The Netherlands: DSM case study report

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About

Case study name:
The greening of industries in the EU

Country:
Netherlands

Organisation Size:
500+

Sectors:
Non-metallic materials

DSM is a life sciences and materials sciences company active in health, nutrition and materials. It has pursued a sustainable business approach by developing the ECO+ concept to evaluate the sustainability aspects of its products, including plastic materials, and to design greener products). The case study illustrates the integration of an ambitious sustainability strategy into the business of a global company working in a knowledge-intensive market. It exemplifies approaches used by DSM Engineering Plastics, a global supplier of high-performance engineering thermoplastic solutions, to develop ECO+ solutions and to manage the effects of the green change on its employees.

Introduction

DSM is a century-old international life sciences and materials sciences company employing 22,500 employees worldwide and operating in the fields of health, nutrition and materials.

DSM is ahead of its competitors for having adopted the ECO+ concept, which defines the sustainability metrics for their products. The ECO+ concept incorporates carbon emissions among other environmental factors and ECO+ products have a reduced impact on climate change. DSM aims to have more than 80% of its innovation products in 2015 evaluated as ECO+ solutions as well as around 50% of its existing portfolio. In 2011, 41% of DSM sales came from ECO+ solutions and 94% of the innovation pipeline was ECO+.

This case study focuses on the adoption of the ECO+ concept within the Europe division of DSM Engineering Plastics (DSM EP), a business line of DSM, which specialises in the design and production of intermediate thermoplastic materials for high-performance engineering applications. The headquarters of DSM Engineering Plastics Europe is at Sittard in the Netherlands.

Drivers and motivations

DSM EP follows the corporate business strategy of DSM, which identifies three major global trends affecting end-users, industries and thus DSM business (see figure).

- According to the DSM Annual Report 2011, 'climate change and the adverse effects of over-dependence on fossil fuels continue to be the most important trends driving the materials industry'.
- Global shifts refer to increasing urbanisation and growing populations in the emerging economies, which pose high demands for energy and resource efficient products.
- Health and wellness comprises a need for monitoring and minimising harmful substances in the products, which influence human health and the environment.

Sustainability has been identified as one of the key responses to these global trends and thus as the best way for DSM to position itself in the market: 'We want to create value for the customers and for ourselves, while reducing environmental footprint along the value chain'.

Sustainability combined with innovation opens new market opportunities, which was definitely a critical factor driving the green change at DSM. The growing need for low-carbon products can be tackled with innovative solutions such as replacing metal parts with plastic in the automotive industry to reduce vehicle weight and thus energy consumption. Being an innovator means being a front runner in a certain field, which certainly earns DSM EP a competitive advantage.

Finally, there is high importance attributed to sustainability among key DSM EP stakeholders. DSM shareholders are directing increasingly more investment into sustainable solutions. Furthermore, suppliers and customers along the value chain prefer to work with DSM EP because they can innovate together to provide greener products. Notably, DSM is significantly affected by the regulations of their customers markets, such as automotive or electronics, which pose demands for increasing energy efficiency. Finally, non-governmental organisations (NGOs) are putting more focus on business environmental impact, which shapes the opinion of the general public.

Green business practices

What is the ECO+ concept?

The ECO+ concept provides the methodology on which alternative solutions can be compared. Any DSM product or service that is regarded as an ECO+ solution creates more value with less environmental impact than competing alternatives commercially available and fulfilling the same function. The ECO+ concept was developed on the basis on the Eco-indicator 99 and ReCiPe methodologies, and is based on the life cycle assessment (LCA) model.

Steps to implementation

Since 2006 DSM has incorporated sustainability into its business strategy. Meanwhile, the ECO+ concept was launched at the corporate level in 2007. A Dutch consultancy supplied the methodological expertise, as well as an IT tool to evaluate the environmental impact of products.

Initially, DSM EP sustainability approaches were guided from the DSM corporate level. However, in 2009 an internal sustainability DSM EP department was launched to facilitate application of the ECO+ concept specifically in the DSM EP business.

Requirements for ECO + solutions have been translated into directions for product innovation. Examples include:

- to have a low or neutral carbon footprint of DSM materials and applications;
- to eliminate hazardous substances;
- to support recycling with an ultimate goal to reach cradle-to-cradle solutions;
- to develop bio-based polymers able to perform in critical components.

Having defined sustainability directions, all DSM EP employees underwent internal training on the sustainability strategy and ways in which they could contribute to more sustainable DSM EP products.

Overall, the green transition at DSM EP was smooth; it has increased staff cohesion, pride and motivation. The major success factor was a combination of dedicated strategic commitment from the top and very good communication throughout the organisation.

Lessons learned

Typically, sustainability is spoken about on a very general level. The ECO+ approach allowed it to be made much more tangible, which is necessary to align the innovation efforts along the value chain. ECO+ solutions now comprise a significant share of DSM EP sales. Moreover, adoption of the ECO+ concept has brought cost reductions through increased energy efficiency. These effects have tangibly improved the business bottom line at DSM EP.

All in all, DSM EP is determined to continue with its green business practices on economic and moral grounds:

As multinational companies we are part of society, and we need to make very dramatic changes altogether to make sure that we are able to give the global population the quality of life that they are aiming for. So we have to use all our bright science not only to maximise profit, but also to contribute to brighter living. We cannot be successful nor call ourselves successful in a society that fails!

Anticipation and management of the impact of green change on quantity and quality of jobs

Impact on quantity of jobs

Different employees are responsible for the adoption of different elements of the ECO+ concept.

- The **sustainability team** was formed to provide internal expertise on ECO+ methodology and other sustainability issues, dedicating all their time to these topics.
- The **product development team** works on the research and development of new plastic materials. The ECO+ concept is a daily tool for its decision-making in product design.
- The **purchase team** employs the ECO+ concept when sourcing inputs for plastic materials. Since the footprint of a DSM EP end-product depends on the raw materials used, the team communicates the ECO+ concept criteria to suppliers and poses demands for better environmental performance.
- The **sales and marketing team** has to be well acquainted with the ECO+ concept in order to promote the lowest footprint alternatives for

DSM EP customers.

- **Factory workers** are engaged with the sustainability strategy to find and implement ideas for energy efficiency, which contributes to lower greenhouse gas emissions and better performance of manufactured products in terms of the ECO+ concept.
- **All other employees** are mainly administration and business support staff. They are acquainted with the ECO+ concept as part of the business strategy and their work tasks are to some extent dedicated to supporting the business of ECO+ solutions, although the nature of their work is not altered.

Overall, the adoption of the ECO+ concept has considerably affected around 18% of DSM EP jobs, mainly transforming existing jobs in the product development, sales and marketing, and purchase teams. Few new green jobs were created; these were the sustainability team and several jobs in different teams dedicated to ECO+ products. No jobs were substituted or eliminated as a result of the green change.

Over the next five years, the DSM EP human resources manager foresees an increasing share of jobs being transformed into green jobs through a gradual process of transition. In line with the strategic ambitions to increase the revenue share of ECO+ products, more employees will devote more time to ECO+ solutions.

Impact on quality of work

Cultural change

Notably, DSM EP employees are mostly affected through the cultural change implemented to integrate sustainability into business. Respondents claim that the sustainability strategy, first and foremost, demands a different direction of thinking:

It is not really a skill, but a mind-set. People need to believe that there is no other way for a business to survive, but with providing ECO+ solutions.

Consequentially, sustainable thinking is promoted through internal communications including employee training, workshops, business review meetings and the intranet.

Personal views on sustainability also play a significant role in the selection and recruitment processes. According to the employee engagement survey, 99% of DSM EP employees understand the sustainability dimension of business and why it is important. However, it was observed that the sustainability strategy was more readily accepted by higher ranking employees, while a significant proportion of blue-collar workers found it difficult to translate the new information into their daily activities and additional efforts were needed to facilitate their engagement.

The sustainability culture is reported to have brought significant benefits on the employee engagement side:

It is extremely inspiring and energizing for our employees. They are proud to work for DSM because they contribute to greener products in the end-user applications of our materials.

Skills development

The adoption of the ECO+ concept demanded two types of skills: generic and product-specific. Needs for green skills are mostly applicable to white-collar workers.

First, there is a major need for understanding of the sustainability concept and metrics, how the ECO+ concept works, what the carbon footprint is, and so on. All DSM EP employees need some level of this skill-set to capture the opportunities to improve environmental performance in their field of work. However, the closer a job is related to product development the bigger is the need for new skills:

- Product developers and purchasers must have a thorough understanding of the ECO+ concept, LCA and the underlying issues in order to be able to select the correct inputs and methods to produce an ECO+ product.
- Purchasers and the sales and marketing teams cooperate closely with business partners along the value chain. Therefore, they must be able to understand and translate ECO+ dimensions into product benefits or purchase requirements, and to communicate them professionally and successfully.
- For factory workers, it is important to raise awareness of sustainability targets in order to foster their motivation and ability to contribute to more efficient manufacturing processes.

In response, training sessions on sustainability issues are provided for different teams with different levels of detail. The sustainability team acts as the internal knowledge centre for sustainability issues. It also trains and consults other teams on these topics.

Second, the green business practice demands new product-specific knowledge for ECO+ solutions, which is mainly applicable to the product development and purchasing teams:

In the past our employees had to understand the characteristics of a product, and its added value, and now they have to learn that for the new, more sustainable products.

In response, certain employees within DSM EP are assigned to develop expertise on a certain topic (for example, bio-based materials), consulting their colleagues as necessary.

Other dimensions of job quality

Adoption of the ECO+ concept relates to several changes in other job quality dimensions, which are by and large positive and mostly relevant to white-collar employees.

- It was a strategic decision for DSM to shift towards ECO+ products. This turned out to be vital for DSM EP business success during the years of crisis and has therefore contributed to employment security of DSM EP employees.
- The new knowledge and sustainability mind-set gained by DSM EP employees has improved their career opportunities and job security. This is especially relevant for the product development and sales and marketing teams, whose skills may be of interest in the industry. However, a trade union representative claimed that the labour market still does not recognise the value of green skills, though this could

change in a couple of years.

- The remuneration structure incorporates bonuses tied to performance on sustainability targets for higher ranking employees. However, the overall income level has not changed significantly.
- DSM historically has a very strong focus on health and safety in line with ISO 18000 standards. The ECO+ concept should facilitate handling these issues since it provides metrics to evaluate product effects on human health, including the production stage. Therefore, the choice of product composition is made with considerations of health risks for DSM EP and their customers' workers, as well as end-users.

Collaboration on the green change

DSM EP is very much externally oriented to anticipate and manage further developments of ECO+ solutions and related green skills:

- The DSM EP sustainability team maintains close contacts with regulatory bodies, NGOs, business partners and academic institutions in order to anticipate how sustainability thinking will evolve. On ECO+ methodology side, the team is collaborating with the LCA community including academics and consultants. In addition, it takes ad hoc opportunities for networking through participation in various events and informal communication.
- The DSM EP product development team takes the lead in collaborating with universities to foresee trends in technological advancement. It offers internships and provides inputs to shape university curriculums adhering to the latest product developments;
- The externally oriented teams of sales and marketing and purchasers actively share ideas with DSM EP customers and suppliers, who also have their own sustainability strategies. There is a lot of informal collaboration in the market, which DSM EP perceives as an enormously important source of information and puts considerable effort into promoting it.

The trade unions are also involved in the DSM EP sustainability strategy though works council discussions about future employee skills and sustainability oriented behaviour. There are joint efforts to integrate the sustainability dimension into employee appraisal forms, reward schemes and collective labour agreements to encourage generation of more sustainable ideas. However, the trade unions believe they could be more actively engaged in the DSM EP sustainability strategy, which would facilitate their own transition towards a sustainability mind-set and benefit the social dialogue in the long term.

Conclusions and recommendations

- DSM has demonstrated how a sustainability strategy can be turned into a competitive advantage when positioning a business to meet the global trends including energy and climate change.
- Stakeholder awareness of sustainability issues, including climate change, tangibly facilitates and arguably creates market opportunities for businesses to pursue a green strategy.
- Large corporations opt for creating a small number of highly specialised new green jobs, which lead to the development of internal expertise and its dissemination across the organisation.
- Most of the effects on quality of employment concerned white-collar employees. Since this case is related to the development of greener products, the jobs are affected proportionally to their relevance to product development.
- Collaboration along the value chain should be promoted as an effective way for companies to acquire necessary green skills and develop successful green products.
- This case study exemplified that green business transition on strategy level is often inseparable from a cultural change, which affects all employees rather than a particular business unit.
- Trade unions could become a valuable partner in greening business transition through integration of the sustainability strategy into collective labour agreements.
- The case study clearly shows how a business sustainability approach can significantly increase employee pride and engagement, which may improve a company's position in the labour market.

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