

# BUSINESS CASE: CRADLE TO CRADLE IMPLEMENTATION AT DESSO

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## ABOUT DESSO

DESSO started out in 1930 as a Belgian manufacturer producing woven carpets in Oss, the Netherlands, for residential and commercial applications. In 1980, DESSO added artificial grass products aimed at the international sport market to their product portfolio. After being acquired first by a German and then by an American company, DESSO became independent again in 2007. Today DESSO has grown to be a multinational firm headquartered in Waalwijk, the Netherlands with over a thousand employees worldwide. [1]

## INTRODUCTION

With DESSO's newfound independence in 2007, came new management and a new vision for the future. DESSO had always been on the forefront of sustainability and had achieved significant results in the area of eco-efficiency in the period leading up to 2007. The company had managed to reduce energy consumption by 30 percent over a period of ten years and already recycled 95 percent of all industrial waste. At the moment of taking office, the new CEO of Desso, Stef Kranendijk, immediately asked his employees to be on the lookout for new opportunities to take even bigger steps towards sustainability and green business. It was, however, the CEO himself who came across just such an opportunity when watching the Cradle to Cradle (C2C) documentary 'Waste = Food' on Dutch television. Being convinced by the compelling arguments for C2C that were presented in the documen-

tary, the CEO had the DESSO sustainability brochure changed to add the pledge that DESSO would start developing products based on the C2C principles. Thereafter, he contacted Prof. Dr. Michael Braungart, co-creator of the C2C philosophy and director of the Environmental Protection and Encouragement Agency (EPEA), a C2C consultancy headquartered in Hamburg, Germany. The message from the new DESSO CEO to Prof. Braungart left no room for misunderstanding: 'I

*want my company to be completely C2C by 2020, all of our products, and I need the support of your institute to make it happen.'*[2]

## WHY CRADLE TO CRADLE

While being interviewed by a Dutch student working on his Master thesis [4], Rudi Daelmans (sustainability manager at DESSO) explains: 'Our CEO Stef Kranendijk really was the inspirator behind the idea. Before he took office, our Corporate Social Responsibility (CSR) practice was not market focused. We did some things internally but that was a matter of common sense. Kranendijk convinced the company that we couldn't continue without making a radical change in our sustainability program.'

C2C stood out from other sustainability theories because it covers all aspects of sustainability. Successful implementation of a C2C strategy, requires a complete re-evaluation of all business processes to insure that all company

### **What is Cradle to Cradle?**

*C2C is a design philosophy, developed by William Mc Donough and Michael Braungart (2002), which empowers society to model its production processes on the principles of Nature, where quality and effectiveness of material and energy flows are central features. Like we see in nature, in C2C design the concept of waste is non-existent, resources are plentiful, and there are no limitations to production or consumption. Cradle to Cradle focuses on innovation to enhance the quality of products and processes. It is an entrepreneurial concept that starts by determining the intended benefits, instead of just focusing on environmental impacts.*

*The implementation of C2C is based around three guiding principles, namely:*

**1. Waste equals food:** *When applying the C2C concept for production, all materials belong*

to either a biological or technological cycle (Figure 1). Materials that are consumed during their lifespan should be non-toxic and biodegradable, all other materials should be produced in such a way that they are non-toxic to the user and a hundred percent recyclable or 'upcyclable' after a defined use period. This is in direct contrast to the current 'Cradle to Grave' concept for production, where raw materials are turned into products, used, and then discarded as waste.

**2. Use current solar income:** The use of energy created by the sun, such as solar, wind, and biomass energy to power production systems, thereby eliminating a firm's dependence on fossil fuels.

**3. Celebrate diversity:** As in nature, products and production systems should be designed to fit in, and positively contribute to their environment.

Through these principles, C2C embraces the pursuit of maximum value (economic, ecological, and social) through the practice of intelligent design, seeking to transform the production and consumption of products into a regenerative force, by designing human industry to celebrate its interdependence with other living systems.[3]

activities will have a positive influence on the environment, the company's customers, and not least the company's bottom line. This is an area where C2C distinguishes itself from traditional eco-efficiency thinking, where companies are urged to be 'less bad'. [5] Being less bad in practice often means reducing activity. Even when a reduction of activity corresponds with a reduction in cost, this does little to improve a company's value offering. C2C encourages a company to be 'good' instead. By incorporating intelligent design based on C2C principles, DESSO could improve product quality, differentiate from competitors, attract new customer segments, and as such be 'good' for all internal and external stakeholders of the company, whilst having an ever increasing positive influence on its ecological and social environment. Choosing C2C would have both short term and long term positive effects for DESSO's shareholders as well. Rudi Daelmans explains: 'Our short term

aim with C2C is to separate us from our competitors. We want to be the best we can be in this area and do more than any other company. Every company wants to associate itself with 'being green' nowadays. Our carpets are increasingly popular with companies who don't deliver products, such as banks and insurance agencies. The only way they can carry out a 'green message' is by 'greening' their offices and establishments.' [4] In this way, the C2C strategy offered a clear short term benefit for DESSO, holding the possibility of reaching additional customers and increasing sales. However, the rationale for choosing C2C goes beyond short term benefits. 'One of the basic thoughts in C2C theory is that when you succeed in closing the loop of your production cycle, you become independent from raw materials such as oil. We are actually trying to safeguard our future as well. That's our long term vision. We are in the process of achieving independence from oil, both as a raw material and as

an energy supply,' R. Daelmans [4]

**CRADLE 2 CRADLE IMPLEMENTATION**

In their implementation of C2C, DESSO works closely together with EPEA and its scientific director Prof. Dr. Braungart. Both parties view DESSO as an international 'flagship' company and a first mover within the field of C2C. Therefore the cooperation between DESSO and EPEA constitutes a mutually beneficial relationship where both parties learn from applying C2C in practice and benefit from each other's promotion of C2C. DESSO's CEO and Prof. Dr. Braungart released the following statements to pledge their long term support for C2C and their mutual cooperation:

'By committing themselves to the C2C production cycle, DESSO will be supporting the good health of the planet and helping to improve product quality and environmental performance via eco-effectiveness.' Prof. Dr. Braungart, founder of EPEA.

'With C2C, DESSO is in it for the long haul. It's a challenging task which will involve the creation of entirely new products and technologies. It is also a task we're proud to undertake, for the betterment of our products, our brand, the people and our planet'

Stef Kranendijk, CEO DESSO

The first step EPEA and DESSO undertook was to evaluate how DESSO could move from a strategy of being 'less bad' to the C2C strategy of being good. This entailed setting up the long term posi-

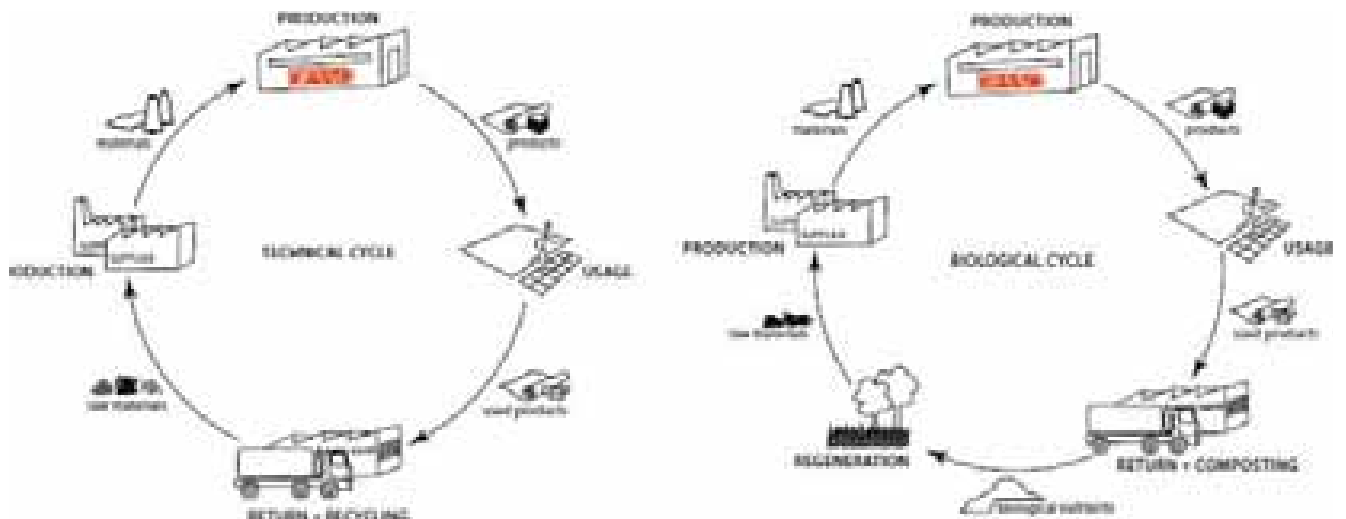


Figure 1. Continuous biological and technical cycles at Desso source: www.desso.com



carpets from their customers to ensure that they are properly processed. Since the carpets that DESSO collects, at this point in time, have not yet been produced according to C2C standards, only the nylon yarn of the collected materials are useful as ingredients for C2C carpet tile production. Therefore DESSO has entered into an agreement with waste management companies which ensure the collected carpets are separated at Desso and re-used for example as raw material and secondary fuel in the cement industry. An interesting consequence of the DESSO take-back program is the extra customer service that DESSO provides in collecting the old carpets from their customers, regardless of the fact if they were the past supplier of this carpet. This extra service undoubtedly provides DESSO with an advantage over competing suppliers, especially since the customer knows this convenient solution will actually contribute to the environment. Another added benefit is the likelihood of increased customer retention. DESSO customers, regardless of whether they have already used the take-back program, might be more inclined to continue using DESSO products since DESSO provides the additional service of collecting their old products for re-use. Partly because of the costs associated with setting up the take-back program and the fact that the carpets being collected at this time have not yet been produced according to C2C standards, the take-back program still represents a cost to DESSO. However, the take-back program is scheduled to break-even in 2,5 years and the company is confident that it will become profitable soon after.

#### C2C SUPPLY CHAIN MANAGEMENT

C2C supply chain management is one of the most challenging aspects of incorporating a C2C strategy. Producing products from materials that will return to either the technological or biological cycle requires DESSO to work towards and achieve change outside of the company's boundaries. As mentioned in the section first milestones, the first step is to ensure that all materials supplied to the company are compliant with C2C design criteria. This entails detailed supplier agreements and in order to increase the amount of recycled materials used in the pro-

duction of carpet tiles new innovative partnerships need to be set up along the entire supply chain of the product, including material sourcing, manufacturing, distribution, disassembly, recovery and reuse. An example of this is the cooperation mentioned above with several European waste management companies. DESSO aims at playing a key role in closing the loop, separating yarn and carpet backing in her own production plants. This is an important step forward since DESSO plans to use 40 percent post consumer material (recycled technical nutrients) in their production of carpet tiles by 2012.

Two potential growth markets for DESSO are South America and Asia. However, shipping generic products from Europe to Asia and South America does not fit within the C2C principle of celebrating diversity. Therefore DESSO will likely set-up localized production and supply chain networks for these areas in the near future.

#### TRAINING EMPLOYEES

A companywide understanding of C2C throughout all levels of the organization is crucial to the successful implementation of the C2C strategy. Therefore, DESSO is training its employees in C2C. Part of this process is informing the employees about the incentives that have let the company to adopt the C2C strategy. This is important in order to avoid misunderstandings and resistance to change. Whilst the adoption of C2C will have only positive consequences for DESSO employees, resistance to organizational change from within the organization is a natural phenomenon that needs to be addressed. As mentioned before, DESSO employees take pride in the products they produce and sell, therefore any change in product and process needs to be addressed and explained. DESSO has been very successful in involving its employees in the new C2C strategy and at the moment reports little to none remaining internal resistance or difficulties relating to the new strategy. When asked how the company achieved this, Rudi Daelmans reports the following factors could have had a big influence on creating acceptance towards the new strategy within DESSO. First of all the new strategy was implemented through a top down approach. This meant that

the new strategy immediately lead to visible investments and policies that were implemented throughout the organization. Secondly, DESSO received a lot of positive publicity and several awards from outside the company. This endowed the employees with a sense of pride in being a real part of the new C2C approach that is making global headlines outside of the company. Apart from this Rudi Daelmans mentions that the positive agenda associated with the C2C strategy creates a lot of positive energy and enthusiasm among the employees because they are working to develop healthy products that will benefit the environment.

#### PROMOTE C2C WORLDWIDE

A continuous aim of DESSO that is mentioned in the C2C roadmap is the contribution to the C2C community in the Netherlands and Worldwide. This means that DESSO has to use resources for the promotion of C2C. DESSO does this from the firm believe that C2C is the way forward, not just for DESSO but for human industry worldwide. It does, however, mean that DESSO, as a first mover, is doing a lot of the ground work for the companies that will follow in its footsteps. Rudi Daelmans illustrates this point as follows: *'We are now doing all the work for the complete branch. If we, for example, come to agreements with our latex- or yarn-manufacturer now, then the only thing our competitors have to do later is buy their supplies from them and re-designing their own product and processes'*.<sup>[4]</sup>

Though local and global promotion of C2C and ground breaking work in the field of C2C constitutes a big strain on the resources of DESSO and does not always show a clear short-term return on investment, it is one of key activities for making the C2C strategy a success. Apart from the clear branding benefits, promotion and development of C2C is crucial to shaping the business environment. The success of C2C in the Netherlands is, for example, helping to shape European regulations towards eco-effective measures and away from traditional eco-efficiency based restrictions. The adoption of C2C by other companies along the supply chain will also work in DESSO's benefit. For example, in order to achieve economies of scale in the technological cycle, it is

important that other companies produce and buy resources based on C2C principles.

In the future DESSO hopes to cooperate with other C2C companies in the promotion and development of C2C. Rudi Daelmans explains: *'It is very important for us that people understand what C2C is. It is cheaper and more effective if all companies involved in C2C get together and release this information. We want C2C to be promoted in the same way in the whole of Europe, independently, and purely informative, without company names.'*[4]

#### PROGRESS MADE AND PLANS FOR THE FUTURE

Mid 2009 DESSO released a statement that they were ahead of the schedule for C2C implementation. Nine of the DESSO carpet tile products (around 22 percent of the carpet tile assortment) had been granted the basic C2C certification. DESSO had also successfully started the take-back program to prevent used carpets from ending up

as waste, and through ozone purification of waste water the company manages to save around 30 million litres of drinking water a year.

More recently DESSO has also started work on the creation of a DESSO C2C research centre, setting up cooperation's with Universities, companies, and institutes around the world.

To fulfil the plans for 2020, there is however still a long way to go and a large part of DESSO's success in achieving its goals is dependent on the global awareness and acceptance of C2C. Rudi Daelmans reflects on the goals in the roadmap as follows: *'The only reason we will not make it before 2020 is because other companies don't believe in it. I'm 100 percent sure that if we can't do it, nobody can. We are that dedicated.'*

In order to achieve its C2C goals, DESSO needs the dedicated support of other companies along the supply chain, such as the new partnership with European waste management plants mentioned earlier. Based on the

above it can be argued that spreading the message about C2C and gaining support and cooperation from industrial partners and governmental institutions is the key challenge faced by DESSO in the upcoming decade.

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