



SUSTAINABLE BRANDS CASE STUDY

In Pursuit of a Circular Economy: Market-Leading Product and Service Innovation at DESSO

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Executive Summary

Carpet manufacturer DESSO has emerged as a leader in articulating and pursuing circular business models, one of only a handful of major companies to visibly act on such an ambition to date. Since 2008, the company has engaged in focused efforts to divert from linear thinking, in order to implement processes supporting carpet recycling and reuse. It is also designing and sourcing next-generation materials according to Cradle to Cradle® standards, thus aiming to embrace a nascent but promising movement toward a broader circular economy. Hoping to close its carpet tile loop by mimicking natural regeneration and using only recyclable materials, DESSO believes that resource restriction realities mean that material reuse is the most economically and environmentally reliable model for future corporate success.

Context

As a Europe-based carpet company with global reach, DESSO is behind products that serve a multitude of carpeting businesses, government offices, residential homes, airplanes and even athletic fields. It operates in an industry currently dominated by linear thinking – in 2010 alone, 600 thousand tons of floor covering materials were thrown away and only 1 percent recycled.ⁱ Grounded in sophisticated understanding of resource limitations and environmental demands, DESSO has reoriented its corporate mindset to favor a circular material flow. In 2008, the company articulated a compelling vision of what a better world would look like from a carpet perspective. If 90 percent of our lives are spent inside, the reasoning went, how can we rethink a floor environment that is durable, inspiring, economic, and healthy? To act on opportunities within that challenge, DESSO is working to address all elements of carpet-people interaction with a sustainability-driven mindset that considers the context of the whole system within which the company's products exist.

DESSO has been recognized as a leader in applying the Cradle to Cradle® approach to product design, an approach it believes should be the central pillar of a

future circular economy.ⁱⁱ The company's executives, led by CEO Alexander Collot d'Escury, assert that the concept of a circular economy elegantly addresses rising environmental and social pressures, while also presenting opportunities for attractive returns on investment. A seminal 2012 study on the subject by the Ellen MacArthur Foundation and McKinseyⁱⁱⁱ found that circular business models could boost the EU economy alone by \$630 billion – equivalent to 4% of annual EU GDP – per year. While 4% is a milestone leaders like d'Escury agree is currently unrealistic, the potential benefits of the transition seem hard to argue against. With that intelligence in mind, DESSO has set out to close the loop on its own carpet production, with the hope of inspiring other companies to explore similar evolution paths.

Initiative Design

DESSO approaches carpet design with three main criteria in mind: creativity, functionality, and Cradle to Cradle[®] certification. The end goal is to produce healthy and sustainable carpets that are aesthetically appealing at the same time. Carpet tiles infuse Dutch inspired design with adaptable colors and features, supplemented with increased functionality in terms of what a carpet can do for its consumers. Fine dust found in carpets, for example, can seep into lungs and cause cardiovascular problems that lead to the flu, asthma, and various other ailments. To combat fine dust, DESSO produced a carpet that captures and filters particles, reducing their impact by a factor of 8 – a major feat. This design not only dramatically improves the air environment in a given room or building, but could also save billions of dollars for healthcare providers if adopted widely. In addition, DESSO also found that some carpet models are able to reduce customer energy bills by adjusting colors so that rooms appear naturally brighter and need less electric light as a result.

Importantly, DESSO filters both creativity and functionality through a Cradle to Cradle[®] mindset. It has altered its material choices to favor those that are free of toxins and can be easily recycled or upcycled for future use. By 2020, the company hopes to use 100 percent renewable energy in production and corporate facilities. It



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also aims to have 100 percent of its carpet tiles Cradle to Cradle® certified. The plan is to address carpet tile material first, and then move into sport systems and wool carpets as Cradle to Cradle® success gains momentum. Ultimately, DESSO intends to transition to a service-based model in which it leases out its carpets and later takes back the old tiles in order to recycle and reuse the underlying materials.^{iv}

Implementation

Since setting its Cradle to Cradle® goals, DESSO has focused implementation on its biggest product: carpet tiles. Material health is being addressed by using non-toxic components, while reutilization options also play an important role in the material selection process. For example, a new carpet backing, EcoBase, uses a polyolefin-based layer made from 100% reusable materials, instead of bitumen that previously had to be downcycled and sold to road and roofing companies at the end of its useful life. In 2008, DESSO initiated its Take Back Program, eventually renamed to the DESSO *Refinity* Program, which takes old carpet backing material and separates yarn and fibers for reuse. The used depolarized yarn is then returned to material manufacturers to create new durable yarn in any color. The used yarn can also be upcycled to produce expensive, durable plastic.

Further, since 2010, DESSO has partnered with Aquafil, a yarn supplier, to embrace the initiative “Healthy Seas, a Journey from Waste to Wear.” As a result of this collaboration, DESSO now uses ECONYL yarn made of Polyamide 6 material from ocean waste like fishnets. ECONYL is 100% recyclable and maintains durability even when repeatedly reused. DESSO has also experimented with yarn made from bamboo and aims to create a biodegradable fiber that is still high in quality. In order to retrieve carpets for this material extraction and reuse, the company is transitioning to a service model offering customers to buy used carpet at a price equal to the alternative cost of disposal.^v

To stay consistent with the overall vision laid above, DESSO is also implementing measures to meet ambitious renewable energy goals and, in the process, making it a point to stress eco-effectiveness rather than eco-efficiency or

“less bad” environmental measures. It uses green electricity in the form of hydropower and biomass, while also boasting 25,000 m² of solar cells. It is interesting to note that DESSO emphasizes that it does not support material waste for power, but rather believes that all materials can be reused and should not be downcycled to provide energy.^{vi}

To build on its bold vision and compelling innovation steps to date, DESSO has also become part of the World Economic Forum’s Project Mainstream, a multi-stakeholder initiative looking to increase the influence and adoption of circular economy principles, run in collaboration with the Ellen MacArthur Foundation and other thought leaders in the space. A series of expert research reports commissioned by the Ellen MacArthur Foundation have shown that fast-moving consumer good companies alone could add \$2.6 Trillion to the global economy annually through innovation grounded in circular-economy principles. DESSO’s executive leadership is actively involved in carrying Project Mainstream forward.^{vii}

Obstacles

When deciding to take on Cradle to Cradle® principles as a core set of design criteria, DESSO faced the challenge of completely redesigning entire products. It had to find ways to eliminate toxins and simultaneously incorporate new materials with upcycling capabilities. Among other things, redesigning involved careful examination and rethinking of all raw materials. Yet DESSO CEO d’Escury found that material changes opened up further innovation opportunities that, when approached with a long-term mindset, had meaningful and significant profit advantages. The polyolefin found in the most recent EcoBase, for instance, is more costly than bitumen backing right now, but that will not be the case in six, eight or ten years when a carpet has been used and returned, and the greater recycling potential comes into play.

DESSO has also faced challenges in insuring Cradle to Cradle® carpets align with the company’s creativity and functionality goals. For example, its attempts to use bamboo for yarn have fallen short of durability standards so far.

Last but certainly not least, there is sometimes a sense of struggle on the road to inspiring a large movement toward a circular economy. To further complicate matters, government restrictions and regulations are often seen as counter-productive, since many corporations view them as burdens rather than opportunities. Still, DESSO continues to pursue a broader recycling culture that believes in the benefits of circular material flows.^{viii}

Results

DESSO's EcoBase carpet tiles have been awarded Cradle to Cradle's Silver Certificate for eliminating 97 percent of toxic materials. The company also reduced CO₂ emissions by 50 percent between 2007 and 2011, and currently uses 100% hydropower in two of its production locations at Waalwijk and Dendermonde. Moreover, since 2010 over 50% of its carpet tiles are available with ECONYL yarn made from regenerated nylon. Perhaps most notably, over 90 percent of its commercial carpet tile is now Cradle to Cradle® certified.^{ix}

Communication

DESSO communicates its Cradle to Cradle® initiatives on its own, as well as in partnership with widely-recognized advocates of circular economy principles such as the Ellen MacArthur Foundation. The advertising campaign behind AirMaster carpets featured American basketball star Alonzo Mourning pointing out the product is DESSO's answer to fine dust in the air, with the overall visual tone of the video creative combining functionality and healthy messaging neatly and culminating in the simple question "Surprising, isn't it?"^x Last but not least, DESSO also offers a lot of relevant information on its website, including clear outlines of its sustainability goals and specific steps being taken to meet them.

Reflection

As part of his participation in Sustainable Brands '14 San Diego, DESSO CEO Alexander Collot d'Escury underlined his strong belief that the core values of his

company's business model can be transferred to many other business environments. "If the circular economy is applicable to carpet, it's applicable to every industry," he noted. To that end, DESSO is set to continue to work hard toward a future free of resource extraction and linear processes and, to reach that vision, it intends to lead by example.

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- ⁱ "Desso, 10 years to close the loop" by Joss Blériot (September 14, 2010): <http://www.ellenmacarthurfoundation.org/business/articles/desso-10-years-to-close-the-loop>
- ⁱⁱ Cradle to Cradle® is a certification program intended to help product designers make better choices in areas including social fairness, material health, water stewardship, renewable energy, and material reutilization. For more, visit <http://www.c2ccertified.org/>.
- ⁱⁱⁱ For more information, visit <http://www.ellenmacarthurfoundation.org/>.
- ^{iv} "Desso Beats Goals with Nine Cradle to Cradle Carpets" by Lillian Laurence (July 28, 2009): http://www.sustainablebrands.com/news_and_views/articles/desso-beats-goals-nine-cradle-cradle-carpets
- ^v "Desso Joins Healthy Seas Initiative" by Jennifer Elks (April 1, 2014): http://www.sustainablebrands.com/news_and_views/waste_not/jennifer_elks/desso_joins_healthy_seas_initiative
- ^{vi} "C2C & Corporate Responsibility" by Desso: <http://www.desso.com/c2c-corporate-responsibility/the-road-less-travelled/>
- ^{vii} "WEF, Ellen MacArthur Foundation Project Circular Economy Can Generate US\$1T Annually by 2025" by Sustainable Brands (January 26, 2014): http://www.sustainablebrands.com/news_and_views/next_economy/sustainable_brands/wef_ellen_macarthur_foundation_project_circular_econo

viii “Desso, 10 years to close the loop” by Joss Blériot (September 14, 2010):
<http://www.ellenmacarthurfoundation.org/business/articles/desso-10-years-to-close-the-loop>

ix “C2C & Corporate Responsibility” by Desso: <http://www.desso.com/c2c-corporate-responsibility/the-road-less-travelled/>

* For more, please visit https://www.youtube.com/watch?v=4lQwEfBK8_8.