

## SECTION: MARKETING AND TOURISM

### LONGER LIFETIME FOR PRODUCTS, PRODUCT SUICIDE CODE AND SUSTAINABLE DEVELOPMENT

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#### Abstract

*Extending the product life cycle can be one of the viable solutions for implementing sustainable development and circular economy. However, there is evidence of some consumerist approach to product development and promotion. From the intrinsic quality and design, to the packaging, the consumer cannot extract all the benefits that the products can offer. These modalities of producers and distributors are extremely negative on the environment: more valuable raw materials are consumed, more garbage is produced and more harmful substances are generated. Thus, climate protection is contrary to the desire of any producer: a higher profit as easily obtained. Thus, the article comes to highlight a number of solutions both for the benefit of the environment and the consumer as well as for the producers.*

**Keywords:** life – cycle assessment, circular economy, longer lifetime for products, repair and material-recovery services,

**JEL Classification:** M31, P48, Q01, Q53

#### Introduction

For half a century now, major concerns, based on increasingly visible consequences, indicate the need to analyze the impact of human activity and especially of economic activity on the environment.

In this context, the efficiency of the products and their resistance over time are becoming increasingly important.

Considering that the present business models are no longer viable for the future economies, concepts that are more and more used such as sustainable development and the circular economy are putting even more pressure on the need for a change of paradigm.

In addition to the significant financial impact, the social and cultural impact, as well as the growing need to protect the environment and human health, but also the judicious management of resources outlines a favourable response for the prolongation of the products' life.

The increasingly visible technology and robotization of the world we live in changes the perception of work and life, but at the same time, it offers the chance to create a future with fewer, but more sustainable and more qualitative material resources.

In this context, this article aims to be a plea for the reconsideration of resources, focusing on the need for recycling and reuse, starting with a first step: highlighting the need for longer lifetime for products.

In this article we consider intermediate or final goods with a life span of less than one year up to 30 years. The idea promoted by the article is that, in reality, the life of the products can be easily doubled or even tripled by the producers, bringing significant savings, of several billion of EUR per year, to the aggregate economy of the EU.

At the same time, the article wants to highlight the shortcomings caused by the lack of a self-destruct code of the products, the producers having to produce less, so to sell less (Stegeman and Jansen, 2015), in order to maintain longer and better the products launched on the market and to constantly look for new markets. By extending the life of the products, the producers can experience losses of profit and market shares. In view of these disadvantages of the extension of the product lifespan for producers, the EU initiatives and the legislation to

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stimulate the prolongation of the life of the products must consider offering important benefits (including tax reliefs and subsidies) for companies in exchange for implementing on large scale this economic model.

### Literature review and the motivation in approaching the subject

According to Stahel (1994), the extended life of the products can be ensured by measures that take into account the materials used and how they retain their value through recycling. Also, the extended product lifetime can provide additional jobs in the economy and provide a better connection between products and services and between clients and producers through collaborative economy and servitization (Tukker and Tischner, 2006). Also, Warneryd (2008) notes that the longer lifetime for product determines more consumer confidence in supplying companies.

According to a study of European Parliament (2016), regarding the longer lifetime for products, a minimal increase of value added of 1% by economic activities related to this domain would have an aggregated effect across the European economy of 7.9 billion EUR per year.

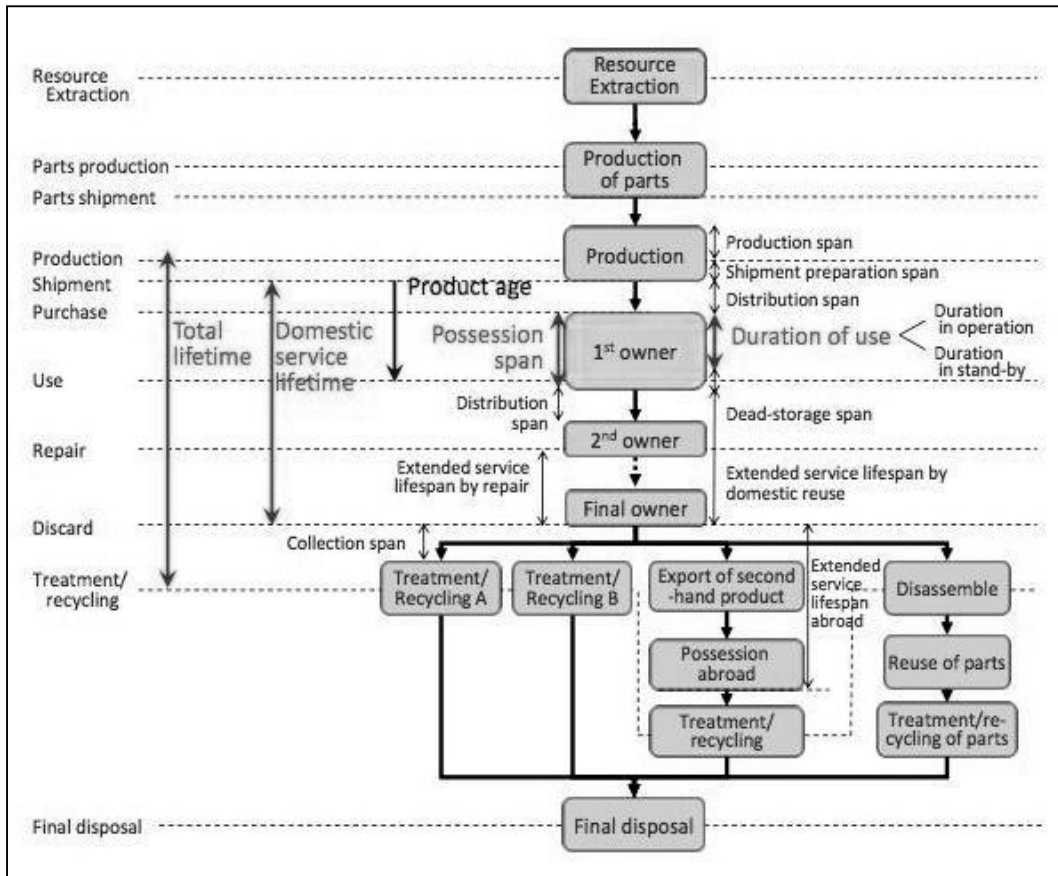
In the literature, there are presented a series of product classifications depending on the average lifetime. Thus, in the first table (Table no. 1) it is presented a classification of products according to their lifetime. Thus, we can easily observe that the first three categories of products can be designed from the beginning with a more successful lifespan, and the last two categories have periods that can be easily extended through repair, redesign, recycling and reuse services.

**Table no. 1. Average product lifetime according to literature**

1-2 years	3-4 years	5-6 years	7-10 years	> 10 years
Small electrical appliances, (e.g., tooth-brushes, toys) mobile/smart phones, general clothing, shoes	Portable devices, personal computers, bed items, specific clothing (e.g., sports), bicycles, coats	Cameras, general kitchen-ware, lighting, power tools, vacuum cleaners, washing machines, curtains	Automotive, TVs, kitchen appliances, general furniture, carpets, beds, refrigerators	Appliances attached to house (boiler, sunroof, etc.), kitchen and bathroom, specific furnishings

Source: European Parliament (2016), Cox (2013), Huisman et al. (2012), TNO (2015), WRAP (2010).

But to speak of extension of the products lifetime, first we should have in mind that there are many definitions and methodologies on products lifetime. Thus, in figure no.1 we briefly present these differences in definitions as they exist in the literature. Some definitions contain more aspects than others, punctuating some key elements: „total lifetime”, „duration of use” and „domestic service lifetime”. We can easily see that, regardless of the definitions, all the periods of lifetime of the products can be extended, especially if the process of recycling, reuse, maintenance, would be included between users’ transfers and especially if these services had the help of companies specialized in this field and of national or regional public authorities.



**Figure no. 1. Some lifetime definitions as they appear in literature**

Source: Murakami et al. (2010) in Oguchi (2019).

It should be specified that, with each cycle of repair, reuse, recycling, redesign, etc. at the initial product numerous changes of content take place: some components there are been removed, new ones introduced, and the estimation of the life of the new product as a whole is more difficult to perform.

At the same time, many authors, including Cooper (2010), observe that a longer life of the product is influenced in addition to the intrinsic durability of the product (and therefore of its components) also by the behaviour and attitudes of consumers and social and cultural norms. That is why, it requires a deeper change in the mindset of society as a whole than one might think at first sight.

If we look at the profile literature from the perspective of the European legislation, we find that the European Union has one of the best developed regulatory frameworks on product design and life cycle issues from entire world, focusing in particular on issues related to consumer protection, the development of the single market, energy policy and environmental protection. Although some seeds of development have been put through the circular economy, however, EU regulations do not explicitly contain the concept of longer life for products and therefore the mechanisms for implementing this concept are lacking. At the same time, the conflict between the need for innovation, through highly competitive new products, and the prolongation of the product life, so the sustainability and responsibility of the resources use, has not been solved by the EU legislation.

## Results

The transition of the linear economy to circular economy can be also insured through making products and services to extend their lifecycle. In the circular economy, the strategy of the producers to create a limited time of operation of the products or the planned obsolesced is not a viable solution. Significant savings and profits with a circular economy model companies come precisely from the ability to reinvent products, to reuse and recycle them, so that they can still work.

According to Vernon (1966) any product goes through several phases (introduction, growth, maturity, decline and desertion) starting with introduction and end with its decline. Longer lifetime for products means that it is important to keep the product in the maturity phase of the product or service lifecycle, preventing going into decline phase.

If we consider that the introduction has a development phase, it contains the product conceptualization, designing, preliminary market research, testing, validating and possible means for implementing, funding, making the product visible and also searching for new attributes and technologies to make constant improvements of functionality and appearance. In order to last longer, even from this stage, the manufacturer should consider the possibility of creating easier upgrades and re-formatting of the product.

In the growth phase, in order to prolong the life of the product, the manufacturer must improve its product, customize and promote the distinct qualities of the product compared to its competitors, as well as develop services related to the product, inducing the idea of a better maintenance of its product. Also, it necessary that the producer to improve the distribution channel and try to connect faster and more efficiently with the customer, putting at the centre of the increased performance of the product the customer's needs. Also, the price must reflect the qualities of the product, including maintenance, but it cannot be set too high in order not to put customers away. In this phase, although it is important to maximize the market segment of the product and ensure a considerable profit, maximizing opportunities, however, for the prolongation of the product life cycle, the producer, having a considerable profit compared to other phases, must analyze and combat the product's defects or obsolescence.

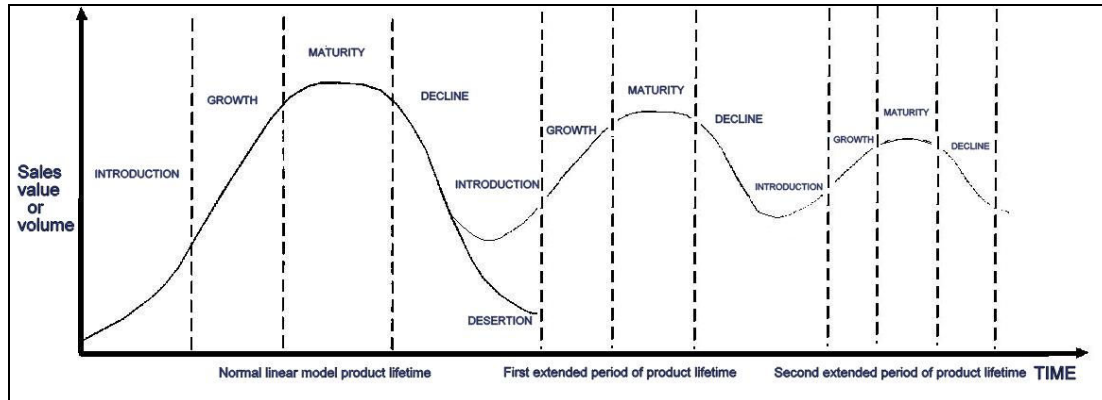
Having a strong market position, in the maturity stage, the producer might consider redesigning and enhancing some aspect of the product. This strategy might help the producer to attract new customers and to prevent the stagnation of the product' market. In this phase, for extending the life of the product, it is necessary to have a better understanding of the market operation, and besides the intense marketing and promotion activity, it is important for the producers to open new markets, new sales areas and to attract those consumers who until then were tempted by the products of the competitors.

To prevent the product from maturing too quickly, manufacturers often have to think unconventionally, introduce innovative approaches and continue to work on improving the product in order to be always ahead of competitors. In the case of reused or recycled products, functionality, unconventional use and presentation mode, as well as promoting the idea that "the old is the new new", so targeting a type well identified of buyers, can keep the product longer in this phase. Searching for new market segments, new zones, new customers, new profile of the customers, new services attached to the product can prevent smoothing of the sales market and the profits attached to the product.

In the decline and desertion phase, when the saturation point is reached, the product is no longer attractive. In this phase, in order to re-enter in a new functioning circuit in the economy, the product requires withdrawal, redesign, listening to the complains over the product, rethinking of its utility, analyse what feature should be improved and what features should be eliminated, total, partial or subcomponent reuse, channelling on the sentimental value of the product and uniqueness given by old age and of course, a lower price for resale when is the case. Thus, the operational model has to be rethought, returning to the

introduction or the growth phases, adding new and well distinguishing features, new designs and new complementary services, maintaining and improving where it is possible permanently the product to keep market requirements fulfilled and reducing the gap between product market and users.

Considering the above, it is possible to triple the life of the products according to figure no.2.



**Figure no. 2. Tripling product life cycle**

Source: authors' conception after Vernon (1966) and others.

Another way to keep the product as long as possible on the market is to resell it with a new product, or together with an old product reinvented - in tandem, offering a better quality, difficult to refuse by customers.

Also, when the manufacturer's ability to reinvent and refresh the product is limited, for the prolongation of its life cycle, the product idea can be resold to another company with high refresh power.

Thus, in order to extend the useful life of a product it is important to consider: - serious price discounting, - repairing and recovering services included, - rebranding (including product updates, new features, new packaging, better quality, advertising, product image redesign and marketing campaigns), - sharing, exchanging or lending agreements for comparable or compatible products or services, promoting the modularity (ex. car sharing, IT components etc.), - for products that have failed due to low resistance, increase the wear resistance factor of the products - second-hand selling, - coupons discounts and rebates for products reintroduced into the economic circuit (including buy-back system), - better calibration of the dosage for the products that can be dosed, -re-using and re-purposing and last but not least seeking and finding new markets.

If for perishable products, it is necessary limiting the distribution route in order to reach fresher to the customers, for extending the lifecycle of a product it can be necessary to extent the distribution channel or to return to the same distribution loop whenever necessary (e.g. for successive repairs or maintenances over time).

At the same time, the personnel dealing with the redesign, reuse, reconditioning of products with a long life cycle must understand on the one hand current needs of the consumers, and on the other hand be able to bring to light the intrinsic quality of the initial product. Also, the personnel dealing with the promotion and sale of these products should be very well specialized and trained so that they can explain to consumers the need for more judicious use of resources and implicitly these products with a long cycle of use. Providing a constant target group through loyalty services, technical assistance, distribution and even payment and credit facilities can be extremely good solutions for extending the life cycle of the products.

## **Conclusions**

Promoting sustainable development and the circular economy is not only a problem of public policy orientation but an increasingly felt need. From pollution, agglomeration, public health, the emergence and disappearance of companies on the market, competitiveness, poor external trade performance, exaggerated domestic consumption, waste and poverty ... all of these translate into a simple solution - more respect for human life and the environment surrounding. This respect can also be identified by a prolongation, reasonable, efficient, of the lifetime of the products.

If consumers and the state (through public procurement) can be more tempting to adopt a lifestyle and functioning in the direction of extending the life of the products, the companies can be seen in the position to feel significant losses related to sales and market share in the context extension of product lifetime. Although there are numerous companies, including social companies, that adopt the appropriate mindsets for the implementation of the circular economy, through public pressure, steps should be taken much faster.

With little effort and involvement, manufacturers can feel put in the situation of losing contact with consumers if they do not take into account concrete and effective measures to extend the life of the products.

Thus, through reuse, recycling, reassembly, redesign, etc. the products can gain economic significance over a longer period of time, even up to three times higher than at present.

Legislation can play a decisive role, but the education of all social actors involved will be the only one that can model human, social and economic behaviour in the true sense, in depth in the direction for a more sustainable life on this planet.

The role of the states of the world should not be neutral, as they must be actively involved, beyond legislation, through tax facilities, subsidies and other available public instruments to tilt the balance in favour of the circular economy and implicitly of an extended product life.

As a proposal, besides public procurement, in our country and in other parts of the world, the state could be actively involved in extending the product life cycle by establishing a national waste collection centre. This centre could have branches in the main cities of the country offering a wide range of services to the population and companies. Among these services we can distinguish: the service of collection of furniture and appliances from home, the restoration service, services of easier connection between citizens and company by offering by the state vouchers for furniture and household electronic waste. The vouchers could be presented by the citizens to companies for significant deductions when purchasing new products. At the same time, for companies that have in their activity also the sale of products that can be sold in bulk, the state could offer vouchers to stimulate more environmentally friendly packaging and even the use by the consumers of their own packaging. These vouchers, above a certain threshold, could represent a significant deduction for those companies when they pay taxes.

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