RepairMonitor

Analysis results 2018

Repair Café International Foundation

April 2019

Colophon

RepairMonitor | Analysis of results 2018

April, 2019

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Repair Café International Foundation is the engine behind the world-wide successful concept of Repair Café: repair your own stuff together with handy people from your neighbourhood. This is good for the environment and for the social cohesion in your local community. The foundation has been spreading this concept since 2010 and with results! Almost 1800 groups of volunteers organise Repair Café events in 35 countries.

Since 2017, the foundation is also involved in collecting data about the repairs during Repair Café events. For this purpose, the foundation developed the RepairMonitor, an online tool which volunteers can use to document what kind of products they repair in their Repair Café. This way it is possible to get insight in the repairability of products used in our daily lives and how to improve their repairability.

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Summary

Preface

The Repair Café International Foundation has analysed the data entered in the RepairMonitor in 2018. The RepairMonitor is the online tool in which Repair Café volunteers keep track of their repair data. In 2018, volunteers of 34 Repair Cafés (30 from the Netherlands, 2 from the US, 1 from the UK, 1 from Australia) entered data on a total of 7,857 products. This report analyses how and how quickly products break down and which factors hinder a successful repair. The aim of this research is to identify what needs to be done to make products more repairable so that they fit better into the circular economy.

Analysis

The ten products most offered for repair are: coffee machines, vacuum cleaners, lamps, bicycles, trousers, sewing machines, clocks, coats, irons and laptops. The ten most common brands in the Repair Café are Philips, Sony, Bosch, Tefal, Samsung, Miele, HP, Nespresso, Gazelle, and Braun.

The success rate of the repairs is generally quite high: 65%. This is lower for repairs of electrical/electronic products (56%), considerably higher for products without an electrical system (85%). Approximately 70% of all repairs were electrical/electronic products.

The issues with which visitors come to the Repair Café are very diverse. Not always is an item really broken; often there is only a defect: a coffee machine is leaking, a vacuum cleaner cord no longer rolls up automatically, the yarn in the sewing machine always breaks off, a bicycle doesn’t run smoothly or a pair of trousers is too long.

Repairers identify various reasons why repairs do not succeed: parts are not repairable, not present on site, not available or too expensive. Sometimes repair is too difficult or too dangerous, or it is impossible to open a product without breaking it.

In approximately half of the cases it is indicated how old a product is. Of these items, 6% is at most two years old, more than a quarter at most five years, another quarter five to ten years. Of the ten most common products, laptops are, on average, the least old when they are brought to the Repair Café, followed by printers and coffee machines. Clocks are, on average, the oldest, followed by sewing machines and radios.

Repairers appear to make little use of repair information. It is not always clear from the RepairMonitor whether this is because they did not search or because they did search but did not find any information. In less than 6% of the repairs in the monitor it is indicated that the repairer did use repair information. This information rarely comes from the manufacturer; it is usually provided by other repairers.

Conclusions and recommendations

Repair always the first step
Of all the repairs described in the RepairMonitor, 65% was successful. This shows that repair makes sense and should always be the first step when something breaks.

More emphasis on maintenance
Many of the problems described in the RepairMonitor are the result of poor maintenance: cleaning, descaling, lubricating, tightening, etc. Apparently, consumers are not sufficiently aware of the need to maintain their products. Repair Cafés make their visitors aware of this. A public campaign could help. Producers and retailers must also emphasise the importance of maintenance more.

More repair knowledge needed with the public
The relative simplicity of problems described in the RepairMonitor demonstrates the lack of repair knowledge among the general public. More attention to repair skills and working with your hands in education can help solve this problem. Repair Café volunteers can be deployed as supervisors/coaches.

Producer must actively support repair
According to the RepairMonitor, if repairs are unsuccessful, this is often because products cannot be disassembled, parts cannot be repaired, there are no replacement parts and there is hardly any documentation for a repairer to rely on. The transition to a circular economy requires producers to change this. Especially the repairability of electrical/electronic products must be improved.

Governments must stand up for repairable products
Together with the Dutch environmental organisation Natuur & Milieu, the Repair Café International Foundation has formulated recommendations for municipalities, governments and the European Union:

- Make the provision of repair manuals by producers mandatory;
- Require the use of standard screws and other fixing materials and prohibit the gluing together of parts;
- Require longer warranty periods;
- Require that batteries and other critical, rapidly aging and vulnerable parts can be replaced by consumers themselves;
- Require manufacturers to keep spare parts available for consumers and repairers;
- Increase taxes on raw materials and reduce taxes on (repair) labor;
- Inform consumers of the financial and environmental benefits of repairing and where to turn to for repairs;
- Make sure that Repair Cafés, thrift stores, waste collection station and other local organisations that can play a role in extending the lifespan of products can benefit from each other in the best way.

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1. Preface

Between 2004 and 2012, the number of broken appliances that are replaced every year in an average household has grown from 3.5% to 8.3%.[1] There is every reason to believe that this number will only increase further. The causes for this increase are diverse. The decreasing repairability of products plays a role, but as important are other obstacles that citizens experience, such as the high costs for repair and warranty conditions that do not allow repairing yourself. Also diminishing knowledge about repairing in households plays a role. Repair Café International Foundation and environmental organisation Natuur & Millieu work together to extend the life of products. Repair Café offers citizens the opportunity to repair their broken products during a neighbourhood event, together with a volunteer. Natuur & Milieu lobbies with its European sister organisations for improved policy on the repairability of products.

This second analysis of the RepairMonitor shows once again how important it is that repair gets more attention, both from the public and from the government. We believe that both citizens and the environment have a right to products that are properly repairable. Our governments should be committed to this. For example, a long-lasting washing machine emits up to 1100 kilograms less CO2 in twenty years than a washing machine that lasts only a short time.[2] In this case, therefore, working on a better climate also means lower costs for the citizen. That is why we make seven recommendations to Dutch municipalities, the central government, and the European Union to work on policies for better repairable products (see p. 20).

Let's work together for a world where things last much longer!

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[1] https://www.oeko.de/en/press-releases/archive-press-releases/2015/reality-check-obsolescence/
[2] https://www.oeko.de/forschung-beratung/themen/konsum-und-undernehmen/fragen-und-antworten-zu-obsoleszenz/#c5451

2. The RepairMonitor and the circular economy

Many countries are preparing for a circular economy. They want to structure their economies in such a way that products, materials, and raw materials cannot only be used once, but can be reused many times. In this way, depletion of raw material stocks can be prevented and the production of waste limited as much as possible. This is necessary to keep the earth liveable for future generations.

Repairing, instead of throwing things away when they break, is the first step on the road to such a circular economy. Repair ensures the preservation of raw materials at the highest level, with the addition of as little energy and new raw materials as possible. As a reuse strategy, it is more efficient than replacing parts or recycling.

Strong commitment to repair in a social setting
Repair Café International Foundation has been committed to community repair for almost ten years, offering an alternative to throwing away and making new purchases. Repair Café argues for maintaining repair knowledge in local communities and for better repair options: repairable design and general access to repair manuals and spare parts. It promotes a strong focus on repair in a social setting, so that people experience the value of circular action themselves.

Insight into repairability
In order to determine which measures are especially needed to promote repair, Repair Café has developed the RepairMonitor, an online tool that provides insight into the repair of products. In this monitor, repairers can keep track of the products (types, brands, age ...) they encounter in their Repair Café, what is wrong with the product, and whether the repair was successful. They can also indicate how they perceive the repairability of the product.

34 Repair Cafés carried out almost 8,000 repairs
The RepairMonitor was developed and tested in 2017 by twelve Dutch Repair Cafés. In 2018, it was used by volunteers from 34 Repair Cafés, including two from the US, one from the UK, and one from Australia. The RepairMonitor will be made available in more languages in 2019, so that it can be used by all 1,800 Repair Cafés worldwide.

All participants together entered data on nearly 8,000 repairs in 2018. The results are analysed in this report and can be used to identify and substantiate measures in favour of repairability.

3. Data analysis

3.1. Total number of repairs

In 2018, volunteers from 34 Repair Cafés (thirty from the Netherlands, two from the US, one from the UK and one from Australia) entered a total of 7,857 repairs into the RepairMonitor.

3.2. Most offered products and brands

The figures below show which products and brands are most frequently offered for repair in Repair Cafés. Coffee machines, vacuum cleaners and lamps are the three products that are the most frequently presented for repair (see Figure 1). The top ten of the most common products for repair form 40% of the total number of items. In about 35% of the cases this involves coffee machines, of which the most offered brand is Philips. This is because Philips is the manufacturer of the Senseo, one of the most popular coffee machines in the Netherlands and the product that is most often offered for repair in Dutch Repair Cafés. For 2,881 products, information about the brand was not entered into the RepairMonitor. We have omitted this result in Figure 2.

Figure 1: Top ten of products presented at Repair Cafés (n=7,857)

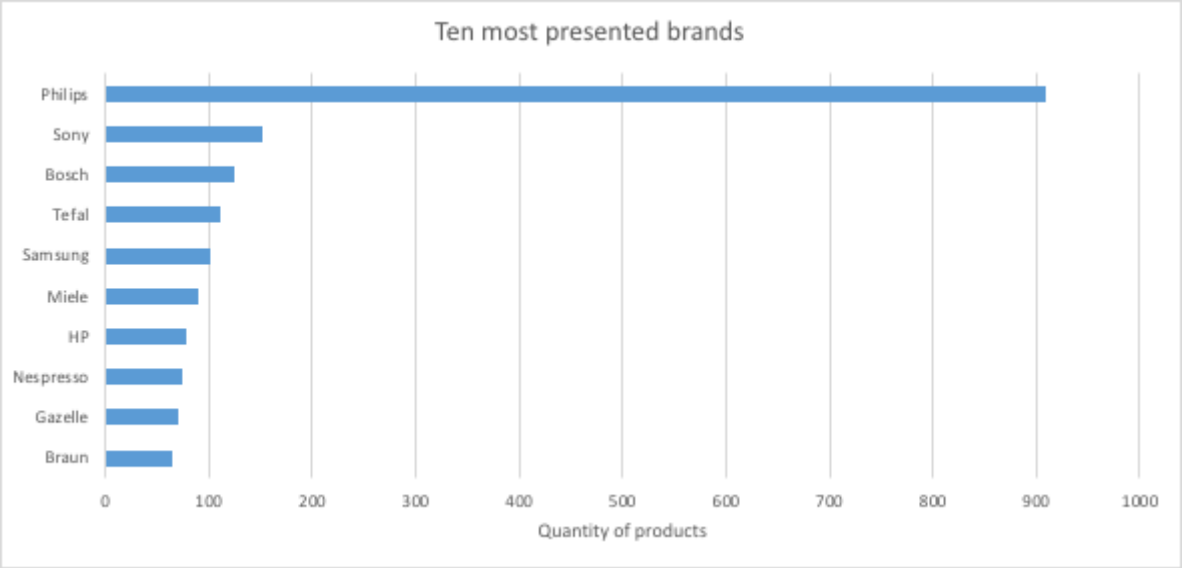

Figure 2: Top ten of brands most frequently presented at Repair Cafés (n=7,857)

3.3. Repair success

Visitors went home with a repaired item in 65% of the cases that were presented in Repair Cafés (5,093 of 7,857 of the repair). In 23% of the cases a product was not repaired (1,828 times). For the remaining 936 products (12%), advice was given on which next step was needed to achieve a successful repair. Of all products that arrived at the Repair Cafés, around 70% were electric.

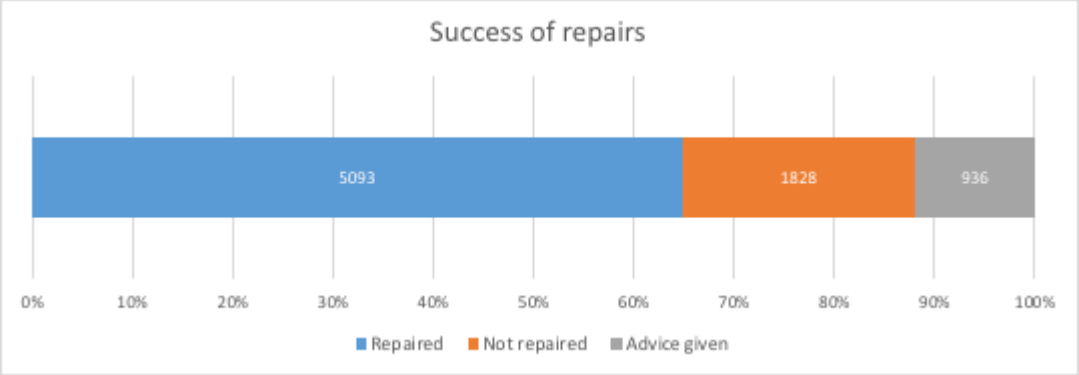

Figure 3: Repair success rate of all products brought in for repair (n=7,857)

Figure 4 shows the repair success rate (in percentage) for ten of the most frequently presented products. In general, the success rate for electrical / electronic products was lower (56% on average) than for products without an electrical system (85% on average). The repair of trousers/pants have the highest success rate (97%), which is to be expected since these repairs are generally not very complicated. The repair of coats and bicycles also has a high success rate (92%).

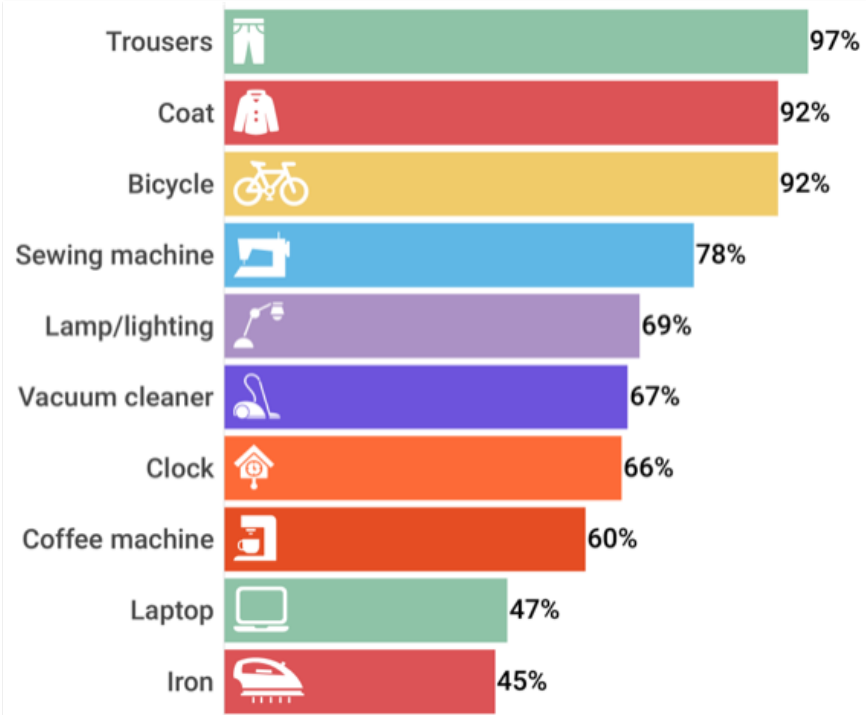

Figure 4: Repair success rate of the ten most presented products (n=7,857)

Figure 5 shows the top ten of the most frequently presented brands and their repair success rate. Gazelle stands out with a success rate of 90%. This has to do with the fact that Gazelle produces bicycles and bicycles are easier to repair than, for example, HP printers. The repairability of a brand therefore strongly depends on the type of products it produces.

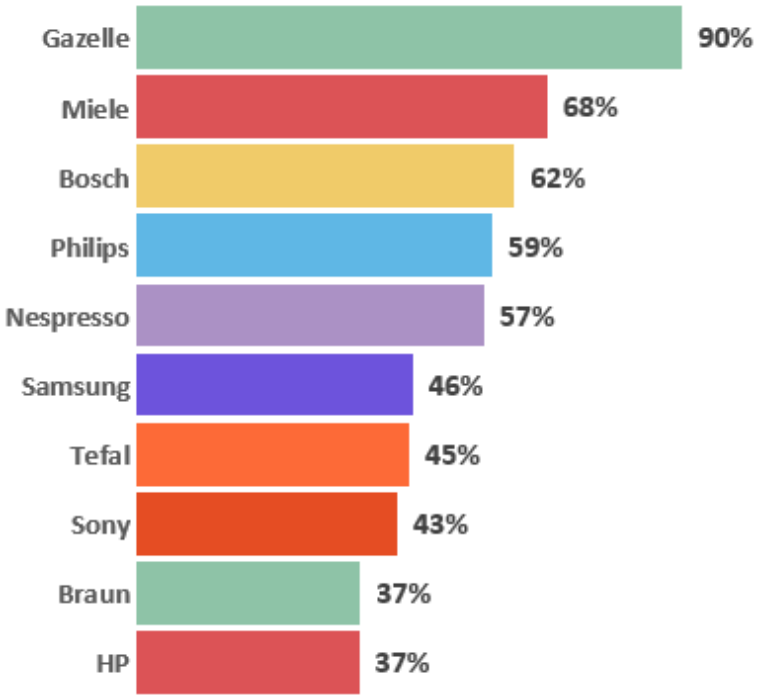

Figure 5: Repair success rate for the ten most presented brands (n=7,857)

In the category electric / electronic devices that were presented in the 34 Repair Cafés in 2018, sewing machines were the most often successfully repaired (in 78% of cases) and electric water kettles had the lowest success rate (36%). Figure 6 gives an overview of the repair success rate of the top ten of the most repaired electric / electronic devices.

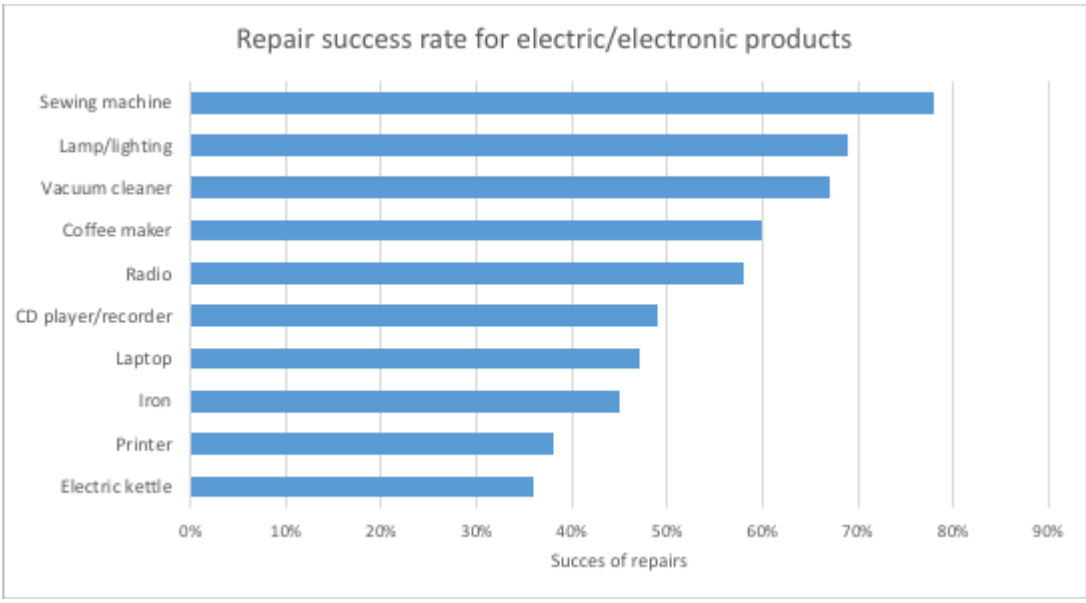

Figure 6: Repair success rate of the ten most presented electric/electronic products (n=2,465)

3.4. Obstacles to repair

An obstacle to repair has been entered for 1,446 products. These obstacles varied a lot. One hundred randomly selected repairs were analysed and the reasons most often cited as an obstacle can be summarised in the following categories:

- In 46% of the cases: a part is not repairable ("broken", "burned out", "worn out") or a replacement part is not available during the repair event;
- In 20% of the cases: a replacement part is too expensive or not available;
- In 14% of cases: repair is not possible, is too complex, takes too long or is too dangerous[3];
- In 10% of the cases: the product cannot be dismantled (without causing damage or breaking the product) or the inside cannot be dismantled;
- In 10% of the cases: cause of defect is unknown.

3.5. Age of products

There is a large variation in the age of the products that were brought to Repair Cafés. In many cases, the age was not known or the repairer did not specify the age of the product in the RepairMonitor. In a quarter of the cases in which the age *is* known, the product was no more than five years old and 236 (more than 6%) of these products were no more than two years old. A quarter of the products were between five and ten years old and half of all

[3] One possible explanation can be that there is no repair information available, see also section 3.8.

products were ten years and older (see Figure 7). Three quarters of the products whose age was known were electric products.

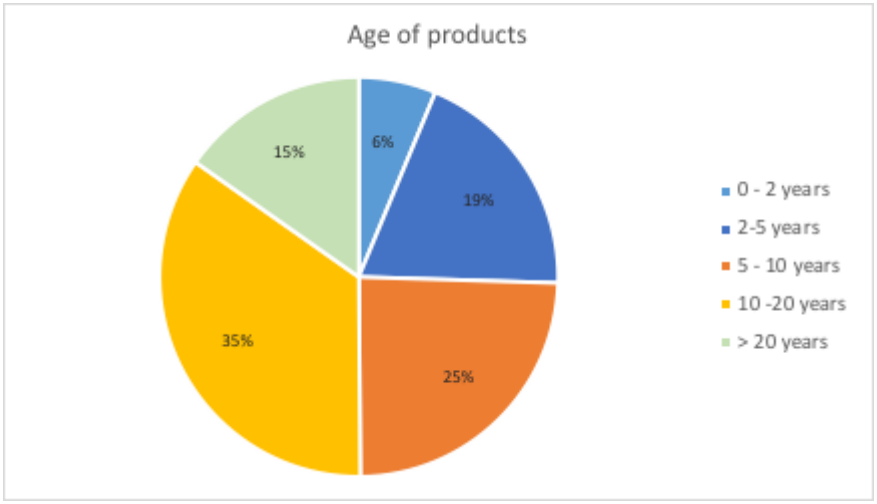

Figure 7: Age of products (n=3,759)

Figure 8 shows the average age of the ten most frequently presented products of which the age is entered in the RepairMonitor. It shows that clocks last the longest before being taken for repair to a Repair Café. The second longest-lasting product is the sewing machine. Laptops, printers, and coffee machines are the quickest to be offered for repair after they were purchased.

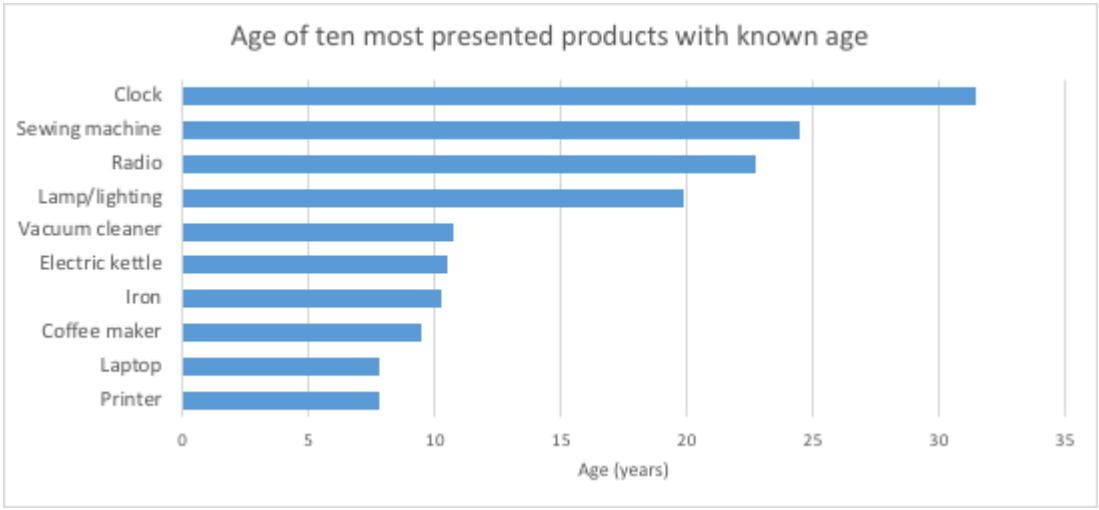

Figure 8: Average age of the ten most presented products with known age (n=1,319)

Further analysis of the data shows that there is a linear relationship between the success of repair and the age of a product. We know the age of 3,095 products that are successfully repaired. We found that the older a product is, the more often it is successfully repaired. This is in line with the prevailing view that newer products are more likely to break down and are less repairable.[4]

[4] Additional statistical data about this can be requested from Repair Café International: info@repaircafe.org

3.6. Problems and defects

Repairers noted a wide variety of problems and defects. Common problems with the ten most frequently offered products are shown in Table 1.

Coffee machine	Leakage; water won't heat; calcification; pump
Vacuum cleaner	Cord problems (won't roll up/unroll); makes noise; electronic defect
Lamp/lighting	Dimmer switch; wire breakage; fitting; switch
Bicycle	Tyres; light; chain; breaks
Trousers	Legs too long; hole/wear and tear; torn seam
Sewing machine	Wire tension; pedal; coil housing
Clock	Lack of maintenance (greasing, cleaning); dead batteries; wrong adjustment of mechanism
Coat	Torn seam; button; tear/hole/wear and tear
Iron	Steam function (calcification); leakage; heating
Laptop	Screen; software; power supply

Table 1: Frequently occurring problems for the ten most presented products.

The problems presented in Table 1 show that maintenance (descaling, cleaning, greasing) is essential in preventing the breaking down of products. In addition, it seems that many problems could have been avoided with a more robust design of electric / electronic devices. These come to the Repair Café with problems such as broken wires, worn gears and carbon brushes, broken switches and buttons, reduced capacity of batteries, etc. These parts are often not produced in such a way that they can tolerate regular long-term use.

3.7. Frequently used repair solutions

Repairers can also enter information in the RepairMonitor about the solution they found for the repair of the defect or problem. The table below lists common solutions for the repair of the five most frequently presented products.

1. Coffee machine

Parts that come in handy when repairing Senseo coffee machines. Left: rusted magnet in the float, center: new magnet, right: capacitor.

Coffee machines were often descaled or cleaned (e.g., tubes). For Senseo coffee machines it was mainly about replacing the magnet (affected by scale or rust) in the float valve or the capacitor (broken due to voltage peaks).

2. Vacuum cleaner

Vacuum cleaners that are brought to the Repair Café are often not really broken, but need maintenance. Examples of such solutions are cleaning or replacing the filter, unclogging the hose and replacing the vacuum cleaner bag. Also often the switch was replaced or the cord was shortened or replaced.

3. Lights

With lamps, switches were usually replaced and dimmer fuses replaced. Contact points (between lamp and fitting) were also cleaned or sprayed. Furthermore, wire connections were often re-made or restored.

4. Bicycle

For bicycles the inner tube was often stuck or replaced. The chain was also often replaced or tensioned and the front and rear lights were replaced or repaired.

Fixing bicycles in Repair Café Nieuwegein, the Netherlands

5. Trousers/pants

Trousers/pants were often resized or made shorter. Closing holes and stitching seams was also often used as a solution. In addition, zippers were often replaced.

3.8. Grading repairability

In the RepairMonitor, repairers can, at their own discretion, give a grade for the repairability of a certain product. This assessment is based on factors such as the knowledge,

experience, and skills of the repairer himself; the availability of tools, materials, and parts; the design of a product; and the availability of repair information. It can therefore mean different things when a repairer gives a 10 to the repairability of a product: the object was easily repairable, because it was easy to separate, but a 10 can also mean that the item was “easy to repair for me, because I am a very good repairman”. This is important to keep in mind when interpreting these grades.

The repairers generally give high grades. In almost three-quarters of the cases (see Figure 9), they found that the repairability deserved a sufficient grade (6 or higher). The lowest grade, one, was given in only 6% of the cases.

On average, repairers grade the repairability of products with a 6.9 (n = 6,469). Figure 9 shows that the most common grade is an 8. There is however a difference between electrical / electronic and non-electrical / electronic devices. The latter category is seen as more repairable and is rated with an average of 7.8. The average grade for the repairability of electrical / electronic devices is 6.5.

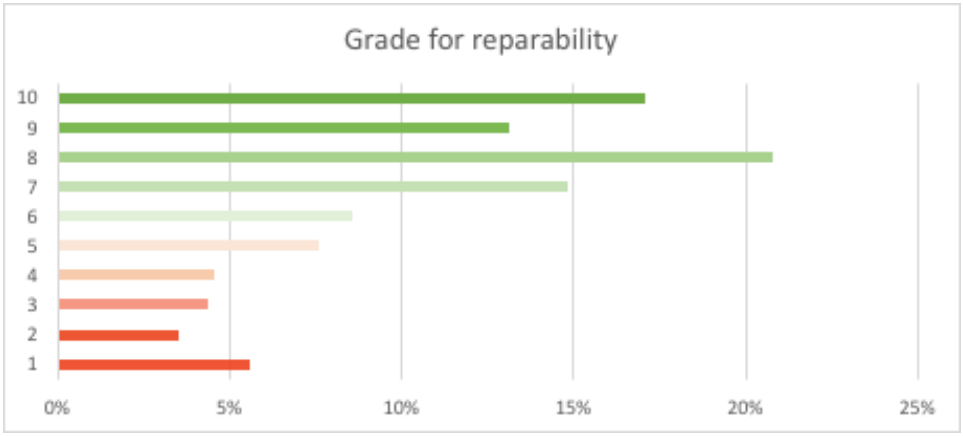

Figure 9: Grades for repairability given by repairers (n=6,462)

With regard to grades for the repairability of the different types of products, the results are also in line with expectations: the more complex a product is, the lower the grade. For example, out of the ten most frequently presented products, the vacuum cleaner, the laptop, and the iron receive the lowest average grade (see Figure 10). These are all three electrical products that contain many parts, are often difficult to open or whose active parts are difficult to reach. Trousers, jackets, and bicycles get the highest average grade. It is striking that with irons and laptops, the average grade of the repairers (more than 6) does not seem to match the average repair success rate of the product (around 45%, see Figure 4). [5]

[5] One explanation can be that it is mandatory to enter the success (or not) of the repair in the RepairMonitor, while it is not mandatory to enter a grade for the repairability of a product.

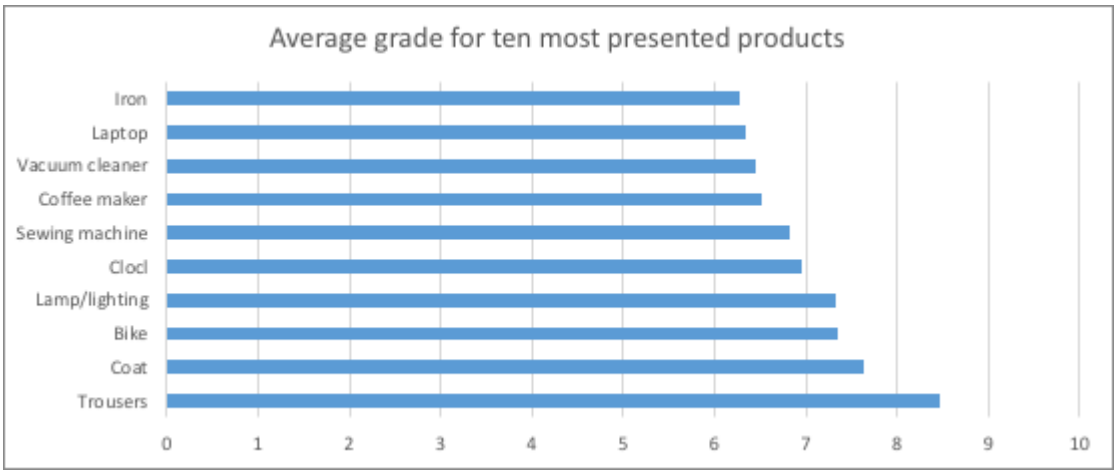

Figure 10: Grades for the ten most presented products (n=3,127)

3.9. Use of repair information during repair

It can be concluded from the RepairMonitor that repairers make little use of repair information about the products they try to fix. In certain cases, it is to be expected that this information has not been sought for (for example, when repairing jackets, trousers and bicycles). Repair information was used in 437 repairs; that is less than 6% of repairs. In 390 of the 437 repairs, the repairers entered the origin of the information. Figure 11 makes clear that this information usually comes from fellow repairers, both from the same or other repair cafés, or repair information found on internet sites.

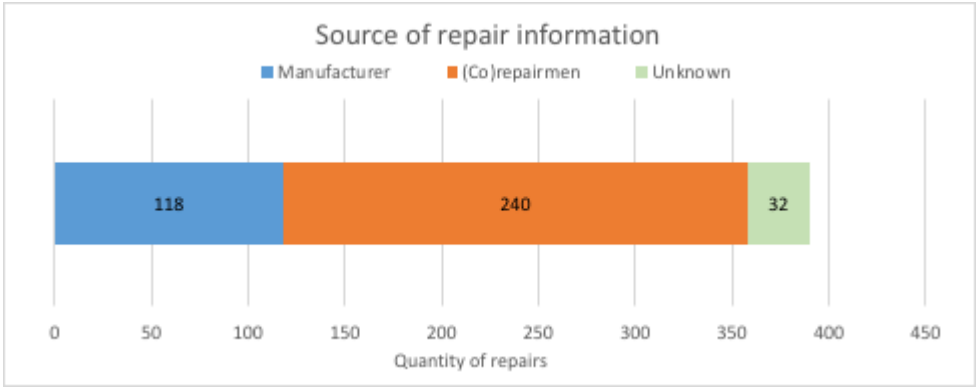

Figure 11: Source of used repair information (n=390)

Most repair information was used for coffee machine repairs. A common source was the Senseo repair manual, written by Repair Café volunteers.[6]

[6] This manual, written by volunteers of Dutch Repair Cafés in Wageningen, Deventer, Korendijk en Sliedrecht, can be downloaded from http://repaircafe-forum.org/nederlands/index.php?action=dlattach;topic=214.0;attach=141

Philips: more success *with* repair information
The data set of the RepairMonitor is still too small to be able to say anything about the relationship between the availability of repair information and the repair success rate. Nevertheless, data about the repair of Philips products (the brand that in terms of numbers in the Repair Monitor is the most repaired brand) point in that direction. The RepairMonitor describes 911 Philips product repairs in 2018. In the cases where repair information was available, 154 products or 75 percent of the repairs were successful. In the cases where no repair information could be found, 266 products or 52 percent of the repairs were successful. This difference may indicate that more repairs could be successfully completed if more repair information was available.

In Repair Café Steenwijkerland, the Netherlands, the Senseo repair manual is always on hand

4. Conclusions and recommendations

4.1. Repair always as first step

Sixty-five percent of all the repairs described in the RepairMonitor in 2018 were successful. This shows that repair makes sense and should always be the first step if a product breaks down. Of the ten products most frequently presented to repair cafés, only the repair of coffee machines, laptops and irons were less successful (60%, 47% and 45% respectively). On the other hand, the success rate for other everyday products was higher; even considerably higher for clothing and bicycles (above 90%).

4.2. More emphasis on maintenance

Many of the problems described in the RepairMonitor are the result of poor maintenance: cleaning, descaling, lubricating, tightening, etc. In many cases, these simple operations were sufficient to make a product function again. It seems that the general public is not sufficiently aware of the need to perform maintenance, and to do it on time, before problems arise. Consumers should become more aware of this - a publicity campaign could be helpful here.

Producers and sales persons could also emphasise the importance of good and timely maintenance, through packaging, manuals, and advertisements.

4.3. The general public needs more repair knowledge

The relative simplicity of the issues described in the RepairMonitor demonstrates the lack of repair knowledge among the general public. Even the most basic knowledge seems to be lacking, as well as the confidence that a consumer is capable of solving certain problems. More attention to repair skills and working with your hands in education can help solve this problem.

4.4. Producer must actively support repair

The analysis of the RepairMonitor data shows that if repairs are unsuccessful, it is often because products cannot be properly separated, parts cannot be repaired, replacement parts are not available, and there is hardly any reliable documentation available to repairers. These barriers are the result of conscious choices by the producer, who deliberately choose not to support repair by consumers or community repairers. The transition to a circular economy requires that this change.

4.5. Making electric/electronic products easier to repair

The repair success rate of products without a plug or battery is considerably higher than that of products that do run on electricity. Of the ten most common electric / electronic products, the success rate was in most cases (seven out of ten) lower than 65%, half even lower than 50%. This indicates that there is still a lot to be gained in the repairability of these products (see also recommendation 4.4).

4.6. Governments must stand up for repairable products

In addition to these recommendations for producers and consumers, Repair Café International Foundation and Natuur & Milieu also make policy recommendations for different levels of government, such as municipalities, central governments, and the European Union.
We would like to promote the following points:

- Make the provision of repair manuals by producers mandatory for all products that enter the European market;
- Products should be repairable with regular tools. Require the use of standard screws and other repair tools and materials and prohibit the gluing of parts;
- Legislate longer warranty periods by producers so that improved repairability of products becomes in the interest of producers;
- Make it mandatory that batteries and other critical, rapidly aging, and vulnerable parts can be replaced by consumers themselves;
- Require manufacturers to keep spare parts available for consumers and repairers
- Increase the taxes on raw materials and reduce taxes on repair services;
- Inform consumers about the financial and environmental benefits of repairing and where they can go for repairs;
- Ensure the networking of Repair Cafés, thrift stores, and other local organisations that play a role in extending product life cycles so to create strong mutually beneficial relationships.