

The Ship of Theseus – a thought piece

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Our latest forecast: expect more sightings of Plutarch's 2,000-year-old paradoxical ship over the next five years, as environmental policy makers switch their focus from material recycling targets to product value retention. This change in emphasis will encourage extending the useful life of products and components and discourage smashing them into pieces and sorting and recycling the resultant materials. The simple fact is that, for many product categories, extending the useful life of a product through repair, refurbishment and remanufacture produces is far better for the environment than recycling. The forthcoming report [1] by the International Resource Panel will set out the comprehensive evidence behind this assertion.



However, extending the useful life of any item raises some important commercial and technical questions, some of which would have been familiar to Greek philosophy students 2,000 years ago. Plutarch, who lived c.45 to 120 AD, asked at what point – if ever – did the famous ship of Theseus become a different vessel during the many years of repairs and replacements to its wooden structure?

To give an indication of just how important this change in policy emphasis may prove to be, we have highlighted two examples from August 2018 when, during our work with clients, we felt we'd seen Theseus' ship ourselves. .

Sighting 1: Birmingham UK

At a meeting of the National Bed Federation's Circular Economy Committee we noted the following comment during a thoughtful discussion on the design parameters for a possible new extended producer responsibility scheme: *"A bed made from reused springs, reprocessed fillings and a new cover is surely just a new bed? It's not like my 30-year-old Land Rover, most parts of which I have replaced, except that it still has the same chassis number and registration plate!"*

Consider for example whether a rebuilt mattress would need to meet the UK's 1988 fire safety regulations for furniture and furnishings. Compliance often requires the use of flame-retardant compounds such as TCPP or melamine to prevent PU foam from burning vigorously following ignition. Avoiding these additional costs might offer a cost saving of as much as 15%, but why would a cost saving that compromised the UK's exceptionally rigorous fire safety regulations for furniture ever be considered? Because it was common in the 1950s for mattress manufacturers to offer a service of refilling mattresses eight years after purchase. This deterred the customer from throwing away the whole product, which included steel wire springs designed to withstand decades of use. If a manufacturer today decided to offer such a value retention service, competitors might challenge it on the basis

that the bed is equivalent to a new one and should be tested as such. And if there are doubts about defining when to declare the product equivalent to new, imagine an evidence base that shows that, due to degradation of the chemical compounds, furniture and furnishings cease to be compliant with the regulations for new products after just two or three years' use. How might that inform your judgement?

Sighting 2: Brussels

At a discussion about the ecodesign criteria for power transformers, the BLUE GUIDE was quoted: *"A product, which has been subject to important changes or overhaul aiming to modify its original performance, purpose or type after it has been put into service, having a significant impact on its compliance with union harmonisation legislation, must be considered as a new product."*

EU No 548/2014 was adopted on 21st May 2014. It sets a minimum level of efficiency for new transformers installed after July 2015 (Tier 1) and a second, higher level of efficiency (Tier 2) for equipment installed after July 2021. The Tier 1 standards have been widely welcomed and are delivering benefits in terms of CO₂ emissions and lower overall financial costs for transmission. However, the next step to Tier 2 brings with it only marginally better performance and significantly higher costs. To meet the required efficiency ratings for Tier 2, many of the new transformers will need to contain much more magnetic steel and copper, and they will need to be larger and heavier. An older transformer can be remanufactured to meet Tier 1 requirements at a much lower financial cost. If it is required to meet Tier 2 efficiency standards it will instead be scrapped and melted down to become low-grade rebar steel for use in construction.

The question facing regulators is whether old transformers that are remanufactured are to be considered 'new'. If so, after July 2021 they will need to meet the Tier 2 standards which, in almost all cases, will be technically impossible. It was for this reason that the Blue Guide was quoted.

For some, this is clearly a case for which the Blue Guide was written. Yet there is no evidence base that compares the CO₂ emissions from the manufacture of the larger, heavier Tier 2 compliant transformer with the savings from a Tier 1 remanufactured transformer. The question to ask is how many years of service would it take to recoup the additional environmental burden from manufacturing a new transformer and scrapping the old one? The evidence base was not prepared because this was considered too complex a question. Exactly why it is thought to be so complex is, as yet, unexplained.

Value retention policies are on their way. They will create a need for better technical evidence, and spur on the development of new business models. Oakdene Hollins is already in the thick of this discussion [2] and is working with businesses and trade associations who are getting ready to respond. When the International Resource Panel throws its ball, will you be ready to catch it? Do let us know about your own sightings of the Ship of Theseus.

Thought-piece by David Fitzsimons, Director of the Conseil Européen de Remanufacture

References:

- [1] Dr Nabil Nasr will present his final report on the *Assessment of Resource Efficiency and Innovation in Circular Economy through Remanufacturing, Refurbishment, Repair and Direct Reuse* at the World Circular Economy Forum in Japan in October 2018
- [2] See our briefing note on the *G7 Value Retention Policies* Workshop in Montreal, Canada, available from <http://www.remancouncil.eu/files/BriefingnoteG7MontrealJuly2018.pdf>

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About the Council:

The vision of the European Remanufacturing Council is to triple the value of Europe's remanufacturing sector to €100 billion by 2030. We will bring together businesses from every product sector to share knowledge, and seek changes to policy with the aim of making remanufacturing a normal part of the product life cycle.

For more information about the CER please visit
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About Oakdene Hollins:

Oakdene Hollins is a research and consulting business that advises clients on the circular economy and product stewardship. From offices in the UK and Brussels we provide market research and science-based evidence for Government and business clients. The company has managed European knowledge centres on remanufacturing (see www.remanufacturing.org.uk and www.remanufacturing.eu) and established the European Remanufacturing Council based in Brussels. Oakdene Hollins also manages the award of the European Ecolabel within the UK to companies applying to sell their products within the European single market (see www.eu-ecolabel.uk).

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