

Strengthening competitive advantage in a non-growing market

The European chemical sector is under pressure. High energy prices and production costs weaken the competitive advantage of European chemical production, leading to a mere 1% overall production growth in the chemical sector.

At Chemours, a 2015 spin-off from the performance chemicals divisions of DuPont de Nemours, this problem is partly tackled by the logistics department, which has gained more and more momentum to generate cost savings. Next to the low hanging optimization 'fruits' for this recent spin-off there are possibilities for larger more challenging projects. A continuous stream of initiatives to streamline the logistics of the EMEA-region (Europe, Middle East and Africa) has led to a high workload for the logisticians at Chemours. It is in this context that I stepped in for my graduation internship.

One of the identified 'low hanging fruits' was the relocation of the storage of a certain type of packed goods from an external warehouse to the Dordrecht production site of Chemours. Whether or not this relocation was feasible or not required additional research. However, the opportunity did bring to mind that there might be other product groups for which relocation of currently outsourced storage/value added logistics activities could be beneficial.

One of the elements that provided an additional opportunity was the congested container storage depot, which was overflowing with containers. Next to that, a significant part of the containers was stored externally. This, in combination with the fact that the Dordrecht production site has about 20 hectares of open land, led to the idea of developing a logistical center on-site. It was this opportunity that was the starting point of my graduation internship, which led to the following research goal: "Is it feasible to develop logistic activities on the Dordrecht site of Chemours, by making use of available space and site fixed resources in cooperation with (an) external partner(s). The latter was needed, considering the fact that the financial situation of Chemours, as a result of the spin-off in 2015, does not allow for large investments in non-core activities.

In order to find out feasible options for developing logistic activities (storage capacity) on the site, a number of steps were taken. These steps and the outcomes are described below.

1. Get insight in the company

Chemours is divided into three divisions: Titanium Technologies (54% of EMEA turnover), Fluoroproducts (41% of EMEA turnover) and Chemical Solutions (5% of EMEA turnover). Each of these divisions has their own product lines, strategies and supply chains. Division Fluoroproducts EMEA, with key brands Teflon™ and Viton™, produces its products in Dordrecht.

2. Get insight in the current situation of the on-site logistics processes

Dordrecht has a Local Container Center (LCC) and a Central Warehouse (CWH) as main storage facilities on-site. The CWH has enough capacity to fulfill its current daily tasks, whereas the LCC is overflowing with containers.

3. Identify insourcing possibilities within the EMEA supply chains in order to find savings opportunities for logistic expenses

A supply chain analysis pointed out that logistic cost savings and/or cost neutrality could be reached through relocation of currently outsourced storage for three product groups.

It was also found out that cost savings for the relocation of these product groups could not be generated due to capacity constraints of the CWH. Relocating any additional storage activity to the CWH is not feasible due to constraints based on building constraints (not high enough), permits, cooling, or safety facilities. In addition, the basic equipment and lack of a WMS (Warehouse Management System) led to the conclusion that high investments are needed to set-up a cost efficient operation.

With regard to the container storage, the EMEA wide sales forecasts were analyzed to get an idea of the development of storage demands at Dordrecht. Considering the costs for external storage, the outcomes justified investment in additional capacity on-site.

4. Discuss and select ways in which the opportunities can best be realized

For developing extra indoor storage capacity on-site (warehouse) the best opportunity was to develop a new warehouse on-site. This because there were too many constraints for refurbishing the existing CWH, as well as a lack of a supporting WMS. However, it could be determined on high-level that the volumes of Chemours would not justify the build of such a facility. Therefore, the goal of the partner search is to seek for a win-win with additional storage of third party (chemical) products. This additional economic traffic can add value to site operations and allows for cost sharing of the potential facility. A solution must be sought in which a partner can operate independently, to maximize storage flexibility.

The justification for capacity expansion for the LCC leads to two options: additional storage space through expansion of the container field, or other handling equipment that allows more storage with the same amount of square meters. A cost-benefit trade-off indicated that expanding the amount of square meters was the cheapest option with the least amount of negative consequences (changing operational procedures etc.).

Overall, relocation of activities to Dordrecht within the EMEA scope of Chemours is feasible, but requires new storage facility that is shared with a partner. The LCC is best physically expanded, in which doubling the size could enable all external storage to be relocated to Dordrecht. This saves significant costs.

5. Work out a step-by-step plan through which a strategic cooperation can be developed

Considering the fact that having a partner is so important for making this opportunity viable, describing a partner selection procedure was added to the research; partners are needed to invest and supply additional volumes for cost sharing. This is what gives the project added value over the current situation, next to opportunities for better data collection and a safer working environment (one contractor on-site). Existing and historical partners have been pre-selected, and a tool was built by which partner selection can take place. This process was started at the end of the internship, and is in process as we speak.

Based on the outcomes of this research, expansion of the container center and building a new warehouse are feasible options to attract logistics activities to the Dordrecht site. To make that happen, partners are available who are willing to invest in a new facilities on-site, and add economic value by storing goods for third parties. Next to that, this internship was used to contribute to some relevant business issues that were related to the research. One of these elements was looking for other options than logistics to make use of the empty space on-site. Considering the fact that Dordrecht is a chemical terrain there could be a synergy if businesses were attracted that also need certain utilities such as security, a steam infrastructure or an own fire department. As a side deliverable, I worked out a plan of approach for Chemours on how to attract new businesses to the site.

Overall, the outcomes of my research indicated significant cost savings, as well as opportunities to improve site-logistics operations. As such, I contributed to making Chemours Dordrecht more competitive by working out a project that can generate extra income and logistic cost savings. At the moment I am working with Chemours' selected potential partners to work out business cases for the on-site logistics project. A fine result for a graduation internship! The report and corresponding presentation at NTHV were rewarded with a 9 out of 10, a result that I am very proud of!

Johannes Veldt

I am very grateful for receiving the bursary. Thanks to the support of the KDC I will be able to start a master program in *Logistics & Supply Chain Management* at Cranfield University in the UK.