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SMARTPHONES ARE REPLACED MORE FREQUENTLY THAN T-SHIRTS.

Patterns of consumer use and reasons for replacing durable goods.

Nr 3 | February 2017

AK WIEN
GERECHTIGKEIT MUSS SEIN

ABSTRACT

In the following article the core findings of a research project conducted on behalf of the Chamber of Labour in Vienna will be presented. Using a representative, online questionnaire plus qualitative interviews, the question was posed of how long products were used in private households and why these were then replaced. The investigation did not examine the products and their technical weaknesses alone, since a straightforward focus on the much-discussed “planned obsolescence” would have been too narrow. The approach adopted was to look at the perspectives of the consumers themselves. By analysing their reasons for the purchases and the influences on their decision to replace a product, a wide range of factors affecting the use-time of products have become apparent.

The article summarizes the results of the study (Wieser and Tröger, 2015); the full report is available in German: http://emedien.arbeiterkammer.at/viewer/resolver?urn=um:nbn:at:at-akw:g-490923

The German original version was first published in: Bala, C., and Schuldzinski, W. (eds.). "Beiträge zur Verbraucherforschung Band 6: Pack ein, schmeiß' weg? Wegwerfkultur und Wertschätzung von Konsumgütern", Verbraucherzentrale NRW, DOI 10.15501/978-3-86336-914-9_5. Düsseldorf, 2017.

Translation: Anthony Hall.

Keywords: replacement cycle, obsolescence, consumer goods, mobile phone, sustainability, throw-away society

ISBN: 978-3-7063-0669-0

Vienna, 2017

CONTENTS

1. INTRODUCTION

In the last few years a discourse centring on “planned obsolescence” has been pushed strongly in the media, and in the meantime is well-anchored in the consumers’ minds. Questionnaires in various countries show that the majority of consumers believe that “planned obsolescence” is a widespread phenomenon (VKI 2013; Echegaray 2016). Critics see it as one of the main factors driving efforts to maintain economic growth, and as a fundamental cause of the growing heaps of rubbish (Latouche 2012). However, what is meant is mostly the deliberate or conscious inclusion, by manufacturers, of technical defects in machines or product parts. On the one hand spare parts are generally too expensive or not available, on the other hand repair is not possible due to the product’s design. This often leads to the necessary replacement and the eventual disposal of the whole product. This limited focus on the technical aspects and the lifespan of products has led primarily to manufacturers and designers being confronted with such accusations. The argument turns, therefore, mainly on assessing how widespread this phenomenon actually is among manufacturers. For example, recently the European Economic and Social Committee has joined the battle against “planned obsolescence”, but has only found “rare, but flagrant cases”, which would require a total ban (EESC 2013:1). In the same statement, these cases are clearly delineated from our “accelerated consumption patterns”, the problematic nature of which is recognized, but not discussed more closely.

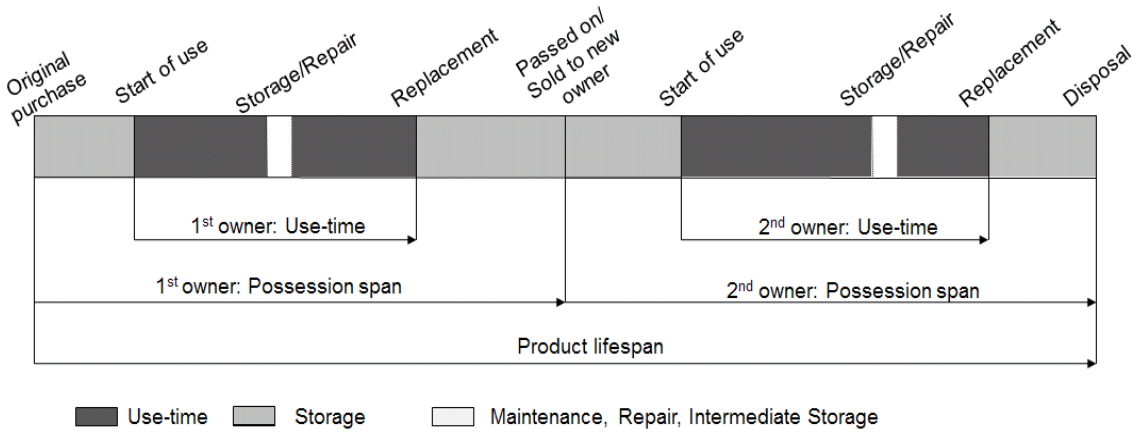
Our contribution takes a critical line towards the debate as described above and shifts the perspective onto those aspects of how the acceleration of our society affects consumption patterns. In other words, it corresponds to a reorientation from the *lifetime* of products to their *use-time*. By that we understand the period of time between the first and last use of an object by the same person, family or organization[1] (also referred to as the first period of use). The lifespan and the use-time can, but do not have to be congruent. When the machine has a defect and wears out earlier[2], or can no longer be repaired and has to be disposed of, then the end of the lifespan corresponds to the end of the use-time. However, there can be several reasons for an item losing its ability to fulfil its value and therefore be replaced before the end of its lifespan, for example when it is technically no longer up to date or also by going out of fashion. Thus Cooper (2004), in an empirical study, observed that 30% of all machines which were disposed of were still functioning technically. For electronic devices the percentage was as high as 60%. In these cases, the end of use was not directly connected to the lifespan of the product, and therefore was generally not placed in the category of “planned obsolescence”, and as such is often overlooked. The use-time is also determined by other factors which influence the pattern of use.

By examining the use-time we can analyse many problem areas, which has previously been impossible, due to the limited focus on the lifespan of the prevailing discourse on “planned obsolescence”. Similarly, a range of factors and questions which may have an effect on the use-time can now be included. For example, the role which marketing plays in this and the influence it exerts on the timing of replacement purchases? What effect do the opinions of sales and repair staff have? To what extent does the use-time play a role in social relations and inclusion? By looking at the use-time we can see clearly how multi-faceted the phenomenon of obsolescence really is.

[1] The form and type of use is dependent on whether the products are used by several people individually (e.g. clothing) or by several together (e.g. a washing machine).

[2] What “earlier” means cannot be determined objectively, since it depends on the expectations of the users (see Hübner 2014)

Figure 1: Distinguishing between use-time, lifespan and processes in- between



Other forms of obsolescence have long been the subject of discussion in the literature (Burns 2010). One of its critics, Vance Packard (1961), distinguished between three types of obsolescence: qualitative, functional and psychological. However, it has to be said that since Packard the debate has hardly moved on (cf. Cooper 2010; Hübner 2013). Now as then, in describing different forms of obsolescence, it is predominantly understood as particular ways of influencing consumers, which (should) aim at increasing the replacement purchases. Concrete examples are provided of different ways in which manufacturers determine the lifespan and use-time (e.g. cycles of introducing products). The focus is not, however, on the consumers' actions. Stefan Schridde, for instance, states: "Consumer behaviour is, however, a research topic which companies should consider separately from planned obsolescence, it being more a consequence of it" (2015:9).

A one-sided approach of this type (with accompanying accusations and reproaches of industrial practices) is, in our opinion, not really constructive. Instead of starting from a strict separation of producer and consumer responsibilities, more attention should be paid to the interaction between the two (c.f. Wieser 2016). An examination of consumer practices should on no account be restricted to the role of the consumers, but can also – as this article demonstrates – identify the influence of the producers and the retail trade.

In our study we therefore inspected the use-time of various household goods more closely, the results of which are presented in this article. The study focused on the following central issues:

- How long do items of everyday use get used?
- Why are items of everyday use replaced after a certain period of time?
- What influences on the use-time can be identified in the different phases of their consumption?

2. RESEARCH METHOD

For the analysis of these issues an empirical study was conducted between November 2014 and March 2015. This consisted of two parts: In a first step a representative online questionnaire was answered by 1,009 persons, resident in Austria. The consumers were asked to state how long they used 21 different products, and then answered questions about their satisfaction, experiences, wishes and expectations with respect to the lifespan of products. One part of the study focused on the mobile phone, which was of significance for several reasons. On the one hand it is an electronic entertainment device which is subject to both technological and fashion cycles, but it is also prone to errors and defects. On the other hand it is used individually and is used by all age groups. This means that we could be certain that the majority of participants in the questionnaire would already have experienced using the product. Our questions were actually aimed at the user's previous mobile phone (either a simple bar phone or a smartphone). That allowed us to cover the complete chain of actions of the consumers (Hübner 2001) starting from the gathering of information, to the decision to buy, the use phase and finally disposal – i.e. the complete consumer phase. In a second step of the study, a total of 25 households[3] were selected from the respondents to the questionnaire, and personal interviews were conducted with them. These focused mainly on their previous "career" as mobile phone users, but further questions were asked concerning their dealings with other items such as furniture or household equipment. This combination of closer questioning and questions about the mobile phone and their level of openness to other products, allowed us to understand their pattern(s) of use more fully, and to recognize differences between different product categories.

3. RESULTS: PATTERNS OF USE AND REASONS FOR REPLACEMENT

The first step was to calculate the use-time and the desired lifespan of objects, since no empirical data existed for those questions. The respondents were therefore asked firstly, how long, on average, they used selected household items from different product categories. This was followed by the question of how long, in line with their wishes, the same goods should operate perfectly or function, i.e. the desired lifespan. The results can be seen in Figures 2 and 3.

As a rule, the respondents use clothes for the shortest length of time, followed by digital media and small household devices. The most surprising use-time is that of the mobile phones, which are used for 2.7 years, which is shorter than a pair of jeans or a T-shirt, and also short enough to set them apart them from other digital media. The answers do, however, depend on the different socio-demographic groups. The differences are particularly significant with respect to the age of the re-

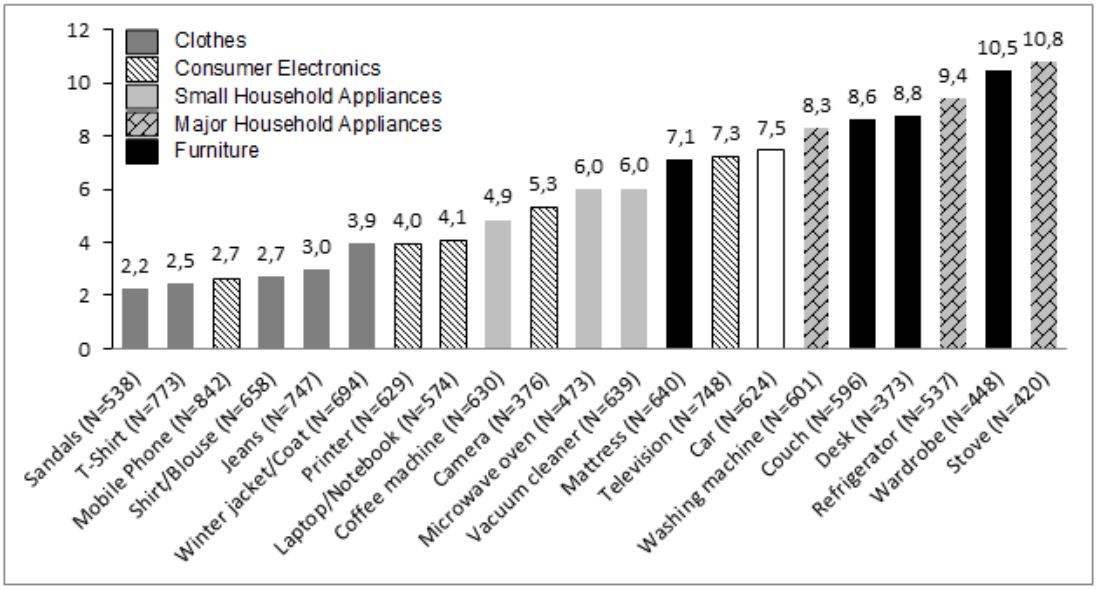
[3] In order to cover a broad spectrum of potential patterns of use, persons were selected on the basis of their use-time (long or very short) of the mobile phone. Further, people of very different ages were selected, and finally, attention was paid to ensure that approximately equal numbers of men and women were asked.

spondents: older people use things longer than the younger ones. However, it is not clear whether that is an effect of age or of the generation.

The age effect would mean that goods in daily use are, as the persons grow older, used for longer overall. The generation effect would indicate that the means of use of goods in daily use has changed over time among parts of the population. The results from the qualitative interviews suggest that probably both effects are responsible for the correspondence between the age of the users and the use-time of the products.

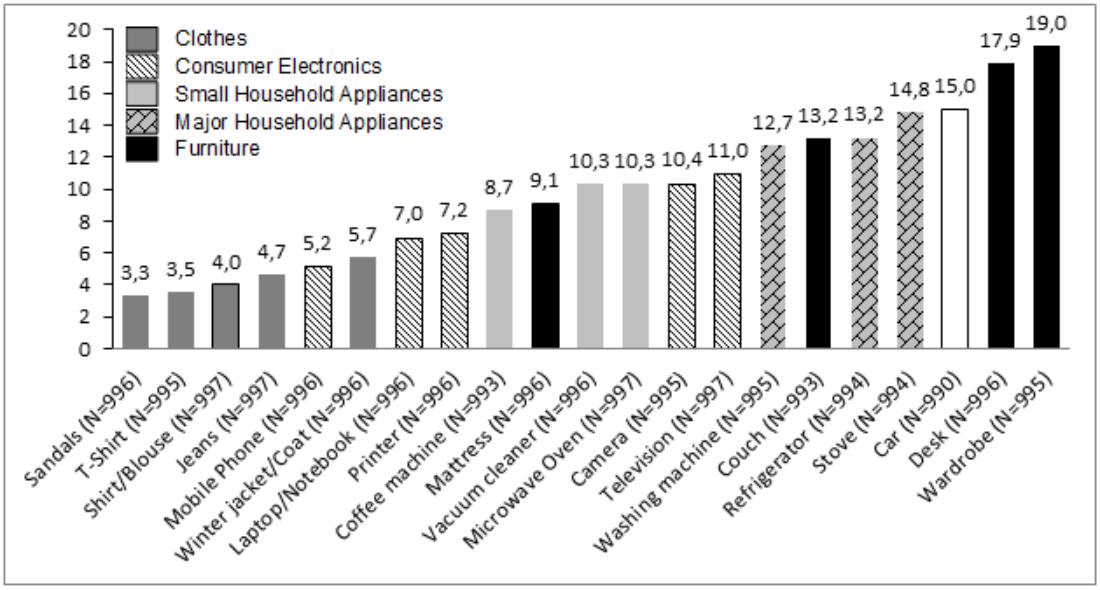
The results for the products with longer use-time need to be interpreted with care, because many of the young participants do not have any experience with especially long-lived products, and because the maximum age of the participants was 65. Consequently, the use-time would – in reality – probably be longer. To offer a comparison: persons aged between 50 and 65 use a kitchen cooker (stove) on average for 11.4 years, clothes cupboards 12.9 years, refrigerators 10.1 and writing desks 10.3 years.

Figure 2: Average use-time of consumer goods (in years)



The desired lifespan was calculated for the same set of everyday goods, which then produced some interesting comparisons. For all products the desired lifespan clearly exceeds the actual use-time. The two values come closest to being congruent for mattresses, which the respondents also wished could last nearly twice as long (1.7 times as long) as they are used. For most clothes the figure is twice as long, for cars it is even three times as long. In these cases, too, older respondents on average wish for a longer lifespan for their products than the younger group. This comparison shows clearly that the respondents wish for a longer lifespan and use-time, too, which is not achieved by any of the products.

Figure 3: Desired lifespan of consumer goods (in years)



In general, the respondents were not in agreement about the appropriateness of the lifespan nowadays of consumer goods – while 46% were very or quite satisfied, 29% stated they were quite or very dissatisfied. 26% agree with neither the one nor the other. However, it is interesting that a larger number of younger people are quite satisfied with the lifespan of consumer goods compared with older people, which raises the further question of which effect that has. Satisfaction with consumer goods decreases slightly with the education level and with higher income groups. Consequently, half the people who left school with a secondary school qualification are satisfied with the product lifespans, whereas only about 38% of university graduates think the same.

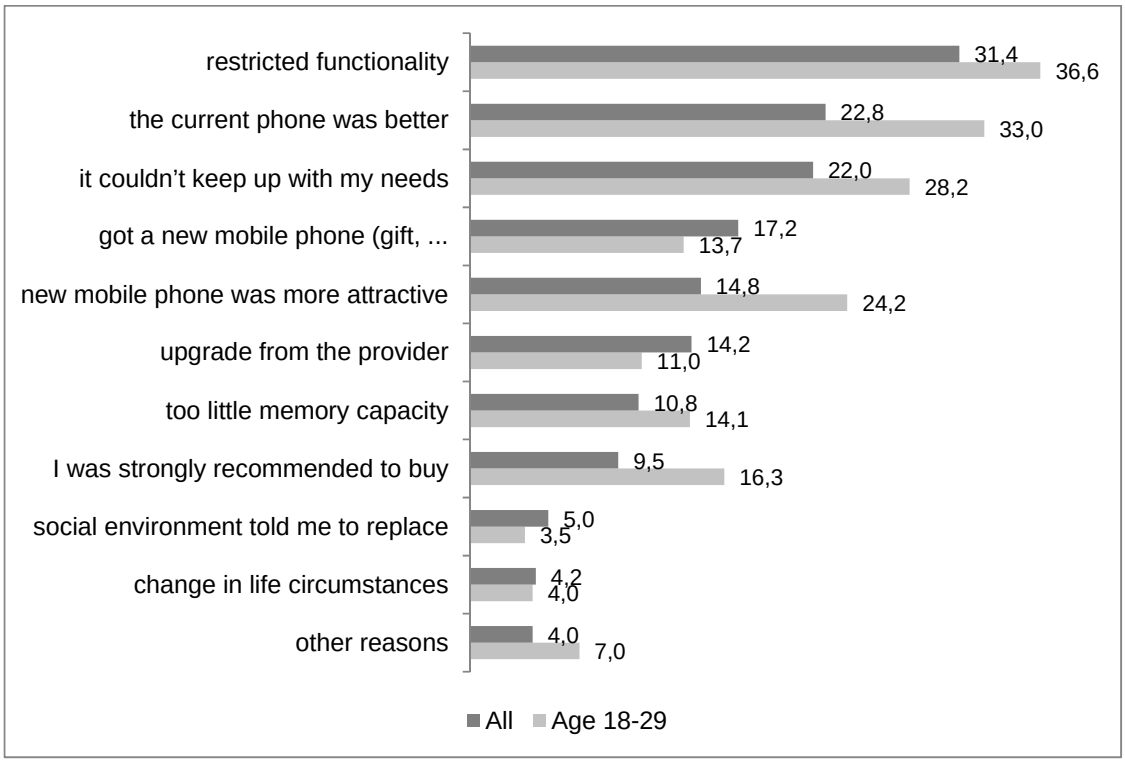
4. INFLUENCES ON THE USE-TIME OF MOBILE PHONES

The causes for the end of use of a given good are manifold, and vary significantly between the product categories, and are also often closely interwoven with the motives for a replacement purchase, which is why those reasons were also compiled. In the next few sections, mobile phones in particular will be scrutinized, since they illustrate this variety best. For reasons of space, other products will only be discussed selectively. That is because our aim is not to produce a representative comparison of the different factors, but simply to illustrate their variety and interaction.

4.1 End of use due to technical-mechanical malfunctions

When asked for reasons for replacing a good, 31% of the questionnaire sample gave the answer that a technical defect was the reason for exchanging the previous mobile phone (see Figure 4). This means that a technical-mechanical defect was the most commonly stated reason for the end of use of a mobile phone. However, even if the functionality is impaired that does not necessarily mean that the mobile phone cannot continue to be used. The reason for the restricted functionality was a technical or mechanical defect for only a third of the mobile phones (i.e. about 10% of all the mobile phones). The most common fault was a defective battery, this being the reason for the impairment in roughly 40% of the cases. Only about every third user tried to repair the mobile phone (themselves). The large investment in time and the costs which were to be expected to accrue from a repair are common reasons why a replacement purchase was chosen, rather than repair. It is worth noting that many consumers believed a repair would make sense, if the device had broken down within the guarantee period, or if it was considered still to be very "young" and in good condition.

Figure 4: Reasons for replacing the previous mobile phone (in percent, multiple choices possible)



> "Well if it's a washing machine or a refrigerator, and you know that something is seriously wrong and that repairing it would cost more than half of what a new machine would cost, then I would find it difficult to say okay, I'll get it repaired. Bbecause again, I don't know if it will function perfectly and if that was the real problem why it broke down. So that's what I mean, if I have had the machine for three years, then I'll ask myself if it's worth getting it seen to and repaired. But if you've had the machine for some time, and you know that certain things are only made to work for a certain length of time." (Interview partner, 40)

Like this interview partner, several respondents expressed their doubts that machines today would keep working much longer, and that a repair would necessarily make a longer use-time possible. When consumers have such low expectations about use-time, then they tend to go for a new purchase.

Interestingly, apart from the considerations about repairing the product, the use-time of a mobile phone which was replaced because of a technical defect is not much different to that for the average use-time for a mobile phone. One line of reasoning could be that mobile phones which are replaced due to a technical fault are used for a shorter time than those which are exchanged for other reasons. A survey conducted among manufacturers discovered that the manufacturers estimate the average life of their product to be around five years (Consumer NZ 2013), which is clearly longer than the use-time as calculated in our research. Both factors together make it clear that other forces are responsible for the short use-time.

4.2 End of use due to software problems and poor technical compatibility

Nearly one respondent in ten[4] stated that their mobile phone was now only "reacting" very slowly. This weakness is a sign of so-called functional obsolescence, which occurs when the functionality of existing devices is reduced, due to increasing demands on the technology. Because new models have been introduced by the same provider, the software of the existing products is no longer supported by regular updates.

Mobile phones which do not have this support have a far lower resale value, are no longer compatible with new applications and are also less protected against viruses and the like. The fact is that the support period for mobile phone operating systems varies considerably, and in some cases is extremely short. The iPhone 3GS received regular software updates for a full 56 months, whereas the iPhone 3G was only supported for half as long (Benton et al. 2015). In the case of Android and Windows devices the support period is even shorter. In a survey which the Dutch Consumers Association carried out, a huge 84 percent of the Android smartphones could not be updated after only two years (Consumentenbond 2015).

4.3 End of use due to introduction of new products – having the latest devices and "hyping with the times"

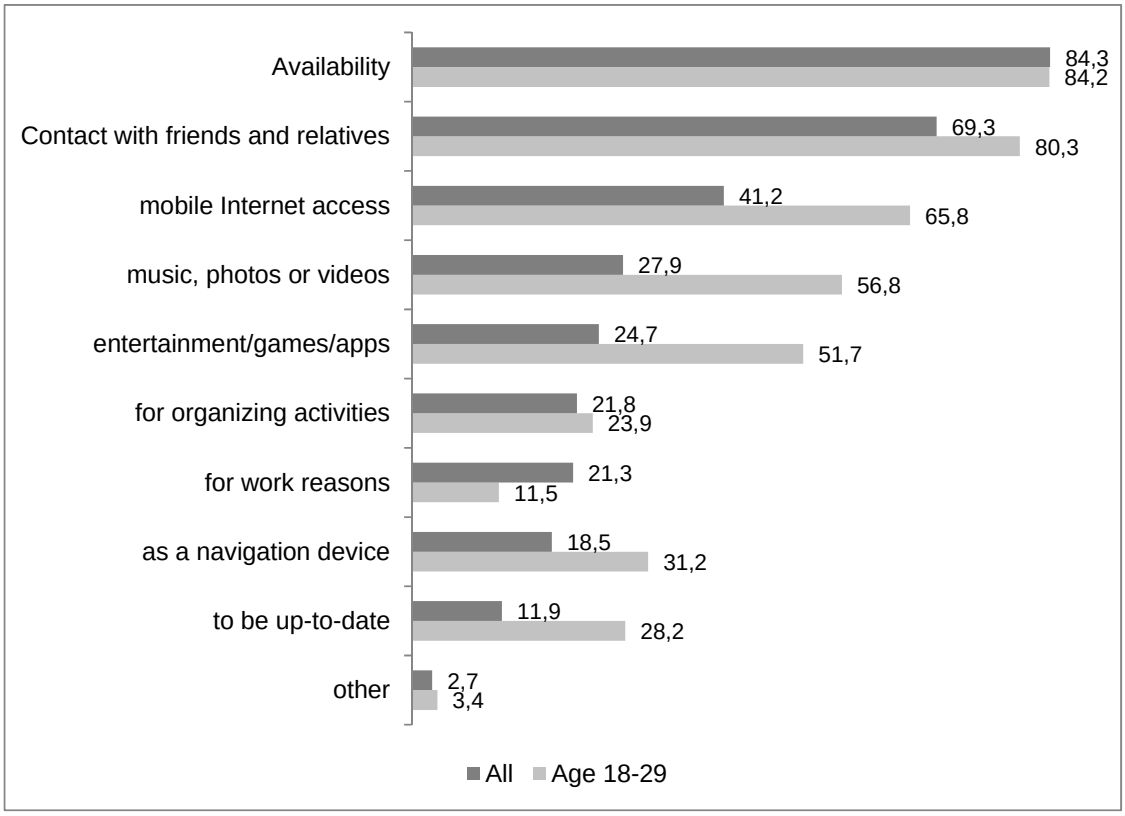
Increasingly, technological developments make existing devices "look old" in a double sense of the words. On the one hand their performance sinks in comparison with the newer models. On the other, the design changes with every new model, this then makes the age of a given model increasingly apparent. Both forms of obsolescence can lead to a replacement being purchased. Thus 23 percent of the respondents stated that they had replaced their mobile phone because the current model was better and had higher performance, and around 15 percent said that they found the current model more attractive (Figure 4). In the youngest age group (18 - 29 years) these reasons for replacement were even more common. The same picture is repeated with regard to the reason for the purchase of the previous mobile phone. For nearly 12 percent of those asked, the desire to be fully up to date

[4] and of those 30 percent who stated a defect, in turn, every third person

was decisive for the purchase (Figure 5). In the 18 - 29 age group the percentage was as high as 28 percent. Given the continuous introduction of newer phones the desire to have the latest model demands the regular replacement of the phone. This is especially the case for those people who changed their phone because a new model came on the market. Such customers used their previous mobile phone for only half as long as the average, namely for 1.4 years. For young people in particular it is important to follow fashion and technology trends. For them, smart devices convey social status like no other products. It has never happened before that an item of comparable value has been worn almost continuously on the body (Agar 2013).

Many manufacturers therefore offer a range of mobile phones so that the consumers can differentiate themselves, through their phone, from other people. The extent to which smart devices resemble other things, e.g. clothes, in this respect is clearly revealed by the numerous collaborations of manufacturers with fashion houses (Djelic and Ainamo 2005; Gichetti and Marchi 2010). In advertising, too, smart devices are praised as status symbols. For instance, T-Mobile Austria's "JUHU (YuHoo)" advertising campaign[5] works on people to shorten their use-time. In various TV ads the campaign presents provocative situations in which the protagonists' smartphone suddenly loses value: either because it has broken down by itself or through external causes. Further reasons could be, because the person shown has an old or aging mobile phone, and could therefore lose their social status.

Figure 5: Purchasing reasons for the previous phone (in percent; multiple answers allowed)



[5] The advertising campaign was mentioned by several respondents and is therefore presented briefly at this point.

Hinting at the latter factor, a group of teenage girls is shown in the schoolyard during the break[6]. Two girls are oohing and aahing over the protagonist Silvretta's device, who thereby is at the centre of the action and revels in it. Then the arch-enemy Kira appears in the background. She owns the same device and is similarly surrounded by her own set of admirers. Kira smiles laconically, thereby suggesting that the competition for popularity has started. Silvretta, however, simply answers with a lapidary "YuHoo", because her mobile provider now gives her a new model after only a year, which means her popularity among the clique is guaranteed. The provocative message: an obsolete phone is not a problem, but an opportunity. Even if the advertisers are deliberately exaggerating the situation, the social pressure is nevertheless raised, and notions of performance and competitiveness are aroused in the young people they are targeting.

After this extended discussion of the attractiveness and charm of new things and of social status, we should nevertheless not forget that items of everyday use are often acquired simply because they enable certain practices (Warde 2005). One of our interview partners for example had to buy a new smartphone because her old one no longer supported "WhatsApp". This application was her most regularly used connection to her children, and consequently of enormous importance. As Figure 5 shows, availability and contact with friends and family remain the most important uses of the mobile phone.

Young people exchange ideas and information intensively via games and apps, and basically make use of more applications than older users. The importance of smart devices for young people is also shown by the amount of time they spend using them. People in the 18 - 29 age group calculated that they spent roughly 4.3 hours per day on their phones, which is three hours longer than people between 60 and 65. Differences in their use patterns had an effect on the use-time of the phone. Firstly, the phones wear out more quickly through intensive use, secondly the use of large numbers of different, and in cases sophisticated apps, means that the users regularly have to change to a newer model, for instance as soon as the memory capacity is overloaded. The question of whether or not their mobile phone is fully up to date therefore depends on the expectations the users have of their devices.

The focus on young consumers and purchasing decisions is usual in consumer research. This tends to give the attraction of the latest trend as well as wasteful consumer patterns more weight than they deserve. Our interviews show that the desire to be fully up to date is based at least as much on a fear of falling behind as on being attracted by innovations. Whoever does not keep up with the trends in technology and fashion is quickly stigmatized as incompetent and old-fashioned. That is why changing to a newer model from time to time is, as one interviewee put it, important for "feeling part of society".

[6] https://www.youtube.com/watch?v=cayW1wdbt8A, last access 01.02.2017

5. WHAT USE-TIME IS “NORMAL”?

Our interviews also show how the advertising campaign of a mobile phone provider could influence social norms with respect to the use-time. The interview partners were asked to say how long other people use their mobile phones. A large number said the figure was around one to two years, whereby the “JUHU (YuHoo)”[7] figure established through the adverts was adopted as a guideline. One interview partner said:

> “Well I would say every two years, on average. (...) and then there is JUHU, if you’ve heard the term(...). There you get a new phone every year, or something like that. So you see that it’s something like a trend, and that others expect you to change your mobile regularly. I would say that two years is a very generous estimate.” (Interview partner 23)

On top of that, 17 out of 23 interview partners (two people did not answer) said that they use their phone longer than other people, while only five saw themselves as average users, and one person thought she had a shorter use period than others. Thus, many of the interviewees felt they were more old-fashioned than other people than they actually are (even if that did not bother them). In this case this feeling was probably caused and magnified by advertising transmitting a distorted view of the social norm.

Contracts with mobile phone providers have a similar effect. Through the typical two-year contract period consumers have become accustomed to a regular replacement rhythm, thereby influencing the perceived social norm. This was precisely the case for those respondents whose previous device was regulated by a contract. They used it for just over two years. In consequence, this group’s use-time was clearly lower than the average of 2.7 years. Altogether, the upgrade offer of the provider was a reason for 14 percent of the respondents (see figure 4) to change their device. Concerned that their contracts could put consumers off from renewing their device more regularly, several providers have started offering consumers more flexible contracts in order to motivate owners to renew more regularly (c.f. Wieser 2016). As T-Mobile’s campaign has shown, one of the core strategies is to communicate the attraction of innovation.

6. ARE WE LIVING IN A THROWAWAY SOCIETY?

In contrast to the commonly held view that we are living in a throwaway society, our results support the diagnosis of other studies which have reported that consumers in general find it very difficult simply to throw away or correctly dispose of things which are still working (cf. Gregson et al. 2007). When asked what they did with the mobile phone after its end of use, every second respondent answered that they had kept it. Further 17.2%had taken it to a recycling point, and nearly every fifth person had either given it away or sold it (to somebody else). Only 3.3% had actually disposed of it

[7] JUHU is not only the expression for joy, but within the advertising campaign it is also an acronym for “yearly unlimited mobile upgrades” (in German: “**J**ährlich **u**nkompliziert **H**andy **u**pgraden”)

either via a recycling facility or as household waste. Indeed, it seems to be the case that a large number of consumers are hoarding their phones: every 4th person has two phones, and over ten percent have actually got five or more phones lying around at home. Of the 508 people who have kept their mobile phone, every second person kept a mobile phone in reserve, 17 percent use it now and again as a second device, and 14 percent have still got data saved on it. Around 10 percent are planning to give the phone away and a further 6 percent will probably dispose of it correctly. The numbers reflect the moral considerations of consumers, vis-a-vis just chucking out things that still work.

> "But I didn't want to just throw it (the phone) away in the rubbish bin, because I thought that somebody, somewhere might be able to make use of it, and if not, then there must be some sort of, I don't know, organisation or whatever. (...) I couldn't simply just chuck it in the bin, just because I don't have any use for it now, really because it's still working. So, you see, I find that hard to do." (Interview partner, 40).

Like this interview partner, many consumers first look for other ways in which the phone could be useful for other people, and try to sell the device or give it away. The fact that phones are piling up in households therefore has less to do with a "throwaway mindset" (Heßler 2013) than with the general lack of demand for used goods. As was already the case with deciding between new and used goods, the expectations of the consumers with respect to a product's lifespan play a decisive role. Given the low expectations of most consumers, a second-hand device is perceived as a particularly high risk. Several interview partners made a point of emphasizing that a used phone can only be bought if a receipt or a guarantee comes with it. If that is not the case, a new device is more attractive for most consumers.

7. DISCUSSION AND CONSUMER POLICY RECOMMENDATIONS

The analysis of the various reasons for replacing goods of everyday use shows how they go much further than the planned breaking-points. Especially with mobile phones, the use-time has broadly disconnected itself from the product lifespan. However, the reverse conclusion which is commonly drawn, that a throwaway mentality and an unfettered desire for new products are responsible for the rapid re-purchase rates, also has to be rejected. In fact, it has been shown that the use-time is the result of the interaction between different players on the market. What being up-to-date really means depends both on subjective impressions as well as perceptions and on social norms, which are strongly influenced by the manufacturers and the retail trade. Advertising in particular, together with innovation cycles and different contract models can all influence the social norms, as in the case of mobile phones was demonstrated. While these strategies have their counterpart in consumers who are constantly seeking new, smart devices, many consumers feel they are being put under pressure by the rapid introduction of new models. However, the focus on the "throwaway mentality" and the desire for new goods has meant that the conflicts arising in the consumers have mainly gone unnoticed.

The widespread belief of consumers that manufacturers deliberately limit their products' lifespan seems to us particularly problematic. The low expectations in regard to the lifespan of consumer goods have led consumers to tend towards replacement and new machines, instead of getting broken products repaired, or of choosing second-hand goods or higher quality products. Paradoxically, the consequences of this lack of confidence in how long-lived a product will be, have to be assigned to the media reporting, which has focused almost exclusively on identifying cases of planned obsolescence. Whether confidence can be restored through combatting such practices, as the European Economic and Social Committee has suggested, is extremely doubtful. In view of the manifold reasons for the shorter and shorter use-time of everyday goods, it is clear that political measures – both consumer and environmental – will have to go beyond measures which apply to the design and lifespan of products, and also beyond simple bans on planned obsolescence (as seen recently in France[8]), which are presumably very difficult to enforce.

The results of the study presented here show that alongside measures which aim to extend the lifespan of products, it will also be necessary to have measures which aim to extend the use-time of a product. For that to happen, there is a need not only to focus on one major group of stakeholders, but also to bear the interaction between those groups in mind, particularly between the providers and the consumers. The results of our research show that it is important to distinguish between three categories when establishing measures to increase the use-time of a product.

1. measures which can directly contribute to an increase in the use-time
2. measures which raise confidence in the expected lifespan
3. measures to combat marketing practices and incentive schemes, which definitely lead to a lowering of the use-time.

Re the first group, measures for increasing the use-time could, for instance, be:

- Raising the competence of the users, for example, by providing information about settings which enable the longest possible use.
- Providing information on instructions for repair, maintenance and taking of the phone to the consumer. Mostly this type of information is lacking in many cases, to a certain extent because the manufacturers do not share or divulge it. Hard-working Non-Profit-Organizations, such as e.g. ifixit, are the only people currently closing these gaps, by putting repair instructions for many products on the Internet.

Re the second group, measures for strengthening or raising the users' confidence with regard to their expectations of the product's lifespan:

- Reliable information about the technical and functional lifespan, together with reliable information about weaknesses, elements which wear out, options for repair, and delivery/provision of spare parts by established suppliers.
- In the near future, the eco-design guidelines should be revised to include stronger attention to measures which increase the products' lifespan: the reparability of products should be improved, spare parts should be available for prescribed period of time, and the modularity of products should be taken into consideration. Till now it has mainly been measures directed at energy efficiency which have been created. Through this change in focus the eco-efficiency guidelines can contribute to raising the consumers' belief that products will live longer.

[8] http://derstandard.at/2000020936989/Eingebauter-Verschleiss-Gesetz-gegen-geplante-Obsoleszenz-in-Frankreich, last access 01.02.2017

- Repair costs must be reduced, so repair is an attractive alternative to buying new products.
- Guarantees, such as the legal guarantee period and the reversal of the burden of proof are important parts of consumer protection. An improvement by prolonging these periods and the introduction of a mandatory guarantee could help to raise confidence of consumers regarding the lifespan of products.

Re the third group, measures for combatting the marketing practices and incentive schemes of the providers are those which improve the decision-making capacity of the consumers, for example:

Measures against marketing practices which lead to a drop in the expectations of the lifespan of goods or which lead to shorter product use-time being considered the social norm.

- Measures against incentive schemes which lead to a reduction in the use-time of a product (e.g. receiving a brand-new smartphone upon extending a contract).

These examples are to be seen as suggestions for a range of new approaches. Concrete recommendations would have to be worked out by inter- and transdisciplinary teams, on the basis of the measures proposed here, since a very broad access to diverse politico-economic levels is required, and different groups of stakeholders and levels of action need to be addressed. We are dealing with a complex construct here, and consequently changes are not going to be achieved with a single measure or a single law. The challenge is to break up the well-oiled mechanisms of all the stakeholders, and in order to do that many different types of measures will be required, which can become effective and act in parallel over longer periods of time.

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Der direkte Weg zu unseren Publikationen:
■ E-Mail: konsumentenpolitik@akwien.at

Impressum

Medieninhaber: Kammer für Arbeiter und Angestellte für Wien,
Prinz-Eugen-Straße 20–22, 1040 Wien, Telefon: (01) 501 65 0
Offenlegung gem. § 25 MedienG: siehe wien.arbeiterkammer.at/impressum
Zulassungsnummer: AK Wien 02Z34648 M
Fachliche Betreuung: Nina Tröger
Autoren: Nina Tröger, Harald Wieser and Renate Hübner
Grafik Jakob Fielhauer
Druck: AK Wien
Verlags- und Herstellungsort: Wien

Stand February 2017
Im Auftrag der Kammer für Arbeiter und Angestellte für Wien

Gesellschaftskritische Wissenschaft: die Studien der AK Wien

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