



RUN-Project (ReUse Notebooks)

LAYMAN'S - Report



ECO-innovation 
WHEN BUSINESS MEETS THE ENVIRONMENT

**System for the collection, refurbishment and remarketing of
notebooks from private households and SME's**

ECO/13/630329



Project coordinator

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Project background

Every year around 5 million notebooks and around 5 million tablets are sold in Germany.

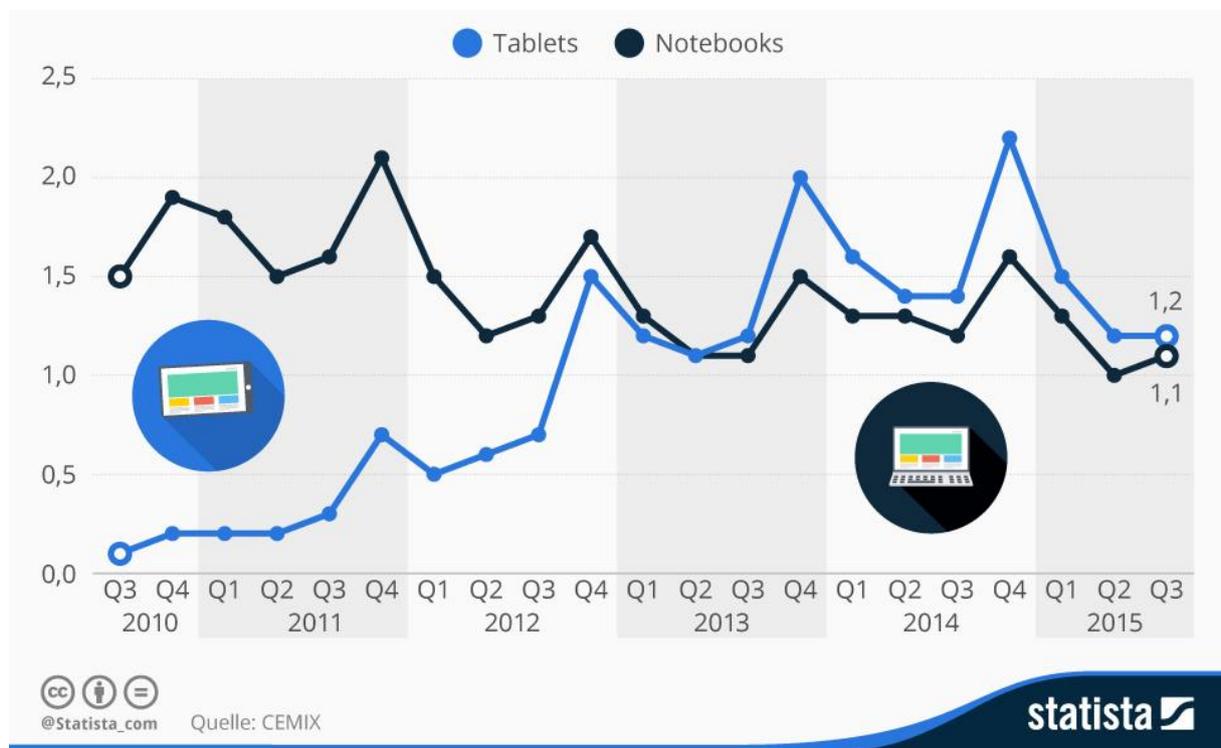


Fig. 1: Sales figures of notebooks / tablets in Germany

The production and the use of new notebooks cause various environmental impacts. Natural resources such as primary raw materials (oil, natural gas and coal), water and energy are consumed. Overall more than 80% of the negative environmental impacts occur during the production phase of a notebook.¹

The environmental impacts during the use phase (e.g. energy consumption) are comparatively much lower. The negative environmental effects of the production cannot be reduced by energy savings during the use phase (e.g. by the use of newer power saving notebooks). An amortization occurs only after 33 to 89 years.² The typical life cycle of a notebook, however, is usually significantly shorter.

The extension of the life cycle (period of use) of a notebook is therefore an environmentally advantageous alternative to the purchase of a new notebook. One way of extending the life cycle, is to grant the notebook a “second life” with a new owner– for example by making use of the Run-system.

¹ Ciroth, A.; Franze, J. (2011): LCA of an Eco labeled Notebook - Consideration of Social and Environmental Impacts Along the Entire Life Cycle, GreenDeltaTC, Berlin

² Prakash, S. et al. (2012): Timely replacement of a notebook under consideration of environmental aspects, Dessau-Roßlau

<http://www.oeko.de/oekodoc/1584/2012-440-en.pdf>

The extension of product life cycles/ reuse of products is, in general, advantageous for the environment. This fact is reflected in the objectives of the European, German and Austrian environmental policy.

The primary objective of European waste policy³ is the prevention of waste, followed by preparing for reuse.



Fig. 2: European waste framework hierarchy

The reuse of products (e.g. of notebooks or their components) prevents those products from becoming waste and is therefore part of the primary objective of waste prevention.

„Preparing for reuse“ means the reuse of products (e.g. notebooks or their components) that have already become waste. For example, they might have been delivered to a recycling center or municipal waste management site.

Despite of the clear ecological and societal benefits of reuse, the vast majority of used electrical and electronic equipment in Germany and Austria are currently recycled instead of reused.

Project Approach

The RUN project provides a system for reusing notebooks from individuals or small and medium-sized enterprises (SMEs). The system includes the collection, reprocessing and distribution of used notebooks. The take-back of individual notebooks from private households and from small and medium-sized enterprises is a special feature of the project.

³ Directive 2008/98/EC of the European Parliament and the Council of 19 November 2008 on waste and repealing certain Directives
<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0098&from=EN>

Until now, existing collection systems focused on the take-back of high-end notebooks from business customers. Such notebooks are comparatively easier to reuse, because large numbers of similar notebooks in comparatively good condition can be collected.

The RUN system, however, with its focus on private households and SME, processes a large variety of different notebook. Furthermore, the condition of the collected devices is unknown before the arrival at the refurbisher. Nevertheless, the reuse of notebooks from private households and SMEs is a new field of activity on which a lot of environmental benefits can yet be achieved.

Private customers and SMEs can use the RUN system easily, by sending in their devices free of charge via a parcel service or by handing it over at a collection point to be refurbished.

The data from the notebooks is professionally erased or the hard drives of notebooks, that are not suitable for reuse, are mechanically destroyed. Private customers can get a confirmation of the data erasure on their request. Additionally, customers may elect to have their data extracted and provided to them. The data can get provided via download or data carrier. This add-on service is fee-based.

The refurbishment of devices is handled by a social enterprise in Germany and a refurbisher in Austria. By refurbishing devices locally, local jobs can be safeguarded and created. By increasing the life cycle of notebooks, environmental impacts can be reduced or delayed.

Because of its social and environmental benefits, the RUN project is co-funded by the European Commission.

Implementation of the project

The project is divided into four operative core processes, which are present in the following paragraphs:



Fig. 3: Core processes

Collection

The collection is realised using a cost-efficient system, based on two collection channels:

1. Send-in free of charge via the project website and a parcel service
2. Hand-over at local collection points

The local collection points are listed on the RUN website:

<http://reuse-notebook.com/service/collecting-points/>

Alternatively, shipping labels can be generated on the RUN website free of charge:

<https://return.reuse-notebook.com/>

Additionally, RUN organises collection campaigns, in cooperation with local partner organisations (e.g. sports clubs, associations, ...). Thus local partner organisations can help protect the environment and profit from the positive media response. Interested local organisations can get in contact with the RUN team to obtain additional information. The following figure depicts a newspaper article about a campaign organized by RUN and a local computer club in northern Germany:



Fig. 4: RUN collection drive

Data extraction and provision /Data erasure

By default, the data of all collected notebooks is professionally erased or the data carrier is mechanically destroyed. Data carriers are destroyed, if the notebook is not suitable for reuse, not even for the use in social educational institutions. On their request, customers can receive a confirmation about the erasure or destruction by email.

As a fee-based service, data can be extracted from a collected notebook and provided to the customer. Data may be provided via download or data carrier. Following the data extraction, the hard drive will be erased or mechanically destroyed.



Fig. 5: Data extraction

Refurbishment

As a first step of the refurbishment process, all individual notebooks are checked for their ability to be reused. The assessment is made using the applied labels that name e.g. the operating system and type of processor. Newer devices (from dual core processors and Windows Vista/ Windows 7 on) will generally be refurbished. The functionality of their individual components (e.g. mainboard, memory, hard drive) is checked. If possible, the memory and/ or hard drive are upgraded (see following picture). Afterwards a notebook is cleaned and a new operating system is installed.

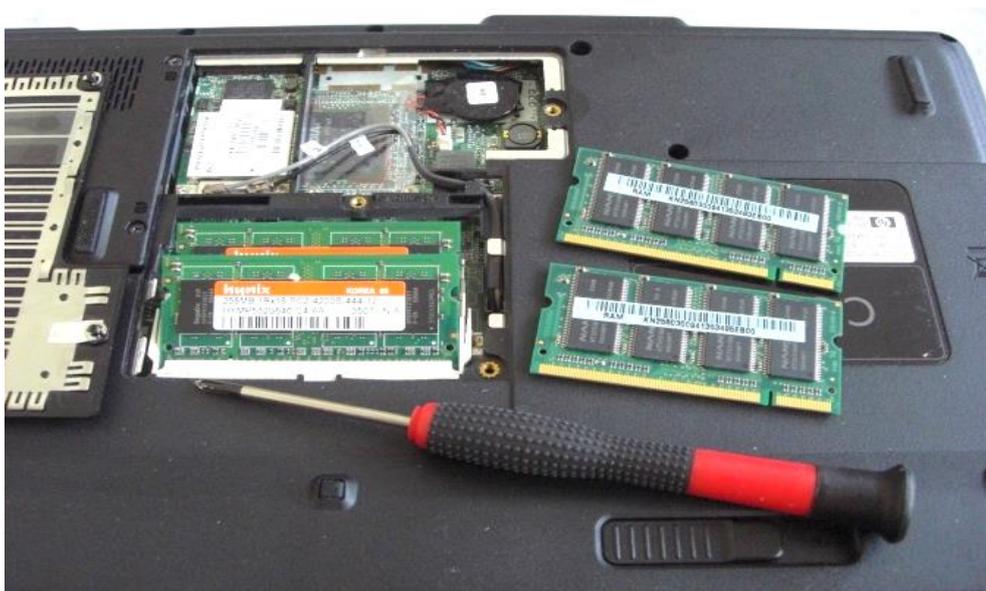


Fig. 6: Expansion of memory

Older devices are refurbished less frequently, as their might not be suitable for further use. On some of these devices, a Linux operating system is installed and they are provided to social educational institutions.

If possible, spare parts are harvested from the devices not suitable for reuse. The remaining notebook is then recycled. In any case, the data from each hard drive is erased or the hard drive is erased or mechanically destroyed.

Remarketing / Redistribution

In the first expansion phase of RUN, the refurbished notebooks are redistributed in Germany, Austria and Poland. An expansion to further countries is envisaged, as the project has a European dimension.

Possible distribution channels are retail stores (e.g. in collaboration with partners) or online portals. Currently (at the end of 2016), the notebooks are predominantly marketed in stores. There are plans to further develop the distribution channels. Furthermore, notebooks are provided to social educational institutions. Of great importance regarding the redistribution is the communication and documentation of the defined refurbishment quality.



Fig. 7: Notebooks after the refurbishment process

Outlook

The next step for RUN project will be to asses and to further refine the core processes and to implement them on a larger scale. Moreover, an expansion of the redistribution and collection processes to further markets /countries is envisioned. It is planned to establish new partnerships, implement the refurbishment process more widely and hone the redistribution and sales concept. The RUN project is looking for partner organisations and marketing collaborations. If you are interested, please get in touch.

Project team

The RUN project is run by a consortium of experts in logistics, quality controlled refurbishment, data management, resource-efficient recycling, redistribution, programming and web-design.



Fig. 8: Project team

The company Dr. Brüning Engineering UG coordinates the project. The RUN consortium partners are:

- Demontage- und Recyclingzentrum (D.R.Z.), eine Institution der Wiener Volkshochschulen GmbH
- Dr. Brüning Engineering UG
- Ebelt Beratung UG
- exmt – Büro für Programmierung und Design UG
- i4next international computer trading & leasing GmbH
- Laura Sp. z o.o
- ReUse Verein
- SAPOS gGmbH

If there are any further questions or if you want to cooperate, please don't hesitate to get in touch with the coordinator Dr. Ralf Brüning:

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