

Case Study E

Company: Ricoh Co., Ltd.
Location: Tokyo, Japan
Product: Multi-Function Printer (MFP)
Type: OEM
Maturity: Experienced
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Ricoh is a global technology company specializing in office imaging equipment, production print solutions, document management systems and IT services. Headquartered in Tokyo, Ricoh Group operates in about 200 countries and regions with over 109,900 employees.

Motivation for Remanufacturing

For the sustainable business growth of company into the future. Remanufacturing supports reduced new material consumption to sustainably utilise limited global resources. Resource conservation activities can reduce cost of products. Such activities are considered a key business factor to hedge against future risk of increasing resource cost and stable supply of our products in the market.

Product Description

In 1997, Ricoh launched the first remanufactured black and white colour Multi-Function-Printer (MFP) (Fig.7) in Japan, and since then it has widened its products portfolio of remanufactured MFPs. In 2009, Ricoh launched the first remanufactured full colour MFP which requires high quality standards. This introduction enabled Ricoh to provide products that can meet a range of customer needs. The digital full colour MFP MP C4000 RC is a remanufactured MFP MP C4000 sold in the Japanese market.



Fig. 7 RICOH Multi-Function Printer MP C4000 RC

Design for Remanufacturing

The Ricoh Comet Circle¹ underpins Ricoh's approach to sustainable design. In 1993 Ricoh developed its first policy on product design, for future reuse/recycling which includes, plastic grade identification, product strength design, reuse of high valued components, recycle of high quality grade materials, easy dismantling/segregation. This allows, for example, an adaptable outer plastic housing for easy serviceability (cleaning and quick drying) and avoids use of stickers/labels over multiple components for easy disassembly.

¹ <https://www.ricoh.com/environment/management/concept.html>

The efficiency of the remanufacturing process is greatly influenced by adopting such DfRem approaches (Matsumoto & Umeda, 2011).

Environmental Benefits

Through remanufacturing, Ricoh is able to reduce its environmental impact during production by 82% on the MP C4000RC when compared with an equivalent new model. Remanufacturing products can reduce processes for material and components production, which have large contributions to CO2 emissions in the total life cycle. On average 80% of the original components in weight are reused via Ricoh's product inspection, cleaning and remanufacturing process. In addition to the production phase, environmental impact throughout the total life cycle including in-use (depending on the energy mix) and end-of-life phases is lower by 17% annually.

Economic Benefits

Remanufactured products can contribute widen product portfolios, meeting various clients demands in the market, thereby opening up new market opportunities. Particularly, for clients who care about the environmental impact of the products they procure.

Social Benefits

Remanufacturing activities create job opportunities in the area where those products are collected and remanufactured.

Business Model

Ricoh's business model offers direct sales/service infrastructures where those products are collected by Ricoh for reuse/recycle purposes. Remanufactured products are dismantled, inspected, updated and rebranded to be sold as new. Ricoh has remanufacturing sites in each region including EMEA, Americas, Asia Pacific/China, and Japan. By combining design policy for future reuse/recycle and this infrastructure in each region, Ricoh can continue to offer its circular economy business model with high quality remanufactured products.

Future Challenges

Ricoh sees two key challenges to remanufacturing. The first issue is around compliance with future legislation on chemical management, meaning remanufactured products must comply with legislation which was applicable when the original products were produced. It may well be technically difficult to comply to new legislation with old technology, or commercially difficult to meet client demand on product price, considering the additional design changes required to meet any new legislation. Secondly, there are challenges with striking a balance between product life extension and technology innovation. On the one hand, promotion of the CE can extend product life, but on the other hand, it may limit opportunity for new innovation in technology.