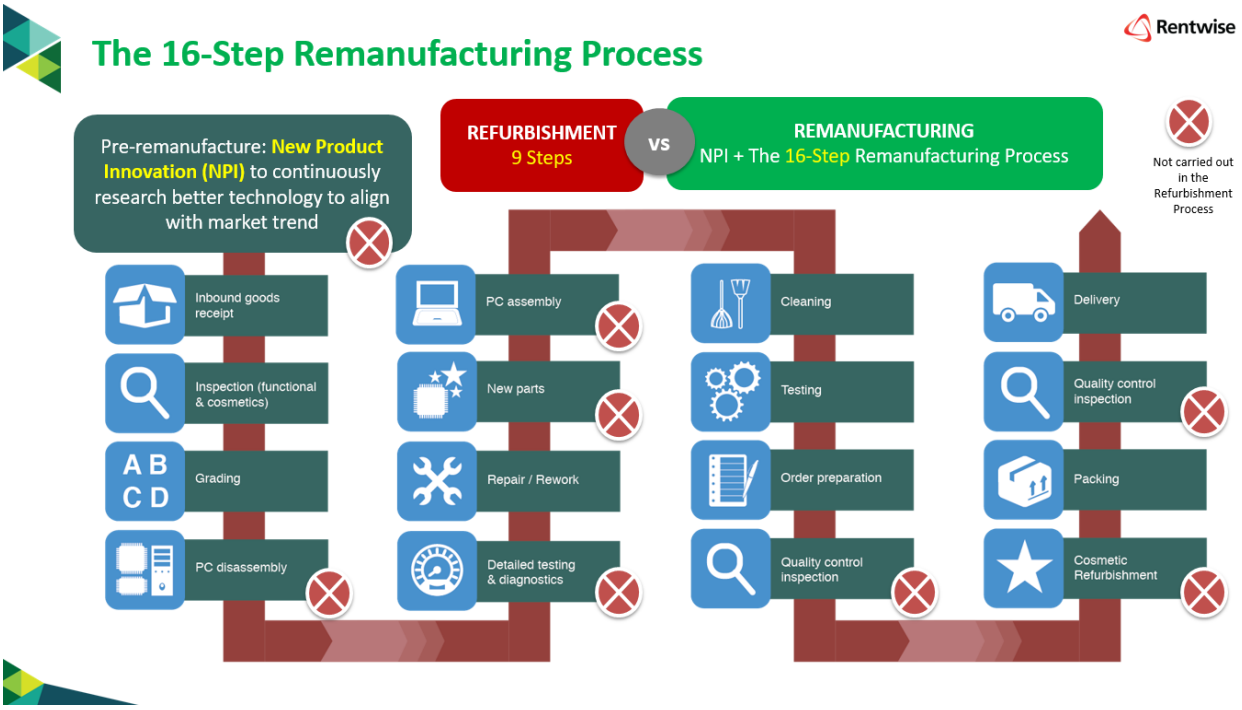
Enabling Circularity: The Case for Using Remanufactured Computers

Circular products are one of the key solutions to climate change, pollution management, waste control and biodiversity loss.

Remanufacturing end-of-use products that still has a good economic and useful life creates the highest value return in the usage of these products.

What is the Remanufacturing Process?



According to the Remanufacturing Industries Council, the remanufacturing process is defined as "*a comprehensive and rigorous industrial process by which a previously sold, leased, used, worn, remanufactured, or non-functional product or part is returned to a like-new, same-as-when-new, or better-than-when-new condition from both a quality and performance perspective, through a controlled, reproducible, and sustainable process*."

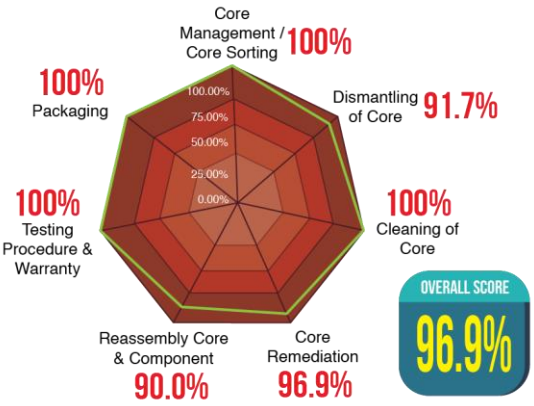
At Rentwise, selected, end-of-use computers from corporate organisations with short usage cycles are restored to 'as-new condition' with a matching warranty and recirculated into the market through a lease-to-use model. The remanufacturing process is an extensive, 16-step process which has been audited and

Rentwise Sdn Bhd (458707-X)
Lot 9 – Unit A1, Natco Industrial Park, Lorong Keluli 1B, Seksyen 7, Taman Perindustrian Bukit Raja Selatan, 40000 Shah Alam, Selangor Darul Ehsan, Malaysia.
www.rentwise.com
www.linkedin.com/company/rentwisemy
enquirymy@rentwise.com
+603 3341 6552

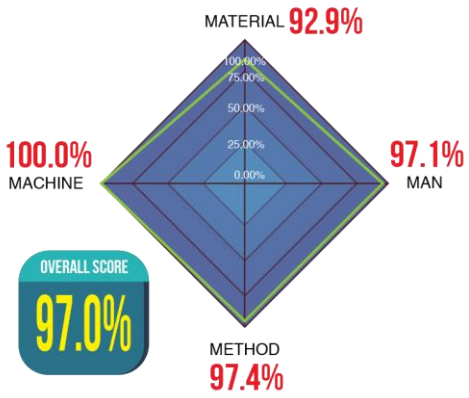
accredited by a team of experts via a study commissioned by the Ministry of International Trade and Industries (MITI) in 2017. This was done under the initiatives of the National Remanufacturing Policy as part of the 11th Malaysia Plan.

During the remanufacturing process, retired IT assets are fully disassembled. The internal structure of the PC is properly cleaned. Diagnostic tests are performed to assess the condition of various electronic components, before the units are cosmetically re-worked and reassembled. As part of the process, batteries are replaced, storage drives and memory units are upgraded to meet the latest software operating requirement. There are 3 quality control inspections to be performed in the remanufacturing process to ensure everything works well before the remanufactured computer is assembled and deployed to a new user.

To ensure maximum quality is achieved, the remanufactured computer will also be subjected to a series of rigorous stress tests to ensure it performs as intended. This is the hallmark of an intensive 16-step remanufacturing process as opposed to a 9-step only refurbishment process.



R7KPA Scoring Model



G3M Scoring Model

The methodical remanufacturing process employed by Rentwise has been endorsed by the Ministry of International Trade and Industry (MITI) in 2017 using the Remanufacturing 7 Key Process Area (R7KPA) and the Gomi Muda Mura Muri Economic & Environmental Impact Assessment (G3M) framework, under which the scores were 96.9% and 97% respectively. This robust process yields quality remanufactured products that come with a 3 to 5 year warranty.

Why use Remanufactured Computers?

In 2017, a study by Cranfield University discovered for standard office use, the performance difference between a new and remanufactured computer is a mere 3%. For a negligible 3% performance gap for standard office use, it does not make economic sense to spend on average 25-40% more for new equipment where it is not required (overkill). As such, the value from using remanufactured computers

extends beyond just the environment concerns to encompass one of economic reasons with this imbalanced cost-benefit outlook. A growing list of clients and industry sentiments bear testament to this.

Clients are local corporates, MNCs as well as consumers who appreciate the benefits of using an energy-efficient remanufactured computer especially given its smaller carbon footprint. Many IT savvy users are also increasingly aware it is not beneficial to continuously pursue IT computing power. They recognise that buying new IT equipment is often time an overkill, as standard use cases do not require the latest and greatest. If business operation can still be supported with the use of more cost-effective remanufactured computers, it does not make business sense to be spending more for new equipment.

IT is an indispensable tool that plays a central role in running any business today. It's high time we take a serious look at how we use IT in a sustainable way that not only advances our economic growth, but also ensure that it does not put any unnecessary stress on our environment and resources.

Environmental Impact of the ICT Industry

Today, atmospheric CO2 is at a higher level than at any point in the last 3 million years. Humans are injecting more CO2 into the atmosphere at one of the fastest rates ever. The information & communication technology sector's global share of greenhouse gas emission stood at 4% in 2020, and is projected to rise to 14% in 2040. Production and use of a new laptop and desktop emit about 350 kg and 800 kg of CO2e respectively. Remanufacturing helps drive down carbon footprint by as much as 75%. This means that users of remanufactured computers are only responsible for an estimated 25-30% of carbon footprint.

The greening of IT infrastructure with remanufactured computers is not only seen as a crucial first step, but also represents the simplest, most cost-effective and quickest way to be ESG-ready. The benefits of carbon reduction would certainly be a welcoming benefit to organisations who are required to disclose their sustainability performance.

Remanufactured Computers for Education

Rentwise has carried out 44 CSR campaigns involving 100 schools and NGOs, benefitting almost 32,000 schoolchildren nationwide. Most projects were done via a dual party collaboration framework whereby Rentwise reaches out to the private sector to help them monetize 80% of their retired ICT assets. The balance 20% of these retired ICT assets will be remanufactured before being donated to pre-selected public schools. Priority is given to schools with a high percentage of underprivileged students from the B40 community with no or very few working computers - notably less than 25 units.

In early 2021, Rentwise had the privilege of working with Yayasan Sime Darby (YSD) on the CERDIK program at the height of the MCO during which a total of 7,500 remanufactured computers were supplied to 60 schools in 24 districts nationwide. The tripartite collaboration involving Rentwise, YSD and MOE was the first of its kind in Malaysia to witness the use of remanufactured computers on such a large scale deployment over a period of 10 months.

This project has demonstrated positive social impact and digital learning enablement among school children apart from the obvious cost savings in IT equipment procurement if these had been new. Rentwise hopes that the positive social, environment and economic impact of this unique case study can be further replicated as a viable solution and a sustainable strategy moving forward in digitalizing schools in Malaysia by the Ministry of Education. This is indeed a timely consideration as the Education Ministry is finalizing the Digital Education Policy.

Circularity in Government Policies

Governments are one of the biggest users of IT equipment. We propose a private-public-partnership to the government of Malaysia, notably for the Ministry of Education. We aim to remanufacture government-used PCs to be repurposed and recirculated back to national public schools where most, are in dire need for a technology refresh in order to keep up with the national ICT syllabus.

The benefits will be astounding: approx. 2.34 million new PCs shipment in Malaysia (in 2019) x 34% (government) x 50% (estimated half to be remanufactured) x 800 kg CO2 (carbon footprint per desktop) x 75% carbon reduction x 2 extended lifecycles = 477,360,000 Kg of CO2e! This is a multi-facet, environmentally and economically beneficial model which can be replicated globally – simultaneously benefitting the society while promoting resilient national growth.

Founded in 2001, Rentwise's circular business model has served more than 200 medium to large corporations in Malaysia and Singapore. A pioneer remanufacturer of IT equipment in Malaysia, Rentwise has to date reduced over 280 million kg of CO2 emission from about 400,000 used computers repurposed. As an award winning, accredited and leading independent lessor for end-to-end green IT infrastructure, Rentwise takes great pride in its strict 16-step remanufacturing process. This process has enabled Rentwise to extend the use of a PC by up to 3 cycles, thereby maintaining product utility at its highest value over an average lifespan of 10 years. As a registered social enterprise and participant of the initiatives of the United Nations Global Compact, aligned to the United Nations Sustainable Development Goals 4, 12, 13 & 17, Rentwise is especially committed to providing equitable access to digital learning among underprivileged school children. This digital learning empowerment program has seen more than 100 schools with over 32,000 students benefitting from donated remanufactured computers in a joint collaborative effort with numerous project partners and clients in Malaysia.

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enquirymy@rentwise.com
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