

## Planned obsolescence: who are those planners?

Longmuss J. and Poppe E.

SUSTAINUM - Institute for Sustainable Economy, Berlin, Germany

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### Abstract

There is a controversial discussion on the phenomenon of “planned obsolescence”. However, shrinking product lifetimes and product qualities do not prove that actors in the product development process take conscious decisions toward premature obsolescence.

Current product faults like exploding batteries in Samsung’s Galaxy Note 7 foster the suspicion that manufacturers are also struggling with unintended product obsolescence. The relevant question is in which limits the planning of product lifetimes leads to intended and unintended consequences.

The reasons and intentions behind product features and whether these features are intentionally at all can just be determined in direct contact with the actors of the product development processes. The research project LOiPE could establish contacts in strict confidence to development departments of 23 major German companies. The objectives of the survey were to find out about the development process in their point of view, its paradigms and their experience with “planned obsolescence”.

All interviewees assured that when they had to balance cost against lifespan, lifespan always prevailed.

The allegation of a deliberately intended premature obsolescence was vehemently rejected by all of them. The limitations through obsolescence are caused by the basis conditions of developing and producing: rising complexity, increasing speed of innovation cycles and high cost pressure. These conditions and their constraints leave little space to single actors of the development process and to companies. In this sense obsolescence is systemic. So, a perspective towards more sustainable production and consumption lies in a combination of different approaches.

### Introduction

There is still a controversial discussion among professional circles, the media and a broad public community on the phenomenon of “planned obsolescence”. The explanations and varieties of planned obsolescence are manifold and date back until the 1930s, where Bernard London described it the first time as an economic concept to end the currently recession (London 1932). In the last 7 years the concept has emerged as a buzzword in several discourses on product-related environmental protection and eco- and circular design aspects. Google Trend Statistics also is indicating ongoing search requests for topics related to “planned obsolescence” (Google Trends 2017).

A major part of the public perception and the obsolescence research is concentrated on product and material properties, also known as “built-in obsolescence” of products (Wieser 2016: 156). Especially popular science books focus on the analysis of product life-time and durability aspects in product design to postulate that proven or perceived shortcomings and faults of products are caused intentionally (ex-post-proofs) and speak therefore of planned premature obsolescence (i.a.

Schridde 2014:26-94, Eisenriegler 2016:29-53, Reuß 2015: 27). Therefore, the term “planning” not only refers to objects in which obsolescence occurs, but also active persons (subjects) which first trigger this effect through their deliberate decisions. However, the observation of defective inkjet printers, bonded batteries, or broken electrolytic capacitors does not provide an adequate explanation for the decisions of designers, engineers, developers, managers and other relevant actors involved in the product development process to increase or decrease product lifetimes. In short, shrinking product lifetimes and product qualities provide no sufficient proof that actors in the product development process take up intended decisions for planning premature obsolescence.

This paper strives for a different perspective, namely the ex-ante causes of action, the basis for decision making and the conditional framework for planned obsolescence in product creation. Later, the paper presents some empirical evidence on the complex conditions for the planning of obsolescence in product development processes.

### A formal definition of Planned Obsolescence

There are several definitions of planned obsolescence, with a

different bias on the intention of planning and premature obsolescence. These include the contributions of Packard (Packard 1964), Bulow (Bulow 1986), Kreiß (Kreiß 2015), Pope (Pope 2017) and the predominant part of the public media (cf. Prakash et al. 2016:21). The following definitions are exemplary for this narrow focus:

*“Planned Obsolescence is the production of goods with uneconomically short useful lives so that customers will have to make repeat purchases.” (Bulow 1986: 729)*

*“The objective of planned obsolescence is to stimulate replacement buying by consumers”. (Guiltinan 2009: 20)*

*„Among these is the practice of planned obsolescence, the aim of which is to make manufactured products prematurely obsolete.” (Pope 2016: 1)*

The present definitions are one-dimensional in three respects and thus not adequate for the description of planned obsolescence.

#### Multiple forms of obsolescence

Obsolescence has multiple forms of appearance and is occurring at all levels of the product life cycle. According to Granberg and Cooper, there are obsolescences which act directly on the product and can be called absolute obsolescence. This includes material wear, technical causes or missing possibilities for repair and lack of spare parts or components. These effects are predominantly in the domain of the manufacturers, since they have a direct influence on the product quality and production processes. In addition to the absolute obsolescences, Granberg and Cooper also name the relative obsolescence. These include the group of psychological, economic, or functional obsolescences, or “mind, money, matter” (Cooper 2004: 425). Relative obsolescences are far more subtle than absolute obsolescences and are a challenge for politics and research because the causal chains are longer. This can be illustrated on the following example: If a material defect leads to the obsolescence of a product, the connection from effect (obsolescence) to cause (material design) can be easily identified. In the case of relative obsolescence, this relation is no longer direct. Why do consumers choose a new Smartphone, even though their old device is still working? Here factors such as advertising, technical progress, general consumption patterns and economic status often act side by side at the same time and in varying intensity.

For political control attempts it is important to note that relative obsolescence now have a greater impact on product life than absolute obsolescence (Cooper 2004: 400). For the further scientific discussion on the topic, it is necessary to differentiate between the different varieties of obsolescence in the future, and to ask about the actual influence of all actors on obsolescence. The one-sided derivation of planned obsolescence as direct consequence of the interests of manufacturers or consumers is insufficient.

#### Planning for premature and delayed obsolescence

Many definitions explicitly or implicitly postulate that the planning of obsolescence is aimed solely at the shortening of product life. These definitions systematically rule out that in various cases product planning is aimed at the exact opposite, namely, the delay of obsolescence in order to prolong product life-time. Design for repairability, maintenance strategies, upgradeability, minimum life and reuseability are all planned product strategies to prevent premature obsolescence (Oehme et al., 2017).

Although there are many indications that product life-time in the consumer field is often insufficient, it is analytically insufficient to restrict the direction of planned obsolescence only to premature obsolescence. This is especially true because the product life and the timing of obsolescence are always estimations. In practice, the expected product life time may therefore always be not achieved or exceeded (Figure 1).

#### Bounded rationality and limits of planning

The term „planning“ is a key word in history and refers to the idea of achieving goals through rational patterns of organization. The word combination “planned obsolescence” comes from a period in which a distinct planning euphoria prevailed (van Laak 2010: 5). Today’s and future’s demands on product development are increasing (Anderl et al. 2012: 8). It is therefore necessary to question the traditional imagination of “planned obsolescence” with its tendency to assume a strict form of product lifecycle planning.

Ironically in the same period when the concept of planned obsolescence emerged for the first time, the sociologist Robert Merton published one of the first distinct analyses on: “The Unanticipated Consequences of Purposive Social Action” (Merton 1936). Later, the political scientist Herbert A. Simon follows this idea with his concept of “Bounded Rationality” (Simon 1947). Both authors presented a basic idea: What if actors take up irrational decisions that result in non-intended consequences?

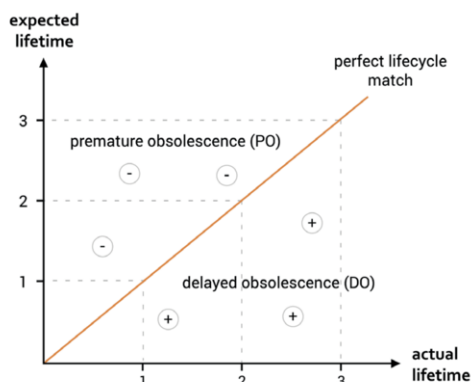


Figure 1. Product lifetime expectation versus actual product lifetimes.

Current product faults like exploding batteries in Samsungs Galaxy Note 7 (Mozur 2017) foster the suspicion those manufacturers are also struggling with problems that lead to unintended product obsolescence. The assertion that product lifetimes are plannable, does not exclude the possibility of unintended consequences. The planning of obsolescence is not a binary decision of 'yes' or 'no'. The relevant question is in which limits the planning of product lifetimes and obsolescence leads to intended and unintended consequences.

**Planned Obsolescence and it's 3 Dimensions**

Based on the preceding considerations, we propose a formal and unbiased definition of planned obsolescence, which is partly based on Hindles formulation (Hindle 2008:147):

*Planned Obsolescence (PO) is a strategy in which the obsolescence of a product is planned and built from its conception.*

- a) *Form: PO results in absolute or relative obsolescence.*
- b) *Time: PO leads to premature or delayed obsolescence of the product.*
- c) *Intention: PO has intended and unintended consequences.*

**Interviewing the planners**

As shown, the intentions leading to proven or perceived shortcomings and faults of products cannot be derived directly from product properties. The reasons and intentions behind product features and whether these features are intentionally at all can just be determined in direct contact with the actors of the product development processes. To establish this contact is one of the main objectives of the project LOiPE (Langlebigkeit und Obsoleszenz in der Produktentstehung / Lifetime and Obsolescence in Product Development). It is funded by HBS, the foundation of German trade unions and carried out by Sustainum – Institute for Sustainable Economy Berlin. The collaboration with trade unions, particularly with the German Metal Workers Union (IG Metall), eased direct and unofficial access to the actors as a prerequisite for open and honest answers.

To date the project could establish contacts in strict confidence to development departments of 23 major German companies, mainly producing consumer goods, but also investment goods. Most of the interviews were led along a semi-structured questionnaire, some in a more informal atmosphere. All interviews took place without surveillance through company officials. Most interviewees came directly from development and design departments, sometimes also from quality assurance, research and marketing. In some cases, we interviewed more than one person from a company. All in all, we were able to conduct 28 interviews with insiders usually considered the “planners of obsolescence” (in the following we will refer to them as “developers”). All interviewees were employed in Germany where the products in global scales tend to have high labour costs and – related to this – a high standard. Therefore, the companies have a reputation to lose should their products show a high degree of absolute obsolescence, i.e. the findings can not necessarily be generalized globally.

The objectives of the survey were to find out

- the development process in their point of view, focusing on the circumstances under which their work takes place,
- the paradigms that are prevailing in their work, and
- their perspective as “planners of obsolescence”.

**The development process**

As a fundamental of engineering, all technical artifacts are developed and designed for a certain lifespan determined in advance. This will be an essential part of every requirements list of a new product. All interviewees left no doubt about this. However, contrary to widespread assumptions, they all agreed that when they had to balance cost against lifespan, the latter was more important for their decisions. This paradigm is not unlimited, and is more likely to be found in the development of expensive products than of cheap ones, but lifespan prevailed in all cases. And still, the developers all agreed that their products not always met the targeted lifespan. They named three main reasons for this:

The first one is the rising complexity of new products. New features, more options, additional electronic control with growing numbers of sensors etc. cause interdependencies that are difficult to overlook. So, the single components will in most cases be adequate to the requirements. Nevertheless, the system as a whole might lack stability.

This leads to time constraints as the second reason. They are caused by a steadily increasing competition among companies for innovation leadership, resulting in a permanent pressure to reduce time to market. So usually it is the time budget (and not the technical skills of developers) that limits in-depth-mastery of endurance of components as well as of interaction of sub-systems. Since traditional testing is often too time consuming, companies rely more and more on short-cycle-testing and simulation – both leaving a lot of space for uncertainty.

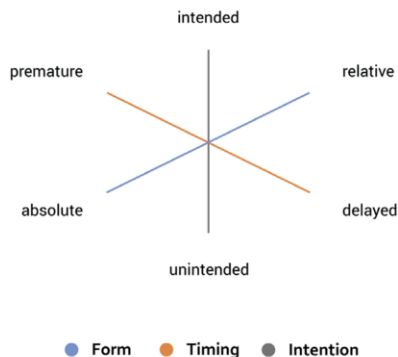


Figure 2. Planned Obsolescence and the 3 Dimensions Form, Time, Intention (FTI).

This limits the predictability of lifespans and functionality considerably. Product recalls in the automotive sector are popular examples for this.

The third reason is cost pressure. Product prizes are calculated top down, i.e. the marketing or the sales department explores which type of product, comprising a list of properties, can be sold at which prize. Then appropriate component prizes and manufacturing costs are derived from this. This again limits the quality that is possible under these circumstances.

The core problem of a development process under these (market) constraints is that each company has just a very limited leeway in decision-making. Therefore, it can be stated that, as a general rule, the observed forms of absolute obsolescence emerging from this are unintentional. It should be remarked that this still leaves a lot of developers unsatisfied – they definitely would like to create better products.

**Paradigms of development**

As said before, in most development processes durability of components was said to outweigh the costs. However, a closer look showed a classical engineering approach: durability was often just considered as the time until the first failure of the first component – when it is broken, the lifetime is over (not in the automotive sector, since cars are so expensive that upgradeability pays off). So, we asked for the paradigms commanding the development process. As figure 3 shows, other aspects that might contribute to a delayed obsolescence are of far less importance, in particular upgradeability.

**The planner's point of view**

The allegation of a deliberately intended, premature obsolescence was vehemently rejected by all our interviewees. They all agreed that no company and no engineer would do something like this, they considered

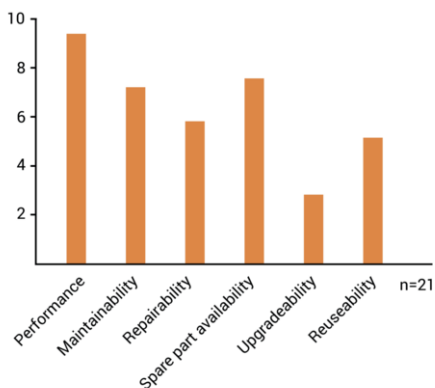


Figure 3: Paradigms of product development.

it completely out of question. It would collide with their identity of “engineers as problem solvers”. Moreover, they indicated that one deliberate weak point in a product would make all their efforts useless to make other parts of the product more durable – and the costs of this would be misspent. On the contrary, they were generally proud to participate in a quest for good products. All of them were committed to develop products that were as durable and functional as possible under the given circumstances. However, unintended obsolescence is still possible and taking place, also in their judgement, since the “given circumstances” are beyond their control and often also beyond their company’s control. Then it will be the internal structure of a company as well as market conditions that determine the lifetime of a product.

**Conclusions**

The limitations of useful life through absolute obsolescence including the consumption of resources going along with it are not caused by an intentional weakening of single components – aiming at fast replacement – but by the basis conditions of developing and producing: rising complexity, increasing speed of innovation cycles including shortened tests and high cost pressure. These conditions and their constraints leave little space, if any at all, to single actors of the development process and to companies. In this sense obsolescence is systemic.

So, since all single actors in this field – manufacturing companies, developers, commerce and customers – have only very limited options, a perspective towards more sustainable production and consumption lies in a combination of different approaches:

Changing customer demand, looking more towards sustainability. They could e.g. put more emphasis on simple products that are easy to handle, maintain and repair, or go for refurbished second hand products or leasing rather than owning. By this they would open new business models for producers and commerce.

Changing the legal side so that products for short term usage become expensive and sustainable products and manufacturing more profitable for companies.

Based on this: developing products whose lifespan does not end with the first failure; instead paying more attention than nowadays on easy maintenance, repair, refurbishment, and the option to modernize single modules (which again needs and supports new business models).

Development of mission statements in companies: „What kind of enterprise do we want to be and which demands of customers and society are guiding us?“. This would also leave more space for the desire of developers to minimize absolute and premature obsolescence.

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