All the rage or take it easy?

Expectations and experiences in the context of product lifetimes

Descriptive analysis of a representative online survey in Germany in 2017

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CONTENT

1.   Research questions and study design

What expectations do consumers have on the use and lifetime of daily used electronic devices such as smart phones and washing machines? What role do longevity-relevant criteria play in buying the devices? How do consumers promote the longevity of products during use, for example through adequate care and maintenance? These and other questions formed the background of a representative online survey (CAWI) in Germany with 2.000 participants (aged 14-66 years) in July and August 2017[1]. The survey was commissioned by the Center for Technology and Society (BMBF Research Group "Obsolescence as a challenge for sustainability - causes and alternatives") and carried out by respondi AG.

The questionnaire contained 44 questions on consumer-related attitudes and behavior towards washing machine and smartphone-use, practical knowledge concerning electronic products, the perception of responsibility for products and a number of attitudes around production and consumption.

This document presents a first, descriptive presentation of the results.

2.   Characteristics of the participants

The sample consists of 2000 persons (1000 women and 1000 men), distributed across age different groups as shown in figure 1.
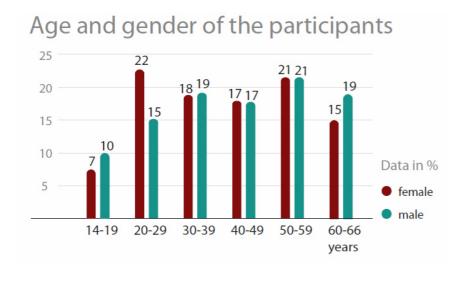
Figure 1: Age and gender distribution of study participants (Mean: 42.1; Standard deviation: 15.4)

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[1]The sampling was based on a quota procedure crossing the characteristics of gender, age (14-24 years, 25-39 years and 40-66 years) and formal education levels (low / medium / high). Like this it has been possible to ensure that even groups of the population which are difficult to reach via online surveys, for example, younger men with a low level of formal education represent the population. Since the quotation was very accurate, a weighting of the data was not necessary.

Among the participants 3 % are still at school, 29 % have a primary school education, 34 % a secondary school education and 17 % have a high school diploma, 15 % have completed a university degree and 2 % have no degree. The following table shows the distribution of net income and household sizes.

Household size and income of participants

Number of persons per household

Household net income	1	2	3	4	5	6	7 +	Total
Under 1000 Euro	9,4	3,8	1,6	1,3		0,1	0,1	16,8
1.000 to 2.000 Euro	11,2	11,5	4,0	1,7	0,6	0,2	0,1	29,2
2.000 to 3.000 Euro	3,8	12,8	5,2	3,7	1,0	0,2	0,1	26,6
3.000 to 4.000 Euro	0,8	7,3	3,9	3,3	0,6	0,2	0,1	16,0
4.000 to 5.000 Euro	0,2	2,9	1,8	1,2	0,4	0,1		6,5
5.000 to 6.000 Euro		1,0	0,5	0,8	0,1	0,1		2,4
over 6.000 Euro	0,2	1,1	0,5	0,6	0,2	0,3		2,7
Total	25,4	40,1	17,3	12,4	3,5	1,1	0,4	100,00

Numbers in %

Table 1: Distribution of net income and household size

The average household size was 2.33 people, it comprises in 65 % no children, in 20 % one child and 15 % two or more children. Respondents are divided into urban and rural areas as follows (figure 2).

Place of residents

- Village <5.000 inhabitants — 18%
- City 100.000-500.000 inhabitants — 16%
- Town 5.000-20.000 inhabitants — 24%
- Large city >500.000 inhabitants — 18%
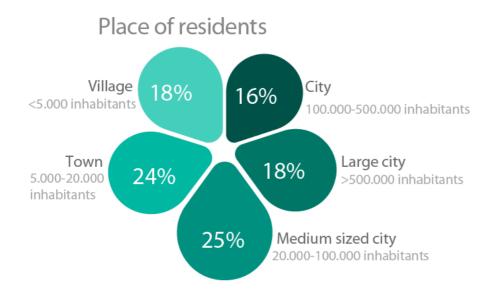- Medium sized city 20.000-100.000 inhabitants — 25%

Figure 2: Spatial distribution of the respondents (N = 2000 cases, in percent)

3.   Purchase, use and end of use of smart phones and washing machines

For the case of washing machines, 98 % of respondents have an own washing machine in their household, 88 % of them were also involved in the purchase and usually operate the device. As reasons for the purchase of the current device 56 % of respondents indicate a defect of the old washing machine. A quarter of respondents indicated the desire for a device with other or more functions, while another quarter wanted a more energy efficient washing machine.

For the case of smartphones 91 % of respondents own at least one smartphone (mean: 1.6 smartphones per person), while 11 % have at least one conventional mobile phone. As reasons for the purchase of the current device 41 % indicatied that their old device did not work or only worked to a limited extent (see chapter 5 about specified defects). Thus, a significant part - and a clear majority in the case of smartphones - buy a new device, even though the old one is not yet defective. 25 % named the desire for a device with a better performance as a main replacement reason, followed by the contract related provision with the new phone by the provider and the desire for a device with other functions (each 19 %). 16 % stated to enjoy buying a new smartphone.

Respondents were asked on the importance of specific device features when they purchased their currently used smartphone or washing machine, to select from a list with device features playing a very large, large, a small or no role to them. Figures 3 and 4 show to the importance of purchase criteria for both devices.

Purchase criteria for washining machines

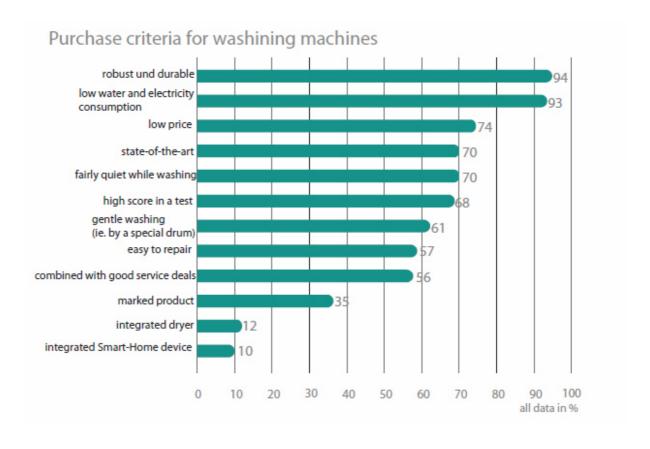| Criterion	%
robust und durable	94
low water and electricity consumption	93
low price	74
state-of-the-art	70
fairly quiet while washing	70
high score in a test	68
gentle washing (ie. by a special drum)	61
easy to repair	57
combined with good service deals	56
marked product	35
integrated dryer	12
integrated Smart-Home device	10

all data in %

Figure 3: What role did the following aspects play in the selection of the current washing machine? Percentages represent the sums for the answers "a rather large" / "a large role" (N = 1,757 cases that were involved in the purchase of the machine and / or are responsible for the device)

Purchase criteria for smartphones

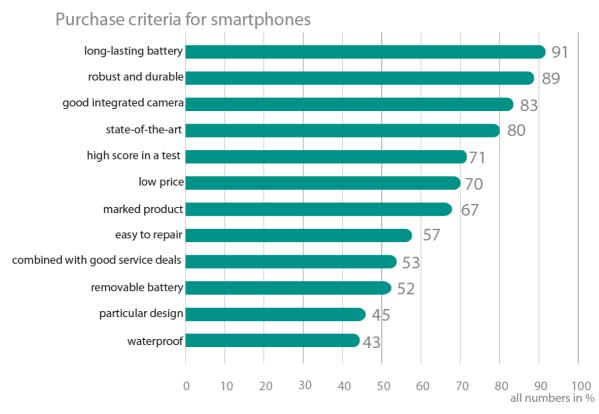| Criterion	%
long-lasting battery	91
robust and durable	89
good integrated camera	83
state-of-the-art	80
high score in a test	71
low price	70
marked product	67
easy to repair	57
combined with good service deals	53
removable battery	52
particular design	45
waterproof	43

all numbers in %

Figure 4: What role did the following aspects play in selecting the current smartphone? Percentages represent the sums for the answers "a rather large" / "a large role" (n = 1,813 who own a smartphone)

Looking at the top features (figure 3 and 4) durability and robustness seem to have a high importance for both product categories. In the case of washing machines durability and robustness are followed by efficiency and economic considerations and only then do aspects like technical quality and specific properties follow. In smartphones, the price seems to be of lesser importance, and specific functions and qualities are ranked much higher. A contradiction from a useful life perspective can be seen: although important roles are attributed to robustness, product features that can extend the life of a device, such as maintenance, ease of repair and removable batteries play a far less important role.

According to the respondents, durability, robustness and reliability are important purchase criteria or at least a certain product quality is expected. What do consumers do by themselves during usage to enhance longevity? Which care and maintenance practices characterize their usage practice? In order to give an answer to these questions, the respondents had the opportunity to enter into an open answer field, what they do to maintain the functionality of the device and to promote durability. Responses were then analyzed and categorized. Figure 5 shows the number of answers for the two examined products.

Care and maintenance practices

Waschmaschine

Practice	Value
Using care and cleansing agents (vinegar, softening agent…)	48
Manual cleaning of inner sections, seals…	24
Careful usage	16
Maintenance by a professional	2
Nothing	11

% of 1,068 answers

Smartphone

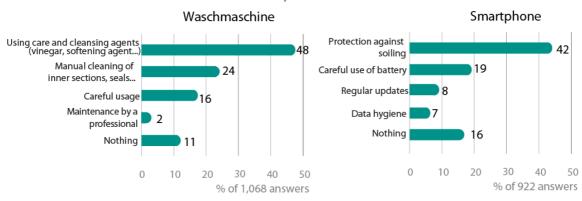| Practice	Value
Protection against soiling	42
Careful use of battery	19
Regular updates	8
Data hygiene	7
Nothing	16

% of 922 answers

Figure 5: What do you or other members of your household do to maintain and care for your washing machine / your smartphone or keep it functioning? Open question with no answer option (Washing machine: N = 1,069 cases that were involved in the purchase of the machine and / or bear responsibility for the device and answered the question, smartphone: N = 922 cases)

It is noticeable that only about half of the interviewees formulated an answer here and of these respondents 11 % (for washing machines) and 16 % (in smartphone) indicate that they do nothing for care and maintenance. Among the open answers cleaning or protection against soiling is the main focus of care and maintenance in both devices followed by careful use. Because the battery in smartphones is often a central cause for a shorter usage periods and product lifetimes, a more thorough look into battery treatment practices can be interesting. However, within the category "careful use of batteries" - after all, the second most important practice for the promotion of durability – respondents gave very different answers. 6 % of all respondents indicated that they try to enhance durability by letting the battery unload completely before recharging it and always fully charge it, while another 6 % try to maintain their battery by not charging it too often. Slightly less people (4 %), however, indicate that they avoid to completely drain the battery and only partially charge it. Thus there seems to be very different and contradictory views on what charging practices for smartphones are adequate to extend their lifetimes.

Since charging practices do indeed influence the durability of batteries[2], the participants were asked in a closed question format about their estimates concerning the most durability enhancing way of charging. As Figure 6 shows, about 40 % know that it should be avoided to charge and discharge the battery entirely to enhance durability in the long run[3]. One third believes that full loading and unloading is the best way

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[2] Schmalstieg, Johannes; Käbitz, Stefan; Ecker, Madeleine; Sauer, Dirk Uwe (2014): A holistic aging model for Li(NiMnCo)O2 based 18650 lithium-ion batteries. In Journal of Power Sources 257 (Supplement C), 325–334.
[3] Although the question of an optimal charging behavior for batteries cannot be consistently answered due to the heterogeneity of the battery types, it can be defined as a rule of thumb that battery use with a charging value between 20 and 80% is the most battery preserving. For example, a study for the lithium-ion battery Li (NiMnCo) O2 Type 18650 (Schmalstieg et al 2014, see footnote 2) shows that this battery type is least susceptible to stress at a mean charge level of 50% with long-term positive effect on the durability. This means that use of this battery from 80% to 20% is better than for example a battery usage of 70% to 10% or from 90% to 30%. Since a rechargeable battery cannot be kept continuously at a charging value of 50%, an 80/20 rule of thumb is battery preserving while being practicable for users.

8

to enhance durability which in fact stresses the battery if done permanently. For 16 % of the respondents it is not clear that their charging behaviour affects the durability of the batteries - and thus, in the case of integrated batteries, the longevity of the entire device.

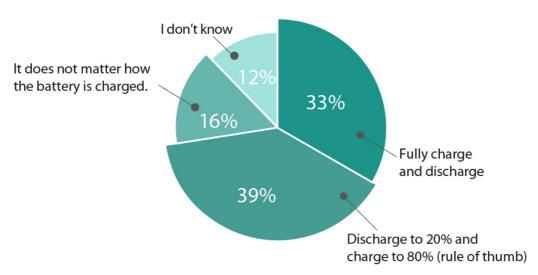## Knowledge about battery preservative charging

Figure 6: Which charging practice it the best to keep the battery in your smartphone working for as long as possible? (N = 2,000 cases)

In both product categories, only about half of the respondents indicate their care and maintenance practices although long living products are important for them. Thus, it seems that there is limited knowledge about how to properly care for washing machines and smartphones. How do participants assess their knowledge themselves? A self-assessment of knowledge related to various aspects of device usage and procurement (compare figure 7) shows that about half of the respondents rate their knowledge of product care as rather good or very good. Concerning maintenance practices almost two thirds of respondents rate their knowledge as rather good or very good. Knowledge of the technical composition and production conditions of devices is assessed as much lower. Respondents feel most competent in terms of proper disposal of the device, least competent when it comes to self-repair. Also on the options for device upgrades - as another factor in increasing longevity - only a good third estimates their own knowledge as rather high.

Evaluation of own knowlege on electronic devices

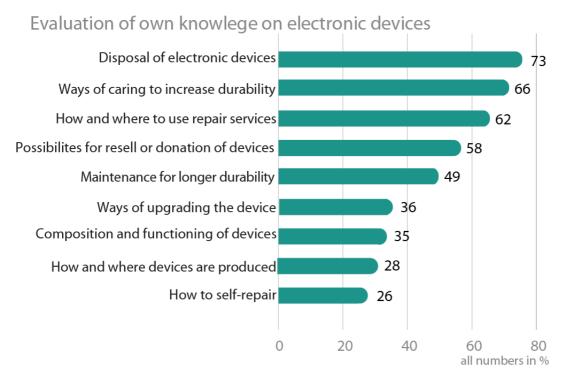| Category	%
Disposal of electronic devices	73
Ways of caring to increase durability	66
How and where to use repair services	62
Possibilites for resell or donation of devices	58
Maintenance for longer durability	49
Ways of upgrading the device	36
Composition and functioning of devices	35
How and where devices are produced	28
How to self-repair	26

all numbers in %

Figure 7: How do you assess your own knowledge of the following aspects when using electronic devices? In summary, for the answers "rather high" / "very high" (N = 2,000 cases)

However, as we learned from the previously described question about the charging behaviour, the personal knowledge can relate to actions which are not necessarily conducive to the device. Overall, a strong potential for further capacity building and consumer information can be assumed. This is also apparent from the responses to the question about desired knowledge and information about electronic devices. The vast majority would like to know more about how to look for longevity when choosing a product, how to properly care for a product, and information about repair options - including those for self-repair.

Information needs in consumption of electronics

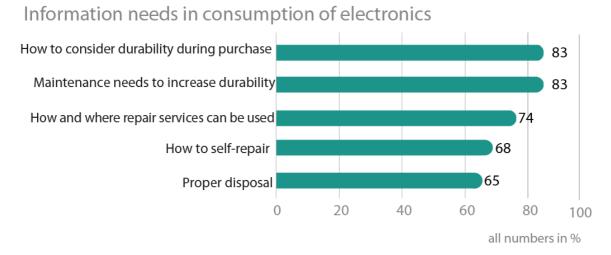| Category	%
How to consider durability during purchase	83
Maintenance needs to increase durability	83
How and where repair services can be used	74
How to self-repair	68
Proper disposal	65

all numbers in %

Figure 8: Would you have interest in information about the following topics? In summary, for the answers "somewhat interested" / "great interest" (N = 2,000 cases)

Respondents were asked what they did with their washing machine or their smartphone after the time of usage has ended. The answers differed for the two devices (see table 2). While washing

machines were most frequently taken back by the dealer as part of the new purchase (42 %), 45 % store her old smartphone in her own apartment (compared 2 % in the case of washing machines). The second most common practice in washing machines is their disposal at a recycling center (25 % for washing machines, compared to only 4 % for Smartphones). The second most frequent practice for smartphones is to forward or donate it to another user (19 %, compared to 11 % in washing machines). 19 % sold their old smartphone, but only 7 % their old washing machine.

Treatment of device after use

	Wasching machine	Smartphone
Old device was collected by vendor	42	N.A.
Brought to a collection station	25	4
Given away or donated	11	19
Alternative ways of disposal	6	3
Sold online	5	14
Stored away at home	2	45
Turned it in a shop	2	2
Sold offline	2	5
Swapped it	2	1

Numbers in %

Table 2: What did you do with your old device after you no longer wanted it/ it was broken? (Washing machine n = 1519 cases; Smartphone n = 1472 cases)

4. Experiences and expectations with useful lives of products

The participants were asked how long they have used their last device and what expectations they have of the useful life of their current device (Figure 9). For the last washing machine respondents indicated in most cases (45 %) a useful life of six to ten years. About one-third of the cases, however, is significantly higher, the average is ten years (standard deviation 5.4 years).

Useful life of the last washing machine

Useful life	Numbers in %
20 years +	3
16-20 years	9
11-15 years	23
6-10 years	45
1-5 years	21

Numbers in %

Figure 9: How old was your last washing machine when you replaced it? Amount of answers in five-year intervals (N = 1519 cases that were involved in the purchase of the machine and / or bear responsibility for the device)

The variance of answers was much higher in the case of smartphones (figure 10). In 27 % of cases, the useful life of the last smart phone was indicated with 19-24 months, but in 21 % of the cases, it was lower than six months. 15 % of respondents used their last smartphone more than three years. The average is 24.3 months with a standard deviation of 17.1 months.

Useful life of the last smartphone

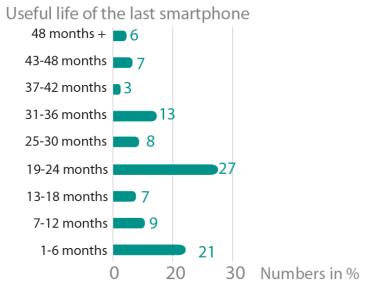| Useful life	Numbers in %
48 months +	6
43-48 months	7
37-42 months	3
31-36 months	13
25-30 months	8
19-24 months	27
13-18 months	7
7-12 months	9
1-6 months	21

Numbers in %

Figure 10: How old was your last phone about when you replaced the device? Classification by six-month intervals (N = 1,472 cases that have a mobile phone and a smartphone ever had)

To calculate the expected useful life of the currently used device, respondents were asked to how long the participants use their washing machine or smartphone already and how long they intend to continue using it. Both values together give the expected total useful life for a device. The data for washing machines varied between one and 50 years (figure 11) with a mean of 11.2 years and a standard deviation of 6.2 (n = 1,757). Compared to the recalled lifetime of the last device, the subjective lifetime usage estimate for the current device is 10 % higher.

12

Expected useful life current washing machine

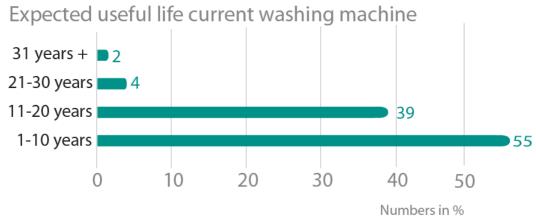| Range	Value
31 years +	2
21-30 years	4
11-20 years	39
1-10 years	55

Numbers in %

Figure 11: Expected total useful life of the currently used washing machine, calculated by time since acquisition and the expected future use (in ten year intervals n = 1,757)

In the case of smartphones, the expected useful life of the current device was expressed in months. The figures vary between two months and nearly twelve years, the average is 30.7 months (standard deviation 25.8 months). Compared with the remembered life of the former smartphones, the mean is 6 months (25 %) higher. Thus respondents seem to expect a significantly longer service life for their current smartphone.

Expected useful life current smartphone

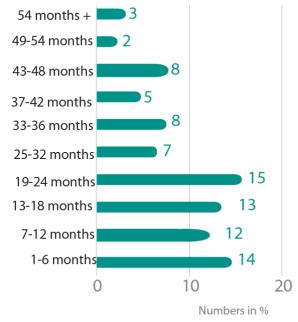| Range	Value
54 months +	3
49-54 months	2
43-48 months	8
37-42 months	5
33-36 months	8
25-32 months	7
19-24 months	15
13-18 months	13
7-12 months	12
1-6 months	14

Numbers in %

Figure 12: Expected overall useful life of the currently used smartphones, calculated by time since acquisition added to the expected time of future use in six-month intervals (N = 1,813 cases that own a smartphone)

der erwartete zukünftige Nutzung (Was schätzen Sie, wie lange werden Sie das Gerät noch in etwa nutzen?) in nach Sechs-Monats-Intervallen (N=1.295[4] Fälle, die ein Smartphone besitzen)

Respondents were then asked how long both devices should be used or work properly (general expectation of lifetimes). The mean general expectation of lifetimes for washing machines was about 14 years (minimum 1 year, maximum 60, standard deviation 7.6 years) and almost 4 years for smartphones (range from one to 120 months, with a standard deviation of 27.65 months).

It is striking that the average general expectation for lifetimes of smartphones is much higher than both the remembered life of the last smartphones and the estimated useful lives for the current smartphone (increase of 50 % or 25 % Percent). This is mainly due to the relatively high number of respondents (9 %, see figure 14) who consider that a smartphone should last more than eight years. Here it also is possible that some respondents indicate general wishes instead of experience-based expectations, so the figures must be interpreted with caution. At the same time, there are also 8 %, who think that a smartphone only has to last up to one year.
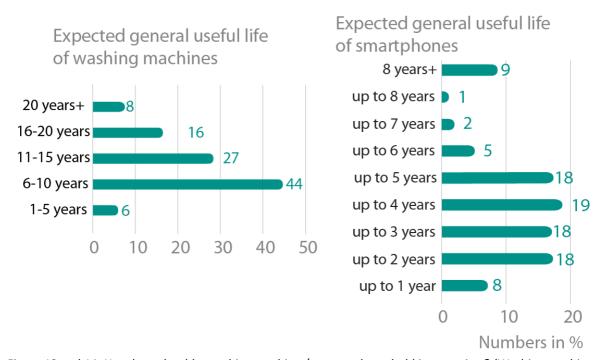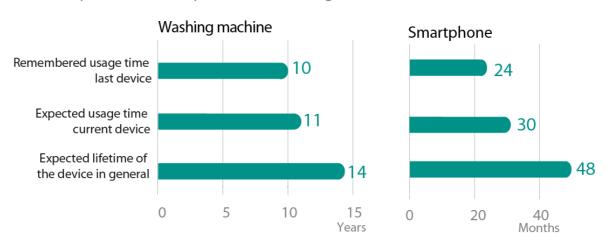

Figure 13 and 14: How long should a washing machine / a smartphone hold in your view? (Washing machine: n = 1,757 cases that were involved in the purchase of the machine and / or bear responsibility for the device, smartphone N = 1,813 cases that have a mobile phone)

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[4] The cases are significantly less, due to a programming error, missing to ask the expected usefull life within the first questioning. In the second round only 1295 persons repeated the questioning. ~~Die Fallzahl ist bei dieser Frage deutlich kleiner, da die erwartete zukünftige Nutzungsdauer aufgrund eines Programmierfehlers in der ersten Runde der Umfrage nicht gestellt wurde. Daher wurden die Teilnehmenden in einer zweiten Anfrage gebeten, diese Frage noch im Nachhinein zu beantworten, was 1.295 Personen taten.~~

The following figure gives an overview of the means and standard deviations for the different figures around useful life.
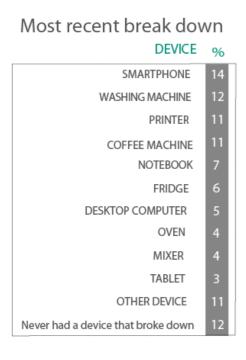

Experiences and expectations with usage times (mean values)

Figure 15: Comparison of the averages for the expectations and experiences in the context of useful lives

5. Failures, defects and repair

Among those participants who replaced their old washing machine due to a defect or failure (approximately half of all respondents) one fifth indicated that the pump stopped working properly and for another fifth, the washing machine did not do the spinning cycle. In 13 % of cases the washer lost water and in 12 % a drum damage was indicated. In the case of defective smartphones (about 37 % of respondents) the following defects were reported most frequently: defective or malfunctioning battery (47 %), device slowed down (41 %) and defective screen (24 %).

Most recent break down	
DEVICE	%
SMARTPHONE	14
WASHING MACHINE	12
PRINTER	11
COFFEE MACHINE	11
NOTEBOOK	7
FRIDGE	6
DESKTOP COMPUTER	5
OVEN	4
MIXER	4
TABLET	3
OTHER DEVICE	11
Never had a device that broke down	12

It was also asked which electrical device in the household has recently broken. Most common (14 %) was a damaged smartphone, followed by washing machines, printers and coffee makers (see also Table 3). As was asked which device recently broke down, the results do not mean necessarily that smartphones get broken very quickly, it could also be related to the fact that more people have smartphones than other devices and smartphones are used very intensively. Due to the intensive use damage may also be particularly well remembered.

Table 3: Which one of your electric device did break last? (N = 2,000 cases)

Subsequently, the respondents were asked about their opinion of the reasons for the defect, with different answer categories being given. The table below shows the frequencies of different estimated failures reasons for the above devices (see Table 4).

Allocation of responsibility for broken device

Device	Technical failures	Insufficient robustness	Expectable wear and tear	Insufficient care	Inappropriate handling
SMARTPHONE	56	106	77	16	66
PRINTER	34	49	111	13	9
COFFE MACHINE	24	51	111	14	12
NOTEBOOK	24	32	64	8	19
WASHING MACHINE	17	43	155	3	9
TABLET	18	19	10	5	12
DESKTOP COMPUTER	14	8	66	3	5
MIXER	13	35	43	2	5
FRIDGE	10	14	82	6	4
OVEN	4	15	54	4	3
	245	428	875	85	162

Table 4: In your opinion, what are the reasons for the defect? (N = 1,752 cases where an electrical device break)

The overview shows that in general the malfunction of a device was caused most frequently by an expectable wear and tear. This is also the comparatively most common reason for each of the devices listed above - with the exception of smartphones and tablets. For tablets and particularly for smartphones, the most frequent estimated reason for malfunction is, however, insufficient robustness. This in turn supports the view above that smartphones are exposed to higher stress than other devices, and reach the limits of their robustness more quickly. But also for other devices a lack of robustness is frequently suspected as a cause for malfunctioning.

The participants, who reported a broken device, were asked whether they have tried to repair the defective product or to have it repaired. 59 % denied the question, 17 % have tried to repair it themselves and 24 % has attempted to have the unit repaired. Around 30 % of the self-repairers managed in the end to repair the device, 70 % were unsuccessful. Two thirds of those who used a repair service also did not succeed to get the device repaired. The device, which is most likely to be repaired, is the desktop computer (repair rate of 65 %), followed by notebooks (60 %). For all other devices, the rate is below 50 %, it is lowest in refrigerators (25 %). Most often, the attempt of self-repair is made in smart phones, desktop computers (each 15 % of all self-repair) and printers (25 %) (see Table 5).

Device	% TRIED TO REPAIR	% NOT TRIED TO REPAIR	% REPAIR TRIALS
DESKTOP-COMPUTER	63	34	65
NOTEBOOK	85	57	60
PRINTER	109	112	50
TABLET	29	34	46
SMARTPHONE	118	158	43
OVEN	31	46	40
WASHING MACHINE	83	147	36
COFFEE MACHINE	65	151	30
MIXER	25	64	28
FRIDGE	29	90	24
TOTAL	637	893	42

Table 5: Repair rate based on the number of specified repair attempts in relation to the number of non-repairs

People who abstained from repair could choose from a list of reasons for this decision. Overall, the most frequent answer was, that a repair was not seen worthwhile because a short remaining life was expected and the repair would have been too expensive (see Figure 16). While more economic considerations are given in about half the cases, a quarter of respondents also indicated the desire for something new as a hindrance for repair. For about a quarter of respondents the repair of the device did not fit into their routines of everyday life: 17 % do not have time, 7 % cannot do without the device. Availability or access barriers are indicated by another quarter: Spare parts are seen as too expensive or not available, or the respondents simply do not know where they can fix their device. If one compares the devices in detail, a too expensive repair is the most frequent hindrance. The only exception is the desktop computer, where other reasons prevent a repair.

REASONS FOR NOT REPAIRING

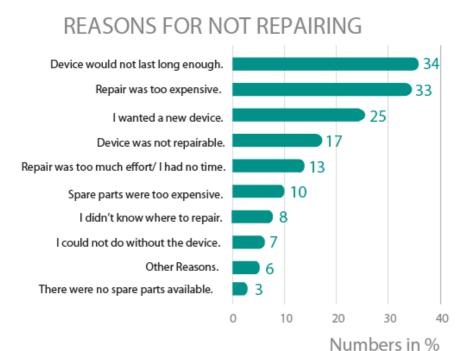| Reason	Numbers in %
Device would not last long enough.	34
Repair was too expensive.	33
I wanted a new device.	25
Device was not repairable.	17
Repair was too much effort/ I had no time.	13
Spare parts were too expensive.	10
I didn't know where to repair.	8
I could not do without the device.	7
Other Reasons.	6
There were no spare parts available.	3

Figure 16: What were the reasons why you have not repaired the device? (n = 1,033 persons who reported a broken device)

How do the respondents know that a repair is not worthwhile? When asked if they made or asked for a preliminary estimation of costs, 63 % of those who stated that a repair would be too expensive (n = 346) denied the question. It seems that it is more of a prejudice or assumption that repair is not worthwhile. A statistical analysis of the relationships between the above reasons shows that those who indicated high costs as a reason for non-repair also often state that repairing means too much effort and they lack the time. They also believe more often that the device is not repairable and has a short lifetime. At the same time, they often state that they wanted to buy something new anyway. So here it seems to be a situation of mutually reinforcing motives.

6.   Responsibility for (too short) product lifetimes

An Austrian study on consumer perspectives on product lifetimes[5] found that consumers who believe in "planned obsolescence", i.e. the presumption that manufacturers willingly decrease product lifetimes by built-in weaknesses feel less responsible for product durability. The so far reported results of our survey could support this argument to a certain degree since we found a significant correlation between the belief that devices generally do not live long enough and the decision against repair. In the following we will report some results that directly asked about attitudes and experiences related to (shortened) useful lives.

The question whether the study participants know about the term "planned obsolescence" was denied by two-thirds. Later it was asked how much the participants would agree to the presumption that many

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[5] Wieser, Harald, Nina Tröger und Renate Hübner (2015): Die Nutzungsdauer und Obsoleszenz von Gebrauchsgütern im Zeitalter der Beschleunigung. Eine empirische Untersuchung in österreichischen Haushalten. Stand. Wien: AK Wien.

devices have in-built defects that causes malfunctions after the two-year warranty expired and 90 % agreed to that. Thus, it seems that although the term planned obsolescence is not widely known, its narrative belongs to the common mind-set. 22 % of respondents claimed to know the term and to know what it means, the remaining twelve percent know the term as a concept, but not its meaning. All persons who had indicated that they know the meaning were asked for an explanation in an open question. A small portion (around 3%) indicated that the term refers to generally plan how long a product can live. The majority of the respondents (about 92 %) see planned obsolescence as the intention of manufacturers to design products that break early. In many cases "early" was equated with a failure that soon follows the expiration date of the two-year-warranty. When asked how the participants know the term, 65% said that they knew about it from the media, 19% know the term from friends, 12 % from school or other educational institutions (and 11 % from their professional context.

In order to explore attitudes and opinions around the lifetimes of product and the assumption or delegation of responsibility, we asked about the degree of agreement to a series of statements. In the following some results concerning the perceived role and responsibility of manufacturers will be presented first. Nearly all respondents agreed with the statement that some manufacturers design devices intentionally in a way that they break down after the warranty has expired (see. Figure 17). How large the proportion of suspected manufacturers is, was not inquired here. In order to balance this perception with their own experiences, the participants were asked if they ever had a device that broke down within or shortly after the warranty has expired. To 61 % of respondents this has never happened. In 15 % of the cases it was the smartphone that broke down too early, followed by washing machines (5 %), televisions (3 %) and coffee machine (2 %). It is interesting here, that the strong conviction, that some manufacturers deliberately limit the lifetimes to the two-year warranty (hold by 90 %) and deceive their customers (believed by 89 %) does not necessarily correspond with own experiences. This may be due to the fact that the majority of respondents refer to experiences from their social environment or the narratives around planned obsolescence presented by the media.

A majority of respondents also believe that longevity plays a too small role during the development of the devices (90 %) and long-living products are "bad for business" (83 %). The highest levels of agreement can be found in the claims on manufacturers and retailers: 91 % agree that retailers should quickly take short-lived products out of sale and 94 % demand that producers should pay more attention to lifetimes in the design of electronic devices.

Agreement to statements about manufacturers

Statement	%
Manufactures should pay more attention to durability.	94
Retailers should withdraw devices that easily break from market.	91
Durability and reparability are of little concern for product designers.	90
Devices are built to break immediately after the two-year warranty.	90
Consumers are deceived with products that easily break.	89
Manufacturers pay no attention to durability for economic reasons.	83

Numbers in %

But there is also a high agreement to statements that emphasize the responsibility of other actors (see figure 18). Almost all respondents are convinced that they live in a throwaway society (94 %) and criticize consumers who buy new devices if even their old devices still work (87 %). But not only consumers should care better for their products (87 %), there should also be rules for having equipment repaired at a reasonable price (96 % agreement), to allow longer warranty periods (87 %) and make spare parts available at a reasonable price (83 %). Sufficiently satisfied with their rights and responsibilities as consumers, however, are significantly less respondents (47 %). Less than half of the respondents think policy should not interfere too much in the economy (46%). Conclusively there is a clear acceptance or desire for political action.

Agreement to statements about other actors.

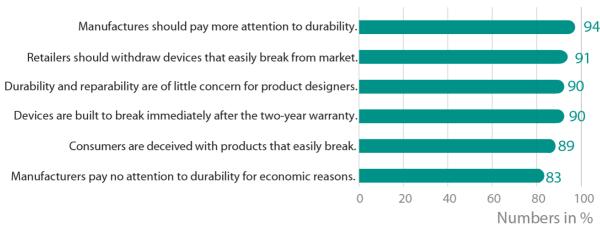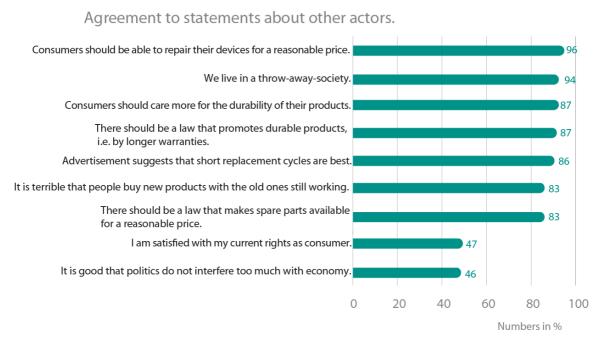| Statement	Value
Consumers should be able to repair their devices for a reasonable price.	96
We live in a throw-away-society.	94
Consumers should care more for the durability of their products.	87
There should be a law that promotes durable products, i.e. by longer warranties.	87
Advertisement suggests that short replacement cycles are best.	86
It is terrible that people buy new products with the old ones still working.	83
There should be a law that makes spare parts available for a reasonable price.	83
I am satisfied with my current rights as consumer.	47
It is good that politics do not interfere too much with economy.	46

Numbers in %

Figure 18: To what extent do you agree with the following statements or not? In summary, for the answers "I tend to agree" and "I completely agree" (N = 2,000 cases)

Finally, actions and attitudes that are relevant for the individual assumption of responsibility were also queried. Here, some of the statements that express positive feelings and meanings with regard to novelty and new devices were deliberately given (see Figure 19).

Here again it shows that long lifetimes seem to be very important, both for economic and ecological reasons, the approvals in both cases are more than 90%. Again, it is possible that the respondents express their ideals or gave the answer on what they think is socially desired. Therefore, it can be doubted that the expressed attitudes are implemented in practice. Nevertheless, the comparison with the consents to other statements is interesting. Thus, the novelty of a device and its value as a "flagship object" is important for about a quarter of respondents, for just over a quarter of respondents a new product is also a popular topic of conversation with friends and peers. More than half also like the feeling of having something new (53%) or get something positive out of having something that represents the state-of-the-art (51%). For less than half, new devices are even relevant for their quality of life (46%). However, this does not mean that respondents see it as normal to have a new smartphone

OHA-Texte 01/2018

every year (only 14% see it as normal) or only a few see a broken device as a welcome opportunity to buy a new device (16%). On the whole, there are significantly more people who also see novelty as critical, especially when faced with constantly new models in the marketplace (71%).

Statements about attitudes and actions.

Statement	%
It is important to use devices as long as possible to save money.	93
It is important to use devices as long as possible to save the environment.	91
It is tiring to be constantly confronted with new models.	71
It is a great feeling to hold a new smartphone in my hand.	53
It is important to me to get the latest technology.	51
Owning a new device increases my quality of life.	46
I don't have enough time to properly care for my devices.	30
I like to talk about the latest smartphones.	29
I like to show my new devices to others.	26
I don't mind if something breaks since I like to buy something new.	16
It is a common thing to me to have a new smartphone every year.	14

Numbers in %

Figure 19: To what extent do you agree or disagree with the following statements? Summarized for the answers "I tend to agree" and "I completely agree" (N = 2,000 cases)

Although novelty seem to have a value, it does not have to be experienced and updated by buying constantly new products. Longevity seems to play a more important role than novelty in the perception of consumer. But are respondents willing to pay more for longevity? Here the participants' answers are difficult to interpret: 56% agree with the statement that "it does not matter how expensive electrical appliances are, since anyway, all are built so that they break early." What may mean that the majority of respondents has a generalized distrust of manufacturers and product quality. At the same time, 62% say they buy branded products because of their estimated longer lifetime, even if it costs more. Thus, it seems there is still some confidence in brand manufacturers. However, 65% say that they pay close attention to low prices when buying electrical appliances, but then they may be less durable. The details of these three statements correlate with each other, that is, the respondents have significantly agreed to all three items significantly.

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OHA-TEXTE 1/2018