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Sustainable Public Policy Approaches to Overcome Planned Obsolescence: Models of Circular Economy Innovations

Cildo Giolo Júnior[1,2], José Sérgio Saraiva[1], Lislene Ledier Aylon[1]

[1]LLM in Law and Public Policies, Law School of Franca, Franca, Brazil
[2]Department of Legal Sciences, Minas Gerais State University, Passos, Brazil
Email: drcildo@gmail.com, js.saraiva.advogado@hotmail.com, lislene.aylon@direitofranca.br

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Abstract

Planned obsolescence reduces the lifespan of products, exacerbating environmental and social issues by promoting excessive consumption and waste accumulation. In contrast, the circular economy advocates for reuse, repair, and recycling practices. Through comparative analysis, this legal study examines how circular economy policies can alleviate this issue, analyzing existing measures and how different countries, including the European Union and Brazil, address it. The methodology combines literature review and successful case studies, enabling an understanding of the interaction between legislation and sustainability practices. It is expected to identify legislative gaps and formulate recommendations to promote the circular economy and discourage planned obsolescence. It is concluded that this study will enrich academic debate and influence public policies towards a more sustainable future.

Keywords

Planned Obsolescence, Circular Economy, Sustainability Practices, Public Policy

1. Introduction

Briefly stated, the essence of my plan for accomplishing these much-to-be-desired-ends is to chart the obsolesce of capital and consumption goods at the time of their production (London, 1932).

Planned obsolescence, a strategy where products are deliberately designed to have a limited lifespan, drives rampant consumption and significantly contrib-

utes to growing environmental and social issues. This statement is based on the publications of several thinkers. Vance Packard (1965), in his seminal text "The Waste Makers," was one of the first authors to disapprove of planned obsolescence, showing how it, even at that time, encouraged increased excessive consumption and consequently the increase of waste. Similarly, Giles Slade (2006), in his historical analysis of obsolescence in America, highlights its harmful effects on the environment and society. Paradoxically, this phenomenon occurs at a time of global recognition of the need for more sustainable practices, such as those promoted by the circular economy. The circular economy offers an alternative model to the linear "produce-use-discard" consumption, emphasizing the reuse, repair, renewal, and recycling of products and materials.

This study is justified by the urgent need to realign production and consumption practices with global sustainability imperatives. By addressing planned obsolescence through a legal lens, this research seeks to identify and propose effective legal means that encourage the adoption of a circular economy, contributing to waste reduction and resource conservation. The topics discussed here are not new, on the contrary, they are issues that have been troubling us for a long time. However, by revisiting the past and presenting the birth of planned obsolescence, the proposal is to understand that adopting the spirit of the circular economy can provide a solution.

The general objective of this paper is to analyze how sustainable circular economy policies can be employed to combat the practice of planned obsolescence, within the current and proposed legal framework. This is done by identifying and analyzing existing legislation in different jurisdictions that directly or indirectly address planned obsolescence and circular economy practices, and proposing changes or new legal policies that could strengthen the circular economy model, discourage planned obsolescence, and promote sustainability.

This research is expected to reveal gaps in current legislation and provide a set of practical legal recommendations that can be adopted by policymakers to promote the circular economy. Additionally, the work aims to contribute to the academic debate and influence public policies, helping to shape a more sustainable future in terms of production and consumption.

The methodology adopted includes a comparative analysis of existing legislation impacting planned obsolescence and the circular economy in various jurisdictions, including the European Union and Brazil. This analysis will be complemented by a review of the existing literature on the subject, interviews with experts in environmental law and consumer law, and case studies of successful circular economy initiatives. The research will adopt a qualitative approach, allowing for a deep analysis of the collected data and a contextual interpretation of the same.

2. Planned Obsolescence

2.1. Concept

The word obsolescence originates from the Latin verb "soleo", which means "to

be in use". combined with the prefix "ob-", indicating "away". The Romans used it to describe something that was no longer useful or significant. Initially, the term was associated with dirty or worn clothes, or someone who wore them. There is a reference to Cicero, who believed that things became obsolete with age ("res per vetustatem obsolescet" ("things go out of use with age")). The implication of obsolescence was of a natural and inevitable failure, representing the end of a valuable and useful life that had worn out over time. This analysis highlights how the notion of obsolescence has ancient roots and how it has evolved over time, influencing our contemporary understanding of the product lifecycle (Burns, 2010: p. 39).

Thus, the so-called "*planned obsolescence*" is a strategy used by suppliers with the intention of stimulating the acquisition of new products in a short period of time, making the purchased products become outdated, losing economic value in relation to the price paid at purchase.

Although the life expectancy of some products may seem unlimited, the end of a product's useful life is an inevitable reality, even if it is distant. In situations involving constantly evolving technologies, product obsolescence is often a major concern, especially when the costs and volumes of product production are high.

Thanks to this usual practice, there is a considerable increase in the sale of products periodically and the consequent profit to suppliers, thanks to a decrease in the product's lifespan. Bruno Miragem (2013: p. 328) defines this practice as "a redução artificial da durabilidade de produtos ou do ciclo de vida de seus componentes, para que seja forçada a recompra prematura".

In Brazil, this organized strategy of launching products on the market already with the limitation of their existence characterizes an abusive commercial practice, provided for in the Consumer Protection Code (Código de Defesa do Consumidor—CDC). "Verbi gratia", the American company Apple was recently sued by the Brazilian Institute of Computer Law which claims that the company launched the iPad 3 knowing that the model would soon be replaced by the iPad 4. The lawsuit was initiated before the 12th Civil Court of the Federal District (12ª Vara Cível do Distrito Federal) on 02/06/2012, as reported by the Jornal Comércio of Porto Alegre/RS: "a ação aponta que a Apple quebrou o paradigma de aguardados lançamentos anuais—seguido na 1ª, 2ª e 3ª geração do iPad—ao apresentar a quarta geração, em outubro de 2012, sete meses depois de lançar o tablet nos Estados Unidos e apenas cinco meses após o produto desembarcar no Brasil" (Dunand, 2013)[1].

In this action, the plaintiff claims that the Apple iPad 3 could have reached the shelves with the features presented in the fourth generation, but the company, intending to profit, decided to sell the older version already knowing that they

[1]"The action points out that Apple broke the paradigm of awaited annual launches—followed in the 1st, 2nd, and 3rd generation of the iPad—by presenting the fourth generation, in October 2012, seven months after launching the tablet in the United States and just five months after the product arrived in Brazil" (Dunand, 2013).

would be quickly replaced by the new version.

However, we must not confuse planned obsolescence with mere technological innovation, which ends up bringing updated versions of products or services to the market. This practice is used to boost sales and generate profits, even if it results in unnecessary waste of resources and negative impacts on the environment.

Regarding the reasonableness of this time frame, it is healthy that this period of time be harmonizable with the product's lifespan, as the consumer has the right to repair until the end of the product's useful life and not only during the warranty period.

In this sense, Bergstein (2013) strongly advocates that the lack of replacement parts while the product is still on the market, or during its useful life, in this case, when it has already been replaced by technological innovation of subsequent products, highlights the abusive commercial practice of planned obsolescence.

On the other hand, if the absence of parts necessitates the purchase of a new product, because repair of the old one is impossible, similarly, a considerable increase in the price of replacement parts can also lead to the need to acquire another product. Thus, the consumer finds themselves in a state of excessive vulnerability, as they have no way to escape this situation imposed by the industry.

However, it is emphasized that the configuration of planned obsolescence does not occur solely in this case. The most glaring form occurs through the cunning ploy used by industries, intended to stimulate the acquisition of new products in a short period of time, making the products purchased become outdated, losing economic value relative to the price paid at purchase. Thus, the launch of the new product leads to the consumer's immediate upgrade.

Regarding the necessary consideration of the concept of planned obsolescence, Burns states that to assess obsolescence, a value based purely on the utility of the product is insufficient. Technological change, economic forces, fashion trends, issues of repair, maintenance, and durability, consumer expectations: all must be recognized as contributing to the many recognizable ways in which a product's obsolescence occurs. The challenge is to identify these criteria to the benefit of both the manufacturer and the user, with due respect to the social, economic, and environmental consequences (Burns, 2010: p. 41).

2.2. Historical Context

Planned obsolescence is a phenomenon deeply intertwined with industrial and economic development over the centuries. Bernard London (1932) was one of the first to use the term "planned obsolescence", but the concept had a meaning that significantly differed from today's understanding. He used this mechanism as a way to encourage consumption, noting that durable goods met consumer needs but did not propel the economy. The author proposed the implementation of a strategy to end the economic depression. This involved assigning a limited lifespan to consumer and capital goods at the time of their production, so that

consumers would know exactly how long they could use these products before they needed replacement. This approach aimed to balance production with consumption, stimulating demand and creating a more sustainable and prosperous economic cycle.

It's essential to understand the historical context of the period when Bernard London's pamphlet was written. Marked by severe economic difficulties due to the Great Depression, which began with the stock market crash in New York in 1929, this was a period of global economic crisis that had devastating effects, especially in the United States. Unemployment reached record levels, many banks failed, and millions of people lost their homes and livelihoods (Slade, 2006: p. 80).

There were several movements to encourage consumption like this. There was a critical need to restore the economy, which led to various initiatives and movements to stimulate consumption. One of the most significant and comprehensive interventions was the New Deal, implemented by President Franklin D. Roosevelt in the United States (McElvaine, 1947).

As Galbraith (1954) points out, there were many movements to stimulate consumption after this crisis. The promotion of consumer credit, in the form of a boost to make credit more accessible to consumers, allowed people to buy products, especially durable goods, that they could not afford outright, thus helping to stimulate industrial production. Similarly, there was an increase in marketing and advertising activity to heat up consumption. Companies began to focus more aggressively on sales strategies and promotions to attract consumers, even in times of reduced purchasing power.

Moreover, the New Deal, which was a series of programs, regulatory reforms, and public works projects instituted in the United States during the 1930s, improved basic infrastructure, strengthened financial institutions, and implemented economic and social reforms, achieved the goal of providing relief for the unemployed and fostering economic recovery.

Similarly, World War II played a crucial role in overcoming the economic aftermath of the 1929 Crash in the United States and other major economies around the world. This period was marked by a significant increase in industrial production, job creation, and consumption stimulation, factors that together helped to revitalize economies weakened by the depression. This period was characterized by optimism about the future, driving the production and consumption of a wide variety of goods. The 1950s are often considered the beginning of the modern consumer society, where the availability of products and advertising played a key role in stimulating large-scale consumption (Burns, 2010: p. 40).

In 1960, Vance Packard was one of the first to openly criticize the practice of planned obsolescence in his seminal book "The Waste Makers", shedding light on corporate practices aimed at promoting the constant replacement of products (Packard, 1965: p. 35).

Another very important moment to understand the historical context of obsolescence and its current situation is the so-called Digital Age, which began in the late 1990s and extends to the present. Several authors discuss this era. Some important ones can be cited due to their approaches to different nuances of the theme.

Manuel Castells (2002), although not directly addressing the topic of planned obsolescence, his analysis of network society and the information economy contributes to understanding and questioning this practice within the broader context of contemporary technological and economic transformations. He describes a society deeply interconnected by information technologies, where the economy is global, and networks define social dynamics. Planned obsolescence fits into this context as a strategy to continuously drive the innovation and consumption cycle, keeping the economy vibrant but also raising questions about sustainability and the social impacts of a "disposal" culture that may be exacerbated by high connectivity and the rapid flow of information.

Similarly, Bauman (2008: p. 44) presents a critical and analytical view of consumption in early 20th-century society, highlighting the social, economic, and cultural transformations resulting from the transition to a consumer society. He points out how modern society of producers gradually evolved into a consumer society, where individuals came to play dual roles as promoters of goods and goods in themselves.

At this time, the rise of electronic devices and the rapid evolution of digital technology brought planned obsolescence to the forefront (Slade, 2006).

There was the growth of the sustainability movement (2000s onwards), with increased awareness of the environmental impacts of excessive consumption and disposal led to renewed criticism of planned obsolescence. Kyle Wiens (2024) is an advocate of the "Right to Repair" movement and has written extensively about the need for laws that allow consumers to repair their own devices, directly challenging planned obsolescence.

2.3. The Role of Obsolescence in the Industrialization Process

The influence of planned obsolescence on industrialization can be analyzed from various interconnected perspectives, considering the impact on production, consumption, innovation, and the economy.

It is undeniable that the use of obsolescence is a way to stimulate economic growth. Companies adopted the strategy of planned obsolescence to ensure a continuous cycle of consumption, making products obsolete more quickly, leading consumers to buy new versions or updated models. This resulted in increased sales and production, stimulating economic growth and boosting industrial activity. He exposed the strategy of companies manufacturing products with a limited lifespan, encouraging consumers to replace them frequently, describing various strategies adopted by different industries to encourage the constant consumption of new products instead of durable ones. For example, this hap-

pened with the idea of China and glass companies promoting the notion that their old products are stylistically obsolete. In the furniture sector, there is the promotion of psychological obsolescence, encouraging the purchase of new designs annually. These strategies demonstrate the interest of companies in non-durable products to ensure continuous sales and maximize profits (Packard, 1965: p. 77).

As a consequence, there was an increase in industrial production, as obsolescence played a significant role in the rise of industrial production. The constant introduction of products that would become obsolete more quickly encouraged continuous production to meet evolving consumer needs. The author comments that, as a critique of Henry Ford, who insisted on producing durable vehicles to be sold to every American family, and Alfred Sloan, in a diametrically opposed view, asserted that in constantly moving capitalist economies, technological obsolescence is inevitable (Slade, 2006: p. 33).

In the same vein, Tim Cooper demonstrates how companies encouraged technological innovation and product design, creating improvements that led to the rapid replacement of products instead of durability and sustainability (Cooper, 2010: p. 13).

Elizabeth Shove (2003) explains that obsolescence changed consumer behavior, creating expectations for new products and promoting a culture of rapid and disposable consumption. Similarly, Juliet B. Schor (2010) points out that this phenomenon ended up shaping modern consumer culture by creating a vicious cycle of buying and discarding, with significant implications.

Thus, this provides a comprehensive view of how planned obsolescence influenced industrialization, from the increase in production and technological innovation to the socioeconomic impacts.

2.4. Impacts of Obsolescence on the Environment

Planned obsolescence significantly impacts environmental protection by promoting a continuous cycle of consumption, disposal, and product replacement. This process not only increases the demand for natural resources and energy, but also generates a substantial amount of waste.

In this regard, Giles Slade argues that planned obsolescence directly contributes to a throwaway culture, resulting in a significant amount of products being discarded before the end of their potential useful life, thereby increasing the volume of electronic waste and other types of garbage that end up in landfills, contributing to soil and water pollution (Slade, 2006: p. 188).

Another point that cannot be overlooked when discussing the environmental consequences of planned obsolescence is the exhaustion of natural resources. The need to continuously produce new products to replace those that become obsolete leads to the constant extraction of natural resources and energy. As early as the 1960s, Vance Packard highlighted how planned obsolescence forced the industry to consume more natural resources to maintain the production of

new products, resulting in the unsustainable use of available resources and environmental degradation. Similarly, due to invasive advertising and the proliferation of ads in previously unused spaces, such as buses, train stations, and supermarkets, which reflected a culture of excessive consumption, the constant production and disposal of products were promoted, contributing to the intensive use of natural resources and energy in the manufacturing and distribution of these items (Packard, 1965: p. 135).

Continuing to address the same issue, the incessant production of new products to replace obsolete ones also increases greenhouse gas emissions. More recently, and confirming the predictions made by Packard 40 years earlier, Elizabeth Shove demonstrates that consumption and production practices can lead to excessive use of natural resources and increased environmental impact, emphasizing the importance of rethinking these practices to promote sustainability. By discussing how the cycle of production and disposal of products significantly contributes to CO_2 emissions and the increase of solid waste, exacerbating the problem of climate change, she expresses concern about the need to rethink consumption and production practices to mitigate the environmental impact of planned obsolescence and excessive consumption (Shove, 2003: p. 21).

It is undeniable that there is a need for product designs that can be reused in some way. The manufacturing and disposal of obsolete electronic products release toxic chemicals into the environment. Electronic waste, in particular, contains hazardous substances that pollute the soil and water sources, posing a serious risk to environmental and human health. Heather Rogers explores the relationship between planned obsolescence and waste generation, highlighting how this practice contributes to environmental problems by increasing the amount of waste and hindering long-term sustainability (Rogers, 2005: p. 115).

Juliet B. Schor, in turn, argues that planned obsolescence not only degrades the environment but also negatively affects economic and social sustainability by encouraging a consumption cycle that is not sustainable in the long term (Schor, 2010: p. 30).

These authors provide a solid foundation for understanding how planned obsolescence contributes to environmental problems, highlighting the need for policies and practices that promote sustainability and the circular economy.

2.5. Consumer Vulnerability in the Face of Obsolescence

The significance of consumption for society at the time influenced the special message sent by John F. Kennedy to Congress on March 15, 1962, regarding the protection of consumer interests, which began as follows: "Consumers, by definition, include us all. They are the largest economic group in the economy, affecting and affected by almost every public and private economic decision. Two-thirds of all spending in the economy is by consumers. But they are the only important group in the economy who are not effectively organized, whose views are often not heard" (Kennedy, 1962).

As we can see, sensitive to the topic, the American president demonstrates that there is no escape from consumption. Thus, we have an inseparable connection between the consumer and their vulnerability. It's a one-way street. Vulnerability is an abrupt form of breaking the balance of the inherent equality in the treatment of human beings. In this sense, Espinosa (2013: p. 22) explains: "Así, siempre que una persona se encuentre en una condición en virtud de la cual pueda sufrir algún tipo de daño, está bajo una situación que la enfrenta a la vulnerabilidad. Por tanto, la vulnerabilidad es un estado de riesgo al que se encuentran sujetas algunas personas en determinado momento".

In this way, what structures the entire modern consumer society is the vulnerability of the consumer in relation to the supplier and the consumer relationship that forms.

It is because of this citizen-consumer fragility that consumer protection laws have been enacted worldwide, in an effort to balance this unequal relationship between consumer and supplier. Protective consumer laws were created to safeguard the consumer, who is the weaker party in the consumer relationship (weak-position). Thus, every consumer law represents a true "categorical right," as it defends a social category that finds itself in an inevitable situation. Inevitable because there is no way to escape the condition of being a consumer in which the entire society is embedded, as at some point, daily, inevitably, someone will consume something. As Rizzatto Nunes (2024: p. 43) asserts, there is no escaping this condition born out of the evolution of standardized production methods.

This is why consumer laws worldwide have brought about significant reform in private law, creating statutes to protect consumer rights, with the aim of addressing the inequality between consumers and suppliers in the contractual consumer relationship, "ensuring rights for the weakest, such as consumers, and imposing duties on the strongest, such as suppliers of products and services in the consumer society or in the Brazilian market." (Benjamin, Bessa, and Marques, 2022: pp. 30-31).

In this way, as we cannot avoid this situation, we are vulnerable and become hostages to obsolescence and its consequences, whether they are environmental, economic, or related to consumption.

This demonstrates the inevitability and powerlessness of consumers in the face of an economic cycle that perpetuates the creation of products with limited lifespans. This vulnerability places people at the mercy of a system that prioritizes profit over sustainability and well-being. It thus illustrates well the relationship of dependence and vulnerability created by planned obsolescence, highlighting the urgent need to rethink our consumption and production practices towards a more sustainable and just model.

Consumers have no choice but to participate in this vicious cycle. Most products on the market are designed to become obsolete quickly, forcing consumers to replace them frequently. This not only drains consumers' financial resources

but also contributes to a significant environmental impact due to increased waste.

3. Circular Economy

The circular economy is a production and consumption model that encourages the reuse, repair, renewal, and recycling of products and materials at all stages of their life cycle. Unlike the traditional linear economic model, which follows the pattern of disposal after use and encourages obsolescence, as Chapman (2005: p. 77) points out, this form of economy seeks to maximize resource efficiency, minimizing waste and environmental impact, thus promoting the reduction of natural resource consumption, waste generation, and extending the lifespan of products, as well as encouraging innovation in design and production methods.

3.1. Characteristics of the Circular Economy

The circular economy is a production and consumption model that encourages the reuse, repair, renewal, and recycling of products and materials. Its goal is to extend the lifecycle of products, thus minimizing waste and the use of new resources.

One of the fundamental characteristics of the circular economy is the emphasis on the reuse and repair of products. As pointed out by Ghisellini, Cialani, and Ulgiati (2016), reuse extends the lifespan of products, reduces the need for the production of new items, and consequently minimizes the extraction of natural resources. Repair, in turn, allows products to re-enter the economic cycle, reducing waste and promoting the conservation of materials.

Waste Minimization seeks to reduce waste generation during the production and consumption of products. In this regard, Ken Webster (2017) points out how companies can minimize waste through product and process design that allows for easy disassembly and recycling.

Similarly, recycling transforms waste into new resources, closing the lifecycle of materials. According to Currle, Guya, and Nekesa (2022), efficient recycling can significantly reduce the demand for virgin raw materials, easing the pressure on natural ecosystems. Contemporary environmental legislation has been striving to create regulatory frameworks that encourage recycling and extended producer responsibility.

Extending the Product Lifecycle is a guiding principle that supports product designs intended to maximize their useful life. In this vein, authors like Walter Stahel (2016: p. 436), who published pioneering work in the field of the circular economy, support the topic. Product design in the circular economy focuses on durability, reparability, and recyclability. Thus, design aimed at durability not only increases the lifespan of products but also facilitates their maintenance and recycling. This focus is crucial for reducing the environmental disposal of products and promoting long-term sustainability.

Similarly, the so-called Design for Sustainability, as Stuart Walker (2014) ex-

plains, is a principle not only of durability and functional efficiency but also as an activity deeply rooted in ethical, social, and ecological values, changing the paradigm and considering how design can contribute to sustainability in ways that go beyond mere functional efficiency, reducing the long-term impact of products on the environment and society.

Another mainstay of the circular economy is the so-called Product-as-a-Service System. By this method, the business model shifts from selling products to offering services. It works by transforming the ownership of a product into a service, where consumers pay for the right to use the product for a specified period, instead of buying it. After the contract ends, the product is returned to the manufacturer, who can reuse its components, repurpose it for another use, or sell the materials to other manufacturers. This encourages companies to maintain ownership of resources and optimize their use over time, reducing waste, promoting material reuse, and prolonging product lifespans (Rau & Oberhuber, 2023).

A significant change has been proposed in the way we view various products and the way we use other products: such as creating products whose repair is simple; others whose updates and modifications to improve their quality and performance are easier; the creation of products with parts or interfaces that fit into other products, facilitating the reuse of components; products and parts that can be easily disassembled and reassembled, facilitating the recycling and reuse of materials; and, finally, the design of more durable and high-quality products, discouraging excessive consumption and encouraging consumers to keep products for longer (Bocken et al., 2016: pp. 311-316). In this same sense, Jenifer Loy teaches that products must meet the imperative of sustainability, breaking the current Production Life Cycle Assessment (LCA), and further asserts that it is the duty of engineering professors to teach their students about this subject (Loy, 2008).

These strategies are crucial for the transition to a circular and sustainable economy, where resources are used more efficiently and environmental impacts are minimized. Implementing these changes requires a joint effort from designers, manufacturers, legislators, and consumers, but the potential benefits for the environment and the economy are significant.

3.2. Examples of Public Policies to Combat Planned Obsolescence through the Circular Economy

The issue of manufacturers' legal responsibility for planned obsolescence is gaining attention in various countries, with varied responses depending on the legal context and political priorities of each region. Some countries have adopted the circular economy model as an integral part of their public policies, recognizing the importance of sustainable practices that minimize waste and maximize resource reuse.

For example, the European Union (2009) has generally promoted regulations

aimed at combating planned obsolescence, through laws that promote sustainability and the circular economy. One such example is the Ecodesign Directive, which imposes circular product design requirements including durability, repairability, and recyclability. Moreover, the EU is exploring laws that require manufacturers to provide clear information about the expected lifespan of products and the availability of spare parts.

France and the Netherlands have adopted more specific strategies on the topic. In 2018, France introduced a circular economy strategy that includes comprehensive measures to limit waste and promote recycling. Cited above as combating obsolescence, Law No. 2015-992 of 17/08/2015 (Relating to the Energy Transition for Green Growth) initiated the issue (France, 2015). Later, it launched its National Circular Economy Strategy, outlining a series of measures to promote the circular economy throughout the country. The strategy includes over 50 measures aimed at combating waste and transforming waste into resources. These measures align with the law against waste for a circular economy, passed in 2020, which includes provisions to eliminate single-use plastics and encourage reusable and recyclable products (France, 2023).

The Netherlands has one of the most ambitious approaches to the circular economy, aiming to become 100% circular by 2050. The Dutch government has adopted various strategies and programs to facilitate this transition, supporting innovations in product design, recycling, and sustainable business models (Government of the Netherlands, 2024).

China has promoted the circular economy as a state policy with the implementation of the Circular Economy Promotion Law in 2008. This policy was designed to increase resource efficiency and reduce environmental pollution through reuse, recycling, and waste reduction (The World Bank, 2009). This legislation was one of the first initiatives in developing countries, if not the first, to demonstrate the Chinese government's commitment to promoting a future of sustainable growth.

Finland is another example of a country that has adopted the circular economy in its national policies. The Finnish government launched a national circular economy strategy aiming to increase resource efficiency and develop markets for recycled materials and related services (SITRA, 2024).

These sources and examples highlight how various nations are actively incorporating the principles of the circular economy into their public policies, aiming not only to combat planned obsolescence or seek environmental sustainability but also to achieve broader economic and social benefits.

In Brazil, however, the Consumer Defense Code (CDC) offers some protections that can be applied to planned obsolescence, such as the requirement that products offer safety, functionality, and a lifespan compatible with reasonable consumer expectations. Still, there is no specific legislation that exclusively addresses planned obsolescence. The consumer law in §2 of article 12 states that "A product is not considered defective by the fact that another of better quality has

been placed on the market".

This provision demonstrates that this law was created to protect the vulnerable, however, such shelter cannot be arbitrary. Thus, mere technological innovation, by itself, does not make the old product defective. Very modestly in the single paragraph of Article 32 of the same law, it limited itself to determining the offer of components and spare parts while the manufacture or import of the product has not ceased. It also prescribed a reasonable period for the maintenance of the offer of these components and spare parts, after the production or import has ended. Regarding the use of the circular economy as a means of combat, public and even private initiatives are in their infancy. In the private sector, despite its crucial role in promoting the circular economy, there are no significant news.

The National Policy on Solid Waste (Política Nacional de Resíduos Sólidos—PNRS), provided for in Law No. 12.305/2010, is a legal milestone in Brazil that establishes guidelines for the management and handling of solid waste, including reduction, recycling, and reuse. Besides this, we also have state and municipal initiatives, but no public state or government policies foreseeing similar situations, even though Brazil is a signatory to various international agreements that promote sustainable practices, such as the UN's Sustainable Development Goals, which include targets directly related to the circular economy, such as responsible consumption and production (SDG 12).

The implementation of the circular economy requires a robust legal framework that promotes and regulates circular practices. Laws on extended producer responsibility, tax incentives for sustainable practices, and regulations that promote design for durability are examples of how the law can foster the circular economy. Furthermore, international cooperation is crucial to establish harmonized standards that facilitate trade and the sustainable management of resources.

The circular economy presents a promising model for environmental and economic sustainability. Its characteristics—reuse, repair, recycling, design for durability, performance economy, use of renewable energy, and industrial symbiosis—offer a viable path for waste reduction and resource conservation. The challenge, however, lies in creating and implementing policies and laws that incentivize and regulate the transition to a truly circular economy.

4. Conclusion

The study of planned obsolescence and the circular economy reveals significant complexities and opportunities for the formulation of more robust and effective public policies. The practice of planned obsolescence, which intentionally limits the lifespan of products to stimulate continuous consumption, presents significant challenges for environmental and economic sustainability. It exacerbates environmental and social issues, creating a vicious cycle of consumption and disposal that is unsustainable in the long run.

Planned obsolescence is not new, originating from Roman times, but it has intensified with industrial development and now with technological modernity. Understanding its historical development is crucial to addressing its deeply rooted origins in consumer culture.

Distinguishing between genuine innovation and planned obsolescence is crucial for formulating effective policies. While innovation can lead to significant improvements in product quality and efficiency, planned obsolescence often aims only at short-term profit at the expense of consumers and the environment.

In turn, the circular economy emerges as a promising response to the traditional model, emphasizing the reuse, repair, renewal, and recycling of products and materials, proposing a closed resource cycle that minimizes waste and maximizes the use of each item.

From a legal perspective, a more forceful and combative approach could be taken in addressing planned obsolescence, given the potential for circular economy policies to mitigate these practices through legal reforms that promote product durability and manufacturer responsibility. This issue is not only national. Some countries, although not directly addressing planned obsolescence, have promoted legislative activities and state policies aimed at encouraging the circular economy, which indirectly confronts obsolescence.

Examining how different countries implement public policies to combat planned obsolescence and promote the circular economy, there is significant variation. The European Union and France, for example, lead with more advanced policies, while other regions are still in the early stages.

Planned obsolescence maintains its pervasive nature, continuing to be a common practice that challenges sustainability efforts, encouraging excessive consumption and waste production. This exacerbates environmental and social challenges, necessitating a more assertive and comprehensive regulatory response.

Planned obsolescence results in a significant increase in waste, contributing to pollution and environmental degradation. Prematurely discarded products fill landfills and release toxic substances into the environment, exacerbating problems such as soil and water contamination. Economically, planned obsolescence forces consumers to continuously spend on new products, often unnecessarily. This can lead to indebtedness and constant financial pressure while benefiting companies that profit from the repetitive sale of new models. On the other hand, in terms of culture, this practice encourages a disposable consumption mentality, where the value of goods is measured by their novelty rather than their durability. This not only promotes a culture of waste but also negatively affects the perception of product quality and value.

The circular economy offers a viable alternative to the traditional linear consumption model, promoting practices that maximize the reuse and recycling of products and materials. This approach not only reduces waste but also encourages a more responsible and sustainable economic cycle.

There is significant variation in how different countries and regions legally

approach planned obsolescence and the circular economy. While some areas, like the European Union, are at the forefront, others, including many in development, are still formulating their responses.

The analysis of legislation shows that the introduction of specific laws against planned obsolescence, as in France, can effectively discourage these practices. However, many countries still lack explicit legal measures that directly address this issue.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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