REMANUFACTURING IMPLEMENTATION WITHIN NEOPOST

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...Combinated with the launch of a new product range and our ecodesign mindset ...

...conducts to implement a large-scale remanufacturing initiative in 2011
What is a remanufactured product?

- Same quality
- Same aesthetic
- Same functionalities
- Same certification

100% of the product is new

Between 50% and 75% by weight of a product comes from used parts
The remanufacturing process

- Disassembly
  - Technical Diagnostics and Storage
    - Technical diag. to evaluate the device and its remanufacturing potential. Storage is manage accordingly

- Reverse Logistic
  - Gathering machines in commercial entities and sent to the remanufacturing center

- Product Distribution
  - Tests to ensure that the remanufactured product is equivalent to new

- Assembly, Tests and packaging
  - Systematic changes of wearing parts, cosmetic parts and specific parts to integrate the latest design update

- Disassembly according to a predefined BOM

- Disassembly and Storage
  - Systematic changes of wearing parts, cosmetic parts and specific parts to integrate the latest design update
How to implement it?
5 key pillars

- Legal assessment
- Marketing Strategy
- Commercial implementation
- Design and technical evolution
- Take back forecast
Legal Assessment

Business Model

• Sale = communication on the status of remanufactured product is compulsory (for the price paid, customer may reasonably expect the product to be new)

• Leasing without purchasing option is equivalent to the rental
  > The contractual purpose is the use of an equipment
  > The contractual object is the provision of a fully functional franking/inserting system, whatever its manufacturing status is (new or remanufactured)
  > Communication on the remanufactured status of the product is not necessary

European Regulation

• The remanufactured product has to comply with the latest regulations
Marketing Strategy

3 different models...

- Need for 1 price point
  - ASP
  - Comp.
  - $n_{\text{NEW}}$
  - $n_{\text{RMFG}}$

- Need for 2 price points
  - ASP
  - Comp.
  - $n_{\text{NEW}}$
  - $n_{\text{RMFG}}$

...depending on

- Country, local market, number of price points needed, customer expectation, business model and competition
Reverse Logistic:

- Previously, end of lease products locally scrapped or dismantled (Postal and WEEE regulation)

- To keep the product value, motivate and maximize the return flow, the buy back process was implemented in each entity
  
  > *Product Property moved from commercial entities to supply chain*
  > *Supply chain manages its own stock, moving one product from one country to another one.*

Communication

- A key success factor, to inform commercial entities and final customer

- Leasing and rental contracts update, saying that the product may contain remanufactured parts.
Design and Technical Evolution

To manage the evolution of product over the time

- Introduction in 2008
- Changes have been made between first introduction and now
- We will receive product with different technical state
  ➔ how to manage technical changes?

Introduce this factor in the BOM: different BOM linked to the different level of technical state

Adapt remanufactured product to the latest features to align new and remanufactured product
Take back forecast

The take back process is the flow of raw materials for the remanufacturing process.

It influences the global strategy:

- Factories workload
- Mix between new and remanufactured products
- Product roadmap
- Savings
Measurement and Key results
Impact of remanufacturing on production cost

Between

- 10 %

and

- 20 %

Per product compared to a 100 % new product scenario

Applied methodology

- Calculation of production costs of an IS 420 product on a cost price method
- Limited to Neopost European Market
- Are included direct workforce, materials, reverse logistic and distribution costs

- The cost reduction is highly sensitive to the number of parts that have to be changed during remanufacturing.
- In addition to cost reduction, Neopost is also less sensitive to material costs volatility.
Deployment of remanufacturing lead to massive improvement of Neopost environmental footprint

-37%
-25%
-30%

**Applied methodology**

- Simplified LCA done on an IS 420 product
- Limited to Neopost European Market
- Use of paper and ink excluded of the study
- EcoInvent 2.0 database
- For product comparison, 2 period of 5 years usage are considered, the first being with a new product
- For the second, an extrapolation of the IS 420 is done to the full Neopost business

- Similar benefits are observed on other classical LCA environmental indicators
Remanufacturing model was a way for Neopost to maintain activity and employment in its French industrial site.

**Estimated impact of remanufacturing over employment**

- **20 direct jobs**
  - Maintained at Le Lude

- **6 indirect jobs**
  - Sustained in France near Le Lude

A reduced activity at Asian suppliers (not estimated)

While the impact of remanufacturing was just estimated for Neopost business case, methods exist to provide a more complete picture of social impacts, such as the Input-Output Analysis and Social LCA.

**Insight into the Input-Output Analysis**

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Indirect rank 1
- Indirect rank 2
- Indirect rank 3
Conclusions
Conclusion

A new business model which requires adaptation

- In sales
- Production
- Procurement

Socio-economic and environmental benefits help for gaining support from employees from various departments

Improvement of the corporate brand thanks to internal and external communication

Make the circular economy an industrial reality
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