Environmental Report

Humac A/S 2022

Report by SUSTINERE

2nd Lifecycle

We, at Foxway, do our best to expand ICT devices lifespan and give them a new life – we call it the 2nd Lifecycle.

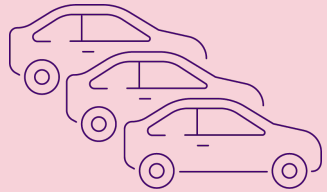
Increasing amounts of e-waste coupled with low collection and recycling rates have led to negative environmental impacts, loss of valuable finite resources, and growing pressure on the planet.

Repairing old devices, on the other hand, saves energy and finite resources that would otherwise be consumed in the manufacturing of new products, which carries considerable negative impacts on the environment.

Thus, refurbishing and re-marketing used mobiles and IT equipment is a win-win to all parties. Partners and consumers will have a working device with considerably less money. Our business model and operations aim to increase the positive impact on the environment.

Foxway's remarketing customer base consists of more than 500 customers and partners.

According to a 2019 report by the European Environmental Bureau, ***a 1-year lifetime extension of all notebooks in the EU would save 1.6 million tons of CO2 per year by 2030****, the equivalent of taking 870 000 cars off the roads.*

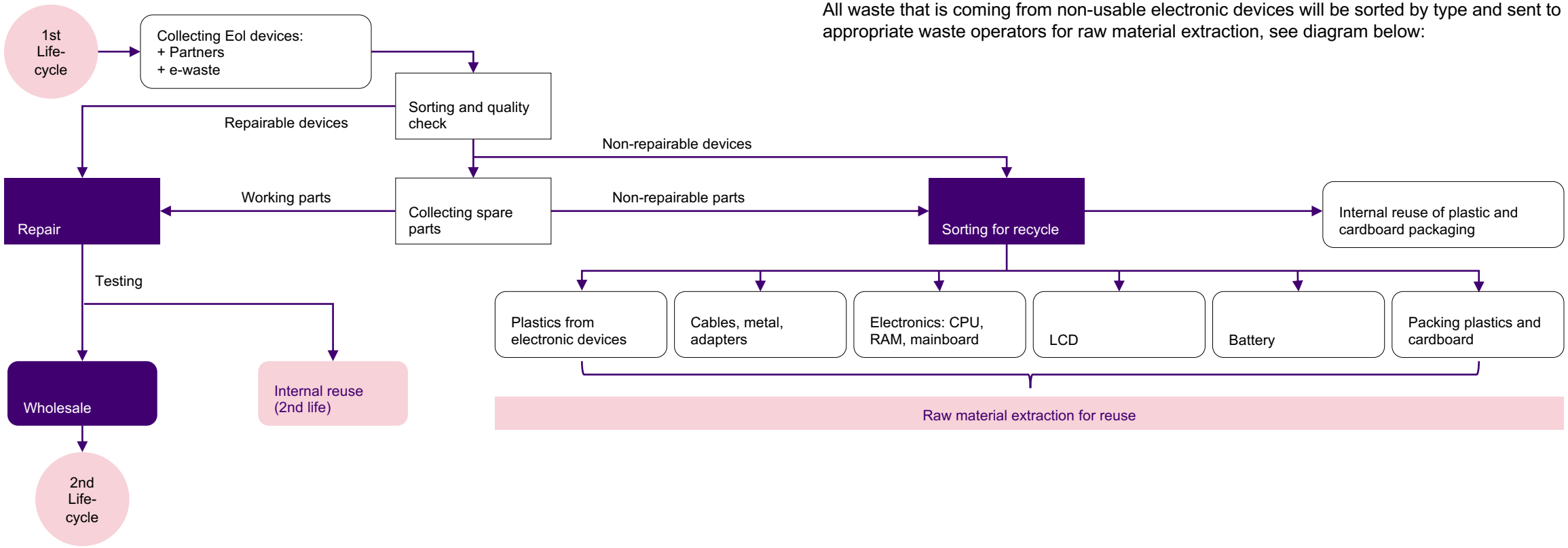


Circulate and reuse!

As an environmentally conscious company, our aim is to reduce landfill waste to zero. Due to this we are constantly developing our own waste sorting system and are looking for relevant partners who share our ideology.

Foxway's asset recovery services give laptops a longer life – we buy used or damaged laptops and other electronics, screen, sort, and test them, perform a regulation-compliant full data wipe, and repair as much as possible. In fact, most devices can be redeemed and are then sold through a network of resellers, thus being gifted a second lifetime.

All waste that is coming from non-usable electronic devices will be sorted by type and sent to appropriate waste operators for raw material extraction, see diagram below:



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Urban mining

Most of ICT devices contain circuit boards that contain many types of precious metals. Printed circuit boards, connectors, and components have high levels of precious metal content.

For example, the Tokyo Organizing Committee of the Olympic and Paralympic Games (Tokyo 2020) conducted the “Tokyo 2020 Medal Project” to collect small electronic devices such as used mobile phones from all over Japan to produce the Olympics and Paralympic medals. With this campaign, they extracted metals from small electronic devices, contributed by people from all over Japan, and produced every single medal for Tokyo 2020 Games.1

E-waste is the fastest growing waste stream in the world.

The amount of e-waste generated in 2019 equals the weight of almost 4 500 Eiffel towers.

Foxway’s ambition is to be the top company in Europe for sustainable IT services and recycling, leading the way with circular solutions that go beyond the industry’s traditional linear consumption models.

Environmental Monitoring for Humac A/S

Division of received products

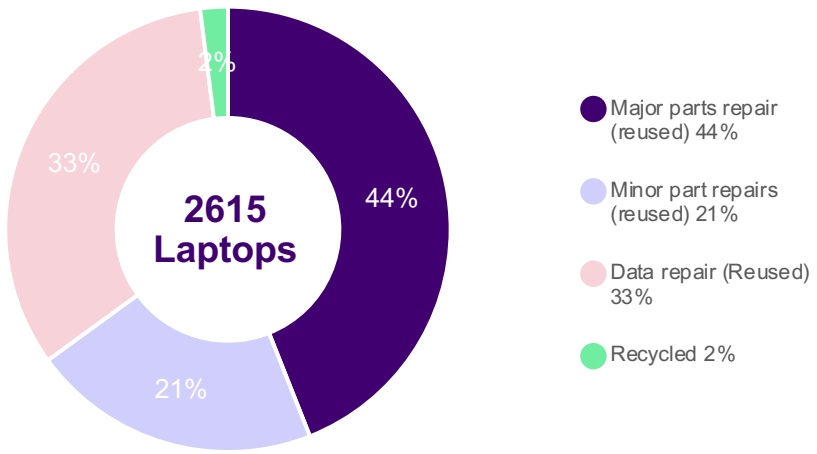
In 2022 we received 11 296 individual products from Humac A/S. The table below shows the associated product categories and their classification of sellable and non-sellable. Only a small percentage of items are sent to recycling. The majority of devices are getting a new life – sold to new customers.

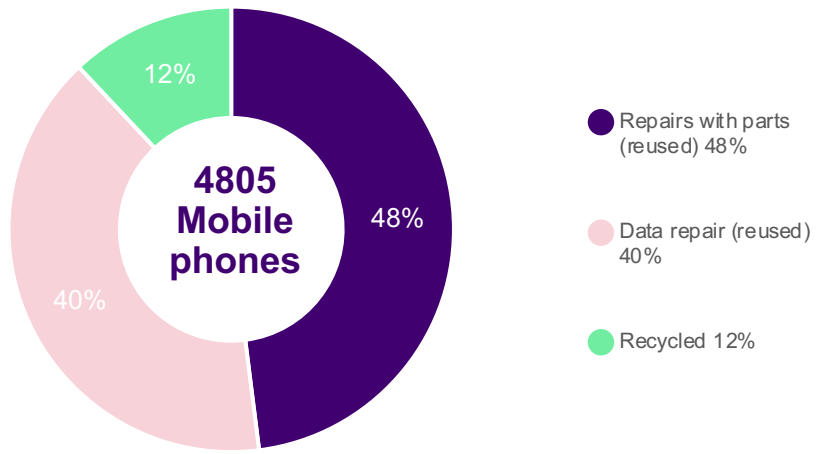
	Item Group	Received	Reused	Reused %	Recycled	Recycled %
Mobile Devices	Mobiles	4805	4214	88%	591	12%
	Tablets	1988	1734	87%	254	13%
Laptops	Mac Laptops	2487	2478	100%	9	0%
	PC Laptops	128	88	69%	40	31%
Computers	PC Desktops	341	336	99%	5	1%
Consumer Electronics	Consumer	357	225	63%	132	37%
	Accessories	769	424	55%	345	45%
	Broadband	28	24	86%	4	14%
	Monitors	14	9	64%	5	36%
	Wearables	379	371	98%	8	2%

What happened to the devices we got from You?

Collected laptops and mobile phones are sorted based on their state of quality. Some items do not need much attention and can easily be sent to 2nd Lifecycle after data repair, while others need to go through more thorough repairs first. For replacing broken or worn-down parts, we salvage components from non-repairable products as much as possible before opting to use brand new parts. Some items are heavily damaged and therefore are not fit for 2nd Lifecycle. But such products can still be recycled, and their raw materials can be extracted for reuse (page 3).

Graphs below show the distribution of what happened to the laptops and mobile phones that we received from You and the total number of such items.





Environmental impact from refurbishing laptops and mobile phones

Each different repair scenario requires different processes. These in turn have different environmental impacts – major repairs need more input resulting in larger impacts, whereas minor and data repairs are quite simple and with a low impact. In order to showcase the different impacts and environmental benefits of refurbishing electronics, we have calculated each scenario's carbon footprint and carbon handprint. These values are based on a handprint study carried out at Foxway, which is described on page 8.

Laptops

	Footprint (kg CO2-eq)	Carbon handprint (kg CO2-eq)	Number of devices	Estimated avoided emissions* (kg CO2-eq)
Major part repairs	18,48	246,5	1146	**282 489**
Minor part repairs	1,12	263,9	553	**145 936,7**
Data repairs	1,12	263,9	867	**228 801,3**

Mobile phones

	Footprint (kg CO2-eq)	Carbon handprint (kg CO2-eq)	Number of devices	Estimated avoided emissions* (kg CO2-eq)
Repairs with parts	3,39	60,6	2335	**141 501**
Data repairs	0,49	63,5	1879	**119 316,5**

** By multiplying the carbon handprint with the number of devices, you get the estimated avoided emissions aka the positive environmental impact – the larger the better!*

Sum of avoided emissions

918 044,5 kg CO2-eq

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Carbon handprint

What do we mean by avoided emissions?

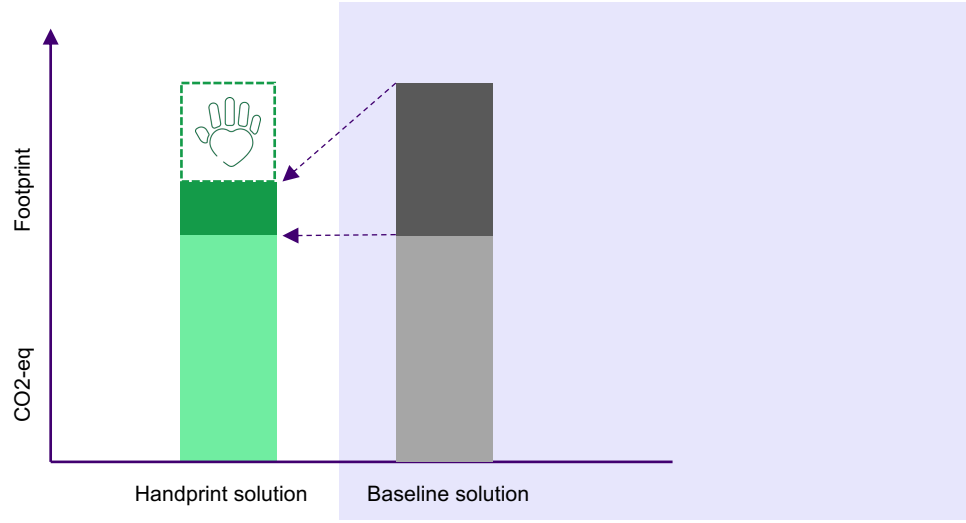
We have estimated the climate impact and advantage of Foxway's refurbished laptops and mobile phones. For this, carbon footprint as well as carbon handprint were calculated for these devices.

Carbon footprint refers to the negative environmental impact throughout the life cycle of a product.

Whereas the term handprint refers to the positive environmental impact of a product throughout its lifecycle, in other words it refers to avoided carbon emissions.

You can find more information about the carbon handprint and our results in our handprint report for laptops.

The carbon handprint is equal to the carbon footprint avoidance that the customer attains, meaning if a customer buys a refurbished laptop instead of a new one, they avoid causing **258 kg CO2-eq** emissions (by an average repair scenario). By buying a refurbished mobile phone, the average GHG avoidance is **62 kg CO2-eq**.



Example: handprint solution has a lower total CO2-eq footprint compared to baseline solution.[2]

Source: Pajula et al., 2018. Carbon Handprint Guide

Carbon handprint $_{product}$ = Carbon footprint $_{Baseline\ solution}$ – Carbon footprint $_{Handprint\ solution}$

Where:
Baseline solution = production of a new laptop and its transport to customer
Handprint solution = refurbishing an old laptop and its transport to customer (aka the „Foxway solution")

Additional positive environmental impact

Tablets & Broadband

The estimated carbon handprint from reusing devices is*:

	Carbon handprint (kg CO2-eq)	Number of devices	Estimated avoided emissions* (kg CO2-eq)
Tablet repairs	66,8	1734	**115 831,2**
Computers repairs	290	336	**97 440**
Wearables	35	371	**12 985**

** Avoided emissions factor value is based on a general study[3] (mean value of big and small device factor values is used)*

Other items

In addition to tablets, mobile phones and laptops, Foxway also reuses other items like spare parts, adapters, cables and accessories, as much as possible. This also has a positive environmental impact, but it is difficult to accurately quantify and generally has a very small share in the overall positive impact.

Total carbon handprint

Based on aforementioned findings, the products received from Humac A/S avoided at least

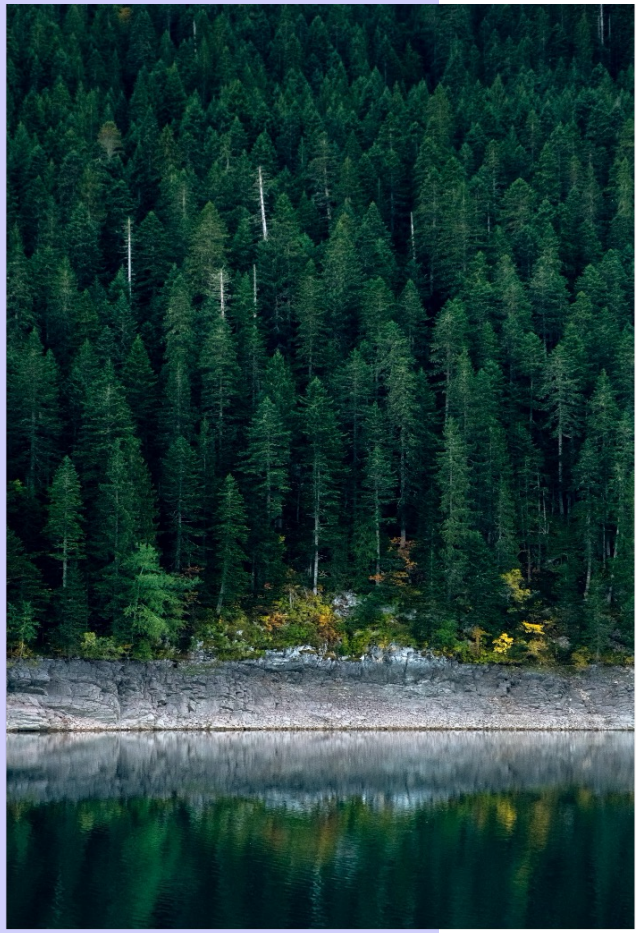
1 144 300,7 kg CO2-eq !

Average European annually uses products & services that have a total carbon footprint of approximately 6700 kg CO2-eq.

The highest carbon footprint (726 kg CO2-eq) comes from energy usage, followed by the use of constructions (632 kg CO2-eq) and consumption of food, beverages and tobacco (362 kg CO2-eq)[4].

This means that together we have avoided carbon emissions that averagely 171 Europeans indirectly emit during a whole year.

Good work!



Definitions

CO2-eq	Carbon dioxide equivalent is used to compare the emissions from various greenhouse gases on the basis of their global warming potential by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.
EOL	End-of-life. In the context of product life-cycles, EOL is the final stage of a product's existence.
GHG	Greenhouse gas. The primary greenhouse gases in Earth's atmosphere are water vapor (H2O), carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and ozone (O3). Water vapor and ozone are not quantifiable with global warming potential (as they are short lived gases) and are not included in the carbon footprint calculations.
ICT	Information and communication technologies.

References

[1] Tokyo 2020 Medal Project: Towards an Innovative Future for Al. February 2020 https://tokyo2020.org/ en/games/medals-project/

[2] Pajula, T., Vatanen, S., Pihkola, H, Grönman, K., Kasurinen, H., Soukka, R. Carbon Handprint Guide. (2018) VTT Technical Research Centre of Finland Ltd and LUT University.

[3] Wranne, J. Product databases: the environmental benefiits of reuse (2020) IVL Swedish Environmental Research Institute and Inrego AB.

[4] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Greenhouse_gas_emission_statistics_-_carbon_footprints