OBSOLESCENCE

OF HOME APPLIANCES AND ELECTRONICS:
WHAT IS THE ROLE OF THE CONSUMER?

équiterre

Changing the world, one step at a time

Équiterre, May 2018

ACKNOWLEDGEMENTS

Équiterre has received funding from Innovation, Science and Economic Development Canada's Contribution Program for Non-profit Consumer and Voluntary Organizations. The views expressed in this report are not necessarily those of Innovation, Science and Economic Development Canada or of the Government of Canada.

Gouvernement du Canada

Équiterre also acknowledges the contribution of RECYC-QUÉBEC to the production of this report and its distribution.

RECYC-QUÉBEC Québec

OTHER ACKNOWLEDGEMENTS

AUTHORS

Annick Girard, Senior Project Manager, Équiterre
Colleen Thorpe, Director of Educational Programs, Équiterre
Fabien Durif (Ph.D.), (Ph.D.), Directeur of the Observatoire de la consommation responsable (OCR), ESG UQÀM
Élisabeth Robinot (Ph.D.), member of the Observatoire de la consommation responsable (OCR), ESG UQÀM

MONITORING COMMITTEE

Hélène Gervais, Industrial Development Officer, RECYC-QUÉBEC
Laetitia Vasseur, Co-founder and General Delegate, Halte à l'obsolescence programmée (HOP)
Ken Whitehurst, Executive Director, Consumers Council of Canada
Olivier Bourgeois, Coordinator, Energy and Social Accountability, Option consommateurs
Erick Lachapelle, Associate Professor, Department of Political Science, Université de Montréal

Graphics : Line Godbout. Arts Interne
Revision : François Roberge and Ryan Worms
Translation : Andrea Neuhofer

The use of the masculine in this report is gender-neutral.

TABLE OF CONTENTS

LIST OF BOXES AND TABLES

ABOUT

ÉQUITERRE

In 2018, Équiterre is the largest and most influential environmental organization in Quebec, with over 180,000 supporters, 22,000 membres, 200 volunteers and 40 employees. Équiterre offers concrete solutions to accelerate the transition towards a society in which individuals, organizations and governments make ecological choices that are both healthy and equitable. By 2030, Équiterre, in partnership with local communities, will have contributed to the development of public policies as well as civic and business practices that lead to a low-carbon economy and an environment free of toxic substances..

équiterre

Changing the world, one step at a time

EXECUTIVE SUMMARY

The rapid acceleration of the cycle of acquisition and disposal of consumer goods we are observing today has important environmental, social and economic consequences. The volume of home appliances and electronics (HAEs) consumed around the world every year is enormous, and consumption is even predicted to grow significantly in the coming years. Given this context, the choice of our subject of study needs no justification. **In 2016, 44.7 million tonnes of HAE waste were generated around the world. It is predicted that, by 2021, this volume will increase by 17%!**

Planned obsolescence: myth or reality?

The term "built-in" or "planned" obsolescence is often used indiscriminately in public debate to refer to products that become non-repairable as the result of a deliberately planned strategy by manufacturers to reduce their lifespan. However, many stakeholders have called into question the existence of planned obsolescence, arguing that consumers have a biased perception that is not based on concrete facts. Moreover, they point out that today's competitive climate and growing consumer demand for cheaper products can lead some producers to opt for lower-cost materials or to reduce assembly steps, all of which can also adversely impact product quality and durability. Finally, the context of rapidly growing technological advances can also be seen to contribute to the obsolescence of many HAEs.

Given this context, it can be difficult to prove cases of planned obsolescence, which are often based more on suspicion, even though there is no doubt that HAEs break down. To the extent that the notion of obsolescence as being "planned" or built-in gives rise to controversy and tends to place the blame on one actor (manufacturers) while neglecting the role played by the other actors, it becomes necessary to refocus the debate on the notion of obsolescence itself.

.What is obsolescence?

Obsolescence is defined as the depreciation or decline in the value of an object or piece of equipment before its physical wear and tear. Once the product is no longer functional or usable, the obsolescence is said to be absolute. If the object is still in working order, the obsolescence is said to be relative. Obsolescence can be analyzed from the perspective of the product or from the perspective of the user (perceived obsolescence). Ranked in order of importance, the main reasons for the replacement of products are: repairability, performance, pursuit of novelty, energy efficiency and social obsolescence (related to peer pressure).

The three types of obsolescence identified are:

- Functional and technological obsolescence: due to a functional defect or breakdown, incompatibility or notification;
- Economic obsolescence: repairability, quality-price ratio, price reduction, after-sale service;
- Psychological obsolescence: aesthetic, ecological, influence of trends.

There are several "triggers" that can have a significant influence on a consumer's decision to replace an object, including breakdowns, accidents, loss, wear and tear, incompatibility, as well as marketing strategies designed by companies, such as promotions, loyalty programs and changes to plan features.

Overview of initiatives aimed at fighting obsolescence

Over 80 initiatives were identified as part of our survey of the fight against obsolescence. These include citizen actions, companies offering value-added products and services, awareness-raising tools and campaigns, labelling, laws and regulations, standards, initiatives encouraging and facilitating repairs or recycling, recovery and resale, and, finally, sharing services.

These numerous initiatives are being spearheaded by a variety of stakeholders, including private corporations (Michelin, Seb, Patagonia), non-profit organizations (HOP, Les Amis de la Terre, Greenpeace) and citizen movements (ex.: collaborative platforms or models). By drawing inspiration from existing tools and projects and increasing the synergy between them, it is possible to create an ecosystem to fight obsolescence more effectively. There are currently few legislative measures in place focusing on obsolescence (and those that do exist are fairly recent), but it is important to monitor them closely in order to assess their impact. Finally, it is worth noting that the number of projects and initiatives facilitating repairs is particularly high, and that several of these initiatives have already succeeded in forging international communities (ex.: Repair Cafés).

" Over 80 initiatives were identified as part of our survey of the fight against obsolescence. "

" ...the number of projects and initiatives facilitating repairs is particularly high, and that several of these initiatives have already succeeded in forging international communities (ex.: Repair Cafés). "

Understanding the Canadian consumer's perception of obsolescence

Our survey, which was conducted in January 2018 with a representative sample of 2,202 respondents, reveals that less than half of consumers are conscious of the role they play in the phenomenon of obsolescence. We also observe a strong perception of the practice of planned obsolescence, with 86% of respondents saying that HAEs are deliberately designed to have a short lifespan (42% answered "yes, in the majority of cases;" 44% answered "yes, in some cases").

Our survey also reveals that Canadians are big consumers of home appliances and electronics, with small appliances being the most frequently acquired. According to our findings:

- Nearly one out of five consumers can be described as being "excessive," having acquired five or more devices in the time period studied. The most common profile is that of a man whose average age is younger than that of the other respondents (46 years), who is an owner and whose has a relatively high income;
- Only 15% of respondents reported having acquired no appliances in the previous two years, and only 17% acquired no electronic devices;
- 80% of respondents purchased their appliances or devices new, suggesting a low propensity for reuse;
- Few respondents keep their appliance beyond what they consider to be their reasonable lifespan;
- Despite the fact that the main reason for replacement is related to product failure, few respondents attempted to repair their devices. Only 19% of respondents reported making repairs to their products in the case of home appliances, compared to 26% for electronics;
- The most frequently acquired small home appliances are vacuum cleaners, coffee/espresso machines and toasters.

Ranked in order of importance, the main reasons that drive Canadians to replace their old appliances or electronic devices are as follows: technological and functional obsolescence, economic obsolescence and psychological obsolescence. When purchasing a new device, consumers are influenced by technological performance, price, quality and promotions. In terms of psychological factors, product reviews and ratings, product design and brand all hold strong appeal for consumers.

Among the different segments of consumers identified, the group of "well-informed" consumers is particularly important by virtue of its greater awareness of obsolescence and its higher expectations of governments, retailers and manufacturers in terms of fighting this phenomenon. This group is characterized by a larger number of women, a higher average age, lower incomes, a larger proportion of owners, more French-speakers, more retirees and more residents from Quebec and the Maritimes.

Recommendations and potential solutions

Based on the findings of our study, several recommendations can be made with the aim of furthering the fight against obsolescence. These recommendations target three distinct groups: citizens, companies and government.

First, it is important to provide better information to citizens in order to make them better aware of their role in the phenomenon of obsolescence and help them realize that obsolescence is not always planned. These messages should be tailored to the different consumer segments and should include concrete solutions aimed at extending the lifespan of their appliances and devices, such as calculators of HAE resale values, identification of relevant labels, the "Protégez-vous" seal of approval, Energy Star stickers, product review websites and repair-based initiatives and services, including repair-a-

thons, tutorials, communities of practice, directories of professionals, etc.

Recommendations for companies include providing clear information on the quality, durability and environmental performance of the goods they sell. Concrete measures such as product labelling and in-store signage could be particularly relevant to the extent that these tools can also provide consumers with information on options favouring the reuse of appliances and devices. Companies can also play a key role in combatting obsolescence by facilitating the repair of their products and avoiding marketing practices that encourage overconsumption.

Governments also need to show leadership by taking action in the fight against obsolescence. Promoting repairs, reuse and the functional service economy would be a good place to start. Governments should also monitor legislative developments in order to identify and draw inspiration from best practices at the international level, including providing economic incentives to promote rental and repair, modelled, for example, on the tax measures introduced by Sweden to incentivize repairs to consumer goods. Finally, it is important to continue to develop knowledge in this field and to demonstrate public leadership and exemplary practice when it comes to the maintenance, repair and reuse of consumer goods.

" ...less than half of consumers are conscious of the role they play in the phenomenon of obsolescence."

" Companies can also play a key role in combatting obsolescence by facilitating the repair of their products and avoiding marketing practices that encourage overconsumption. "

Conclusions

There is no doubt that rapid and concrete action is needed to counter the phenomenon of obsolescence, notably by implementing the solutions proposed in this study. The numerous class action lawsuits and investigations launched in recent months into the practices of multinational corporations such as Apple – coming in an age where waste management and environmental preservation constitute major challenges for society – demonstrate the urgent need to raise the awareness of citizens, manufacturers, retailers and governments, to offer them solutions, and to change consumption practices that can be easily modified.

INTRODUCTION

Background

Équiterre has been working to promote responsible consumption for over 25 years. In that time, it has developed numerous projects that offer consumers concrete solutions on key issues by promoting fair trade, the formula of organic vegetable baskets, electric vehicles, etc. Alarmed at the phenomenon of overconsumption, which compromises the transition to a low-carbon economy, Équiterre made a commitment in its 2017-2020 strategic plan to tackle the issue of obsolescence of consumer goods.

Obsolescence is defined as the relative loss in value of a product in relation to a more recent product. The issue of obsolescence has drawn increasing attention from numerous observers and stakeholders, including the media, community and consumer protection organizations, university researchers, companies and certain public authorities. However, although obsolescence has been a recurring subject of public debate in Quebec and Canada, there have been very few concrete developments offering solutions to the problem. This contrasts with the situation in Europe, where promising advances include a law adopted in France making planned obsolescence a criminal offence and tax measures introduced by Sweden to incentivize repairs to consumer goods.

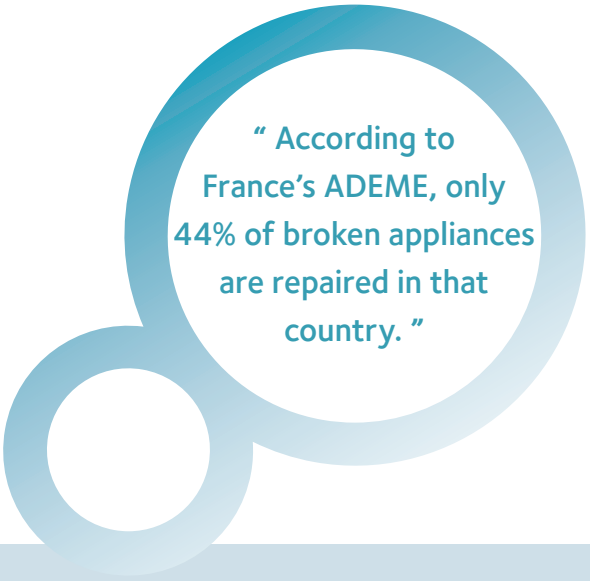
The rapid acceleration of the cycles of acquisition and disposal of consumer goods has major consequences:

- Obsolescence contributes to environmental degradation: depletion of natural resources, greenhouse gas emissions, destruction of the ozone layer, air acidification, water eutrophication and increased generation of waste;

- In terms of social impact, in addition to encouraging the emergence of informal economies in more economically vulnerable countries, obsolescence also threatens jobs in the repair industry due to the rapid renewal of objects and the lower motivation of consumers to repair objects;

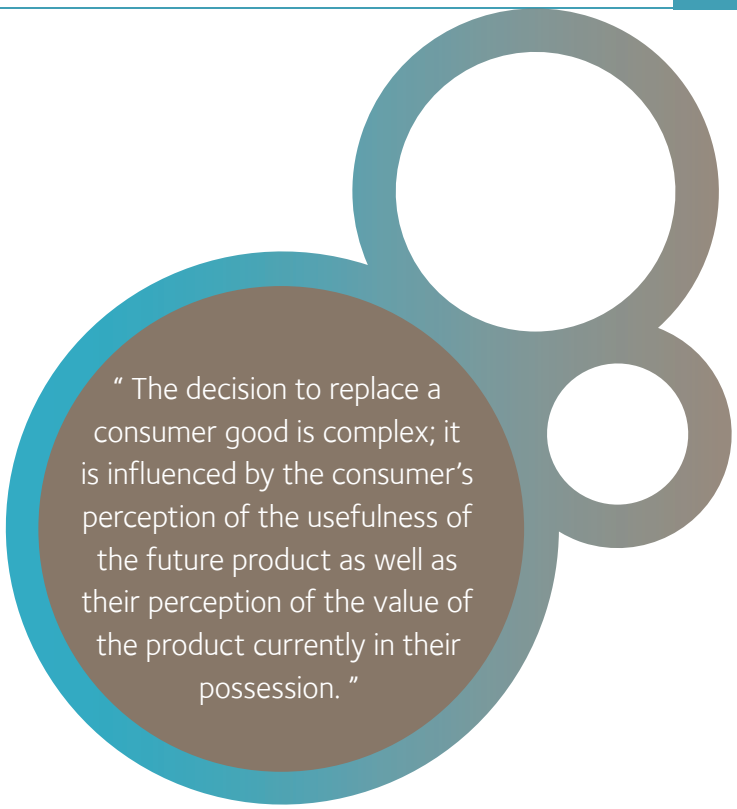
- From an economic standpoint, product obsolescence causes consumers costs to rise and reduces their purchasing power. Encouraged by marketing strategies to buy more than necessary and to buy cheaper, less durable goods, consumers are more likely to take on extra debt. In addition, the disposal of goods leads to higher costs for municipalities, which are ultimately passed on to taxpayers.

Obsolescence affects many categories of consumer products, but in terms of volume, the category of home appliances and electronics (HAEs) warrants special attention. In 2016, HAEs generated 44.7 million tonnes of waste worldwide, and this volume is forecast to grow by 17% by the year 2021! According to France's Agence de l'Environnement et de la Maîtrise de l'Énergie (ADEME), only 44% of broken appliances are repaired in that country[2].



Consumer behaviour

Over the past years, the lifespan and duration of use of a large number of home appliances and electronic products have grown shorter. In the case of product lifespan, the consumer replaces the object due to a defect that cannot be repaired, while in the case of duration of use, the object is replaced even if it is still functional. Manufacturers are often seen as the main culprit in this phenomenon of obsolescence, which is perceived as being "built in" or planned in the product design stage. In other words, there is a perception that manufacturers may intentionally shorten the lifespan of their products, while the consumer is seen as a victim of a business or marketing strategy. But is this really the case?



The decision to replace a consumer good is complex; it is influenced by the consumer's perception of the usefulness of the future product as well as their perception of the value of the product currently in their possession. To explore this question further, Équiterre commissioned ESG UQÀM's Observatoire de la consommation responsable (OCR) to conduct a study on the role of Canadian consumers in the obsolescence of HAEs. The research focused on the following questions:

- What criteria influence the decision of Canadian consumers to stop using an appliance or device?
- Do the marketing strategies used by companies have an impact on the replacement of appliances that are still in working order?
- To what extent does the development of new features on appliances affect their obsolescence?
- Could "repairability" labels and warranties on appliances help reduce obsolescence?

This report presents the findings of this study, which represents the first step in a reflection aimed at helping Équiterre develop recommendations for actions that would inform and raise awareness among Canadian consumers about the issue of obsolescence.

The report is divided into four parts:

1 Definition and outline of practices related to obsolescence, based on an analysis of the academic and professional literature;

2 Identification of promising initiatives and actions aimed at fighting obsolescence in Canada, the United States and Europe;

3 Analysis of the behaviour of Canadian citizens with regard to practices linked to obsolescence, based on a Canada-wide web survey of 2,202 respondents, representing a cross-section of the population;

4 Recommendations and potential courses of action targeting the different stakeholders.

PART 1:

DEMYSTIFYING OBSOLESCENCE

In the context of the global economic crisis of 2008, as political discourse was encouraging the stimulation of demand as a means of boosting economic growth, the relative decline in the value of products compared to more recent models in the same category became an important social, economic and environmental issue. Around the same time, starting in the 2000s, there was a growing debate focusing on the responsible consumption behaviour of citizens and, in particular, on how to "consume better".[3]

The electronics industry provides a particularly stark illustration of the phenomenon of product obsolescence and the rapid replacement of so-called "durable goods." [4] The accelerating pace of technological change has had an effect on the behaviour of consumers, more and more of whom feel compelled to buy new goods and get rid of their old products.[5] A product's lifespan is often cut short by the rapid introduction of a new product, giving consumers the "impression" that their old device is obsolete.[6]

From the perspective of supply, obsolescence has extended the range of products available, leading to more choice for consumers. From a sustainable development perspective, however, obsolescence represents a major problem. The acceleration of acquisition cycles leads to the increased disposal of durable goods and higher energy needs. All of this raises important social, economic and environmental questions regarding the current practices of manufacturers.

According to France's Environment and Energy Management Agency (ADEME), the term "planned" or "programmed" obsolescence has often been used indiscriminately, particularly in public debate.

> "The exaggerated media focus on certain symbolic – and not always relevant – examples of planned obsolescence plays a role in the terminological confusion and fosters a climate of distrust toward manufacturers on the part of consumers." [7]

Does planned obsolescence really exist, or is it just a myth? In the first part of our study, we examine this question and propose a framework for an analysis of the concept of obsolescence (from planned obsolescence to perceived obsolescence). We also identify the different practices commonly associated with the phenomenon of obsolescence and raise questions about whether it is possible to measure it. This section of our report is based on the analysis of professional reports as well as the academic literature (**see Appendix 1**).

1.1 Planned obsolescence, a strategy not to be confused with obsolescence

The release in the French-speaking world of the documentary *The Lightbulb Conspiracy*[8] in 2010, and of the Cash Investigation program on *La mort programmée de nos appareils*[9] [the programmed death of our devices] a few years later, brought the issue of planned obsolescence into the public eye. Until then, the media and politicians had paid little attention to this phenomenon. Since then, the issue of absolute obsolescence – occurring when manufacturers intentionally make their products non-repairable – has been the subject of growing debate.

However, several professional experts, academic researchers and editorialists challenge the notion that manufacturers intentionally design products to be more breakable or difficult to repair or to become obsolete more quickly for purely commercial reasons. They question the existence of planned obsolescence, arguing that consumers have a biased perception that is not based on actual facts[10] and that, in today's highly competitive economic environment, it would not be in the interests of

manufacturers to risk their reputation by doing so. Magazines such as Consumer Reports in the United States and Protégez-Vous in Canada test and compare thousands of products each year, making it harder and riskier for companies to skimp on quality. Moreover, they point out that this competitive climate and consumer demand for cheaper products lead some producers to opt for lower-cost materials or to reduce assembly steps, all of which can also adversely impact product quality. Finally, they argue that the rapidly growing pace of technological innovation today means that many HAEs become obsolete more quickly. The evolution of needs and technology and the pursuit of the lowest possible manufacturing costs are all factors that they believe explain the rapid or premature replacement of products.[11]

The strongly contrasting views of stakeholders on this issue has had the effect of sowing confusion in consumers' minds about the existence of planned obsolescence.[12] As such, it is important, before addressing the issue of obsolescence itself, to clearly define and understand exactly what is meant by planned obsolescence.

Planned obsolescence is defined in the professional, legal and academic literature alike as a strategy by which a product's lifespan is purposely shortened from the stage of conception (**see Box 1**).

Several authors[16] show that the phenomenon of planned obsolescence as it applies to consumer products is much older than one would think. As early as 1899, Thorstein

BOX 1:
DEFINITION OF PLANNED OBSOLESCENCE

"A strategy through which the standard lifecycle (average lifespan) of a product is knowingly reduced from its conception, thereby limiting its duration of use (the period during which the product is used), as part of a deliberate business strategy."[13]

- ADEME

"... defined as any strategy whereby a product's life is intentionally shortened from its conception, thus limiting the duration of its use for economic reasons."[14]

- NATIONAL ASSEMBLY (FRANCE)

"... the voluntary intention on the part of manufacturers to shorten the lifespan of products from their conception." [15]

- VANCE PACKARD

Veblen,[17] an economist who coined the term "conspicuous consumption," used this notion of obsolescence to refer to the concept of producing "the next new thing" and its impact in "hasten[ing] product extinction."

However, the historical roots of obsolescence can be traced back to the Great Depression that started with the crash of 1929, a period during which consumption and the quick replacement of products were seen as means to reboot economic growth.

The term was used for the first time in 1932, in a chapter of the book *The New Prosperity,* [18] to describe a strategy aimed at ending the Great Depression by imposing a legal expiration date on products in order to stimulate their replacement. A declaration made by the president of General Motors at the time to the effect that industry's "big job was to hasten obsolescence," clearly illustrates this policy.[19] This declaration reflects the major role that marketing would go on to play in achieving the objective of stimulating consumption. The emergence of the notion of obsolescence thus coincided with that of the "consumer society," promoted in the 1920s by advertisers and the development of consumer credit. Gradually, a new lifestyle was imposed on consumers in the form of a new material culture based on the construction of a life

of ever greater comfort. The "duty to consume" as an engine of economic growth gradually crept into households.[20] From that point on, the phenomenon of obsolescence developed in two directions. First of all, manufacturers began selling products of lower quality. Second, companies sought to stimulate consumption psychologically by encouraging consumers to get rid of products that were still useful and usable.[21]

" Recognized cases of planned obsolescence are extremely rare; they are based more on suspicions than on actual examples or concrete evidence. "

The first critique of the phenomenon of obsolescence appeared in a book published in 1960 by Vance Packard, *The Waste Makers*.[22] Packard condemned the abundance of waste generated by the constant renewal of products. In 1970, Jean Baudrillard's *La société de consommation* [The Consumer Society][23] delivered a critique of the principles of mass consumerism, the logic of the simulacrum and differentiation which had replaced the logic of need. Baudrillard portrayed consumers as victims of advertising that transformed the product into a system of values.

Is it possible to talk about planned obsolescence in today's world? A report on obsolescence produced by the French government concludes that it is difficult to identify cases of "planned obsolescence":

> "Recognized cases of planned obsolescence are extremely rare; they are based more on suspicions (sometimes strong) than on actual examples or concrete evidence." [24]

Proving planned obsolescence is indeed a difficult task, since the strategies used by companies are protected by industrial secret. In addition, prior to 2015, there were no legal tools available to conduct thorough investigations.

An analysis of existing reports and studies leads to the conclusion that it is not always possible to compare the lifespans of objects over time.[25] That being said, a recent wave of legal cases suggests that consumers are not prepared to let companies off the hook. The very first investigation of "planned obsolescence" was launched by the public prosecutor in France in December 2017, following a complaint filed by the French consumer protection association known as Halte à l'obsolescence programmée (HOP [Stop Planned Obsolescence]). The complaint names four leading printer companies: Epson, HP, Canon and Brother. Currently, Epson is the only one under preliminary investigation. While legal experts point out that the investigation does not imply a presumption of culpability, the fact that the investigation was even launched marks a milestone.[26] In the wake of this first case and following Apple's admission, triggered by a polemic on Reddit, that it deliberately slowed down its older iPhones,[27] the public prosecutor's office in Paris also launched a preliminary investigation of Apple for alleged "deception and planned obsolescence." [28] This lawsuit was also triggered by a complaint filed by HOP in December 2017. In January 2018, two Quebec law firms, LPC Avocats and Renno Vathilakis, sought authorization to file a class action lawsuit against Apple for violation of Quebec's Consumer Protection Act, on behalf of Quebec consumers who bought Apple products. In addition, over 60 lawsuits have been filed against Apple in 16 U.S. courts since December 2017 over issues that include deceptive trade practices, false advertising and planned obsolescence.[28]

1.2 What is obsolescence?

There is a great deal of ambiguity surrounding the issue of the responsibility of the different actors in shortening the duration of use or the lifespan of household appliances and electronics. Many experts agree that there is shared responsibility among the actors. To the extent that the notion of obsolescence as being "planned" or built-in gives rise to controversy and tends to place the blame on one actor while neglecting the role played by the other actors, it becomes necessary to refocus the debate on obsolescence, defined as the decline in the relative value of a product in relation to a more recent product.[29] Once the product no longer works, the term used is absolute obsolescence. If the object is still functional, the obsolescence is said to be relative[30] (**see Box 2**).

BOX 2:

DEFINITION OF OBSOLESCENCE

ABSOLUTE OBSOLESCENCE

Corresponds to the technical end of the product's lifespan (intrinsic durability of the product).

Depends on the product's capacity to resist wear-and-tear and material degradation, on process quality and on factors related to maintenance.[31]

RELATIVE OBSOLESCENCE

Corresponds to the premature end of a product's life:

Depends on the motivation behind the decision to replace a product, i.e., how existing products are evaluated compared to new models. Can be of two types: functional obsolescence (economic depreciation, technological change, new needs) or psychological obsolescence (subjective change in perception, past experience, fashion, aesthetic quality).[32]

There is a growing trend among consumers to replace their products, and durable goods in general, prematurely. This is not because these products are no longer functional, but simply because the consumer prefers to acquire a new product for technical, aesthetic or psychological reasons.[33] This results in a user-object relationship that is less durable over time, particularly in the case of electronics. These products are now more affordable, able to perform multiple tasks simultaneously, and, especially, much more technologically sophisticated. All of these factors have contributed to practices favouring the economic obsolescence of products among consumers who prefer to replace a product rather than have it repaired.

This report focuses on relative obsolescence (or perceived obsolescence), meaning the loss of the relative value of a product that is still functional.[34] The aim is to more clearly understand and evaluate the conditions that motivate consumers to prematurely replace a HAE that has not attained the end of its technical life in order to identify measures to counter this behaviour.

1.3 Types and forms of obsolescence today

Several academic authors have developed models of consumer behaviour as it relates to the replacement of durable goods (**see Appendix 2)**. Nearly all of them are conceptual studies that attempt to explain the phenomenon based on the following dimensions:

- economic obsolescence - related to the product's price-quality ratio, a drop in its cost, and the cost to repair it;
- technological obsolescence - related to improvements in a product's features;
- psychological obsolescence - related to image and changes in the consumer's needs.

In the professional literature, several studies have attempted to model the reasons driving product replacement (**see Appendix 3**). Most of these studies are also conceptual in nature and identify the same dimensions that emerge from the academic literature, although new dimensions are also proposed, including obsolescence by expiration date,[35] linked to "best-before" dates on products, and ecological obsolescence[36] which is the practice of replacing a product with a newer, more energy-efficient product that is less harmful for the environment and/or meets other ethical criteria.

Given the lack of empirical studies in both the academic and professional fields, it can be difficult to identify with certainty the main factors driving consumer replacement of durable goods. However, if we look at the findings of the few empirical studies that have been conducted, it may be possible to list the reasons why people replace durable goods in the following order of importance :

- Repairability (financial reasons): problems finding spare parts, ease of repair, high cost of repair;

- Performance (technological reasons): diminished performance of the old product, technological improvements and new features on new devices;
- The novelty effect (psychological reasons);
- Eco-efficiency (environmental reasons);
- Social obsolescence, related to peer pressure (particularly relevant in the case of cell phones).

It's interesting to note that, with the exception of the studies by researchers with the Observatoire de la consommation responsable (OCR) **(see Box 3)**, the academic literature has paid little attention to the factors, or "triggers," that influence consumers' decisions to replace their durable goods, despite the fact that these triggers could play a major role in product obsolescence. The media, for their part, tend to focus on the strategic marketing or advertising tactics of manufacturers and retailers, but unfortunately few empirical studies have been conducted on these strategies.

BOX 3:

FACTORS INFLUENCING REPLACEMENT BEHAVIOUR [37]

CONTEXT: PERCEIVED ABSOLUTE (OR FORCED) OBSOLESCENCE

Breakage, accident, theft, loss, wear and tear, lack of maintenance, unavailable or expensive parts, non-repairable device (ex.: cannot be disassembled, welded battery, etc.), incompatibility (ex.: different connections for newer models).

CONTEXT: RELATIVE OBSOLESCENCE

Gift, promotions, loyalty program, end of contract/plan change (in the case of cell phones).

1.4 Can obsolescence be measured?

Different definitions and "measurements" of obsolescence can be found in the literature based on the perspective adopted:

- **Product-based perspective on obsolescence:** deliberate shortening of a product's lifespan by the manufacturer (planned obsolescence model);
- **User-based perspective on obsolescence:** reasons influencing users to dispose of a product

While studies on the disposal of goods are more common, there is a lack of literature on product replacement, and most of what does exist is conceptual. Moreover, there are differences based on the theoretical approaches adopted by the studies. For example, in the academic literature in the field of economics and marketing, product replacement behaviour is seen as being based on a rational choice, whereas the growing body of behavioural research views it as being influenced by psychological factors, with decisional biases, and conditioned by circumstances, change motivations and product categories

Based on the analysis of the professional and academic literature, this study adopts the following terms:

- Functional and technological obsolescence: obsolescence due to a functional defect, obsolescence due to incompatibility, indirect obsolescence - unavailability of related products - programmed obsolescence (by notification), etc.;
- Economic obsolescence: "repairability," after-sale service obsolescence, etc.;
- Psychological obsolescence: aesthetic obsolescence, ecological obsolescence, novelty effect, influence of trends.

This study also distinguishes between obsolescence according to whether the focus is on the product or on the user. In the final analysis, while it is possible to conclude that obsolescence does indeed exist, it remains difficult to prove.

PART 2:

OVERVIEW OF INITIATIVES TO FIGHT OBSOLESCENCE

In this part of the study, we present an inventory of various initiatives and actions that have been taken to counter obsolescence. Although international in scope, this list focuses mainly on initiatives and actions launched by European countries (France, Sweden, Germany) as well as by the United States and Canada.

Without being exhaustive, the list compiling 86 initiatives and actions offers an overview of promising avenues in the fight against obsolescence, particularly by targeting the end-user – the consumer (**see inventory of initiatives in Appendix 4**). These initiatives reflect attempts to prolong the duration of use of products and to counter practices leading to obsolescence.

2.1 Classification of initiatives

The initiatives identified are classified as follows:

- **Citizen actions (associations, advocacy, assemblies, petitions, etc.):** There are few international initiatives, actors or associations that have had a significant impact on the phenomenon, with the notable exception of Greenpeace's ranking of 44 best-selling electronic devices (telephones, tablets and laptop computers) based on repairability criteria. In an innovative project implemented by Commentréparer.com and HOP, an online reporting site was set up (produitsdurables.fr) where consumers can make direct recommendations regarding durable or non-durable products. However, it should be noted that citizen participation in these initiatives has been fairly low, even in the case of Greenpeace.

- **Companies offering value-added products or services to combat obsolescence:** Many of the more durable products are still either in the prototype stage or have only recently been put on the market.

- **Tools and campaigns to fight obsolescence:** It is worth noting that the most numerous and interesting initiatives have been launched in France.

- **Introduction and promotion of labels:** In order to be able to purchase more durable products, consumers need to be able to easily assess their quality, for example by means of a label or logo on the packaging. Such labels do exist and are managed by government agencies or associations. Based on strict specifications that include criteria related to product lifecycles, the labels are usually granted by certification bodies. In Quebec, the consumer watchdog Protégez-vous, which has a reputation for credibility, offers seals on recommended products that consumers can use as a guide when making purchases.

- **Introduction of laws, regulations and standards:** Europe, and particularly France, stand out for their implementation of resolutions, regulations, laws and programs aimed at fighting obsolescence.

- **Initiatives by citizens or non-profit organizations (NPOs) based on support for product repairs** (web-based platforms or bricks-and-mortar locations): There are numerous citizens' and NPO initiatives in the form of web platforms, traditional repair shops and public actions/events that offer multiple examples, often based on innovative business models that rally the community.

- **Initiatives by private organizations based on support for product repairs:** As in the case of citizens'

and NPO initiatives, there are also numerous interesting examples of private business models focused on providing support for the repair of objects.

- **Recycling, reuse and resale initiatives (community-based or private organizations):** Examples of this type of initiative are particularly numerous and are mainly organized by community-based organizations. It is worth noting the significant impact that major brands can have on consumers, particularly in the case of retailers.

- **Online peer-to-peer sharing platforms:** There is a large number of this type of initiative, which encourages reuse

2.2 Conclusions on promising initiatives

We are able to draw several conclusions from this inventory of initiatives:

- A number of actors, whether associations (ex.: HOP, Les Amis de la Terre, Greenpeace) or private organizations (ex.: Patagonia, Seb, Malongo, Michelin), stand apart from the rest by virtue of the stance they have taken in the fight against obsolescence. The creation of an ecosystem of actors that would include, notably, major international corporations, could give added impetus and impact to the proposed actions in addition to having a positive influence on the public at large (repair tutorials, 10-year guarantee of parts availability, etc.).

- Numerous tools already exist to educate and guide consumers on how to make the best use of their HAEs and on the issue of manufacturer warranties. Most of these tools offer pertinent content, are of good quality and well illustrated, but they tend to lack interactivity. This is problematic because the success of these types of tools depends on their adoption by citizens on a large scale. The creation of interactive maps of actors, networks, initiatives and actions in the form of a web platform or mobile application could offer an interesting solution.

- Innovative business models based on both the development of more durable goods and on value-added services are worth noting in the fight against obsolescence, but such initiatives are often geographically isolated.

- Initiatives that support product repairs, whether managed by NPOs, cooperatives, collaborative platforms, private enterprises, etc., are particularly numerous in several countries and offer an effective model for the fight against obsolescence. Several stakeholders have established international communities (ex.: Repair Café) and are especially noteworthy in this context.

- Initiatives based on recycling, recovery, refurbishing, reuse and repair are also quite abundant and can play an important role in prolonging the duration of use of products.

- The role of collaborative platforms and applications that allow citizens to exchange products and services are also worthy of note. Collaborations with these actors could add value in an ecosystem.

- Regulatory initiatives specifically aimed at obsolescence are concentrated in Europe, with the European Parliament's resolution on a longer lifetime for products, and, particularly, in France, which is the only country that currently has a law that specifically prohibits the practice of planned obsolescence (Art L.441-2 of the Consumer Protection Code, Act on Energy Transition). This law led to the filing of the first two complaints for planned obsolescence by HOP and will certainly make it easier to address alleged cases of planned obsolescence in the future.

PART 3:

CANADA-WIDE SURVEY OF THE PRACTICES OF CITIZENS

The population studied is composed of residents living across all provinces of Canada, aged 18 years and older, and fluent in either French or English. A random sample of 2,202 people was selected from an MBA Recherche web panel that is representative of the population. Details of the survey method are presented in **Appendix 5**.

The objectives of this survey were to assess the level of respondents' knowledge of obsolescence, to gain insight into their consumption and replacement behaviour regarding home appliances and electronics, and to survey their opinions on different potential solutions. The analysis of these data provides a better understanding of the concerns, perceptions and attitudes of respondents based on their sociodemographic and psycho-behavioural profiles. In this part of the report, we present the most important findings to emerge from our analysis of the survey data.

3.1 Understanding of obsolescence

Less than half of consumers acknowledge their own role in the phenomenon of obsolescence.

The majority of respondents are aware of the environmental, economic, social and commercial impacts of obsolescence.

- 59% of respondents say that obsolescence contributes to pollution of the planet by rendering products non-repairable and obsolete;
- 58% consider that certain manufacturers may intentionally design products in a way that limits their lifespan;
- 52% say that obsolescence is caused by the marketing and commercial strategies used by companies to shorten the duration of use of products;
- 48% believe that obsolescence contributes to higher consumer debt levels;
- 45% say that obsolescence refers to the notion that consumers prefer to buy a new product rather than make do with a product they own that is still functional.

There is a strong perception of the phenomenon of planned obsolescence.

- The large majority of respondents believe that HAEs are designed not to last (42% answered "yes, in the majority of cases;" 44% answered "yes, in some cases").

The perception of planned obsolescence reveals a negative view of products and the current marketing strategies of manufacturers, particularly from the perspective of what is considered to be in fashion.

- 75% agree with the following statement: *Companies introduce new models of products to encourage us to replace our devices more rapidly.*
- 74% agree with the following statement: *Companies introduce new products with new designs to encourage us to replace our devices more rapidly.*

3.2 Consumer behaviour

Behaviour related to the last device purchased

We identified four profiles of consumers based on the number of purchases of HAEs.

We identified four profiles of consumers based on the number of purchases of HAEs. **Table 1** presents the four profiles according to the number of **home appliances** acquired over the previous 24 months (also presented are the more numerous subgroups that adopted this type of behaviour). It is noteworthy that nearly one out of five consumers can be described as being "excessive," having acquired five or more devices in the time period studied. The most common profile is that of a man who is younger (46 years), an owner, and has a relatively high income.

TABLE 1:
CONSUMER PROFILES BASED ON NUMBER OF HOME APPLIANCES ACQUIRED IN THE PREVIOUS TWO YEARS

NON-CONSUMERS (16%)	REGULAR CONSUMERS (30%) – BETWEEN 3 AND 5 APPLIANCES –
• Average age: 51 • 34% have a high school diploma or equivalent • 25% earn less than $20,000, but it's interesting to note that 21% earn $200,000 and over • Residing mainly in Quebec (21%)	• Average age: 46 • 30% have a Bachelor's, A., Master's, A. or Ph.D. • 46% earn $200,000 and over • Residing mainly in Prince Edward Island and (38%) New Brunswick (33%)
REASONABLE CONSUMERS (35%) – BETWEEN 1 AND 2 APPLIANCES –	**EXCESSIVE CONSUMERS (19%) – 5 APPLIANCES AND MORE –**
• Average age: 50 • Mainly women (36.5%) • 31% have a college-level diploma • 38% earn $20,000-$39,999 and 36% earn $40,000-$79,999 • Residing mainly in Manitoba (38%) and Prince Edward Island (38%)	• Average age: 46 • Mainly men (20%) • 30% have a high school diploma or equivalent • 25% earn $160,000-$199,999 • Residing mainly in Nova Scotia (34%)

Table 2 presents the profile of Canadian consumers based on their acquisition of **electronic devices** over the previous 24 months. Compared to home appliances, it can be observed that the group of "reasonable consumers" (those who acquired between one and two appliances) is much larger here, while the groups made up of "regular consumers" and "excessive consumers" are much smaller. The age difference is also more significant in the case of electronics: the younger the consumer, the more they consume. The findings also reveal a higher proportion of men who are "regular consumers" and "excessive consumers" when it comes to acquiring electronics.

TABLE 2:
Consumer profiles based on number of electronic devices acquired in the previous two years

NON-CONSUMERS (17%)	REGULAR CONSUMERS (23%) – BETWEEN 3 AND 5 APPLIANCES –
• Average age: 57 • Mainly women (60%) • 30% have a college-level diploma • 41% earn $40,000-$79,999 • The majority are owners (64%)	• Average age: 43 • Mainly men (52%) • 29% have a college-level diploma • 35% earn $40,000-$79,999 and 21% earn $80,000-$119,999 • The majority are homeowners (52%)
REASONABLE CONSUMERS (49%) – BETWEEN 1 AND 2 APPLIANCES –	**EXCESSIVE CONSUMERS (12%) – 5 APPLIANCES AND MORE –**
• Average age: 48 • Mainly women (51%) • 32% have a high school diploma or equivalent • 38% earn $20,000-$39,999 and 36% earn $40,000-$79,999 • The majority are owners (57%)	• Average age: 36.5 • Mainly men (57%) • 27% have a high school diploma or equivalent • 32% earn $40,000-$79,999 and 23% earn $80,000-$119,999 • The majority are owners (48%)

Over the previous two years, on average, the respondents acquired more home appliances than electronic devices.

Home appliances

- 15% acquired no appliances in the previous two years;
- Small appliances are the most popular (68.4%);
- Most frequently acquired appliances: vacuum cleaner, coffeemaker/espresso maker, toaster, microwave oven, blender (**see Appendix 6**).

Electronics

- 17% acquired no appliances in the previous two years;
- Most frequently acquired electronics: smartphone, laptop, headphones, television, tablet (**see Appendix 6**).

Consumers are less "reasonable" when it comes to the purchase of home appliances:

- The "regular consumer" group (between three and five appliances) and the group of "excessive consumers" (more than 5 appliances) are larger in the case of home appliances;
- The younger the consumer, the more they seem to consume. There is also a larger proportion of men in the "regular consumer" and "excessive consumer" categories.

On average, 6 out of 10 consumers consider the quality of the last HAE they purchased to be "mid-range":

- The perception of what constitutes a "high-end" product differs depending on the category of device: for home appliances, it is linked to the perception of quality and price, while for electronics, it is linked to the manufacturer's extended warranty.

80% of respondents purchased their last HAE new.

- Electronics are more frequently purchased new than home appliances;
- Home appliances are more frequently purchased used.

The total price paid for the last HAE acquired is relatively low, which is partly attributable to the predominance of small appliances.

- 88% of respondents paid less than $1,000 and 38% paid less than $99 for their last home appliance;

- 58% describe their last home appliance purchased as being mid-range, compared to 61% for electronic devices;

- The greater the importance the consumer attaches to the device, or the more they are attached to it, the more they perceive the device as being high-end;

- A device perceived to be "high end" has a longer perceived lifespan than a "mid-range" or "low-end" device;

- The psychological dimension is observed to be more significant in the case of HAEs perceived as being "high-end";

- Psychological obsolescence is the main reason for the replacement of a device perceived as "high-end" (average of 36% vs. 34% for technological obsolescence in the case of home appliances; average of 35% vs. 34% for technological obsolescence in the case of electronics): in the "mid-range" and "low-end" categories, technological obsolescence is the principal factor driving replacement.

On average, 15% of respondents said they purchased an extended warranty (the percentage was only slightly higher for electronics purchases). The main reason cited is that the warranty was offered to them at the time of purchase. Among those who did not buy the extended warranty, the main reason is that it was not offered to them when they bought their appliance or device.

The duration of use of the old device appears to be shorter in the case of electronics.

- 44% of consumers kept their electronic device for less than three years (compared to 30% for home appliances) and 61% kept it for less than five years (compared to 45% for home appliances). The duration of use of the old device does not appear to be aligned with respondents' expectation of its reasonable lifespan. Lifespan is longer in the case of home appliances (10 years), although only 15% of respondents kept their old device for more than 10 years; comparatively, it is seven years in the case of electronics, although only 11% of respondents kept their old device for more than 10 years;

- A relatively high number of respondents experienced problems with their old device, particularly in the category of home appliances. Few respondents had repaired their old device/appliance or had it repaired: only 19% in the case of home appliances and 26% in the case of electronics.

Behaviour related to HAE replacement

The reasons for replacing the old HAE influence the criteria on which the purchase of the new device is based.

- Home appliance: The economic aspects linked to the cost of replacing the product play a dominant role in the replacement decision. The consumer essentially makes a cost-benefit analysis;

- Electronics: The psychological dimension is the main factor influencing the consumer's decision to renew the product. It is driven by a desire for something new, the relationship to the brand and product innovations.

The reasons for replacing the old device are linked to the consumer's perceived technological and functional, economic and psychological obsolescence.

Perceived technological and functional obsolescence of the device (i.e., its performance):

- A technical problem with the device (not functioning properly), particularly in the case of home appliances (50% vs. 40% for electronics);

- The device did not appear to be repairable (46% for home appliances vs. 44% for electronic devices) or dismountable (46% for homes appliances vs. 40% for electronic devices);

- A perception of inferior quality or performance compared to new models on the market in the case of electronic devices.

Economic obsolescence:

- It is more advantageous financially to buy new rather than keeping or repairing the old device (40% of respondents in the case of electronics vs. 47% for home appliances);

- The price-quality ratio of the new device compared to the old (37% for home appliances vs. 38% for electronic devices).

Psychological obsolescence:

- The device no longer appealed to the respondent (26% for home appliances vs. 24% for electronic devices);

- The device was less attractive (25% for home appliances vs. 21% for electronic devices).

When purchasing a new device, the respondent's choice is influenced by technological, economic and psychological criteria

Technological criteria (i.e., technologies offered)

- Certification seems to be regarded by consumers as an important gauge of technological performance, in the case of both electronics and home appliances;
- Technological options/features are also a more important criterion in the purchase of electronic devices.

Economic criteria (i.e., price, quality and promotions):

- Price-quality ratio and a suitable price are major factors;
- Nearly one in two consumers decided to make a purchase because of a promotional offer. The most important triggers are: credit card points, store loyalty programs and gift cards;
- Energy efficiency ratings are important for a portion of consumers in the case of home appliances (29%).

Psychological criteria (i.e., consumer's relationship to the brand):

- Consultation of tests/rankings in the media is a major criterion;
- Relatively few consumers are swayed by ads or the latest marketing trends, except when it comes to product design in the case of electronic devices;
- Consumers seem to remain loyal to brands and repeat purchases of the same brands out of satisfaction;
- Consumers seem to attach importance to Energy Star certification.

The criteria for the purchase of a new HAE influences the level of perception/ understanding of obsolescence.

This is particularly the case when the price of new appliances or devices drops significantly and the consumer has accumulated enough points to acquire a new device at a good price;

Three segments of consumers can be identified based on their perception of obsolescence: the "well-informed", the "fence-sitters" and the "novices"

BOX 4:

DESCRIPTION OF CONSUMER SEGMENTS

THE "WELL-INFORMED" GROUP

has a stronger perception of obsolescence than the others. As a result, this group has higher expectations of both manufacturers, retailers and governments when it comes to fighting this phenomenon.

THE "FENCE-SITTERS" GROUP

has a higher level of expectation of manufacturers, retailers and governments relative to their level of perception of obsolescence.

THE "NOVICES" GROUP

has the lowest level of perception of obsolescence. This group's expectations of manufacturers, retailers and governments are also low, but on par with their level of perception.

(**see Box 4**). This typology was determined based on the perceptions that consumers have of obsolescence as reflected by the level of evaluation of products and manufacturer practices, as well as on their perception of the measures that should be taken by manufacturers, retailers as well as governments in order to combat obsolescence.

Significant sociodemographic differences between the groups:

- "Well-informed": more women, older, lower incomes, owners, more French-speakers, more retirees and more residents from Quebec and the Maritimes.
- "Novices": more men, younger, not owners, singles, students and employees, English-speaking, residents of Alberta, Manitoba, Newfoundland and Labrador.

Significant differences in the perception and understanding of obsolescence:

- "Fence-sitters": stronger conviction that current HAEs are deliberately made not to last;
- "Novices": sceptical about the intentional nature of obsolescence (22% for home appliances and 34% for electronics). Obsolescence is only planned in certain cases or is never planned.

Significant differences in certain consumption practices:

- Condition of the appliance or device when acquired: "novices" have a stronger tendency to purchase used HAEs or to acquire them through donations;
- Criteria for choosing a new device: with the exception of "novices," the psychological criteria are slightly more important than the economic criteria for the purchase of electronics;
- Attachment to appliances or devices: people in the "well-informed" group have a stronger attachment to their devices than "novices."

3.3 Main takeaways

The survey reveals that Canadians are big consumers of home appliances and electronics. Only 15% of respondents had not acquired a home appliance in the previous 24 months, and 17% had not purchased an electronic device. Finally, 80% purchased their appliance or device new, indicating a low propensity for reuse. Small appliances are those most frequently purchased, notably vacuum cleaners, coffee/espresso makers and toasters. The majority of respondents had purchased three or more appliances or devices. Few respondents purchased an extended warranty because it wasn't proposed to them at the time of purchase. Few respondents keep their appliance beyond what they consider to be their reasonable lifespan. Despite the fact that the main reason for replacement is related to product failure, few respondents attempt to repair their devices.

Several interesting elements emerged regarding the behaviour of consumers when it comes to high-end appliances. On the one hand, such appliances are perceived as being of superior quality and having a longer lifespan. On the other hand, consumers who show a preference for "high-end" products are more strongly influenced by psychological factors when replacing their devices.

In order of importance, the reasons for the replacement of an old appliance or device are as follows: technological and functional obsolescence, economic obsolescence and psychological obsolescence. When purchasing a new device, consumers are influenced by technological performance, price, quality and promotions. In this last regard, the most significant triggers are credit card points, loyalty programs and gift cards. In terms of psychological factors, product reviews and ratings, product design and brand all have a strong appeal for consumers.

In terms of comprehension of the phenomenon of obsolescence, three types of consumers emerge: the "well-informed," the "fence sitters" and the "novices." The first group – more women, older, lower incomes, owners, more French-speakers, more retirees and more residents from Quebec and the Maritimes – have a stronger perception of obsolescence. It is not surprising, therefore, that this group has higher expectations of governments, retailers and manufacturers in terms of fighting the phenomenon of obsolescence.

" 80% purchased their appliance or device new, indicating a low propensity for reuse. "

" Despite the fact that the main reason for replacement is related to product failure, few respondents attempt to repair their devices. "

PART 4:

RECOMMENDATIONS AND POTENTIAL SOLUTIONS

Drawing inspiration from the inventory of promising initiatives and actions taken thus far in the fight against obsolescence and based on the current state of Canadian consumers' perception of this issue, a number of potential solutions can be identified to further the goal of curbing replacement behaviour by consumers in the case of home appliances and electronics. These potential solutions fall into three categories. The first concerns awareness-raising actions targeted at consumers that can be initiated by organizations, businesses and the government. The second series of recommendations specifically concerns companies, while the third is aimed at public authorities.

4.1. Recommendations aimed at increasing consumer awareness

UPSTREAM: PROVIDE BETTER INFORMATION TO AVOID OBSOLESCENCE

Consumers appear to have a strong perception of "planned obsolescence," but show little acknowledgement of the role they themselves play in this phenomenon. It's important to distinguish between "experienced" obsolescence, which generates extremely negative reactions, and "chosen" obsolescence, which refers to the owner's perception that their product is obsolescent, leading them to replace it prematurely. Given that most respondents purchase their appliances or devices new, it is also essential to provide consumers with information on the residual value of products after use in order to prolong their useful life and avoid the excessive disposal of appliances that are still functional.

It is also important to take into consideration the different consumer segments identified (well-informed, fence sitters, novices) in order to develop different actions based on each group's perception of obsolescence and its specific characteristics. In the case of electronic devices, in particular, a social marketing campaign (that would also apply to home appliances in most cases) could deliver tailored messages as follows:

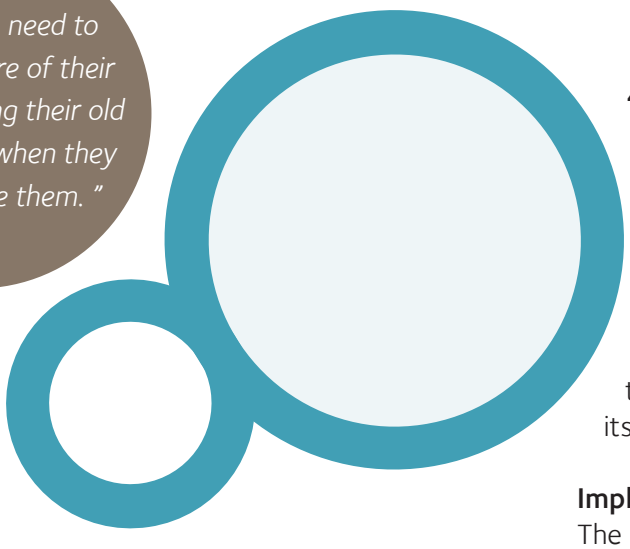
- **People who want their appliance to last as long as possible:** emphasize the quality of the product being purchased rather than the quantity. Adopt responsible consumption habits (reuse, second-hand goods, rental, bartering, donations), encourage product maintenance and repairs, analyze the benefits of extended warranties, consider the compatibility of accessories, etc.;

- **Consumers who want their devices to keep up with technological upgrades:** look for system modularity, favour rental plans, check for the possibility to change configurations as needs evolve, etc.;

- **People attracted to change:** resell products to avoid sleeping inventory, look for compatibility of accessories when new models are launched, offer consumers a guaranteed trade-in price subject to the good working condition of the device, encourage collaborative business models.

Since the respondents have a positive view of labels based on environmental criteria when choosing new products, it is recommended that different eco-friendly labels, such as the ENERGY STAR® sticker, be promoted to consumers as a means of fighting obsolescence.

" Consumers need to be made aware of their habit of keeping their old devices even when they no longer use them. "



4.2. Recommendations for companies

Provide information about the quality, durability and environmental performance of their products

Integrate "durability" and "repairability" as criteria in eco-design (these criteria must be integrated at the product design stage in order to reduce the product's environmental footprint throughout its lifecycle).

Implement labelling for HAEs

The advantage of labelling is that it gives consumers a quick and generic way to assess several aspects of the durability of HAEs. The labels should contain the following information:

The labels should contain the following information:

- The product's average lifespan (ex.: approximate number of load and wash cycles, pages printed, etc.) with a usage meter visible to the consumer;
- The duration of the guarantee of conformity should also be extended to match this average expected lifespan;
- Clear information on the "repairability" of the device and on the duration of availability of spare parts and accessories.

DOWNSTREAM: BETTER INFORMATION TO PROMOTE REUSE AND RECYCLING

- Consumers need to be made aware of their habit of keeping their old devices even when they no longer use them. There are different solutions for recovering products at the end of their life, including donation, reselling, reconditioning, recycling, etc. It is important to promote the environmental benefits of recovery initiatives and to provide clear information on the different options currently available to consumers, including the possibility of returning cell phones to telecommunications carriers for recycling and reuse.

SEVERAL TOOLS CAN BE CONSIDERED TO INCREASE CONSUMER AWARENESS:

- Calculator of HAE resale values to encourage consumers to give them a second life (emphasize the residual value of devices);
- Seal of approval from Protégez-Vous or other pertinent labels;
- Product recommendation sites;
- Promotion/development of Repair Cafés/Repair-a-thons;
- Professional repair services or communities of practice, websites, tutorials, social media, etc., for self-repairs.

Put up signage or other communication tools in-store and in other locations to inform consumers of existing programs favouring reuse

Encourage and facilitate repairs and limit the premature replacement of appliances

- Make spare parts available;
- Propose warranties on a systematic basis;
- Optimize repair possibilities during the warranty period;
- Demonstrate the compatibility of accessories;
- Make repairs affordable for consumers by reducing their cost;

- Inform consumers about the proper maintenance and use of their devices;
- Make tutorials available to help consumers repair their objects;
- Encourage the functional service economy by favouring the sale of services rather than products;
- Separate the cost of the device from the plan in the case of cell phones;
- Develop incentives for retailers to encourage consumers to repair devices that are still functional instead of replacing them.

Avoid marketing practices that encourage overconsumption of HAEs

- Favour cell phone plans that do not include the phone;
- Allow customers to convert loyalty points into customer advantages that do not involve changing devices or acquiring a consumer good.

4.3. Recommendations for governments

Encourage repairs and reuse and promote service offers (functional service economy)

- Promote repair-related trades, by creating, for example, a repair services portal or by disseminating portraits of craftspeople with repair expertise to help raise the profile of these activities;
- Implement economic incentives to promote rentals and repairs, inspired by the model adopted in Sweden;
- Ensure that training in the repair industry is maintained and developed;
- Provide guidance and financial support to pilot companies working to put in place a functional service economy.

Monitor legislative developments in order to identify and draw inspiration from the best legislative tools in the fight against obsolescence. For example:

- Impose the posting and extension of product lifespans;
- Extend manufacturer warranty periods based on average product lifespans;
- Require manufacturers to ensure the availability of spare parts and necessary repair tools for a minimum of 10 years and require that software designers guarantee maintenance for at least 10 years.

Continue to develop knowledge in this field

- This study raises questions that warrant further investigation, particularly with respect to the analysis of repairs as a potential solution to combat obsolescence;
- Develop indicators to measure lifespan; make test methodologies more transparent; develop standards; reinforce controls to ensure that regulations are implemented and enforced;
- Study the environmental and social impact of HAEs over their lifecycle; compare the impacts of reuse vs. recycling.

Demonstrate public leadership in the area of maintenance, repairs and reuse

- Incorporate criteria such as lifespan and the purchase of refurbished products in public procurement policies.

CONCLUSION

This report helps to bring about a better understanding of the phenomenon of obsolescence by clearly distinguishing between an analysis of obsolescence based on the product and an analysis based on the perception of the user (perceived obsolescence). It shows that knowledge of the phenomenon is gradually expanding in the academic literature. With regard to professional studies, up to now, there has been a lack of data allowing for a clear definition of the phenomenon and an assessment of the behaviour of Canadian citizens.

The survey of Canadian citizens conducted as part of this report: (i) offers a portrait of the perception and knowledge of citizens in relation to the phenomenon of obsolescence; (ii) describes the practices of Canadian consumers with regard to the acquisition and renewal of their home appliances and electronics; and (iii) identifies the most pertinent actions that could be implemented to curb these practices of obsolescence on the part of citizens. The study reveals a tendency to "overconsume" in the category of home appliances (especially small appliances) which seems to be attributable to the low market price of these appliances and to a lack of tools to make the cost of their repair affordable. The study also shows that, generally speaking, consumers keep their electronic devices for a shorter period, a phenomenon that can perhaps be explained by an attachment to certain brands as well as by the rapid pace of innovation proposed by manufacturers in this category of goods.

The report recommends targeted actions to be taken by the various actors, including consumers, manufacturers and retailers, and governments, aimed at curbing the premature or rapid replacement of HAEs. The numerous class action lawsuits initiated over the past few months, coupled with the launching of an investigation into Apple's practices, have created a context that could help raise awareness about the issue of obsolescence among citizens as well as manufacturers/retailers. However, there is no doubt that clear and rapid action is required to deal with the phenomenon of obsolescence, notably by implementing the measures recommended in this report.

Given its influential role as an environmental organization and its dedication to educating the public about responsible consumption, Équiterre is strategically positioned to play a significant role in the fight against obsolescence. Over the past months, several concrete actions addressing this issue have been organized, including a blog, a repair event and a panel of experts. The findings of this report will help us better target our actions in the future and lay the groundwork for an effective public education campaign that is aligned with the reality and concerns of Canadian consumers. We will use all the means at our disposal to publicize the highlights of this study, including a public launch at the Centre for Sustainable Development in the presence of the stakeholders involved in the study, as well as a series of publications on social media.

Finally, this study comes at a good time, given that obsolescence is attracting more and more attention in the media and in several organizations – including at the level of government – that promote the circular economy. Taken together, all of these factors make it clear that obsolescence is an important issue in today's society and that actions are urgently needed to fight this phenomenon.

REFERENCES

[1] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P.: The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna. https://www.itu.int/en/ITU-D/Climate-Change/Documents/GEM%202017/Global-E-waste%20Monitor%202017%20.pdf.

[2] ADEME (2007), *Panorama de l'offre de réparation.*

[3] Webb, D. J., Mohr, L. A., & Harris, K. E. (2008). A re-examination of socially responsible consumption and its measurement. *Journal of Business Research*, 61(2), 91-98.

[4] Lipovetsky, G. (2006). *Le bonheur paradoxal: essai sur la société d'hyperconsommation* (Vol. 377). Paris: Gallimard.

[5] Fabre, M., & Winkler, W. (2010). *L'obsolescence programmée, symbole de la société du gaspillage. Le cas des produits électriques et électroniques*.

[6] Levinthal, D. A., & Purohit, D. (1989). Durable goods and product obsolescence. *Marketing Science*, 8(1), 35-56.

[7] ADEME (2016). *Allongement de la durée de vie des produits p. 15*, http://www.ademe.fr/allongement-duree-vie-produits

[8] The Lightbulb Conspiracy is a documentary by German filmmaker Cosima Dannoritzer released in 2010. Its original title in German is: *Kaufen für die Müllhalde.*

[9] « La mort programmée de nos appareils », *Cash investigation, France, Saison 1, épisode 2*, https://www.youtube.com/watch?v=NljCDGhFjFc

[10] Réju, E. « Trop de déchets électroniques échappent encore à la collecte », 2 juin 2013, *La Croix*. http://www.la-croix.com/Ethique/Sciences-Ethique/Sciences/Trop-de-dechets-electroniques-echappent-encore-a-la-collecte-2013-12-02-1070263.

[11] Vailles, F. « Obsolescence programmée, mon œil ! », 12 juillet 2017, *La Presse*, http://affaires.lapresse.ca/opinions/chroniques/francis-vailles/201707/11/01-5115333-obsolescence-programmee-mon-oeil.php.

[12] Libaert, T. (2015). *Consommation et controverse : le cas de l'obsolescence programmée. Hermès, La Revue,* (3), 151-158.

[13] Anderson, G., Faninger, S., Lockwood, S., Mudgal, S., & Tinetti, B. (2012). *Étude sur la durée de vie des équipements électriques et électroniques*, ADEME. http://www.ademe.fr/sites/default/files/assets/documents/84636_duree_de_vie_des_eee.pdf

[14] *Amendement Numéro 497, Loi Transition énergétique (Numéro 2736), Article 22 TER A, Assemblée Nationale,* France

[15] Packard, V. (1960). Progress through planned obsolescence.

[16] Libaert, T. (2015). *Consommation et controverse: le cas de l'obsolescence programmée. Hermès, La Revue*, (3), 151-158.

[17] Veblen, T. (1899). *The theory of the leisure class: An economic study in the evolution of institutions*. Macmillan.

[18] London, B. (1932). Ending the depression through planned obsolescence. *Retrieved March*, 25, 2016.

[19] Miles, S. (1998). *Consumerism: as a way of life*. Sage.

[20] Reisch, L. (2008). *Nature et culture de la consommation dans les sociétés de consommation. L'Économie politique*, (3), 42-49.

[21] Cooper, T. (2004). Inadequate life? Evidence of consumer attitudes to product obsolescence. *Journal of Consumer Policy*, 27(4), 421-449.

[22] Packard, V., & McKibben, B. (1960). *The Waste Makers.*

[23] Baudrillard, J. (1970). *La société de consommation.* Paris, Denoël.

[24] *Rapport du Gouvernement au Parlement sur l'obsolescence programmée, sa définition juridique et ses enjeux économiques* (avril 2017) https://www.ecologique-solidaire.gouv.fr/sites/default/files/RAPPORT_Obsolescence_programmee.pdf

[25] Ibid 7.

[26] https://www.halteobsolescence.org/dossier-de-presse/

[27] http://www.lemonde.fr/pixels/article/2017/12/21/apple-admet-finalement-ralentir-ses-anciens-iphones_5232892_4408996.html

[28] https://www.halteobsolescence.org/hop-porte-plainte-contre-apple-obsolescence-programmee/

[29] Cooper, T. (2004). Inadequate life? Evidence of consumer attitudes to product obsolescence. Journal of Consumer Policy, 27(4), 421-449.

[30] Guiltinan, J. (2009). Creative destruction and destructive creations: environmental ethics and planned obsolescence. *Journal of business ethics*, 89(1), 19-28.

[31] Granberg, B. (1997). The quality re-evaluation process: Product obsolescence in a consumer-producer interaction framework. *Stockholm: University of Stockholm, Department of Economic History*, 423.

[32] Ibid 7.

[33] Arcelus, F. J., Pakkala, T. P. M., & Srinivasan, G. (2006). The instant obsolescence problem with price-dependent demand. *INFOR: Information Systems and Operational Research*, 44(4), 248-266.

[34] Guillard, V., & Le Nagard-Assayag, E. (2014). *Mieux comprendre l'obsolescence perçue des produits durables par les consommateurs. Congrès International de l'Association Française du Marketing.*

[35] Centre Européen de la Consommation (2013). *L'obsolescence programmée ou les dérives de la société de consummation,* https://www.europe-consommateurs.eu/fileadmin/user_upload/eu-consommateurs/PDFs/publications/etudes_et_rapports/Etude-Obsolescence-Web.pdf

[36] Ibid 35. and Observatoire de la consommation responsable (2012), Study for *Protégez-vous.*

[37] Based on OCR studies (see bibliographic references).