" (Ånestad 26/8-20). Further: "Become a repair expert: Repair skills and knowledge helps us keep our consumption at a lower level and gives our products longer life spans" (Ånestad 26/8 & 30/8-20). This online article encouraged the purchase of quality products and gave 8 'tips for repair'.

Prior to that (March 2020) they had informed of EU initiatives for a right to repair under a circular economy, with an increased producers' responsibility. These initiatives were followed by specific news items/consumers' advice on how to become a smart buyer of used electronic goods (Helle 5/9-20) and on how to prolong the life of your cell phone (Helle 25/9-20). After that, the focus was moved to clothes, ending in a 'shop stop' challenge; sign here and commit yourself to not buying new clothes for a fixed period.

This means that we have seen a total breakthrough for the durability, repair, quality, and warranty themes in 2020, a new approach to environmental consumption from Norway's largest environmental NGO. It is very interesting to see if, and to what degree, this change will infect Norwegian society and politics in the coming years.

We do not know why these themes seemed to disappear from focus from 1995 to 2007 (approximately), but we notice that this product and longevity approach has been important for the last five years or so, with a dramatic increase from 2020. We also notice that the 2017 comeback of product durability for Future in our hands was simultaneous with the parallel appearance of the approach for three of the political parties (Arbeiderpartiet, SV and Venstre).

The Norwegian Society for the Conservation of Nature/Friends of the Earth

Founded as early as 1914, Norges Naturvernforbund (Friends of the Earth Norway) is Norway's oldest environmental and nature protection organisation. The organisation is membership based, and it has now more than 35 000 members, organised locally into some 100 groups. Naturvernforbundet was initially an initiative for nature conservation and protection, but today it is a broad environmental organisation, as stated on their website:

> Our main goal is to protect nature and the environment so that human activity does not exceed the tolerance limits of our planet. We are concerned with a wide range of issues in environmental and nature conservation, but work specifically with the area conservation, climate change, energy, and transportation.

And

> The Norwegian Society for the Conservation of Nature/Friends of the Earth Norway will work for a society where people live in harmony with nature. This is a society where the basis and diversity of life is secured for future generations, and where nature's own values are the foundation of the work to increase man's respect for, and love of, life and landscape (Statement of purpose).

The Society has traditionally been less concerned with consumption than i.e., FIVH, but this changed from the 1990ies (it initiated a network called 'Environmental Home Guard' (Miljøheimevernet); "Green Everyday" from 2003, in 1991), but consumption became much more central to the organisation's policy in this century. Consumption was awarded a separate chapter in the work program from 2015 on and has been given high priority ever since. The chapter was, and still is, named "Environmentally friendly everyday"; from 2019 there has also been a separate department in the organisation under the same heading. Prior to this, some consumer directed initiatives, i.e., on energy saving, were more indirect. Lately Naturvernforbundet has taken the lead in campaigning for product durability, with a clear focus on repair and repairability.

Circular economy, consumption and repairability

It seems as if 2016 is the real turning point. Several initiatives dates back to that year; arrangements under the "political fair" Arendalsuka, together with the Norwegian Consumer Council focusing on overconsumption and repair, chiefly for electronics and clothing (yearly from 2016), it has arranged "Clothes exchange day" yearly since 2016 (except for the Covid year 2020). This means that active members

have arranged clothes exchange parties all over the country, focusing on the worth of clothes, promoting the idea that they last longer than people believe them to and giving consumer advice on maintenance and repair.

Naturvernforbundet has run a web site called 'takecareofyourbelongings'[9] since 2016, promoting smart repair tricks and displaying a map of repairmen and repairer firms. Further, in the same year they ran a campaign for repairing your things on screens in the city, in co-operation with Clear Channel.

> Generally, the message about the environmental benefits of keeping products for a longer time has over time been directed at consumers. It still is, but it has turned more political in the last 2-3 years, with the struggle for the right to repair and the transition to a circular economy where we use less, and not only recycle more, and the strengthened warranty (e-mail from E.M Paalgard)

Among newer initiatives, they have collaborated with the municipal authorities in Oslo to make repairers in Oslo more visible, with posters and window signs (2020). The messages about durability and repair are communicated through newspapers, web sites and social media. Very interesting in the context of the present report is an initiative for influencing political processes directly, promoting circularity and durability into party programs for the 2021 election.

The very broad approach to consumption, circularity and consumption can be exemplified by a press release on CE and Norway, published at Naturvernforbundet's web site 27/8-2020:

> A new report from Circular Economy shows that 97.6 % of our consumption is based on 'use and discard'. This makes Norway Europe's worst when it comes to reuse. So far, we have throwed away huge amounts of waste instead of taking it back into the cycle and the economy. We have missed a lot of jobs and the potential to have a consumption balanced with nature, says the Secretary General of "The Norwegian Society for the Conservation of Nature", Maren Esmark, who has been in the reference group for the report. We are not only performing badly on reuse of materials; we are also among the countries with the highest consumption per capita. These are the sinister facts of a report that luckily also considers the potential for increased circularity. Our economy is only 2.4 % circular, but this could be increased to 45.8 %.
>
> Reduced consumption is most important.
>
> Still, the society acknowledges that consumption reduction is the most important measure. We cannot talk about a circular economy without considering the number of products that are turned into waste. Because we do not have to refurbish/redecorate that often, buy 23 kilos of clothing every year and exchange our smartphone every second year. So, the Society will continue to push for a repair and a lend- and lease culture in Norway (Press release, Martin Ødegaard).

We do not know if the durability and repair focus in The Norwegian Society for the Conservation of Nature was developed independently of the EU initiatives, or if the Friends of the Earth network did react on the same reports as the Union. What is clear is that the organisation reacted early and consistently on this new (or reintroduced) environmental concept. And that it was integrated in the larger circular economy

[9] Read more on Naturvernforbundet's webpage

approach. It is very interesting to see if, and to what degree, this approach, parallel to FIVH's, will influence Norwegian society and politics in the coming years.

3.4 Product longevity in official documents

Nina Heidenstrøm

Even if the Norwegian political party programmes mention product longevity or deal with issues relating to it, it does not necessarily mean that any official policy exists. To consider the impact of party programmes, we have searched for product longevity ("produktlevetid" and "produkters levetid" in Norwegian) in official documents using the official websites of the Storting, the Norwegian parliament, and the Norwegian government. In the following, we review what we consider to be the most relevant documents, defined by their connection to either environmental or consumer policy, and that consider product longevity. All titles are translated from Norwegian. Note that this chapter does not include an analysis of the June 2021 national strategy for a circular economy.

Table 3.1: Official documents considering product longevity

Title	Year	Author/proposer	Reference
Environmental politics for a sustainable development – Dugnad for the future	1996-1997	Ministry of the Environment	White paper (Meld. St. nr.58 1996-97)
Waste Prevention. A vision of life quality, consumer consciousness and circular thinking	2002	Ministry of the Environment	Norwegian Official Report (NOU 2002:19)
Waste as resource. Waste politics and circular economy	2016-2017	Ministry of Climate and Environment	White paper (Meld St. 45 2016-2017)
The trade industry. When the customer is always right	2018-2019	Ministry of Trade, Industry and Fisheries	White paper (Meld. St. 9 2018-2019)
The consumer of the future. Green, smart and digital	2018-2019	Ministry of Children and Families	White paper (Meld. St. nr.25 2018-2019)
Climate plan for 2021-2030	2020-2021	Ministry of Climate and Environment	White paper (Meld St. 13 2020-2021)
Representative proposal on less "use and waste"	2021	Trygve Slagsvold Vedum, Sandra Borch, Ole AndréMyhrvold, Willfred Nordlund, Åslag Sem-Jacobsen (Senterpartiet)	Representative proposal 100S

Stortinget has nine listings of "produktlevetid" and 35 of "produkters levetid". The first listing is from 1997, "Environmental politics for a sustainable development – Dugnad for the future" links product durability to changes in production and consumption patterns. The government will work towards establishing "environmental declarations" on products with information about longevity. Also, producers should reduce use of material resources by making products that are repairable and with interchangeable parts. Retail is encouraged to offer products that are resource efficient and with low environmental impact, including long lasting and repairable products. The sector itself is responsible for implementing this, e.g., by facilitating repair services and demand environmental labelling on the products they sell. Finally, consumers are responsible for requesting long lasting products. Longevity is also mentioned for buildings and building materials.

In 2002, "Waste Prevention. A vision of life quality, consumer consciousness and circular thinking", states as one of its main conclusions that "producers must, to a larger extent design their products for longer life and for recycling" (p.13). Longevity is mentioned a further 62 times throughout the

report, described both as a major challenge for sustainable development, as well as a major solution. The report covers seven key product groups, including textiles and electronic products, where short product life is considered a major challenge. To increase longevity, the report suggests the following measures: For producers, the "produsentansvarsordning" (producer responsibility) will give producers an increased responsibility for collecting and recycling products, which in turn will stimulate producers to design and manufacture products with a longer lifetime. New product standards will give opportunities to increase longevity, and the report argues that standards have to a little extent been used for this purpose so far. Strengthening of consumer politics and regulating advertising will ensure high product quality and durability. Interestingly, the report also proposes labelling with "yearly costs" for products, making it easier for the consumer to consider the actual cost throughout the product's life (p.92). Moreover, the Swan label should be continued. Better organising of repair services (p.105).

This report is way ahead of circular economy-based politics of the 2010's, making concrete suggestions as to how waste can be *prevented* and not managed. It should be noted that SIFO researcher Ingun Grimstad Klepp, who has worked extensively with product longevity, is part of the committee who wrote the report. The committee was led by Heidi Sørensen from the Socialist party (SV), that, as we have demonstrated above, has focused on longevity, consumption, and everyday life in their environmental politics. In 2005, representatives from the Socialist party proposed to establish a state company for waste prevention and recycling. However, the proposition was dropped due to a Parliament election.

We do not find any relevant documents addressing product longevity between 2002 and until the 2016-2017 report "Waste as resource. Waste politics and circular economy". Here, longevity is mentioned 19 times, first in connection with product design and production. With reference to the EU Eco design directive and to "Nordic influence work", longevity is considered a topic relevant and important for the circular economy. The extended producers' responsibility is furthermore seen as a key instrument to ensure long lasting products. In chapter 5 on waste prevention, the report uses SIFO's research on textile waste prevention to argue for instruments that will stimulate more rental and repair services, redesign, reuse, and material recycling. Preventing electronic waste will depend on product design, new Eco design requirements, increased warranties, and product design.

Although waste prevention is key in this report, the differences between the two reports are striking. The 2016 report have fewer concrete measures and discuss longevity much less than the 2002 report. We might speculate in that the concept of the circular economy has contributed to shifting focus to waste management, as argued in the previous chapter.

In 2018-2019, the report "The trade industry. When the customer is always right", longevity is mentioned four times. The first is related to roadmaps for green trading, where the "textile action" is mentioned as an example. Secondly, it is mentioned in relation to a general section on the circular economy and climate risk.

In the 2018-2019 report "The consumer of the future. Green, smart and digital", longevity is mentioned two times, both in relation to the circular economy.

In 2020, a new climate plan for 2021-2030 was launched. It includes 11 references to longevity. The first refers to mobility, stating that cars have a lifetime of 10-15 years, which will affect the composition of the Norwegian car park in the coming years. Lifetime is furthermore referred to when identifying the lifetime

of different climate gases, and the lifetime of financial investments. Under a chapter on the circular economy, the plan states that the Norwegian government will launch a circular economy strategy in 2021. It aims to develop a green, circular economy by for example "design/ing longer lasting products, make it easier to repair and reuse buildings, objects and materials" (p.190). Longevity is then discussed in relation to building materials in public buildings, suggesting having a "complete climate calculation of the actual lifetime of a building" (p.196). Finally, the strategy mentions that the EU has notified so-called "product certificates" in which longevity and reparability are included.

In February 2021, just weeks after the Norwegian official broadcaster NRK launched their show "Sløsesjokket" (Waste Shock), where the leader of the Centre Party Trygve Slagsvold Vedum contributed, the party proposes that the Norwegian state's waste management instruction should be changed, aiming to make recycling easier. The representatives ask the government to propose a recycling strategy for the public sector and facilitate buying locally produced products.

3.5 Conclusion: Durability in Norwegian environmental politics and discourse

The re-appearance

At a theoretical level, we would have expected that the themes and ideas are developed in the party organisations ('laboratories') before being fed into political processes, through national assemblies, government or municipalities etc. and into the societal discourse. What we have observed here, however, is more of a sudden reappearance of the durability and repair themes from around 2017 in the parties, the NGOs and in official documents. This common timing leads us to believe that we have seen a simultaneous reaction to input from an outside source. This source is probably initiatives from the EU, connected to the set of concepts coming with the 'circular economy': *Closing the loop. An EU action plan for the circular economy* (2015). These ideas and buzzwords seem to have been taken up by different Norwegian actors,

Translation into politics

A set of ideas and several suggestions for new legislation in a party program will not, obviously, translate directly into decisions and regulations. It will depend on the size of the party, its coalition partners, its priorities among a number of equally important cases etc. It is worth noting, however, that in this century, environmental policy is framed in the language of ecological modernisation, and this holds for all political parties and official documents. The 'romantic' approach probably disappeared gradually after the report of the World Commission in 1987.

Even if both SV; ''Give consumers expanded warranty/right to complain. To have manufacturers make products with increased durability and quality, we will increase warranty to six years, compared to the present two and five years", and Arbeiderpartiet; "Consider better warranty schemes in order to secure longer lifespans for products" agree on increasing the warranty, they still must prioritise this specific piece of legislation, construct a majority for it, and (probably) have it approved by the EU. Still, it is important that durability now is part of the political debate over the environment. Like in the official documents; that it is present does not prove that it is considered, but its absence more or less guarantees that it is not central.

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4. Product lifetime in consumer policies

Vilde Haugrønning

4.1 Introduction

In recent years, the roles of the consumer has changed in line with a growing concern for sustainability (Mak & Terryn, 2020). Consumers are often described as enablers of the Circular Economy (Keirsbilck & Rousseau, 2019); especially with regard to extending product lifespans. Consumers cannot control the quality or markets for products, and it is not possible for consumers to know the history of a product, its functions, qualities and expected service life, without the involvement of the producer. However, consumers can decide when, how and what to acquire, use, clean, maintain, repair and discard. Previous research on product lifespans finds that many products go out of use before their physical lifespan ends (Cox et al., 2013), which is partly due to product breakdown, but also that consumers choose to replace products for a number of reasons, such as poor quality, few repair options and improved upgrades in new products (A Gnanapragasam et al., 2017; M. Oguchi et al., 2016).

Promoting sustainable consumption has been a key part of the policy agenda on all levels, both in terms of environmental and consumer protection policy. Sustainable consumption regard how consumers might contribute by choosing more sustainable products and/or reducing their consumption. Choosing longer lasting products is an important part of this, and thus product quality. However, by highlighting consumption, the individual is made responsible for major, societal challenges, without challenging the structural preconditions for a particular type of consumption. In terms of product lifespan, what is at stake for consumers and their rights is the knowledge and reliability of a product. This has particularly affected how consumers are conceptualised in policy work by consumer organisations, and consumer protection policy may not always go hand in hand with environmental policy (Mak & Terryn, 2020). Consumers' ability to engage in more sustainable consumption relies on a plurality of factors, where information is frequently emphasised as a measure to empower consumers into making more sustainable choices. However, there are also other measures to promote consumption of durable products and many of them are found in the policy work of consumer organisations.

In this chapter, we analyse how 'product lifetime' is conceptualised in policy work by consumer organisations and governmental institutions, within the timeframe 2012-2020. While other chapters in this report implicitly deal with consumer policy at a national and EU levels, this chapter looks at consumer policies explicitly at levels like the EU Consumer Agenda and the Norwegian government's policy on consumers and the circular economy. Most important, however, are the policy papers of consumer organisations. The products consumed by citizens have for decades been important for organisations working to strengthen and improve the rights of citizens as consumers. Hence, the quality and function of products is at the core of consumer organisations'

concerns, but it is only in the past 10 years that consumer policies regarding product quality have been coined in relation to environmental policies and as part of sustainable consumption.

Reader's guide

The first part of the chapters involves a review of previous studies on consumer practices in relation to product lifespan. This is followed by an overview of the two consumer organisations reviewed in the data collection, and a section on current product guarantees and repair policies. The following section presents the method for data collection and the selected policy papers. The results are structured to presents findings from consumer organisations, consumer policies in Norway and consumer policies in the EU. The analysis discusses consumer policies in relation to sustainable consumption by focusing on the consumer role and consumer policy in an environmental perspective. Finally, the conclusion will emphasise the main findings from this chapter.

Studies on consumer practices

There are a number of studies that investigates consumers and product lifetimes, especially with regards to the conference Product Lifetimes and the Environment (PLATE), which has been held every other year since 2015. Several studies indicate that consumers' engagement with product lifetime varies between different product groups (Cox et al., 2013; Haugrønning et al., 2021; Wieser & Tröger, 2016). Furthermore, studies and reviews of consumers' expectations for product lifetimes have found a reduction in how long consumers expect their products to last (Alex Gnanapragasam et al., 2018; A Gnanapragasam et al., 2017). This could be related to how the quality and price of products has declined in line with a growing throw-away culture (Cooper, 2010c), which makes product nurturing practices conducted by consumers, such as maintenance and repairs, less efficient. However, recent studies find that consumers are motivated to take care of products (Ackermann et al., 2018) and they want to choose long lasting products, but find it difficult to recognize quality in products (M. Oguchi et al., 2016).

There have also been several studies ordered by governmental institutions, where findings relate to policy recommendations. A research report conducted in 2011 on behalf of the UK government's Department for Environment, Food and Rural Affairs (DEFRA) identified significant differences between product groups in how long consumers expected them to last (Lyndhurst, 2011). Some products, such as clothes, had an expected lifetime of two years or less, while other products, such as washing machines were expected to last between 5 to 10 years. The report suggests that government interventions are limited, so to extend product lifetimes it is essential to engage with business stakeholders. The report further notes that policies should focus on giving consumers more agency and map out product groups where the expected lifetime is short (Lyndhurst, 2011).

Another behaviour study on consumers and product lifespan was ordered by the European Commission and published in 2018 to investigate consumers' engagement in the circular economy and provide policy-relevant insights to assist with the implementation of the EU circular economy action plan (LE Europe et al., 2018). Results showed that consumers are willing to engage in circular economy practices, but that the actual engagement was low due to lack of

information regarding product quality and reparability, in addition to insufficiently developed markets. Like the 2011 study, the results showed that product durability was more relevant for investment products, such washing machines, than up-to-date products, such as clothing and smartphones. Suggested policy actions for extended product lifetime were to influence social norms by emphasising the link between durable and easily repairable products and high-quality and cost-savings in the long-term.

In 2016, a study on lifespan labelling and the influence on consumers was conducted on behalf of the European Economic and Social Committee to investigate whether lifespan labelling on products would influence consumers' purchasing decisions. The study found that the layout and type of information attached to a product is important for how consumers perceive the labelling. In terms of providing consumers with information, the study shows that such labelling can have a positive effect on influencing sustainable consumption, as durability and reparability is considered important for many consumers during acquisition (SIRCOME et al., 2016).

Consumer organisations and consumer policies

Two consumer organisations, parts of the same network, have published most of the policy work that constitutes the material for this chapter. Established in the 1950s, the Norwegian Consumer Council (NCC) is an independent interest organisation that aims to strengthen the position of consumers. NCC is state-funded, but politically independent from the parent ministry, the Ministry of Children and Families. The council has a consumer policy department that works to influence government and businesses in the interest of consumers. This policy work is aimed at areas that have a high economic impact for consumers, and at existing regulations that should be improved to strengthen consumer protection policies. NCC collaborates with other consumer organisations in Europe and is particularly influenced by BEUC. As an umbrella group for 45 consumer organisations from 32 countries, the role of BEUC is to represent the consumer organisations vis a vis the EU institutions and to defend the interest of European consumers. BEUC was founded in 1962 and works towards policy decisions at the EU level, covering several topics such as competition, consumer rights, digital rights, energy, redress and enforcement, financial services, food, health, safety, sustainability, and retail policy[10]. Both NCC and BEUC work in the interest of consumers and much of their work revolves around strengthening consumer rights.

Policies regarding product lifespans can be found in both environmental- and consumer policy, but there is a difference in what is considered the main interest. By looking at the policy work of these consumer organisations, the analysis will much revolve around how consumer policy is both divergent from, and aligns with environmental policy, and how consumer law and sustainability goals can be more holistically integrated (Mathios et al., 2020). As consumer organisations work in the interest of consumers, it is not obvious that the role of these organisations is to promote sustainable consumption.

[10] Read more about BEUC here.

Product guarantees and repair

Repair and guarantees are important policy measures that can protect the rights of consumers and be economically beneficial, at the same time as they also extend product lifespans. Therefore, consumer protection is important and highly relevant when it comes to consuming sustainably and choosing longer lasting products. Today, the consumer market is highly complex, with an abundance of choices within the same product group, different prices and qualities (Berg & Gornitzka, 2011).

Regarding the goals of the circular economy, repair is considered more efficient than recycling (Levänen et al., 2021). However, even if repair may be more beneficial for the environment, it may not always be to the benefit for consumers and their economic interests. There are also a number of practical and legal obstacles that consumers face when a product break down and in choosing between repair or replacement (Terryn, 2019). The 'Right to repair' movement was originally formed by environmental activists, NGO's and consumer interest groups, and it was launched as a campaign in September 2019. The movement has mainly focused on electronic devices and E-waste as particularly problematic, advocating easier repair of products that manufactures increasingly have made more difficult to repair. In 2020, the European Parliament voted to support the Right to Repair and calls for the EU Commission to "develop and introduce mandatory labelling, provide clear, immediately visible and easy-to-understand information to consumers on the estimated lifetime and on the reparability of a product at the time of purchase"[11]. The right to repair is also included in the EU's Circular Economy Action plan, and it is expected that legislation on the topic will follow in the coming years. France has already introduced a reparability index to inform consumers about the possibility to repair a product, with a grade from 1 to 10 added to labels on washing machines, laptops, smartphones, TVs, and lawn mowers[12].

The guarantee period refers to a legal guarantee that works as a "protection against faulty goods, or goods that don't look or work as advertised"[13]. The length of the guarantee period is important for product durability, and while the standard EU guarantee period is two years, several countries in Europe, such as Norway, operates with a longer period for some products. In Norway, the guarantee period for consumer goods varies, based on how long products are expected to last. For consumer goods considered as durables, such as white goods and mobile phones, the guarantee period is five years. Repair of products that break down within the five-year period are the manufacturer's responsibility. This means that the producer, usually a large chain, or the appliance supplier, need to have repairers and parts available, in the form of agreements with the manufacturers' service departments, or independent service suppliers. If not, they will have to offer the customer a new product every time a complaint case arises. The guarantee period for products "considered" as non-durables, such as clothing, is two years. However, seen from a lifespan perspective, most garments have a much longer lifetime than two years.

[11] Read the news article on ifixit.com.
[12] Read more about the French reparability index on repair.eu.
[13] Quote retrieved from Europea.eu on 'Consumer guarantees'

4.2 Data collection and material

The data analysed for this chapter are documents, such as position papers and policy documents, published by the consumers organisations BEUC and NCC. In addition, a part of the data collection involved a review of the role consumers are given in various policy documents by the Norwegian government and the EU. A main part of the search was conducted on the web page of BEUC and NCC and the web pages in themselves were reviewed in terms of newsletters etc. As part of the data collection, central employees working in BEUC and NCC were contacted by email to verify that the timeline represented in the collected document was correct, and to specify the year the organisations put product lifetime on their policy agenda.

A criterion for inclusion was that the documents were published within the timeframe 2012-2020 and that one of the following terms were mentioned at least once in the document in relation to products and sustainable consumption: Durability, product lifetimes, lifespan, quality, durable, obsolescence, repair. To determine the level of relevance to product lifetimes, the word count of each term was compared to the number of pages of the document.

Table 4.1: Data material

Title	Year	Type of document	Reference
A European Consumer Agenda - Boosting confidence and growth	2012	Policy Strategy (EU Commission)	Communication from the Commission to the European parliament, the Council, the Economic and social committee and the Committee of the regions. A European Consumer Agenda - Boosting confidence and growth (2012)
Sustainable consumption and production – what is our common ground?	2014	Position paper (BEUC)	Sustainable consumption and production – what is our common ground? Guidance within BEUC and its member organisations when working on key sustainability issues (2014).
Durable goods: more sustainable products, better consumer rights	2015	Position paper (BEUC)	Durable goods: more sustainable products, better consumer rights. Consumer expectations from the EU's resource efficiency and circular economy agenda (2015)
The Paris Protocol: Expectations on international climate change policies from an EU consumer perspective	2015	Position paper (BEUC)	The Paris Protocol: Expectations on international climate change policies from an EU consumer perspective. The need for a global, ambitious, binding and fair UN treaty to prevent devastating climate change (2015).
Proposal for a directive on certain aspects concerning contracts for distance sales of goods	2016	Position paper (BEUC)	Proposal for a directive on certain aspects concerning contracts for distance sales of goods. BEUC-X-2016-053 - 03/06/2016
Green consumer change. The Norwegian Consumer Council's platform for a more sustainable consumption	2017	Position paper (NCC)	Green consumer change. The Norwegian Consumer Council's platform for a more sustainable consumption (2017)
The Commission's proposal can provide a dramatic reduction in consumer protection in Norway	2017	Government letter (NCC)	Forbrukerrådet (2017). Kommisjonens forslag kan gi dramatisk reduksjon av forbrukervernet i Norge. Brev til regjeringen. Published 06.12.17
The consumer of the future - green, smart and digital	2018-2019	Policy paper (the Norwegian government)	Framtidas forbrukar – grøn, smart og digital. Meld. St. 25 (2018–2019) Melding til Stortinget.

BEUC's preliminary input for the consumer agenda 2021-2027.	2020	Position paper (BEUC)	BEUC's preliminary input for the consumer agenda 2021-2027. Response to the Roadmap Consultation. Ref: BEUC-X-2020-064 - 09/07/2020.
Consumers at the centre of the drive to sustainability. BEUC's view on the European Green Deal	2020	Position paper (BEUC)	BEUC (2020) Consumers at the centre of the drive to sustainability. BEUC's view on the European Green Deal
Sustainable consumption and consumer protection legislation	2020	In-depth analysis (requested by the IMCO committee)	B. Keirsbilck, E. Terryn, A. Michel, I. Alogna (2020). Sustainable consumption and consumer protection legislation. How can sustainable consumption and longer lifetime of products be promoted through consumer protection legislation?
Circular economy – the consumer must be included	2020	Position paper (NCC)	Forbrukerrådet (2020) Sirkulærøkonomi – forbruker må med. Published 05.03.2020.
New Consumer Agenda – Strengthening consumer resilience for sustainable recovery	2020	Policy Strategy (EU Commission)	Communication from the Commission to the European parliament and the Council. New Consumer Agenda Strengthening consumer resilience for sustainable recovery (2020)

Limitations: the documents are reviewed considering sustainable consumption and product lifespans, which means that several other relevant topics in consumer policy are excluded.

4.3 Conceptualisations of product lifetime

Consumer organisations

Following 2013, BEUCs member organisations across Europe showed a clear interest in investigating why products lifespans were so short and studied consumers' expectations of product lifespans, in order to find measures that might lead to more durable products (BEUC, 2015a). In 2014, BEUC published a position paper on sustainable consumption and production, marking the year that durability and product lifetime was put on their agenda and their new strategy where the goal was a horizontal implementation of sustainability into all BEUC priorities (BEUC, 2014). The paper includes a very low word count regarding durability, but it clearly emphasises the importance of durable products to promote sustainable consumption, which is also in the interest of consumers (BEUC, 2014). Furthermore, the paper remarks that "consumer organisations will lobby actively for such policy measures that serve both long-term sustainable development targets and short-term consumer interests." (BEUC, 2014., p. 9). This statement shows how sustainable consumption had a particular impact on consumer policies. The paper acknowledges that conflicting consumer interests are very common to the debates on sustainable consumption and production, and that these conflicts particularly arise when consumers are expected to engage with 'green consumption', which in the short term affects consumer interest negatively. In the long term, however, it is not conflicting with consumer interests, as the interest of future generations is included in the sustainable development perspective. Regardless, the paper notes how sustainable consumption is not sufficient alone to solve the climate crises and other sustainability challenges. Consumers wanting to make sustainable purchases face many economic disadvantages as the market setting is unsustainable. Therefore, the paper remarks, new market regulations should to a much greater extent enable consumers to make more sustainable choices (BEUC, 2014.).

In 2014, the conference "Towards sustainable consumption – Durable goods and legal guarantees" was the kick-off for a dedicated BEUC flagship campaign on durable goods. "BEUC and its members joined forces to address this pressing problem for consumers through product testing, consumer information and our advocacy work to achieve changes in consumer relevant EU and national legislation." (BEUC, 2015a, p. 6). Following this was the first position paper by BEUC that addresses product lifetime explicitly in its title, stressing the need to extend the useful lifetime of consumer products through design and better ways to repair, upgrade, dissemble and recycle products. The paper also proposes several policy suggestions such as improving the Eco-design Directive, inform consumers about the expected lifetime of products, improve the Consumer Sales Directive and a minimum period where spare parts for products are available (BEUC, 2015a.). This paper also addresses planned obsolescence as a particular challenge.

In 2015, BEUC pointed out that durability was not systematically addressed in the Eco-design Directive. A much-suggested measure to make sure that consumers received better information, was by setting criteria through the Eco-design Directive for durability, upgradability, and reparability for all product groups. BEUC has also put emphasis on durability of products and their lifespans by arguing for a durability criterion (BEUC, 2016). Here, BEUC argues that consumers should be the ones to decide the remedy if the product breaks, as the retailer is the one who breaches a contract. It will, however, not necessarily be natural for consumers to choose repair when given the choice, and such a proposal could potentially lead to unsustainable patterns where more products are replaced and discarded.

The paper from 2016 also addresses the proposal from the European Commission of a standard guarantee period of two years for all tangible goods, which created reactions from many consumer organisations (BEUC, 2016). As many countries, such a Norway, have in place a longer guarantee period for certain high-investment products, this proposal would therefore have reduced the Norwegian consumer rights for products that break. The NCC also expressed their concern about this EU proposal in a letter to the Norwegian government, arguing that it would diminish consumer rights (Forbrukerrådet, 2017a). The proposal of a standardisation of a guarantee period was abolished a short time after.

Even though sustainable consumption may be conflicting with short-term consumer interest, a way consumer interests might be improved through circular economy practices, is through them having access to more durable products and repair choices, in addition to reuse. Observing that sustainable consumption involves many measures that will affect consumers, extending product lifespans will have a positive effect on consumer interests. The problem, however, as is stated in most policy documents written by BEUC and NCC, is the lack of information, in addition to the understanding of the consumer's role the in terms of a rational actor. In a paper from 2015 on the Paris Protocol BEUC (2015b), argues that in order to prevent climate change, consumers need better information about the lifespan of products, reparability and availability of spare parts. The link is specifically made between improving lifespans to cut amounts of greenhouse gas emissions as this is linked to extraction of raw materials, product, transport, and waste.

Following much of BEUC's work from 2015, NCC launched its platform for more sustainable consumption in 2017. Two top prioritised areas were 1) product lifespans and 2) repair (Forbrukerrådet, 2017b). The paper argues for legislation that would increase product lifespans

by improving design, technical standards, cost-effective repair option and availability of spare parts. Durability and access to spare parts should be a part of the consumer law, and in addition, means such as VAT and taxes should be used to promote durability and repair and to discourage sale of products with short lifespans and such products that cannot be repaired. In 2020, NCC published a position paper on the circular economy targeting the Norwegian government, which argues that consumers must be included in circular economy strategies (Forbrukerrådet, 2020). Consumers should have easier access to more sustainable choices, which relates to longer lifespans and durability for products. The paper suggests measures that might facilitate more sustainable consumption as part of a circular economy, noting that the measures are dependent on Nordic and EU collaborations to be successful. The measures cover longer lifespans and durability in terms of repair, guarantee periods and better information about sustainable choices. In addition, clothing is particularly emphasised, and the paper calls for standardised information on the quality and lifespan of textiles, which would make it easier to choose durable clothing.

More recent policy work from BEUC and NCC has embraced the necessity of regulating products and strengthening consumer rights by way of the 'right to repair' and longer guarantee periods (BEUC, 2020a). Product lifespans are not as frequently mentioned in the most recent positions papers by BEUC, but durability and product lifespan are, addressed in the same tone as the previous years: "Consumers should be provided with long-lasting products that are better designed, need minimal repair and maintenance, are easily repairable, upgradeable, and recyclable"(BEUC, 2020a, p. 2). The development for the consumer organisations the past five years is much impacted by digitalization and how consumers, as a result of this, have become more vulnerable. The latest documents show an agenda where consumer rights are given high priority, combined with sustainable consumption. Product durability in 2020 is much about strengthening consumer rights by extending the legal guarantee for products to cover the whole period of expected lifetime, protecting against greenwashing and the right to repair at reasonable prices (BEUC, 2020b). Over time, it appears that the focus on sustainable and stronger product policies, including Eco-design requirements and the right to repair, is highly prioritised by consumer organisations in relation to product lifetimes.

Consumer policies in Norway

In 2019, the Norwegian government published a white paper titled 'The future consumer – green, smart and digital' (Meld St 25, 2018-2019) which was the first government policy on consumers since the early 2000s. The background for the paper was an update of the current consumer policy in correspondence with an increasingly complex consumer market. The paper is much influenced by EU legislations and EU documents on the circular economy, which have a great impact on Norwegian policy work regarding consumers, products, and the sustainability. However, despite product durability/longevity/lifespan being well-known concepts in current EU policy documents on consumers, product lifespan is only mentioned twice.

On consumption the document describes how the Norwegian government will facilitate more sustainable consumption, where it is important that the actors, consumers, have the relevant information and competence. It argues for sustainable consumption education, where schools and students in particular will be targeted. The paper addresses product lifespans in relation to the circular economy and the environmental impact from products, referencing EU policies. It is

mentioned that the coming EU legislation on product- and consumer policies will have a great impact on Norway. “Most of the consumer legislation comes from the EU, and the government therefore prioritises to actively contribute to a common European consumer policy” (bid., p. 14). Therefore, it appears that topics such as product lifespans are less emphasised in Norwegian consumer policies, as the government will not take a specific stance on the matter but align with the coming EU legislations. Consumer policies in Norway have also followed the trend of emphasizing the need to make consumers better informed and increase consumer competence in relation to sustainable consumption. However, the government policy on consumers appears to be more engaged in the particular situations in which consumers might be vulnerable, especially related to the digitalization.

Consumer policies in EU – the Consumer Agenda

The Consumer Agendas are highly influential for consumer policies in the EU. In 2012 the EU Commission published *A European Consumer Agenda* (2012), which, according to BEUC, was the first time the Commission had a holistic approach that accounted for the most pressing issues for consumers in the EU, by focusing on consumer safety, consumer rights and informed choice, among others (BEUC, 2012). The 2012 Agenda notes how ‘the Commission will consider taking measures to make consumer goods more durable, including support for repair and maintenance services” (European Commission, 2012, p. 16). This is phrased under a heading of ‘sustainable products’ and marks a clear connection between sustainability and consumer policies. Measures that can contribute to make sustainable products more available and affordable are incentive schemes and voluntary actions, and life-cycle environmental performance schemes are ways of providing information to consumers about products and companies (European Commission, 2012). Thus, even though product lifetime is not mentioned explicitly in the Agenda, it shows that in 2012, a connection was drawn in consumer policies between durable products and sustainable consumption. Interestingly, this connection is not made apparent in the BEUC position paper that comments on the 2012 Agenda (BEUC, 2012).

In 2020, the Commission presented a new consumer strategy, entitled *New consumer Agenda. Strengthening consumer resilience for sustainable recovery (European Commission, 2020a),* which replaces the 2012 Agenda. This strategy takes a more direct approach on sustainable development as it focuses on a green and digital transition. Durable products are presented as important for a green transition and the strategy emphasises how early obsolescence and products with short lifetime are problematic for consumers who wish to partake in more sustainable consumption. Empowering consumers is mentioned as essential for a green transition, where consumers should have the necessary and reliable information of products, without being overloaded with too much information. Central product information would be environmental characteristic like durability, reparability, and upgradeability, and in addition consumers should be protected against false and misleading information such as greenwashing. Specifically, the strategy refers to the Sustainable Product Policy Initiative, where the right to repair is targeted and the future review of the Sale of Goods Directive. On repair, a highlighted remedy is to give preference to repair over replacement. Thus, the 2020 Agenda takes a more active approach on how consumers should be better informed about sustainable products, where reparability is given more attention. This points to a shift from the 2012 Agenda but also from

traditional consumer policies, in that environmental concerns, to a greater extent, is included in the consumer agenda.

4.4 Sustainable consumption and consumer policies

The consumer's role

Empowering consumers through more information to have them to make informed choices has been an important part of EU consumer law in the past decades. However, Mak & Terryn (2020) argues that EU consumer law has had limited success in facilitating green choices for consumers, as existing rules mainly have focused on consumer information and their practical impact is limited. In a position paper from 2020, BEUC argues that the consumer is faced with a highly complex consumer market, especially the digital world, where market players have gained more power, which challenges "the assumption that an informed consumer is a protected and empowered consumer" (BEUC, 2020a, p. 1). Information is an often-mentioned measure in relation to consumers and product lifespans, and it is also mentioned in the policy work of the consumer organisations, but the type of information varies. Much has been related to better information about products, such as information about the lifespan of products, upgradability and availability of spare parts (BEUC, 2015b). In response to the EU Green Deal, BEUC emphasises that "consumer information alone cannot replace a thorough change in the way products are made. While being beneficial when well designed and implemented, information has serious limitations and should come second to ambitious action on mandatory product policies" (BEUC, 2020b, p. 1). At the same time, it is mentioned in the said paper that consumers in 2020 lack much relevant information to extend product lifespans, such as knowledge of the life expectancy of products and the availability of spare parts and repair (BEUC, 2020b.).

Several studies on consumer behaviour and lifespans have indicate that consumers lack sufficient information about product lifespans and reparability (Cooper, 2005; Alex Gnanapragasam et al., 2018; Lyndhurst, 2011). A report prepared by LE Europe et al. (2018), on behalf of the European Commission, found that information such as labelling had a positive influence on purchasing decisions in terms of choosing products with longer lifespans. Such information should not be difficult to find, and consumers should be provided with information about durability and reparability at the point of sale. This would include new EU rules and the integration of durability and reparability into existing EU labels. It is therefore a paradox that consumers are over-stimulated with too much information at the same time as they lack sufficient and relevant information about products.

Information is an interesting element to consider in relation to product lifespans and consumer policies, as there seems to be a general agreement between consumer organisations and scholars within consumer law, that the current situation is not working to the benefit of either consumers or the environment. It is problematic that information is given too much emphasis, as it implicitly gives the consumer a more responsible role, when in fact there is little action space to consume more sustainably if the market is not more adjusted for sustainable choices through product durability and repair. If consumers are to contribute to longer product lifespans, current consumer policies and consumer protection should be more adapted to make sustainable

consumption more accessible. It is possible that this will require a change in today's way of thinking about consumer policies, as the current EU consumer protection legislation does not contribute sufficiently to sustainable consumption and prolonged durability for products (Keirsbilck et al., 2020).

Consumer policy in an environmental perspective

Consumer organisations work for consumer interests, where consumers traditionally are seen as vulnerable and in need of protection from powerful market actors. It is particularly the economic interests of consumers that have been at stake in relation to product lifespans. Therefore, product quality and product lifespan have consistently been prioritised by consumer organisations. However, the connection between product lifespans and sustainable consumption was absent up until 2013-2014, which has had implications for how consumer policies incorporate environmental concerns.

Whereas much policy work from national and EU levels have focused on measures that can help consumers make more informed choices during acquisition, policy at the consumer level has been aimed at how longer product lifespans can be implemented through strengthened consumers rights. A division appears where two different interests, the environment, and consumers, are being drawn in different directions. One reason for this, is how sustainable development in the short term may negatively affect consumer interest (BEUC, 2014). Regarding product durability, it is likely that in order to increase the quality of products, their prices will also increase, affecting the consumer negatively at the time of purchase, but in the long term it could be economically good if high-quality products last longer and the need to replace products is significantly extended.

Several studies within consumer protection and consumer law have argued that current consumer policies do not align with environmental policy (Keirsbilck & Rousseau, 2019; Mak & Terryn, 2020; Tonner, 2000) This has implications for sustainable consumption and the success of the circular economy. Mak and Terryn (2020) argue that in order to reach more sustainable consumption, European consumer law will have to re-think the balance between environmental goals and consumer protection. Consumer policy and environmental policy should not be treated as separate policies (Mak & Terryn, 2020). Repair is a good example of this situation, where consumers have not been 'forced' to change their behaviour or reduce consumption, for example, they are not required to attempt repair of defective goods before they are entitled to ask for replacement (Mak & Terryn, 2020). Therefore, "consumer law is not designed to encourage repair" (Mak & Terryn, 2020, p. 235). However, Norway is an exception here and there is a much referred to Norwegian Supreme Court case from 2006 about a pair of heels that broke 6 weeks after purchase. The seller refused to replace the heels due to unreasonable costs, and repair was justified by the Supreme Court by referring to environmental reasons (Eléonore Maitre-Ekern & Carl Dalhammar, 2019). Could it be that the current guarantee period is encouraging replacement instead of repair and drives expectations of a new product? After six months the consumer needs to provide evidence of the products default and the NCC suggested in 2017 that this should be extended to 2 years. The repair example shows how consumer policy is not yet integrated into the circular economy and there is need for policies that enables consumers to take part without compromising their rights to a great extent.

4.5 Conclusion

This chapter has analysed how product lifespans are conceptualized in consumer policies, and particularly in the policy work of consumer organisations. Consumer organisations have for many decades focused on the quality of products in terms of product testing and reliability surveys. Therefore, 'product lifespan' as a concept has always been relevant to consumer organisations, but it was coined as a term in relation to the circular economy and sustainable consumption in the 2010s. Product durability was part of BEUC's campaigns from 2014 and the Norwegian Consumer Council from 2017. As it is only in the past decade that product lifespans and sustainability have been connected by consumer organisations and in consumer policies, there are several discrepancies between environmental policies and consumer protection policies.

In the years to come, it will be important how consumer organisations approach product lifespans and how they emphasise environmental concerns in relation to consumer rights. Especially BEUC is a highly influential actor that impacts other consumer organisations in Europe like NCC. One central issue is that consumer policies were not made within a circular economy perspective, and, historically, consumer laws have not always corresponded to environmental policies. In order for consumers to take part in extending the lifespan of products, consumer policies, such as consumer protection, repair and guarantee periods, should be more aligned with environmental policy in a circular economy perspective.

Consumer behaviour studies related to product lifespans often find that consumers are willing to engage in practices that extend the lifetime of products, but the actual engagement is low due to poor product quality, low prices, and lack of information. Therefore, consumers have little action space for engaging in extending the product lifetime when product quality and product prices are low, and when they lack product specific information. Certainly, consumers have an important role in the circular economy, and they should be included as crucial in successful environmental and product policies (Maitre-Ekern & Dalhammar, 2019). Consumer policies are only one part of the mix of policy instruments used towards a more circular economy, and policies that facilitates more sustainable consumption through external measures are necessary (Mak & Terryn, 2020). Consumers have little action space for engaging in extending product life when product quality and product prices are low. The lack of product specific information is an important barrier, but better information is not sufficient to extend product lifespans, as consumers should not be held as main responsible for achieving longer lasting products.

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5. Product lifetime in product regulations

Kirsi Laitala

5.1 Introduction

This chapter continues the work from previous chapters by diving into more details at the product level. There exists a great variety of environmental policies, regulations as well as voluntary initiatives such as standards, eco-labels, product category rules (PCR) thar are used for developing environmental product declarations (EPDs), and industries' own tools/labels on the product level that aim to reduce the environmental impacts of products. This section discusses to what degree they include product longevity, and whether there are differences between the three product groups (household electronics, furniture, and textiles) in this matter. The analysis includes thus both voluntary and mandatory criteria. This will enable us to understand how the overall policies presented in previous chapters impact the products and their use.

Reader's guide

We will first go through the methods of collection of data and how the final selection was made, including inclusion and exclusion criteria and limitations. The following section presents the results from the analysis, starting from mandatory EU regulations and continuing to voluntary initiatives from eco-labels, on to standards and industries' own tools/labels. The chapter concludes by summarising the status of product longevity in the reviewed documents.

5.2 Data collection and material

Topics were chosen beforehand based on the Lasting project scope with the three product groups and various types of voluntary and mandatory criteria. To start the review, a web-based search was conducted on the official sites of the EU, Nordic ecolabeling and Standard Norway. In addition, google search was conducted for EPDs, other ecolabels and industries' own tools/labels.

We found two recent publications that have reviewed product longevity in some of the same documents as this chapter discusses. The first of these is a book chapter written by Carl Dalhammar (2019), who reviewed sustainable consumption policy, including European product regulations related to product obsolescence. He points to several direct and indirect incentives on European and member state levels. The second review publication is a report by Valeria Botta (2021) from Environmental Coalition on Standards (ECOS). The report examines the existing legislative, policy, standards and other instruments covering the design of textile products, including ecolabels, certifications schemes, and a number of initiatives and additional relevant literature. The analysis focuses on how these documents cover material efficiency based on four parameters: durability, reusability, repairability and recyclability. The report is based on a background study by consulting company Ramboll (Abraham et al., 2020). These publications are used as background documents for our analysis.

Several of the EU regulations discussed in the previous chapters impact the regulations further at the product level, including five circular economy policies discussed in Chapter 2 and the EU Directive on the sale of consumer goods and associated guarantees that ensures the consumer a minimum 2-year guarantee as a protection against faulty goods discussed in Chapter 4.

Of the EU regulations that are currently in force, two main policies at the product level stand out as relevant; the Ecodesign Directive 2009/125/EC (EC, 2009) and the Energy labelling Regulation (EU) 2017/1369 (EC, 2017). Both apply to energy related products and have further specific regulations for the different product categories. There are no EU directives or regulations currently in force that focus specifically on the sustainability of furniture or clothing and household textiles. However, the Commission is working with several initiatives that will cover these product groups. The Sustainable products initiative (EC, 2021c) will revise the Ecodesign Directive and propose additional legislative measures, while the EU strategy for sustainable textiles (EC, 2021b) aims to set in place a comprehensive framework to create conditions and incentives to boost the competitiveness, sustainability and resilience of the EU textile sector. Both initiatives are expected to be adopted during 2021, and the current versions of the hearing documents are included in this analysis.

Several of the more general EU regulations apply at the product level, including Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Waste Electrical and Electronic Equipment (WEEE) directive, General Product Safety Directive (GPSD), standards for flammability and for the safety of children's clothing and babywear, EU's Biocidal Product Regulations (BPR) for antimicrobial products, and CE marking of personal protective equipment (PPE). CE marking is used to show that a product meets specific health, environment, and safety regulations. The types and number of regulations vary between product groups. The CE label does not directly indicate good quality, but it shows that a product fulfils minimum requirements given in the specific regulations. In some cases, this means also including criteria for minimum lifespan, such as how many laundry cycles protective clothing tolerates before it loses its functionality. Professional workwear is outside the scope of Lasting project, but used as an example as there is no relevant regulations for regular clothing (EU, 2016). There is a textile specific regulation concerning textile fibre names and related labelling, but the regulation falls outside the scope of this review (EU, 2011). REACH is very relevant for sustainability, but it only focuses on chemicals.

In addition, the Waste Framework Directive, that has been in place since 2008, has paved the way to the new regulations on the product level by stating how waste prevention is the highest priority. A recent update on this directive states that Member States shall set up separate collection for used textiles by 1 January 2025 (EU, 2018).

Another potential legislation of interest is related to Extended Producer Responsibility (EPR), because lately, there has been a lot of discussion on widening the product groups that are covered by EPR to include textiles. According to the Organisation for Economic Co-operation and Development (OECD) definition, EPR is "an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle" (OECD, 2001). Currently in the European Union, several Directives provide for the extended responsibility of producers. EPR is mandatory within the context of the Directive on waste electrical and electronic equipment ("WEEE Directive"), the Directive on batteries and

accumulators, the Directive on packaging and packaging waste and the Directive on end-of-life vehicles. These directives place the responsibility for the financing of collection, recycling, and responsible end-of-life disposal of these products at the producers. Many member countries have EPRs for other product groups, for example France that has implemented EPRs for textiles and furniture since 2007 (Legifrance, 2020). Currently EPRs are used mainly for giving producers the responsibility for collecting or taking back used goods and for sorting and caring for their eventual recycling. They could, however, potentially be used more for waste prevention as they might provide incentives for producers to consider environmental considerations along the products' life, from the design phase to their end-of-life.

Concerning **eco labels**, there are criteria for furniture and textiles both at the EU and Nordic level, and the criteria documents are included in this analysis. For textiles, we also include a textiles specific label, GOTS, that is more widely used than the official ecolabels. It seems that there are no widely used official ecolabels for household appliances, except for the energy label, but there are ecolabels for IT equipment, mobiles, and TVs. It seems that energy labelling is the main form of communication in labels.

There are a large number of **standards** that apply to the three product groups, as well as more generic standards such as those for environmental product evaluations such as LCAs, EPDs, or ecolabeling criteria. Standards are issued by various organisations at different levels, such as international ISO standards issued by International Organization for Standardization and its 164 national standard bodies, out of which Standards Norway (NS) is one. There are three official standards bodies at European level, the European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (CENELEC) and European Telecommunications Standards Institute (ETSI). Many standards are valid both internationally and nationally, and then named accordingly, for example with prefixes like NS EN-ISO.

The European Commission may request development of standards for specific purposes, and these are called harmonised standards that are created by one of the European Standards Organisations (CEN, CENELEC, or ETSI). The references of harmonised standards must be published in the Official Journal of the European Union. These standards are used by other stakeholders such as manufacturers or conformity assessment bodies to demonstrate that products, services, or processes comply with relevant EU legislation. As an example, a detailed method for measuring the energy labelling performance of washing machines is given in harmonised standard “EN 60456:2016 Clothes washing machines for household use - Methods for measuring the performance” (EN 60456, 2016).

Standards are not freely available as they are sold by the national standard bodies. For the purpose of this report, we have therefore chosen to only purchase the most relevant standards, and otherwise look into the information that is available at the standardisation homepage, where often the first pages give the scope, and a list of contents are available, or other online documents such as technical guides for applying the specific standards. For the environmental product evaluations, we focus on the ISO 14020 and 14040 series of standards. The ISO 14020 series define the three types of environmental labelling: environmental labels where there are clearly defined criteria for products (Type I), self-declared environmental claims (Type II), and environmental declarations for specific aspects of products using a life-cycle approach (Type III)

which includes Product Category Rules (PCRs) and Environmental Product Declarations (EPDs). In addition to these eco-labels, the ISO 14020 series of standards define Footprint Communication and product category rules (PCRs). The ISO 14040 series define the framework and guidelines for Life cycle assessments (LCAs). LCAs address the environmental aspects and potential environmental impacts (e.g., use of resources and environmental consequences of releases) throughout a product's life cycle, from raw material extraction through production, use, end-of-life treatment, recycling, and final disposal (i.e., cradle-to-grave).

Environmental Product Declarations (EPDs) are used to communicate the life-cycle environmental impact of products based on international standards. They are based on product category rules (PCR), out of which we include two documents for this analysis, PCR for Furniture (The Norwegian EPD Foundation, 2018) and European Product Environmental Footprint Category Rules (PEFCR) for T-shirts (Pesnel & Payet, 2019), as these two are good examples of use of EPD and PCR for Lasting product groups.

Two product specific standards are directly relevant for product lifespans. These are standards for assessing durability and repairability of energy-related products (EN 45554, 2020) and (EN 45552, 2020). There are no similar standards that focus directly on lifespans for the other Lasting product groups, and therefore we have chosen examples of standards that include some aspects of lifespans on them for furniture and textiles. For furniture, these are NS-EN 12520 Furniture - Strength, durability, and safety - Requirements for domestic seating and EN 14465 Textiles - Upholstery fabrics - Specification and methods of test. For textiles, we include CEN/TR 15917 Textiles – Cosmetotextiles and EN ISO 13688 Protective clothing - General requirements, as there are no standards for regular clothing that consider lifespans.

We also include some of the industries commonly used own environmental or quality tools/labels. For textiles, we include the Product Environmental Footprint Category Rules for t-shirts (PEFCRs). These are currently under development for clothing in general. For furniture, we look at the Møbelfakta labelling, that is used by many Norwegian furniture producers. For electronics, it seems that the official Eco Design and Energy labelling requirements have contributed to reducing the need for industries' own labels. However, the Green Electronics Council has developed a labelling system called the Electronic Product Environmental Assessment Tool (EPEAT). It is a global rating system based on standards from the Institute of Electrical and Electronics Engineers (IEEE) for TVs, computers, servers, displays, imaging equipment and mobile phones, but not to other household electronics that are more relevant to Lasting, and therefore not included.

Included documents

Table 5.1 gives an overview of the included documents on various levels for the tree product groups.

Table 5.1: Overview of the included documents

	Household electronics	Furniture	Textiles and clothing

EU product regulations	• Ecodesign Directive 2009/125/EC • Energy labelling Regulation (EU) 2017/1369 • Product specific regulations	• N/A	• CE marking of personal protective equipment (PPE)
EU policy initiatives	• Sustainable products initiative (all three product groups)		• Sustainable textiles initiative
Official eco labels	• N/A	• EU Ecolabel for furniture 2016/1332 • Nordic Ecolabel for furniture and fitments, version 5.0	• EU Ecolabel for textile products (2014/350/EU) • Nordic Ecolabel for textiles version 4.13 • The Global Organic Textile Standard (GOTS) version 6.0
Standards for environmental labels, declarations, EPDs and LCAs/LCIs	• ISO 14020, Environmental labels and declarations – General principles • ISO 14024, Environmental labels and declarations –Type I environmental labelling – Principles and procedures • ISO 14021, Environmental labels and declarations – Self-declared environmental claims (Type II environmental labelling) • ISO 14025, Environmental labels and declarations – Type III environmental declarations – Principles and procedures • ISO 14026, Environmental labels and declarations – Principles, requirements and guidelines for communication of footprint information • ISO/TS 14027, Environmental labels and declarations – Development of product category rules • ISO 14040 Environmental management -- Life cycle assessment -- Principles and framework • ISO 14044 Environmental management -- Life cycle assessment -- Requirements and guidelines		
Product standards	• EN 45552 General method for the assessment of the durability of energy-related products • EN 45554 General methods for the assessment of the ability to repair, reuse and upgrade energy-related products.	• EN 14465 Textiles - Upholstery fabrics - Specification and methods of test • NS-EN 12520 Furniture - Strength, durability and safety - Requirements for domestic seating	• CEN/TR 15917 Textiles – Cosmetotextiles • EN ISO 13688 Protective clothing - General requirements
PCR/EPDs and industries own tools	• N/A	• PCR for Furniture • Møbelfakta	• PEFCR for T-shirts

Limitations/scope

As there are thousands of standards and EPDs, we have chosen only a few examples that are most relevant for our field of study for each of the three product groups. To further limit the scope, we focus on the current product level regulations and the ongoing initiatives instead of studying their development and previous versions.

EU Public procurement criteria for the different product groups include various aspects related to quality and the possibility for reuse and repair but are excluded since Lasting is focusing on private consumption.

5.3 Analysis

A word search related to product lifespans was conducted in the relevant policy documents (Table 5.2). The table shows clearly how the lifespans are absent in many of the documents, and recycling related terms are about four times more common than those related to durability, product lifetime and longevity combined.

Table 5.2: Occurrence of product lifetime related concepts in the policy documents (brackets are used when the words are in the document but not connected to product lifespan, for example "toxic to aquatic life with long lasting effects" or "reuse of solvents").

Title	Durability / durable	(product) Lifetime / Lifespan / useful life/ service life	Longevity / long lasting	(High) quality	Obso-lescence	Repair	Reuse	Recycl*
EcoDesign Directive 2009/125/EC	0	4	0	2 (+1)	0	0	6	12
Energy labelling Regulation 2017/1369	1	2	0	0	0	0	0	0
The Sustainable Product Policy Initiative (Inception impact assessment)	4	3	1	0	1	5	3	9
EU strategy for sustainable textiles (roadmap)	0	0	0	(1)	0	(1)	1	11
EcoDesign - Diswashers	0	0	0	0	0	0	0	0
EcoDesign - Domestic ovens, hobs and range hoods	1	1	0	0	0	0	0	2
EcoDesign - Refrigerating appliances	0	0	0	0	0	0	0	0
EcoDesign - Tumble driers	0	0	0	0	0	0	0	0
Ecodesign – vacuum cleaners	5	6	0	0	0	0	0	1
Ecodesign - washing machines (previous version still in force)	0	0	0	0	0	0	0	0
Ecodesign - washing machines and washer-dryers	0	1	0	0	0	27	0	2
Energy label - Dishwashers	0	0	0	0	0	0	0	0
Energy label - Domestic ovens, hobs and range hoods	0	0	0	0	0	0	0	0
Energy label - Refrigerating appliances	0	0	0	0	0	0	0	0
Energy label - Tumble driers	0	0	0	0	0	0	0	0
Energy label - Vacuum cleaners	0	0	0	0	0	0	0	0

Energy label - washing machines (previous version)	0	0	0	0	0	0	0	0
Energy label - washing machines and washer-dryers	0	0	0	0	0	1	0	0
CE marking of PPE		4	0	38	3	0	1	0
EU Ecolabel regulation	1	0	0	0	0	0	0	0
EU Ecolabel for textile products	8	0	(4)	1	0	0	(2)	28
EU Ecolabel for furniture	13	0	0	11	0	3	2	47
PCR for Furniture	0	14	0	(4)	0	6	5	5
PEFCR for t-shirts	1	33	2	28	0	0	9	106
Nordic Ecolabel for furniture and fitments	2 (+17)	0	2	35	0	7	12	180
Nordic Ecolabel for textiles	(3)	0	(18)	9 (1)	0	0	3	34
The Global Organic Textile Standard (GOTS)	0	0	(3)	12	0	0	0	5
Møbelfakta*	12	1	1	13	0	0	0	0
Total	**48**	**69**	**6**	**149**	**4**	**49**	**42**	**442**

Møbelfakta is only in Norwegian, so we used the following search words: Holdbar (produkt) Levetid, Langvarig (høy) kvalitet Foreldelse Gjenbruk Resirkul*

EU directives and regulations on the product level

There are two main regulations in the EU for product level sustainability, Directive 2009/125/EC establishing a framework for the setting of **eco design** requirements for energy-related products, and Regulation (EU) 2017/1369 setting a framework for **energy labelling**. Directives set objectives that all EU countries must reach, translate, and introduce into their national legislation within a defined time frame, while regulations are binding legislative acts that are immediately applicable in all Member States as they overrule national laws.

In addition to these framework directives, individual product groups have their own more specific regulations. These product groups include energy consuming household products, such as fridges and freezers, vacuum cleaners, washing machines and driers, kitchen appliances, electronic displays and TV boxes, game consoles, computers and servers, lighting, heaters, air conditioners and fans, pumps, but also equipment like transformers and converters, electric motors, welding equipment and products with properties like networked standby consumption. So far, the only product that does not use energy directly but requires labelling is car tyres, where tyres with less rolling resistance get better energy label grade as they require less energy to move the vehicle.

The Ecodesign Directive

The term 'eco design' is defined to mean "the integration of environmental aspects into product design with the aim of improving the environmental performance of the product throughout its whole life cycle", but the Directive is only applied to energy related products. 'Energy-related product' means any good that has an impact on energy consumption during use. The directive has most focus on improving energy efficiency of products in order to reduce the environmental impacts, which should also lead to economic savings for businesses and end-users. However, it also mentions "certain energy-related products, including products used in construction such as

windows, insulation materials, or some water-using products such as shower heads or taps could also contribute to significant energy savings during use."

The eco design definition of energy related products open up for regulating a much wider variety of products than what it is currently applied for, for example it could be applied to household textiles and clothing, based on energy consumption needed for maintenance.

Even though the Ecodesign Directive is focused on energy efficiency, it does also mention other environmental impact categories. The Annex I of the directive specifies that extension of lifetime must be used (as appropriate) for evaluating the potential for improving the environmental aspects, as one of many aspects. It can be expressed through *a minimum guaranteed lifetime, minimum time for availability of spare parts, modularity, upgradeability, and reparability*. This shows how the directive operationalises the length of lifespan based on what the producers can improve through guarantees and design.

The Ecodesign Directive also considers consumers, mainly by enforcing their right to information, but also as active stakeholders by specifying that they should be heard in the preparation of the harmonised standards. The main focus is to provide consumers with information that allows them to compare the environmental characteristics and performance of the products, as well as providing information on how to install, use and maintain the product in order to minimise its impact on the environment and to ensure optimal life expectancy. The information also includes aspects related to repair and end-of-life, as it should indicate the period of availability of spare parts and the possibilities of upgrading products. For example, the eco design directive for washing machines and driers specifies that spare part must be available for minimum of 10 years.

Energy labelling regulation

The energy labelling regulation focuses on energy related products, similarly to the Ecodesign Directive. It specifies a standardised mandatory label with classification using letters from A to G, and colours from dark green to red colour scale. The labelling aims to facilitate and lead the customer's choice in favour of products which consume less energy, and other essential resources during use. Thus, the focus is on informed choice, while at the same time giving incentives for manufacturers to produce more energy efficient products. This has been effective, as many product groups have already required rescaling of the labels to be able to differentiate between the more energy efficient products. At the same time, the production of less efficient products is discontinued.

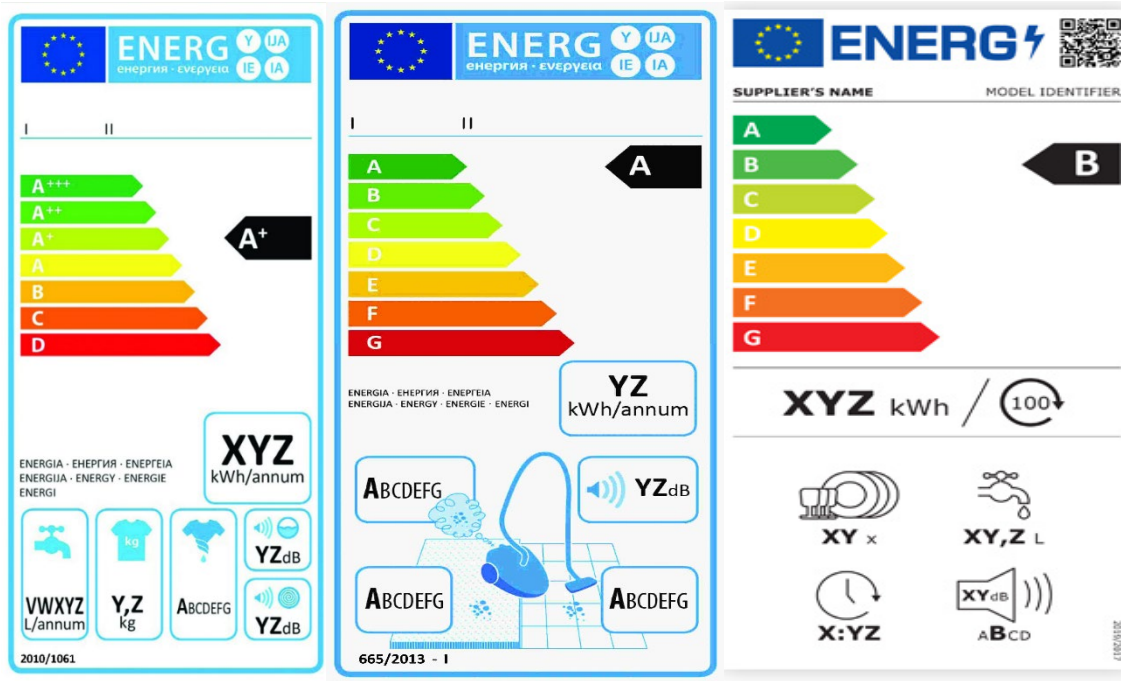

Figure 5.1: Examples of energy labels for washing machines, vacuum cleaners and dishwashers

Further product-specific requirements for energy consumption and performance are given on own regulations based on harmonised standards. The regulation specifies that these methods and standards should consider the real-life usage of a given product and reflect average consumer behaviour.

This analysis focuses only on eco design directives and energy labelling regulations relevant to Lasting product groups:

- Household dishwashers
- Domestic ovens, hobs and range hoods
- Household refrigerating appliances
- Vacuum cleaners
- Household washing machines
- Household tumble driers
- Household combined washer-driers

Thus, the analysis excludes heating and cooling appliances, lamps, televisions, computers, power supplies, electric motors, fans, circulators, stand by and off mode regulation.

Each of the product groups are covered by Commission Delegated Regulation with regard to energy labelling and of eco design requirements. For the analysis, the most recent consolidated versions of the eco design directives and energy labelling regulations are used. The regulations are further based on harmonised standards, for example, washing machines are tested according to EN 60456 Clothes washing machines for household use - Methods for measuring the performance and EN 60704-2-4 Household and similar electrical appliances - Test code for the

determination of airborne acoustical noise - Part 2-4: Particular requirements for washing machines and spin extractors.

The criteria for washing machines points to importance of product lifespans, as “the service life-time of household washing machines and household washer-dryers has been estimated to have decreased in recent years to around 12,5 years and the trend is likely to continue in the absence of incentives.”

During the time of the review, two different versions of eco design directives for washing machines and washer-dyers were valid. The new eco design directives for washing machines and washer-dyers combined applies from 1 March 2021. The new eco design directives for washing machines and washer dryers covers a larger area than the previous version, as word “repair” is mentioned 27 times as opposed to not being mentioned at all in the previous version (see table 5-2). The new criteria include resource efficiency requirements with a focus on the availability of spare parts for a minimum period of 10 years after placing the last unit of the model on the market and access to Repair and Maintenance Information.

All the eco design criteria for these products have focused on energy efficiency, as could be expected. The criteria for vacuum cleaners were the only one we found with requirements for lifespans, as it sets criteria that the hose shall be durable so that it is still useable after 40 000 oscillations under strain, and the operational motor lifetime shall be greater than or equal to 500 hours.

CE marking of personal protective equipment (PPE)

Figure 5.2: CE marking

Personal protective equipment is designed and manufactured to be worn or held by a person for protection against one or more risks to that person's health or safety. The CE marking indicates the conformity of a product and the label is the visible consequence of a whole conformity assessment process (EU, 2016). The directive sets clear requirements for labelling the functional lifespans of the products. It states that if the performance of PPE may be significantly affected by ageing, the month and year of manufacture and/or, if possible, the month and year of obsolescence must be marked on each item of PPE placed on the market and on its packaging. Where the deterioration in PPE performance is likely to be caused by ageing resulting from the cleaning process, the marking should indicate the maximum number of cleaning operations that may be carried out before the equipment needs to be inspected or discarded. Further, the manufacturers must provide instructions for storage, use, cleaning, maintenance, servicing, and disinfection. This is very clear regulation on product lifespan labelling, but it is due to safety concerns, not for sustainability. However, it clearly indicates that it is possible to estimate useful service life based on the technical functionality of such products. The detailed methods for these estimations are specified in harmonized standards.

Sustainable Products Policy Initiative

Sustainable Products Policy Initiative is currently under public consultation and expected to be published in the end of 2021. The aim of the initiative is to widen the scope of the Eco design Directive beyond energy related products and make it applicable to the broadest possible range of products. Further, the focus on more sustainable products has prioritised longer lifespans, as the summary states: "Consumers, the environment and the climate will benefit from products that are more durable, reusable, repairable, recyclable, and energy-efficient." The initiative specifically states that it will also address the presence of harmful chemicals in products such as textiles and furniture. The initiative also states longevity as one of the main priority areas, focusing on the fact that "The average lifespan of many products has become shorter over the last decades. Many products break too quickly, many cannot be easily and safely reused, repaired or recycled, and many are made for single use only". The scope is wider than only focusing on revising the eco design directive, as where appropriate, complementary legislative proposals, are to "regulate the following sustainability aspects: product durability, reusability, upgradability and reparability; the presence of hazardous chemicals in products; energy and resource efficiency; recycled content in products; remanufacturing and high-quality recycling; carbon and environmental footprints; restrictions to single-use and premature obsolescence; a ban on the destruction of unsold durable goods; circular business models; digitalisation of product information and ways to reward the most sustainable products."

The Public Consultation on the Sustainable Products Initiative goes into more detail, focusing on strengthening information requirements, and it points to an ambition to "establish a **digital product passport** that gathers data on a product along its value chain, among other things on environmental characteristics, repair and upgrade instructions, presence of hazardous chemicals, reusability, recycled material content, recycling, and correct disposal and waste stream information, so as to enable consumers and businesses to understand the composition and properties of products, and enable compliance authorities to better fulfil their duties."

If successfully implemented, it is likely that this initiative will have great potential for improvements in product lifespan regulation for a wider scope of products.

The EU strategy for sustainable textiles

The EU strategy for sustainable textiles states that it seeks to help the EU shift to a climate-neutral, circular economy, where products are designed to be more durable, reusable, repairable, recyclable and energy-efficient. However, the text itself has a lot less focus on product durability than the sustainable products initiative, and even when it refers to sustainable products initiatives, instead of focusing on improving the lifespans of products it "will underline possible approaches for improving design for sustainability (ensuring the uptake of secondary raw materials and tackling the presence of hazardous chemicals, among others)".

The initiative states that the basis for the invention is "Boosting the sustainability of the sector and addressing the challenges brought about by the COVID-19 crisis are EU wide concerns, in which the stakes in terms of cross border pollution effects and impact on the internal market are high. In order to address this, a coordinated and harmonised response at EU level will be needed to address structural weaknesses regarding textile waste collection, sorting and recycling in the

Member States, and to strengthen capacity both of the industry and public authorities". In general, this shows that the textile initiative has more focus on the European textile industry and waste, than on the efforts towards sustainability through improved products.

Standards for environmental declarations

As discussed previously, there is a variety of standards for environmental labels, declarations and LCAs/LCIs in the ISO 14020 and ISO 14040 series (overview given in table 5-1). In this analysis we focus on how the length of product lifespans is included in these standards.

ISO 14020 (2000) describes ten general principles for the development and use of environmental labels and declarations. None of the principles are related to the use phase, product longevity, quality, repairability or recyclability, but they are indirectly included in principle 5 that states that "The development of environmental labels and declarations shall take into consideration all relevant aspects of the life cycle of the product." As this standard mainly gives overarching guidelines, the more detailed descriptions are given in the following standards in this series.

ISO 14024 (2018) sets requirements for Type I environmental labelling. It states that all life cycle stages are to be considered when developing the product environmental criteria, including extraction of resources, manufacturing, distribution, use, and disposal relating to relevant cross-media environmental indicators. In developing the criteria, the fitness for purpose of the product and the levels of performance shall be considered, meaning that the product must satisfy health, safety, and consumer performance needs. However, this standard does not include any aspects related to product durability besides pointing out that use must be included, and that the product must meet the needs of performance, which leaves the responsibility for Type I eco label criteria to specify how these aspects are included.

The aim of ISO 14021 (2016) is to ensure that self-declared environmental claims are reliable and verifiable. It sets out specific requirements applicable to self-declared environmental claims, and points to examples of vague and non-specific claims that should be avoided, such as "environmentally friendly", "ecological (eco)", and "green". Further, the standard describes selected terms commonly used in environmental claims and gives qualifications for their use as well as evaluation methodology. The list includes guidance on the use of following environmental terms:

- Compostable
- Degradable
- Designed for disassembly
- Extended life product
- Recovered energy
- Recyclable
- Recycled content
- Reduced energy consumption
- Reduced resource use
- Reduced water consumption
- Reusable and refillable

- Waste reduction
- Renewable material
- Renewable energy
- Sustainable
- Claims relating to greenhouse gas emissions
- Product “carbon footprint”
- “Carbon neutral”.

For our review, the “Extended life product” definition is of most interest, and it has been defined as “A product designed to provide prolonged use, based on either improved durability or the presence of a feature enabling it to be upgraded, and resulting in reduced resource use or reduced waste”. Further, it is specified that although this claim is related to the "use" phase of the product life cycle, it is dependent on a change in the "design" phase. To make this claim, a manufacturer must have made a specific design change for the purpose of improving the durability of a product.

The standard specifies further that an extended life claim is a comparative claim and always requires an explanatory statement to identify the benchmark against which they have been evaluated. All claims regarding extended life shall be qualified, and if a claim of extended life is based upon an upgradability feature, specific information on how to achieve the required upgrade shall be provided. An infrastructure to enable upgrading shall be available. It is permissible to provide the end user with full information on the environmental benefits of a product, provided data is available to support the additional information.

Extended life claims that are based on the improved durability of the product shall state the extended life period or the percentage improvement and the measured value (e.g., repetitive number of operations before breakage), or supply reasoning that supports the claim.

Extensive records and test data will be required to support this claim. If an industry that produces products is considering such a claim, documentation of the durability of the product must be available.

For evaluation methodology, it is pointed out that the extended life claim must not only identify the product with which the comparison is being made but also specify the feature that extends the life of the product. Point of sale information or bulletins must make it clear to the purchaser how the extended life component of the product can be obtained and installed.

ISO 14025 (2006) gives principles and procedures for Type III environmental declarations. These present quantified environmental information on the life cycle of a product to enable comparisons between products fulfilling the same function and are based on independently verified life cycle assessment (LCA) data, life cycle inventory analysis (LCI) data or information modules in accordance with the ISO 14040 series of standards. Type III environmental declarations are primarily intended for use in business-to-business communication, but their use in business-to-consumer communication is not precluded. The objective is to provide information on the environmental aspects of products that can assist purchasers and users to make informed comparisons between products and to encourage improvement of environmental performance.

Type III environmental declaration programmes are voluntary and have a set of rules guiding their overall administration and operation. In programme preparation, product category rules (PCR) are a mandatory step to be prepared before developing environmental declarations for a product. Product Category Rules are a set of rules, requirements, and guidelines for developing Type III environmental declarations (EPDs) for one or more product categories.

In the development of Type III environmental declarations, all relevant environmental aspects of the product throughout its life cycle shall be taken into consideration and become part of the declaration. If the aspects considered to be relevant do not cover all stages of the lifecycle, then this shall be stated and justified. For execution of the analysis, this standard refers to the ISO 14040 series of standards and does not include any details related to length of product lifespans.

ISO 14026 (2017) provides principles, requirements, and guidelines for footprint communications for products addressing environmental footprints, including verification procedures. Footprints addressing social or economic issues are outside the scope, as well as the detailed quantification of a footprint. Therefore, it does not go into detail on aspect related to length of product lifespans but is more concerned on the general guidelines for how the footprint information is to be provided.

ISO/TS 14027 (2017) is an ISO Technical Specification (TS) that provides principles, requirements, and guidelines for developing, reviewing, registering and updating product category rules (PCR) within a Type III environmental declaration or footprint communication programme based on life cycle assessment (LCA) according to ISO 14040 and ISO 14044 as well as ISO 14025, ISO 14046 and ISO/TS 14067.

ISO 14040 (2006) describes the principles and framework for life cycle assessment (LCA) studies and life cycle inventory (LCI) studies. According to the scope of the standard, it does not describe the LCA technique in detail, nor does it specify methodologies for the individual phases of the LCA. For practitioners of LCA, ISO 14044 (2006) details the requirements for conducting an LCA.

To summarise, these standards for environmental product evaluations state that the whole life cycle of products is to be included in the evaluations, but do not go into detail how the use phase and product lifespans is to be measured. Only standard with specifications for this matter is ISO 14021 (2016) for self-declared environmental claims, that sets criteria for use of term “extended life product”.

Standards for Lasting product groups

There are hundreds of standards that apply for the three Lasting product groups, but most of them are not relevant for product lifespans. Here, we go through examples from each category that do include some consideration of lifespans.

The most relevant example is a harmonized standard EN 45552 (2020) that covers a set of parameters and a general method to **describe and assess the durability of energy related products**. It is aimed to be applicable to all energy-related products covered by the current Ecodesign Directive 2009/125/EC. Durability is defined as “ability to function as required, under defined conditions of use, maintenance and repair, until a limiting state is reached”, while

reliability is the “probability that a product functions as required under given conditions, including maintenance, for a given duration without limiting event”. Limiting events are occurrences which result in a primary or secondary function of the product no longer being delivered, and include various types of failure, wear-out failure or for example a deviation of a signal.

The standard defines the process for documented assessment of reliability and durability of products. It starts with a functional analysis where the functions of the product are systematically characterized, classified, and prioritized. The second stage involves defining the normal environmental and operating conditions, while the third part is about giving additional information such as field data, failure modes, stress analysis, users’ experience, and risk assessment. Based on these, the reliability can be given for example as probability of failure or time to failure for the various limiting events. The reliability is then assessed either through testing of sample or calculation based on data on parts, handbooks, or field data.

Durability results can be given in various units (calendar time, the number of operating cycles, distance etc.) until aging, fatigue or wear-out without maintenance or repair, and separately for expected durability including maintenance and repair (when the item is repairable). The expression of reliability does not include repair. The standard differentiates between consumables, wear-out parts, and spare parts. Consumables include for example water, filters and cleaning liquids, wear-out parts are those that are expected to be periodically replaces, such as batteries and bulbs, while spare parts are not expected to need to be replaced, and include examples like cables, motors, pumps etc.

The introduction to the standard directly specifies that when considering durability, consumer behaviour must be considered, but is not addressed in this document besides registering the normal operating conditions. It then leaves completely open how aspects relevant to social durability should be assessed and does not mention consumers beyond the introduction.

Standard EN 45554 (2020) for general methods for the assessment of the ability to repair, reuse and upgrade energy-related products uses similar terminology and processes as the durability assessment described above. For example, the standard defines that assessment should determine priority parts based on data on high average occurrence of failure. The methods include both product-related and support-related criteria, considering knowledge of parts that are likely to fail, need replacing, or have reuse potential.

Repair is defined as the process of returning a faulty product to a condition where it can fulfil its intended use. Upgrade is the process of enhancing the functionality, performance, capacity, or aesthetics of a product.

The assessment consists of many steps, starting from determination of priority parts based on the likelihood of the need to replace or upgrade the part, the suitability of the part for reuse, and the functionality of the part. This assessment is followed by the identification of criteria and applicable categories relevant for the assessment of each priority part.

The product criteria influencing the ability of the product to be repaired includes ease of disassembly (time and number of steps needed), fasteners and connectors (whether they are

reusable and removable), tools (basic, provided with the product, whether they are commercially available or proprietary), working environment (possible to prepare at home, workshop, or requires production-equivalent environment), and skill level (from layperson to authorized expert). The support related criteria include diagnostic support and interfaces (from intuitive to proprietary interfaces), availability of spare parts (from publicly available to available to the manufacturer only or not available to anyone, and timeframe of availability), types and availability of information (who can access it, the disassembly and repair instructions, contact to repair centres), and return options for repair. The same aspects are also relevant for reuse and upgrade evaluations. The standard also offers a method to aggregate all relevant criteria into one score that assess the ability of a product to be repaired, reused and/or upgraded.

As the name indicates, the standard for **cosmetotextiles** applies to textile products that contain a durable cosmetic product which is released over time (CEN/TR 15917, 2009). It includes products like moisturizing or slimming preparations in underwear, pantyhose, or T-shirts, and refreshing bedsheets. This standard is interesting for product lifespan perspective, because it sets various durability criteria for the products. Labels should include information about care resistance, which characterizes the quantity of the cosmetic product remaining after a given number of care cycles. In addition, the durability of the cosmetic effect must be measured, showing the number of care and use cycles during which the effect can be measured and/or noticed by the user. As for all cosmetic products, the date of minimum durability of the cosmetic product (shelf life) should be indicated. Interestingly, the standard also states that the quality of the textile should be well controlled and suggests various colour fastness testing methods, but without giving any criteria for the test results.

The International Standard EN ISO 13688 (2013) specifies general performance requirements for ergonomics, innocuousness, size designation, ageing, compatibility and marking of **protective clothing**. It is intended to be used in combination with other standards containing requirements for specific protective performance. As this is a general standard, the aging testing is only concerned with the dimensional change caused by cleaning and legibility of marking. If the number of cleaning cycles is not specified, five cleaning cycles shall be performed. The testing according to specific standards for protective properties must include information about the maximum number of cleaning operations that may be carried out before the protective clothing has to be discarded, as already discussed earlier concerning the requirements for CE marking. The label then indicates for example “max 25 x”.

Protective clothing has also stricter requirements for size designations than regular clothing and shall be marked with its size based on body dimensions measured in centimetres (Figure 5.3). The value shall correspond to the actual value in centimetres of the user's body dimensions. It is intended to make sure that the garment retains its protective function when worn, but the labelling is also likely to be helpful in finding a suitable size and thus indirectly improving the active use phase of clothing due to proper fit.

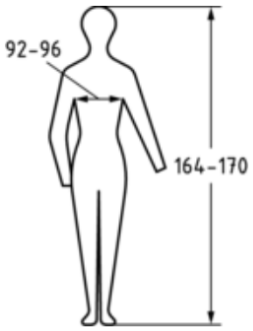

Figure 5.3: Example of size designation for protective jackets

There is a large number of furniture standards such as EN 12520 (2015) that specify the minimum requirements for **strength, durability and safety of furniture**, EN 12520 being specific for domestic seating for adults. This standard sets the minimum results for tests conducted based on various other method standards such as EN 1728 (2012) that gives test methods for the determination of strength and durability of seating. The tests are based on use by persons weighing up to 110 kg. These and other furniture standards are good examples of how various technical durability criteria can be set, but they do not include requirements for the resistance to ageing or degradation, and therefore their contribution to setting criteria for product lifespans is limited.

Standard EN 14465 (2003) for **upholstery fabrics** in furniture takes into account various use areas and gives specification and test methods for textiles. The standard specifies several categories for various properties of fabrics. Categories are given from A to E, where A is the highest performance level for each property. Results that are poorer than the lowest class are considered insufficient, for example pilling resistance below grade 3. The standard suggest that this matrix classification system can be used to compose a product profile that suits for various use areas depending on needs, such as whether the furniture will be in direct sunlight or not or used by families with children or only elderly people. It also notes the limitation that the correlation between laboratory testing and actual wear behaviour in practice is not very well established. This is a good example on how it is possible to set minimum criteria on textiles for the physical durability properties, but the standard is voluntary and not used widely for informing consumers.

Product labels

The EU eco-label has existed since 1992 (Fig. 5.4). The scheme establishment and application rules are laid down in Regulation (EC) No 66/2010 of the European Parliament and of the Council on the EU ecolabel (European Commission, 2017). The EU eco-label is a voluntary Type I label that is subject to third party controls, as specified in ISO 14024 (2018). It is used to label products and services that meet specific environmental criteria throughout their lifecycle. According to the Eco-label homepage, the criteria take the whole product life cycle into account while paying special attention to stages where the product has the

Figure 5.4: EU Eco-label

highest environmental impact, thus varying between the different product groups (EC, N.D.). The criteria are also claimed to "encourages companies to develop products that are durable, easy to repair and recycle" and "Fitness-for-use criteria also guarantee good product performance"(EC, 2021a). The information page further specifies that the "product-specific criteria ensure that any product bearing the EU Ecolabel is of good quality with high performance" (EC, N.D.). However, the regulation text does not include aspect related to repair or recycling, but it does specify that the whole life cycle of products shall be considered, including "the potential to reduce environmental impacts due to durability and reusability of products" (European Commission, 2017).

For this review, we have chosen to look into two of EU eco label criteria, the first for clothing and textile products (European Commission, 2014a) and the second for furniture (European Commission, 2016). Additional information can be sought from their background documents. There is no EU eco-label for electronic products (besides for electronic displays), most likely due to existence of eco design directives and energy labelling requirements.

EU eco label for textile products

The EU eco label criteria for textile products aims at identifying products that have a lower environmental impact along their life cycle (European Commission, 2014a). The document specifies various aspects especially related to production such as that the materials are sourced from more sustainable forms of agriculture and forestry, manufactured using resources and energy more efficiently, manufactured using cleaner, less polluting processes, manufactured using less hazardous substances, but also product longevity in that products should be designed and specified to be of high quality and durable through application of "fitness of use criteria".

The fitness for use criteria includes product longevity related requirements, such as that dimensional change should not exceed specified limits after three domestic washing and drying cycles. The criteria also set requirements for durability of functional finishes such as water proofing, that must last 20 domestic laundry cycles or 10 industrial laundry cycles. Flame retardants must withstand 50 industrial wash and tumble dry cycles. It also includes several quality requirements such as colour fastness, resistance to pilling etc, but it does not have criteria for general product longevity. However, these kind of quality requirements can have an effect on potential physical lifespans of products.

Even though the tests for durability are limited to some functions, the ecolabeling criterion 28 opens up for providing additional wording on the eco-label with text "Tested for durability".

The criteria document mentions words related to recycling/recycled 28 times, related to assessment and verification for recycled content, but it does not set criteria for future recyclability of the products, nor any specifications for repairability or potential for reuse.

The textile ecolabel criteria specifically state the aim of giving consumers a high level of assurance that the use of chemical products and the release of pollutants has been limited to the extent technically possible without prejudice to the fitness for use. It also specifies that the substances identified as potentially hazardous to the human health or the environment are tested, but at the

same time opens up for the use of such substances in order "to meet consumer performance expectations" or mandated requirements for the product (for instance flame retardancy).

This indicates that the consumers are seen as rather passive actors, as those receiving information while being protected from potentially hazardous chemical contents in textiles, but also as actors that have expectations for garment functionality that may require use of such substances to meet consumer performance expectations, which seems quite contradictive.

The EU eco label for furniture

The ecolabel criteria for furniture sets requirements for hazardous substances and mixtures and manufacture of various materials, but in addition it has requirements for the final product that can potentially impact the length of product lifespans. These criteria include fitness for use, extended product guarantee, provision of spare parts, design for disassembly and emissions of Volatile Organic Compounds (VOCs).

For the fitness for use criteria, furniture shall comply with the relevant requirements set out in the latest versions of relevant EN standards that relate to the durability, dimensional requirements, safety, and strength of the product (standard are listed in the appendix of the criteria document). However, it is likely that all furniture would have to comply with the safety regulations based on General Product Safety Directive (GPSD) anyway, and in that case the ecolabel will not add any extra safety. Also, if no relevant standard exists for a specific type of furniture, the applicant won't need to comply.

For the extended product guarantee, furniture labelled with the EU ecolabel must have a minimum of a five-year guarantee, which is longer than the regular two years guarantee in the EU, but that level already apply to them in Norway. Additionally, the furniture manufacturer should make spare parts available to customers for a period of at least 5 years from the date of delivery of the product. The parts shall be available for free during the guarantee period if the goods are found to be faulty during normal use. Otherwise, the cost (if any) of spare parts shall be proportional to the total cost of the furniture product.

The ecolabel criteria for furniture have more focus on consumer information and documentation of it than the criteria for textiles. A consumer information document shall be provided with the furniture with quite a lot of details, out of which several are relevant to the use and disposal phases. A clear statement under what conditions the furniture product should be used. For example, whether it be indoors, outdoors, temperature ranges, load bearing capacities and how to correctly clean the product. For the end-of-life, a detailed description of the best ways to dispose of the product (i.e., reuse, take-back initiative by the applicant, recycling, energy recovery) shall be given to the consumer, ranking them according to their impact on the environment. The information sheet must also have the details about extended guarantee and availability of spare parts.

Nordic Ecolabelling for Textiles, hides/skins and leather

Figure 5.5: Nordic ecolabel

The Nordic Swan Ecolabelling for textiles sets requirements for the production of fibres and hides/skins, and the following production steps onward to the finished textile or leather product, with central focus on the use of chemicals during production. The criteria focus on reducing the environmental impact of the production and consider the health of both workers and consumers. The Nordic ecolabel criteria for textiles have many similarities to the European ecolabel criteria. It sets quality and functionality requirements for textiles related to aspects such as colour fastness, dimensional stability after three washing cycles, and pilling, but does not give any specific goal for length of textile lifespans.

Nordic Ecolabelling for furniture and fitments

Nordic Ecolabelling for furniture and fitments includes detailed requirements for the chemicals that are used in the production processes, but the criteria also promote the use of materials that are renewable and recycled. Further, the criteria promote a longer useful product life and a circular economy, by requiring he labelled furniture to have good quality and durability, and by including requirements for warranty, spare parts, circular design of the product, and including instructions for maintenance and assembly/disassembly.

Global Organic Textile Standard (GOTS version 6)

Figure 5.6: GOTS label

GOTS covers the processing, manufacturing, packaging, labelling, trading, and distribution of all textiles made from at least 70% certified organic natural fibres. When it comes to considerations related to product lifespans, the criteria use a similar approach as other ecolabels, by setting requirements for technical quality parameters. It only includes one wash cycle for determining the aspects such as dimensional stability and does therefore not include any expectations for specified length of product lifespan. This standard is used more widely on clothing than the EU or Nordic labels, but it has less strict criteria for technical durability. The main focus is indeed on organic production.

Møbelfakta

Møbelfakta[14] is a label administrated by the federation of the Norwegian design industries, and it is available for the companies that participate in its environmental and quality project. Furniture that meets the Møbelfakta criteria can use Møbelfakta's logo and will be issued Møbelfakta's

[14] Read more about Møbelfakta at their website

certificates. The criteria require quality testing of furniture, internal environmental management system for the company / production in the form of ISO 14001 or The Eco-Lighthouse certification scheme (Miljøfyrtårn), and environmental documentation of products in the form of international standard EPD, or the Nordic Swan. The quality criteria include various test of durability, safety and stability, and for example the criteria for upholstery include three different levels dependent on the use area of furniture with hardest requirements for furniture for public use, followed by private furniture for rough use and lowest level for private furniture for regular use. The label differs from ecolabels by being more of a quality label than a traditional ecolabel, but it also combines the environmental criteria through use of EPDs.

Figure 5.7: Møbelfakta logo

Product category rules (PCRs) and Environmental Product Declarations (EPDs)

Environmental Product Declarations (EPDs) are type III environmental declarations that summarize the environmental profile of a component, a finished product or a service in a standardized and objective way. They are independently verified and based on underlying LCA and international standards such as those discussed above. The declarations are used for various types of products, out of which furniture and textiles are relevant for Lasting. As of 24th February 2021, the international EPD library database indicates 39 registrations for category "textiles, footwear and apparel", and 92 matches for "furniture and other goods". The Norwegian EPD database has 137 registrations for furniture, but it does not include a separate category for textiles. These EPDs are based on Product category rules, so for this analysis, we look into EPD Norge's product category rules for furniture.

At the EU level, several pilot studies have been made for developing Product Environmental Footprint Category Rules (PEFCRs)[15]. They include various product groups, from food and drinks to detergents, IT-equipment and paints, but they include only one PEFCR relevant for Lasting, that is t-shirts.

PCR for furniture

The product category rules (PCR) for furniture are a set of rules, requirements, and guidelines for developing Environmental Product Declarations (EPD) for all types of furniture for domestic, non-domestic, educational and professional use. The criteria comply with several of the ISO standards discussed previously (ISO14044, ISO 14025). The objective of this PCR is to define the mandatory parameters and how they are to be collated and reported and describe which stages of a

[15] Read about the studies at ec.euoprea.eu

product's life cycle are to be considered in the EPD, and which processes are to be included in the life cycle stages. There are alternatives for EPD types with respect to life cycle stages and modules that are covered, either EPD 1 that is from Cradle to Grave, or EPD 2 that applies only from Cradle to gate with options to include more stages.

The use stage is always included in EPD type 1, while it is optional phase in EPD 2. The use phase can include:

- the emission or uptake taking place during the use phase, e.g., emissions of VOC from painted surface, and the uptake of CO2 for exposed concrete products
- maintenance, e.g., energy and water use in cleaning, and recommended repainting during the RSL
- repair includes, if any, repairs during the RSL
- replacement, if any, recommended during the RSL
- refurbishment. If relevant
- Operational energy use, if relevant
- Operational water use, if relevant

The end-of-life stage includes the demolition of the furniture, the transport of the furniture to final waste treatment, all activities regarding reuse, recovery and/or recycling after transportation, and finally, disposal, i.e., waste handling that does not give a useful product (the end-of waste criteria are fulfilled).

The product lifespans are included with two different terms, Reference service life (RSL) and Estimated service life (ESL). Furniture shall be planned and constructed according to a reference service life as provided and documented by the manufacturer. A reference service life (RSL) is mandatory for all Type 1 EPD's. The criteria give a list of typical reference and estimated service lifetimes for different types of furniture with rather high Estimated Service Life (ESL) that is 15 years for most furniture, but even up to 30 years for street furniture. The lifespan is an integral part of the functional unit, which is "The production of one unit of the declared product provided and maintained for an estimated service life (ESL) for the product declared".

PEFCR for T-shirts

The Product Environmental Footprint Category Rules (PEFCR) for T-shirts Guide provides detailed and comprehensive technical guidance on how to conduct a PEF study (Pesnel & Payet, 2019).

The analysis is based on a functional unit "To wear a clean T-shirt until it becomes dirty 52 times", which includes lifespan estimation for t-shirt. The criterion "how long" has an influence on the environmental impact of the use stage. The impact of the use stage is proportional to the number of uses of an article, that is, the more the article is worn, the more the use stage is impacting. The reference flow is the amount of product needed to fulfil the defined function, that is 1 single T-shirt.

The document discusses how they ended up with this Life span definition, and points to that "no method has been defined yet to quantify the life span of textile items and T-shirts in particular ...

In the absence of a method allowing to quantify it, it is not possible to introduce a variable life span in the PEFCR. Therefore, the PEFCR relies on a standard (typical) life span and assumes that T-shirts have a standard life span of 52 washes". They point to this being open for revision to check whether a method allowing to quantify the lifetime exists. "Should this be the case, a variable lifetime might be used in the PEFCR. The current use of a standard life span is a limitation of the study as some T-shirts may have a shorter or a longer lifespan than 52 washes. An increase in the lifetime results in a reduction in the environmental impacts resulting from the production (steps before the use stage) and the end-of-life."

5.4 Conclusion

Several of the reviewed documents include aspects related to the length of product lifespans, but often in a rather superficial manner. When lifespans are included, all of the above-mentioned documents focus more on technical/physical lifespans than factors that impact the emotional/social lifespans. However, those that must assume service lifespan should attempt to include both aspects (such as EPDs and LCAs). Instead of setting criteria for concrete length of lifespans, many criteria documents include requirements for minimum technical quality, which was common for example in the eco-label criteria.

So far, EU regulations on the product level have focused more on energy using appliances than on the other Lasting product categories. The Ecodesign Directive has focused on energy efficiency and on some circularity features of energy-related products, but it is increasingly setting criteria on aspects that can increase product lifespans such as repairability. However, if implemented, the Sustainable product initiative is likely to change the current situation dramatically, by including eco design criteria for a wider set of products and by introducing requirements for more durable, reusable, repairable, recyclable, and energy-efficient products. Instruments such as the EU Ecolabel or the EU green public procurement (GPP) are already broader in scope than the current eco design directive, but as they are voluntary to use, their impact is somewhat reduced.

The considerations for product lifespans in product level standards have come furthest on electrical appliances, with own specific methods for how to measure the durability and repairability. While some standards for personal protective equipment also consider lifespans, the aim of them is to make sure that the label indicates maximum lifespans that the product can be safely used, instead of focusing on improving the longevity of the products. Standards for furniture do not consider lifespans directly but set requirements for strength and physical durability that can help to improve the length of their physical lifespans.

The ecolabel criteria for furniture have more focus on longer product lifespans by including requirements for additional guarantees and availability for spare parts than the ecolabel criteria for textiles. The same difference can be seen both at the EU and the Nordic ecolabel.

The consumers are rather absent in the product level criteria documents. The role that is given to them is to receive information and make choices on the market based on it. Many regulations also focus on protecting consumers through various safety criteria. The standard for repairability considers consumers as "laymen", as in only having general competence and not being experts on repair.

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6. Conclusion

In each of the four empirical chapters, the authors have formulated theme specific conclusions. For these specific conclusions, we refer the reader to the empirical chapters (2-5). Here, we present some overall concluding remarks on the findings and insights and raise some new questions across the whole WP 1 process.

The report has studied two policy levels: EU and Norway, and two policy areas: consumer policy and product regulations. These four chapters are alternative takes on the question of how product lifetime/product durability is represented in different spheres of modern environmental politics.

In the EU chapter we study how product lifetime is conceptualised in the EU's circular economy action plans and programmes within the timeframe 2011-2020. The Norwegian chapter records the presence of durability/longevity themes in Norwegian environmental politics, as they appear in a selected number of pre-election programs from a set of political parties. In addition, it reviews the 'longevity communication' of the two largest Norwegian environmental NGOs. The consumer chapter analyses how product lifetime is made relevant in consumer policies and policy work by consumer organisations and governmental institutions, within the timeframe 2012-2020, while the product chapter looks at the role of product longevity in product specific environmental sustainability criteria for household electronics, furniture, and textiles, and ask whether there are systematic differences between the regulations of the three product groups related to product lifespans.

In the following, we present what we regard as interesting findings from and across the four separate studies. First, we draw a timeline for policy paradigms and argue that product lifetime related policies appear at a time when environmental policies shift from nature conservation and energy and material efficiency and utilization towards focusing on lifestyles and consumption patterns. Second, we argue that it is not sufficient for policy to focus on consumption if consumption is understood merely as an economic act in a market. It is necessary for future policy to widen the consumption perspective to include inconspicuous and habitual patterns that are shared across social contexts and cultures. Third, we argue that policy hitherto focuses too much on the technical conditions to extend product lifetime and too little on the social conditions that shape our consumption patterns.

6.1 Timeline

It seems as if the absence of product lifetime related policies up until ca. 2015 can be explained by shifts in environmental policy paradigms, shown in Figure 6.1 below. One important finding from our study is that product lifetime tends to be linked to consumption themes. However, consumption was not at the core of the environmental policy agenda until circular economy

concepts and ideas were introduced from 2014 in the EU and 2017 in Norway and continuing until today.

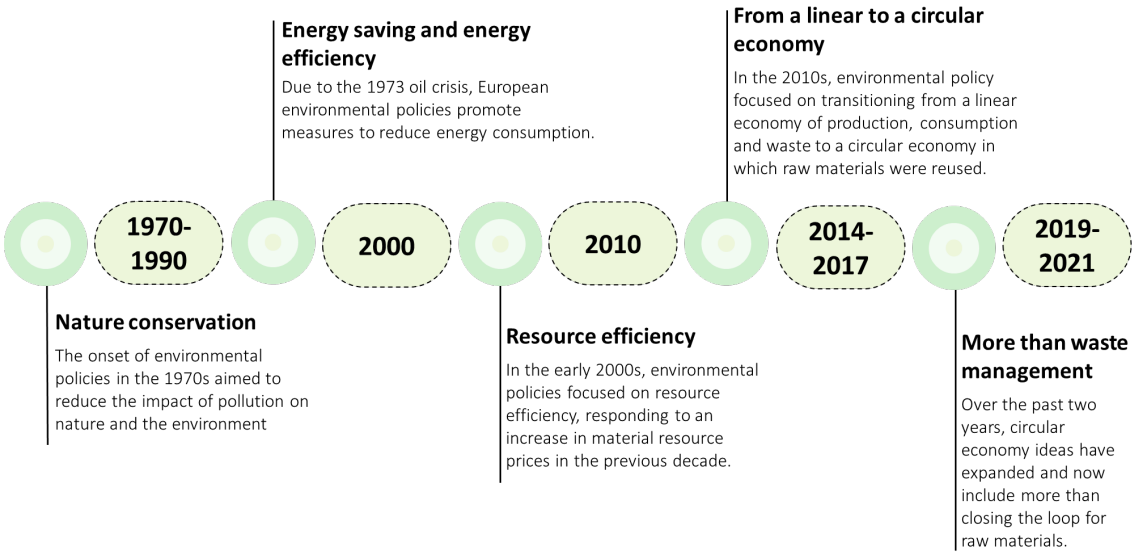

Figure 6.1: Shifts in environmental policies

In the 1970s and 1980s, environmental policies in the EU and national policies in Europe had rather successfully implemented measures to reduce several pollution sources such as industrial waste and CFC gases ('end-of-pipe' policies). In Norway, nature conservation was high on the agenda for environmental NGOs, including well-known citizens' actions, such as protecting the Alta watercourse and protests against developing power plants, and against oil drilling in the North Sea. The 1973 oil crisis was a turning point for the EU. From then on, they aimed at integrating environmental policies in their policy portfolio. There was suddenly a need to scale down the energy demand, and energy-saving and energy efficiency policies were launched (Hoerber, 2012). Energy efficiency policies have been prominent in the EU ever since, and we have also seen a strong focus on energy production and consumption in Norwegian policy.

In the 1990s, there was a shift in focus from nature conservation and pollution control to the environmental implications of modern consumption patterns and lifestyles. The early nineties saw the appearance of a more ecological modernisation approach to the environmental issues, in Norway and internationally. In Norway, the NGO *Future in Our Hands* (FIVH) was established as early as in 1974, but it increasingly emphasised the implications of private consumption for the natural environment. It does not seem as if environmental policies followed, however. At the Norwegian, as well as at the EU level, policies remained focused on energy saving and energy efficiency, and from the early and mid-2000s, on resource efficiency. The latter seemingly came as a result of increased prices on raw materials in the previous decade.

According to Oosterhuis et al. (2012), product policies had received little attention during the years of focus on nature conservation, energy and resource efficiency. They argue that a product-oriented environmental policy is a potential solution for reducing the impact of production, use and waste of consumer products. It seems, however, that it was not until circular economy ideas started trickling into the policy language that products came into focus.

There are some traces of circular economy ideas in the earlier EU's environmental policies. The concept is briefly mentioned in Europe 2020 strategy documents from 2010-2011. But from the 2015 circular economy action plan, we observe a massive uptake of these ideas in the EU and in the European member (and associated) states. As shown in our analyses, Norwegian policy followed from 2017 and the country is about to launch a first circular economy strategy in 2021. Over the past 2-3 years, we have also seen a shift in how the circular economy ideas are understood by policy and how they have been operationalised into actual policy instruments. Whereas the first circular economy action plan in the EU primarily revolved around waste management, such as recycling of products and raw materials, and had very little focus on consumption reduction and the lifetime of products, the new action plan acknowledges to a much larger extent that we need to make our products last longer.

The shifts in policy paradigms from pollution control to the circular economy also bring about a shift in the types of policies that are adopted and what actors these policies affect. Pollution control was achieved through hard regulations, by simply banning the substances and processes that led to pollution. The circular economy is to be achieved through a combination of hard and soft regulation, however mostly through "nudging" businesses and consumers to make the right choices; based on the idea that 'enlightened' businesses are self-regulating.

This timing question was highlighted for the total LASTING project; it concerned the appearance (and disappearance) of the durability approach from environmental politics and environmentalism in general. Researchers and academics had been aware of increased longevity as the potentially most effective approach for a more sustainable society, in Norway (and elsewhere) at least since the late seventies. These insights have filtered into the environmental debate at different times, but they have never been a permanent presence. In this report, it seems as if they reappeared rather suddenly around 2015, following the turn towards circular economy. From 2014, as mentioned, circular economy (CE) concepts started to gain foothold in the EU, and today they dominate all environmental policies. Hence, while product lifetime was little discussed in the first half of the decade, attention has increased over the past five years. This turn is reflected in Norwegian politics, where some political parties adopted 'durability relevant' policies in their 2017 parliamentary election programs, which necessarily means that product longevity had been reintroduced into the debate some time prior to 2017 (because committee work on election programs takes time). The environmental NGOs present a rather similar pattern. *Future in our hands* engaged in product durability in the early nineties, but the theme disappeared and did not reappear until around 2015, while *The Society for Conservation of Nature* engaged (mainly in repair activity) from around the same time.

For consumer policy and for the eco-design directives, the timing seems to parallel the turn observed in general EU policy. Recent policy work from BEUC and NCC embraces the necessity of regulating products and strengthening consumer rights by way of the 'right to repair' and longer guarantee periods. Consumer organizations have traditionally focused on the quality of products in terms of product testing and reliability surveys. Therefore, 'product lifespan' as a concept has always been relevant to consumer organizations, but it was first coined as a term in relation to the circular economy and sustainable consumption in the 2010s. Product durability was part of BEUC's campaigns from 2014 and the Norwegian Consumer Council from 2017.

Hence it seems as if the present concern with durability and the environment is an outcome of the EU turn towards circular economy after 2014.

6.2 Market actor perspective

The EU conceptualises the consumer primarily as a market actor, an actor that acquires products and services, and the Union works from the assumption that consumers' choice in the market can be changed by providing more, and more detailed, information about the products they buy. *Consumers are seen mainly as rational customers*. They are expected to take on a plurality of roles to contribute to the transition to a circular economy; as purchaser/buyer, as seller, repairer, sharer, collaborator, waste sorter etc., but always as a rational and calculating actor pursuing some sort of self-interest. On the one hand, consumers are depicted as actors to be improved; on the other as active participants in the transition.

Historically, consumer policies have worked to protect the interest of consumers and not environmental interests. In terms of product lifetime, the discrepancies between consumer- and environmental policies represent a challenge to achieve longer lasting products, as this, in the short term, could affect consumers negatively with e.g., higher prices for products. In the long term, however, it might be economically beneficent for consumers if high-quality products last longer and the need to replace products is significantly reduced. For consumers to take part in extending the lifespan of products, engage in consumer policies, such as consumer protection, repair, and guarantee periods, means to take part in the environmental policies in the circular economy.

Further, there is a need to discuss how consumption is defined in policy, to increase the focus on product longevity: As mentioned, consumption is most often understood as an event where an economic actor act according to market logics. By almost exclusively focussing on the market, consumption is reduced to the acquisition of products and services. These policies do not consider the domestic domain, which is crucial to the performance and change of consumption patterns. While acquisition is given much attention, the use phase of consumption is downplayed.

When consumers are understood to be rational actors, consumption becomes a purposive act. Consumers have a set of behaviours that are defined by their values and affect their choices in the market. Often, these choices are seen to be driven by financial incentives. This view is evident in the policy instruments that are proposed, such as information campaigns to change consumer behaviour.

We would instead argue that much of consumption is not performed in a reflexive manner. It is predominantly habitual, and it is determined by underlying social, material, and cultural structures that needs to be changed. Such as how many different clothes we need for different occasions, or what it means to have clean clothes. Policy needs to consider the daily life and practices of households/consumers to come up with more fruitful and effective measures.

6.3 Preferred policy instruments

As indicated in the introduction, we use a scheme for identifying policy instruments for increased longevity developed by (Cooper, 2010b). He distinguishes between regulatory, market based and voluntary instruments, and how they are applied at different stakeholders. There is a possibility that the fields in the matrix will not always be mutually exclusive; like when labelling might be a compulsory, regulatory instrument directed at manufacturers and retailers, while it is a voluntary instrument directed at consumers/users. Nevertheless, we believe that the matrix is a fruitful way to get an overview at the political landscape surrounding product durability. In the following, we present the preferred policy instruments at the two policy levels and the two policy areas.

EU circular economy and product level policies

Table 6.1 shows policy instruments proposed or implemented by the EU, based on *A New Circular Economy Action Plan For a cleaner and more competitive Europe* (2020) as well as recent initiatives and developments (until May 2021). We include presently operative and relevant measures/instruments that so far are prolonged and not replaced. The EU is working towards a "sustainable product policy framework", which will be the overall strategy for all policy instruments to foster a circular economy, and which include the below stated instruments. The table also includes overview of product level regulations, standards and labels discussed in chapter 5.

Table 6.1: EU and product level policy instruments based on regulations, standards, eco-labels, product category rules (PCR), environmental product declarations (EPDs), and industries' own tools/labels.

	Regulatory instruments	Market-based instruments	Voluntary instruments
Manufacturers	• *Reviewed and widened Ecodesign Directive* (not finalised) in order to regulate circularity features of all product groups. • Ecodesign and energy labels have information about performance of products. Minimum durability performance based on product specific regulations already on place for vacuum cleaners and under development for other energy related products • *European Dataspace for Smart Circular Applications* (not finalised) to share data on value chains and product information. • Explore changes in *guarantee* legislation (not implemented).	• Union *market surveillance and penalties* for non-compliance of obligatory regulations such as Energy labelling and CE marking • Two-year guarantee provided by the EU Directive on the sale of	• *EU Ecolabel* on products that meet standards throughout the life cycle. Encourages companies to produce durable products and set minimum quality requirements. Ecolabel for furniture also sets requirement for minimum guarantee. • *Product environmental footprint approach (PEF)* to improve validity and comparability of the environmental performance of products. Can be included in the Ecolabel. • Design and labelling for durability, repair and upgrading based on *standards* for energy related products. • Quality criteria for durability, safety and stability of furniture given

	• *Review Batteries Directive* to phase out non-rechargeable batteries and increase recycling (proposed December 2020). • *Review Packaging Directive* to reduce packaging waste and design for re-use (not implemented). • Take-back schemes in *Extended Producer Responsibility* already in place for Energy related products and discussed for textile and furniture	consumer goods	in industries own labels such as Møbelfakta and in PCR/EPDs.
Retailers			• Inclusion of life-span data in marketing based on standards and PCR/EPDs
After-sales service providers			• Free or reduced price on repair
Users	• *Right to repair* is considered by the EU but not implemented. • Separate discarded products to specific reuse, recycling or waste streams based on *Waste directive*		• *New Consumer Agenda* (2020) to provide consumers with better information to avoid greenwashing. • Information from energy labels, eco labels, and CE marking

The above table demonstrates the EU mandate as a regulatory body that provide mandatory or voluntary regulations for Member states. The table shows these regulatory instruments for the manufacturer, but most policies apply to all economic operators including the manufacturer, the authorised representative, the importer, and the distributor. The EU regulations are developed furthest on energy-related products, while lifespan regulations for textiles and furniture are not yet implemented.

The main marked based instruments are related to the general two-year guarantee provided by the EU Directive on the sale of consumer goods, as well as the market surveillance and penalties imposed when the market actors do not conform to the mandatory regulations such as Energy labelling and CE marking. Under EU regulations, a trader must repair, replace, reduce the price or give a refund if the products are faulty or do not work as advertised (Directive 1999/44/EC). After sale instruments are mainly related to providing services related to guarantees and repair. The scope of the review may however have excluded some market-based or after-sale instruments.

When users, or consumers, are targeted, measures are either in the form of consumer rights or providing information to consumers, for example through labels. The directives related to end-

of-life products also stipulate that products should be discarded to specific reuse, recycling, or waste streams.

The New Circular Economy Action Plan (2020) places great emphasis on the expansion of the Eco design directive, or framework. The expansion will include both a technical side, where minimum product lifetimes are calculated for all product groups, as well as a social side where consumers are to be informed about expected product lifetime. Moreover, the directive will promote "modularity", meaning that it should be easier to replace product components. Importantly, when the EU expands the Eco design directive, it should be considered that product groups are different both in their technical and social lifespan, and the extent to which they are regulated already. A one size fits all approach will therefore not be appropriate, it is crucial that each product group has its own criteria for expanding product lifetime. To do so, the Commission has set in place a procedural structure that includes in-depth preparatory study with the involvement of stakeholders, an extensive stakeholder consultation, and environmental impact assessment, and a final scrutiny by the European Parliament and Council.[16] (Marcus, 2020).

According to Marcus (2020), the Eco design framework is the only policy instrument at the EU level that take product longevity into account. However, there are other instruments that in their current form do not account for product longevity but have the potential to do so. These include product safety regulations and the CE Trustmark, and product and service liability regulations. Moreover, the EU Energy label can also be utilised for other product characteristics than energy consumption. Further, use of voluntary instruments such as ecolabels and standards widen the scope of quality requirements to other product groups beyond energy-related products, and use of quality criteria can also improve the product lifespans.

The EU encourages use of the Green Public Procurement (GPP) criteria for facilitating green requirements in the public sector. The GPP criteria may become mandatory requirements. It is the ambition of the EU that GPP criteria will contribute significantly to achieve environmental objectives at the larger societal level (Lundberg et al., 2016). Implemented GPP solutions might have a spill over effect, where private consumption is changed as an effect of changed norms in schools, workplaces and other institutions (Tukker et al., 2008). For example, "meat free Monday" in public canteens might introduce more consumers to meat-free alternatives and affect their food consumption also at home. However, there is still a lack of empirical evidence to support this ambition, and in some cases GPP criteria have even had a negative effect (see Lundberg et al., 2016 for a review of cases).

In sum, there are few policy instruments at the EU level that deal with product lifetime to date. However, there is potential in the Eco design framework to include product lifetime criteria.

Norwegian political party programmes

Below, we apply Cooper's scheme to the set of suggestions and statements as they appear in three of the party programs from 2017 (Venstre; V, Arbeiderpartiet; A and Sosialistisk

[16] New energy efficiency labels explained (europa.eu)

Venstreparti; S). General statements, like '*Venstre will stimulate the development of more durable products'* are not seen as interesting in this context, and neither is a more general consumer orientation of the environmental policy. Here we are looking for specific suggestions for policy instruments.

As anticipated, it is not always obvious where in the matrix to put the suggestions. Are mandatory labels and extended warranty directed at manufacturers or at retailers (importers)? To open up for independent repairers without affecting warranty, is that a regulatory instrument directed at manufacturers or is it a market-based opening in after-sales service providers?

The matrix operation that is performed here is done in order to get an overview of the types of initiatives that come from the political parties. It is conceived as a mapping operation, in order to visualise what types of suggestions for policy instruments and political measures that tend to be preferred by different actors/stakeholders.

In Table 6.2 below, we see that bulk of suggestions and ideas are for regulatory instruments directed at manufacturers and retailers (warranty, repair, minimum lifespans and labelling). In addition, there are some mentioning of market-based measures in order to increase the amount of repair (reduced or removed VAT, more competition, access to the market for independent repairers).

There is a lack of suggestions for voluntary instruments, except, maybe, for a rather loose encouragement at the municipalities. There is also a lack of instruments directed at consumers, unless we should define mandatory labelling schemes directed at manufacturers and retailers as voluntary instruments directed at consumers.

The voluntary instruments, directed at consumers, are, however, abundant in the communication from the environmental NGOs.

Table 6.2: Political parties' policy instruments

	Regulatory instruments	Market-based instruments	Voluntary instruments
Manufacturers	V: national eco labelling A: more eco-friendly product design and materials use, repair and increased capacity utilization A: better warranty schemes in order to secure longer lifespans for products S: Give consumers expanded warranty/right to complain. Increase warranty to six years, compared to the present two and five years. M: Minimum demands on product lifespans for products marketed in Norway. Legislate "the right to repair", including demand on the manufacturer to produce repairable products	S: Make it easier to repair our things. We will have more competition in the market for repair. M: Remove VAT on repair, reuse	S: Have municipalities to facilitate for the establishment of reuse and repair workshops.

	and make spare parts and handbooks available		
Retailers	S: We also want to increase the retailer's burden of proof from 6 months to two years M: Strengthen warranty in the Marketing Control Act		
After-sales service providers		S: It should be possible to have products repaired by professionals without affecting the warranty.	
Users			

Environmental NGOs

Fremtiden i våre hender, FIVH, Future in our hands and Naturvernforbundet, The Norwegian Society for the Conservation of Nature/Friends of the Earth are our two Environmental NGOs, in the matrix abbreviated to F and N respectively, both have a series of initiatives and policy suggestions.

Tabell 6.3: Environmental NGOs' policy instruments

	Regulatory instruments	Market-based instruments	Voluntary instruments
Manufacturers	F: Labelling schemes F: eco design directives targeting durability	F: A number of consumer products have to become more expensive, in return they will last longer	
Retailers	F: better warranty N: the struggle for the right to repair and the transition to a circular economy where we actually use less, and not only recycle more, and the strengthened warranty		F: Producers of office printers leasing out the service 'copier' to a business, then it becomes profitable for the producer of the copier to manufacture high quality machines with long product life, that are easy to repair and with easy access to spare parts*
After-sales service providers		F: For a circular economy to survive, it must become cheaper to repair than to buy new products. F: Reduced or removed VAT on repair, access to spare parts	
Users			F: Encourage consumers to buy less clothes and to use each garment for a longer period, so that less textile waste is generated. Further, we encourage Norwegian consumers to, to a larger degree, buying used garments, so that market actors get less need for exporting.

			F: Become a repair expert: Repair skills and knowledge helps us keep our consumption at a lower level and gives our products longer life spans. We encourage the purchase of quality products and give 8 'tips for repair'. N: Campaigns; Messages about durability and repair are communicated through newspapers, web sites and social media N: promoting smart repair tricks and displaying a map of repairmen and repairer firms. N: together with the Norwegian Consumer Council focusing on overconsumption and repair, chiefly for electronics and clothing (yearly from 2016), it has arranged "Clothes exchange day" yearly since 2016

*This is perhaps rather more an old and well-known idea for a business model than it is a "policy instrument", but it is an approach that is relevant for businesses, manufacturers, retailers, after sales providers and all sorts of private and public offices, over a vast range of products.

The very simple conclusion for the findings in the two 'Instrument'-matrixes is that political parties focus most on regulatory tools directed at manufacturers and retailers, while the NGOs' main focus is on voluntary tools directed at the user/consumer.

By employing the Cooper matrix, we observe that different actors and stakeholders tend to prefer different policy instruments. Suggestions from political parties tend to be regulatory measures, mainly directed at manufacturers and retailers. At the next level, however, some of these measures, like suggestions for labelling for longevity, will appear as voluntary instruments directed at the consumer.

The communication from environmental NGOs is much more focused on what end users/consumers might achieve in their daily lives, voluntarily. It is a bit awkward to call NGOs' encouragement to members to act in certain ways a 'policy instrument', but it is an approach that resembles government-initiated information campaigns. The user- or consumer centred instruments based on voluntary support and participation, presuppose some form of upside from the users' perspective; financially, morally or other. I will repair my washing machine because it is the right thing to do, or because it is financially beneficial, or both.

This is also relevant for a large portion of the regulatory instruments directed at retailers and manufacturers, i.e., longevity labelling. Unless we decide that *all* washing machines must be built for a 30-year lifespan in order to be marketed in the EU, we have to consider consumer choice. This means that we must pay attention to the interplay between the policy instruments that are employed.

Consumer organisations

Table 6.4 gives an overview of policy measures fronted by the consumer organisations NCC and BEUC. Generally, most of the policy measures are regulatory targeted at manufactures and the market, in addition to instruments that will increase the rights of consumers. An important feature is the different instruments that combined will lead to longer lasting products through improved design, reparability and upgradability and extended guarantee periods. Seen from an environmental perspective, most of these instruments will strengthen consumer rights while at the same time extending the physical lifespan of products. However, the instruments do not suggest a repair policy where replacement is given less priority, as it is still the consumer who should decide the remedy. This will not necessarily be of environmental benefit, as product break-down is not the only reason products go out of use. Therefore, if measures such as the right to repair and improved consumer rights are to have an effect on product lifespans, considerations that also target unsustainable routines and a throw-away culture is important to lower environmental impact of consumption.

Table 6.4: Consumer organisations

	Regulatory instruments	Market-based instruments	Voluntary instruments
Manufacturers	• Hinder product obsolescence • Durability criterion • Improve the Eco-design Directive through criteria for durability, upgradability and reparability • Labels on reparability and durability	• Regulate the market in favour of environmental beneficial products • Use VAT and taxes to promote durability and repair	• *Ecolabels* • *Information on quality*
Retailers		• Restrictions on green claims and greenwashing in general	
After-sales service providers	• Enable upgradability • Availability of spare parts and digital support		
Users	• Improve the consumer Sales Directive and extend the legal guarantee for products to cover the expected lifetime • Right to repair	• Easier access to more sustainable choices	• *Information about the expected lifetime of products*

6.4 Physical and social life of products

For the analysis of product lifespans, we employ the (expanded) typology by Packard (1960) of the four forms of obsolescence: quality, function, desirability and new consumer needs, presented in the introduction. In this sub chapter we put quality, function and consumer needs together and call them “physical conditions”, as opposed to the different aspects of desirability,

here renamed “social conditions”. The material aspects of product life might be reached and influenced by product policy, in the forms of product standards and specifications, while the social conditions often will be out of reach for product policy.

As we have shown above, European policy to prolong the lifetime of product relies heavily on enhancing the material or technical conditions of the products through a renewed Eco design directive. The term e*co design* is in EU documents defined as “the integration of environmental aspects into product design with the aim of improving the environmental performance of the product throughout its whole life cycle”, but the directive has so far only been applied to energy related products. In 2021, however, the ambition is to extend the directive to apply also to nonenergy products, by developing product specific criteria. The eco design directive also considers consumers, mainly by enforcing their right to information, but also as active stakeholders by specifying that they should be heard in preparation of the harmonised standards.

A notable finding in our analyses is that the social conditions that might prolong product lifetime are almost exclusively approached through informing consumers. The information policy instrument is a result of the above-described understanding of the consumer as a rational actor in the market. If the consumer makes rational choices in the market, more and better information has the potential to change consumers’ values in a more sustainable direction, as well as to change their choices in the market.

From the consumer movement’s perspective, it is problematic that information is given too much emphasis, as it implicitly gives the consumer a more responsible role, when in fact there is little action space to consume more sustainably if the market is not more adjusted for sustainable choices through product durability and repair. To the extent that consumers might contribute to longer product lifespans, current consumer policies and consumer protection in general should be adapted to make sustainable consumption more accessible. This would presuppose a change in today’s way of thinking about consumer policies, as the current EU consumer protection legislation do not sufficiently contribute to sustainable consumption and a longer lifetime for products.

It is not at all clear in what ways social conditions might be developed into policy instruments to increase product lifetime in the future. There exists a great variety of environmental policies, regulations as well as voluntary initiatives, such as eco-labels, environmental product declarations (EPDs), product quality standards, and industries’ own tools/labels on the product level that aim to reduce the environmental impacts of products. When lifespans are included, the EU product standards documents (criteria and regulations) obviously focus more on technical/physical lifespans than on factors that impact the emotional/social lifespans. However, those that must assume *service lifespan* should attempt to include both aspects (such as LCAs). Instead of setting criteria for concrete length of lifespans, criteria documents can instead include requirements for minimum technical quality, basically as an attempt to increase consumers’ general confidence in the marketed products.

For politics to influence the social and emotional aspects of product longevity, it will have to take the long-term approach. First, consumers probably must experience improved product quality

over time, in the form of optimal physical quality (even good old-fashioned 'value-for-money'). Second, we should employ information campaigns (NGOs, authorities) to change product culture over time. In older societies, it was not unusual to regard patinated, old products as more valuable than new ones. This indicates that product culture is not written in stone, that it is changing and (hopefully) changeable.

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- Marked based welfare
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