The Carlsberg Train

Pioneering the use of rail freight

Carlsberg Group is the world’s 4th largest brewery. In an effort to increase efficiency, Carlsberg Group consolidated its production in one location and uses a rail system to transport its products into its major market in the Copenhagen region, where 55 percent of the Danish market resides. The feasibility of short distance rail freight depended on a number of factors coming together to support its consolidation.

In Denmark, Carlsberg Denmark needed to overcome regulatory, market, technical, and pricing challenges to make the consolidation cost effective. By implementing a train-based solution, Carlsberg Denmark was able to reduce its CO2 emissions by 75 percent compared to road-based distribution.

Carlsberg Denmark has plans to further increase efficiency by a significant percentage. In the continued search for increased profitability and sustainability, Carlsberg Denmark’s plans to continue with even more reforms to drive efficiency in the region. To do so, it must further leverage the existing infrastructure and contribute to collaborating with partners from the public and private sector to develop the system in the future.
Carlsberg Denmark is a leading Danish brand, recognised around the globe for its sponsorship of cultural events and sports teams, as well as its clever marketing, as much as for its pale lager. Carlsberg Group has long exported its products and has a series of breweries in countries around the world. After a series of acquisitions that led to a rapid growth in turnover, Carlsberg Group is now the world's fourth largest brewer, and includes brands such as Tuborg, Kronenbourg 1664, and a number of specialty brands alongside its flagship Carlsberg pilsner.

Efficient transport underpins the entire production model within Denmark. Carlsberg's shift in production can be seen as part of a global consolidation trend in breweries which aim to optimize production by joining facilities and moving production out of city centres. Without a sufficiently well-developed transport system in place, Carlsberg would not have been able to shift production. Transport was one of the enablers for a more efficient business model.

As many as 112 containers cross the belt connection each day. There is money to be saved. More precisely, 112 (‘storebæltsfærgen’) charges. “It's good business. We would have to transfer as many vehicles per. road, making it more attractive for us to make it on the rails. The total transfer is 112 trailers a day, so the 112 daily charges we save.” Every year, Carlsberg is able to save between 2,800 and 3,000 tonnes of CO2 emissions by running trains instead of trucks between the brewery and the depot. Within Denmark, reliable rail transport has allowed Carlsberg to improve its competitiveness through the rationalisation of its production.

Carlsberg Denmark has long used trains to move beer directly from their production site to their distribution centres. Since 1930, first in Valby, in the Copenhagen region, and later in Fredericia, Jutland, in 1979, Carlsberg Denmark has used its own private train stations. The rail system has been an integrated part of the production sites. Carlsberg Denmark has long trained and used their own staff to handle the trains.

The Danish beer market is mature, but with a slightly decreasing curve. Carlsberg Denmark has more than 50 percent of the Danish beer market. Thus, increased profitability is derived from finding efficiencies in its production while continuing to develop new product lines and expand market share in global markets.

To gain efficiencies, production needs to be sufficiently centralised to attain the type of critical mass required to support massive investments in new production technologies required to develop a more competitive production system. For this reason, Carlsberg in 2008 closed down most production in the 166-year old brewery in Valby and shifted all production to the Fredericia brewery, which was established in 1979.

All the brewery activities in Valby, Copenhagen, with the exception of the higher-end Jacobsen brand, have now been closed, while the brewery in Fredericia underwent a DKK 800 million expansion to become one of Europe's most modern and efficient breweries. Carlsberg's goal was to concentrate the majority of the production in one place to support an extensive modernization of the facilities, thereby making it one of the leading breweries in Europe.

The Carlsberg Train - Enabling Efficiency

The Carlsberg Train started in 2003. Carlsberg Denmark and Railion Denmark (now DB Schenker) signed an agreement on the transport of beer and water between Fredericia Brewery and Carlsberg Denmark's Terminal in Hoeje Taastrup. The agreement includes two daily trains on weekdays. In 2003, Carlsberg Denmark built their own Kombi Terminal, similar to Railion Kombi Terminal in Hoeje Taastrup. Carlsberg Denmark's Terminal is neighbouring the Railion Kombi Terminal.
In 2012, Carlsberg Group took a number of steps to strengthen efforts within CSR and further integrate the area into its global business strategy. As a consequence, Carlsberg updated its governance model, putting CSR even higher on the strategic agenda of the Executive Committee. Reputation as a strategic lever of the Group’s new business strategy is reflected throughout the business model. Commenting on the 2012 performance, Morten Nielsen, Carlsberg’s Director of Corporate Social Responsibility, says: “Most of our raw materials are ingredients which are sourced directly from nature, and we work targeted to limit the environmental impact of our activities. We search for opportunities at every point in our value chain, be it on-going research and development into our raw materials, ever-improving efficiency opportunities at our production sites, or more environmentally friendly ways of storing and transporting our products.”

Transport and logistics have been aligning with the CSR values of Carlsberg, both for efficiency reasons and to deepen the commitment to improving the global environmental footprint of Carlsberg. “We have a responsibility. The transport and logistics division has an obligation to our corporate principles. We need to live up to our CSR goals and will always choose to pursue the more environmentally-friendly solution available.” However, as Deleuran explains, there is a significant overlap between pursuing more efficient solutions for business reasons and for living up to CSR principles. “Progress does not stop. Ever.”

Labelling of individual cans of beer will be the next step. “Carbon accounting is the future,” according to Deleuran. At a basic level, Carlsberg is obliged to disclose carbon output by the Danish stock market. However, Deleuran believes that customers are becoming more aware of the impact of their own purchasing decisions and will begin to demand increasingly accountable brands. “People want to know that they are making a difference,” says Deleuran. Several leading consumer brands have already started to issue carbon information on their products. Carlsberg will remain aligned with these leading brands. “The impact of our efforts will be much more obvious once we have the labelling. This is what people will be looking for.”

“Whereas distribution previously needed to take place near the point of sale, Carlsberg is now able to produce where it makes the most sense – in this case, in Fredericia – and maintain rapid and reliable access to the Copenhagen region, where 55 per cent of its product is consumed. Approximately 55 per cent of the total product is moved from the brewery to Carlsberg’s Kombi terminal in Hoeje Taastrup, near Copenhagen, by train. Within Denmark, reliable rail transport has allowed Carlsberg Denmark to improve its competitiveness through the rationalisation of its production. Steen Deleuran, Senior Supply Chain Consultant, explains that rail has an absolute advantage over trucks in certain aspects: “when moving from point A to point B, rail is the best option. It is cheaper, more reliable, better for the environment, and easier to integrate into our production.” Because Carlsberg Denmark has Terminal facilities in both ends it is possible to save about 40 % of cost compared to road transportation.” But the reliability and volumes carried by trains certainly make a strong business case. There are also fewer steps, so it is more consistent. We deliver faster and we save about 3,000 tonnes of CO2.”

Carlsberg Denmark aims to develop continuously. While already boasting a more efficient, less polluting transport system, further progress is planned. “There is not an end to this story,” states Steen Deleuran, Senior Supply Chain Consultant, of Carlsberg Denmark. “I am never happy. There is always more to do.” Carlsberg Group is driven by overall CSR objectives.

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Further development in terms of efficiency is hampered by the legal, technical, regulatory, and pricing framework governing rail freight. Legislation on weight limits the total weight Gt to 1700 tonnes per train. “We are at the limit,” explains Deleuran. As the regulatory, legislative, and pricing frameworks evolve, so can the technological boundaries be pushed through new investment. Public financing could be redirected towards ‘systems of the future’ such as new transhipment facilities and linkages to next generation harbour Kombi-terminal. “That is the future,” explains Deleuran. “We want to go in that direction, but we need the public authorities to move along with us. We need to have the same vision.”

The development of a fixed link across the Fehmarn Belt will realign some transport, but there will not necessarily be a full convergence to train-based transport. “There are some advantages to the ferry crossing, actually. The time it takes to cross by ferry is the same amount of time that the drivers need to rest. So in some cases there is this hidden benefit that everyone uses,” explains Deleuran.

Puns aside, the alignment between industry and the public sector is of critical importance to the future development of the rail system. As Deleuran states, “We have had a lot of discussion with Bane Danmark about the system of the future. We hope to be on the same track soon,” says Deleuran.

However, Deleuran envisions a time when longer corridors will be fully developed and reliable, with technical and non-technical barrier to transport removed. Once this happens, larger-scale rationalisation process can be implemented with opportunities to transport across larger regions that are not limited to national markets. Further consolidation will occur, but it will only be possible if the appropriate conditions are met. “We would need the corridor to be really efficient,” explains Deleuran. Meeting efficiency goals in terms of regional infrastructure is therefore a necessary precondition for unlocking the potential of corridors in contributing to more sustainable forms of transport.

Carlsberg is investigating a new railway system called RailRunner. If possible, Carlsberg Demark wants to develop its transport system even further by using this new railway system, which in place in some American facilities. The system allows trailers to be used instead of railway wagons. It is a system where railway bogies lift trailers from the ground by 20 cm. This system releases about 10 tons per trailer, which increases payload and reduces cost by about 20 %. Even more significant, the changes could amount to 30 per cent less emissions of CO2.

Carlsberg, due to its volume and level of investment, is a major driver of the shape of the rail system of the future. However, the needs of large industrial manufacturers are not fully reflected in the investment priorities of the public authorities. “We have had a lot of discussion with Bane Danmark about the system of the future. We hope to be on the same track soon,” says Deleuran.

As part of the integrated supply chain organisation for Western Europe, Carlsberg will develop new processes and initiatives to optimise logistics operations, including the roll-out of a global route planning tool and environmental guidelines for warehouses.

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New technologies and a look into future

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