

Design for Reman

Workshop sessions

What is written below is not necessarily the view of Envirowise or the CRR, but a selection of views from the delegates involved in the joint Envirowise and CRR workshop.

The delegates were split into four groups. The four industry presenters together with a CRR/Envirowise facilitator rotated around the groups so that delegates could probe further into any aspect of the topic matter.

A: Business models (Edwards Vacuum)

How did remanufacturing come about?

Initially, it was driven by customer needs relating to expensive parts. It has now evolved to being an integral part of service and support and the total sales package.

Is reman only applicable to high value components?

High value is a good guide to the likelihood that remanufacture will be appropriate, but there is no lower limit. It is really a balance between the labour, material and energy inputs (=costs) needed for remediation of a particular component compared to new. Parts do not have to be complex to be worthy of remanufacture: high speed tool bits, for example, are commonly seen as part of a remanufacturing product-service system.

How does reman affect new sales?

Remanufacturing can stabilise a business because in general it absorbs swings in new sales. However, remanufacturing is subtly different because it services a base of products that are already installed and doesn't really rely on future sales. This can make it particularly attractive in times of recession.

Does Edwards remanufacture other brands?

Yes, a little. But the problem is not being able to guarantee "as new" performance because of restricted access to the design specifications.

How does Edwards cope with the variability in returns (core)?

This is key to the operation. Essentially, in contrast to manufacture, remanufacture is set up on the assumption of “one piece flow”. This is the worst case assumption: each incoming part is unique, with its own history of use and failure. Lines are lean, but designed as cells for high flexibility (take the part to the tool, not the tool to the part).

What about start-up when there is no core in circulation?

Ensuring the availability of reusable components is a key competence. It is often necessary to prime the loop with new components until returns begin to flow. With regards to ongoing support, there is a guarantee of seven years to customers, but this does not preclude the redesign of components that are improved but backwardly compatible. Electronics sub-systems can be problematic which is why Edwards has taken the design and construction of these in-house.

How about skills?

Remanufacturing is a higher skill operation due to the diagnostic and flexibility needs, although a majority of workers will be exposed to both manufacture and remanufacture. A modified approach to training is needed because there is no such thing as a standard process.

How are reman services costed, priced and accounted?

There is a substantial amount of benchmarking activity on parts replaced and repaired alongside the sales and revenue tracking. Customers may be offered discount dependent on circumstance, volume etc. This information is monitored globally through SAP. In this way the tiered levels of service have evolved based on customer needs with the exchange service being the premium offering.

Would Edwards consider an “own & operate” model?

The difficulty would be that many of Edwards pumps form components in others’ systems such as analysers, and are thus out of their control.

Does reman help to improve the design of new?

Yes. Field support gives in depth knowledge on failure mode analysis and the demands of particular customer applications. This is fed back to the design teams. Conversely, the remanufacturing team has the authority to “bounce back” new design proposals if they do not capitalise on existing platforms or demand a new type of processing capability that would increase the complexity and overhead of remanufacturing.

If there were (fiscal) incentives to reman, would you design differently?

The comparison made was with HP et al. who embed diagnostic capability into chips and products. Yes, Edwards products have needs for reman considered early. To this end the front and back ends of the operation must be integrated, and commonality exploited across products as much as possible.

Customers might perceive reman to be of lower quality. Is this true?

All equipment is built and tested to as new standards. In addition, for many parts, reman can be more reliable than new as sub-standard parts e.g. porous castings will have failed early and been removed from stock. This is true in other sectors.

Has there been a return to traditional values?

A general discussion: Power has shifted from manufacturing to retail in the past 30 years and this has affected the B2C relationship. An abundance of suppliers has promoted the value of “new” in many markets, so how to create a market for remanufactured products? Perhaps like other products e.g. cars, you need to create a separate brand with different values (Toyota-Lexus), perhaps using a different channel. Alternatively a whole new offering based on a portal offering similar “values”.

B: Design for remanufacture and reuse (Wax)

Group 1

The conversation started around the Envirowise Packaging tool, www.envirowise.gov.uk/pack-in and about how the different scoring criteria were weighted. The tool is not weighted (so for example recyclability is no more important than embodied carbon in the tool) to allow companies to decide for themselves which is the main priority for them. This way, the tool identifies areas for design improvements and gives basic details about carbon content to allow companies to compare designs. Whether one criterion is more important than another is down to their product and environmental strategy.

The conversation then moved on to who benefits from eco-design improvements and how, if one department makes the changes, another department may benefit

from any cost savings associated. This means there isn't much incentive to the original department making the changes in the first place. A suggested solution to this would be to merge both budgets and objectives and encourage better communication between departments, e.g. designers, marketers and production staff.

Group 2

The conversation started around defining the principles of eco-design and sustainability. It was decided that resource efficiency is very different to sustainability. Sustainability is looking at the whole eco-system and what effects your actions have, resource efficiency is just being as efficient as possible with resources to make your products. Eco-design takes both of these strategies and looking at it from a design point of view (within the scope of the brief). The principles of eco-design are to reduce the negative impacts of a product or packaging across its lifecycle (within commercial boundaries).

The conversation then moved onto why clients ask design agencies for 'green' products. Do the clients have the eco-ideas or do the designers? It was thought that it was a bit of both, but that the client didn't really know enough about how to make a product 'green' and therefore needed guidance from the designers, not forgetting production staff who are a key step in the process to feed into the most efficient way of making the product.

Group 3

Which is better? A product with a five year life but with a second life or a product with a 10 year life that is harder to dispose of? Unfortunately there is not a simple answer. This goes for most eco-design questions design agencies are asked. Everything depends on the way a product is made, used and what happens to it at the end of life. There is no simple answer when it comes to designing a 'green' product.

The conversation turned back to why clients ask design agencies for 'green' products and it was concluded that in the current climate most companies come to design agencies and say 'I want a cheap product but also would like it to be 'green''. It was also suggested that sustainability is now an afterthought and that most companies don't really know what they mean by 'green' anyway. Therefore designers can have huge influence over their clients by introducing eco-techniques and also making products cheaper to produce.

Group 4

This group seemed to agree with the previous about 'green' being an added bonus and cost being the deciding factor for most designs. But expanded to say most companies want something 'green' so they can use this for extra marketing.

The conversation then moved onto green labelling and how companies go with the most marketable label for example, companies like the FSC label. It was suggested that FSC have spent a significant marketing budget getting consumers to recognise their label. When comparing this to the European label (which some argued means more as it is a more robust way of assessing environmental impact) the companies around the table would choose the FSC label as consumers recognise it more and it could increase sales.

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C: 3rd party remanufacturer (Bond Group)

Do you customers consider the environmental benefits of remanufacture?

The initial driver for purchasing remanufactured units is cost. It is not possible to sell remanufactured fridges without a price separation between new and remanufactured. The environmental benefits are perceived as a good, but side benefit.

Can remanufacturing improve on fridge design?

Yes, under most circumstances the energy efficiency rating of the fridges can be improved during remanufacture. In fact the entire case can be altered to meet the needs of a customer, for example adding or removing facing panels, altering shelves or rebranding. We can also change the refrigerant gases available, however, cost considerations from the retailer determine the scale and complexity of these changes. Cost consideration drives the level of upgrade across the industry but other considerations are also important, for example: there is currently a debate on the use of glass fronted doors within the chilled food sector, these can be fitted, either as new or by the remanufacturer, but there are concerns that the addition of doors will reduce sales.

Do innovations from OEMs reduce your competitiveness?

Generally not, design innovations mean that products which are ready for remanufacture in five years' time will give us similar performance, and any improvements in moving parts (such as fans) can be bought in from various sources.

Do you have the ability to remanufacture all fridges?

Most, the technical expertise built up within Bond group means that we can remanufacture virtually all refrigerated display cabinets available today. We hold over 75,000 technical drawings, this is the core value of our business built up over 20 years. The two main issues in remanufacturing are the use of poor quality fridges, (a key issue is the use of mild steel which corrodes making remanufacturing impractical) and old stock where the look or finish of the fridge does not match the current designs.

What are the main barriers to remanufacturing?

Education of the purchaser is seen as a major issue. Key individuals within retailers' understand the value of remanufacture, but if these messages are not relayed to the buyers then there is the perception that the product is 2nd hand (and therefore inferior) reducing their competitive edge.

There are certain legislative issues with the definition of new and used mean that there are tax incentives available to new fridges which are unavailable to remanufactured ones.

There is a perceived extra effort associated with buying remanufactured compared to new. This can be discouraging to time pressed purchasers.

How did you become a remanufacturer?

The business developed from a refurbisher and repairer of refrigerated display cabinets. Relationships built up with several retailers to develop the business into a remanufacturer.

Do you promote the environmental benefits of remanufacturing?

Partially, there is also some push from the retailers in this area. The big problem is that the retailer does not have a clear picture of what they want. For example, energy efficiency savings are requested but they are not prepared to pay for experimental or state of the art systems.

D: Out-sourcing, Marketing and Branding (Sony)

The whole idea for outsourcing and moving to a service model was imported when a new manager came from a similar position in the IT sector. He still

needed to convince Sony of the business case and to show that there was a strong financial incentive. However, knowledge that it had worked at within the IT and telecoms sector (and thus that know-how had come with the manager) was significant.

Principally the service model was chosen for commercial reasons. The centralised locations make it much easier to maintain quality: trying to supervise and audit hundreds of small repair agents is much harder than having one or two in each country. Also, the scale allows for a 24hr turn around as there is always one available to replace. Finally, because of these and the general “clearer process flow” of bigger operations, this model is cheaper than diverse operations.

Sony do get good product feedback from customer returned units and this has a direct feed into the design of new product variants.

The independence of 3rd party providers has allowed new ideas to be tried (and new suggestions to be offered). These have then been easier to spread into in-house Sony operations that mirror the work of the outsourced parties.

Sony’s model works well partly because they have a single product and therefore dealing with variety and variable stock is lower. More key to this is the fact that factory resources and staff skills are focussed, which ensures efficiency. Also they have a very well tested product which means that the level of returns can be minimised over time.

Sony offers a replacement service to out-of-warranty products (between 40-50% of remanufactured volume) just at a break-even price, this ensures a high level of customer satisfaction, and also has the advantage that the customer will remain as a Sony customer, and is likely to still purchase new software.

The customers are unaware of 3rd party involvement as it is presented end to end as a Sony service. By and large, the customers are focussed on wanting a very speedy replacement (24hrs usually) and the service-exchange programme allows this.