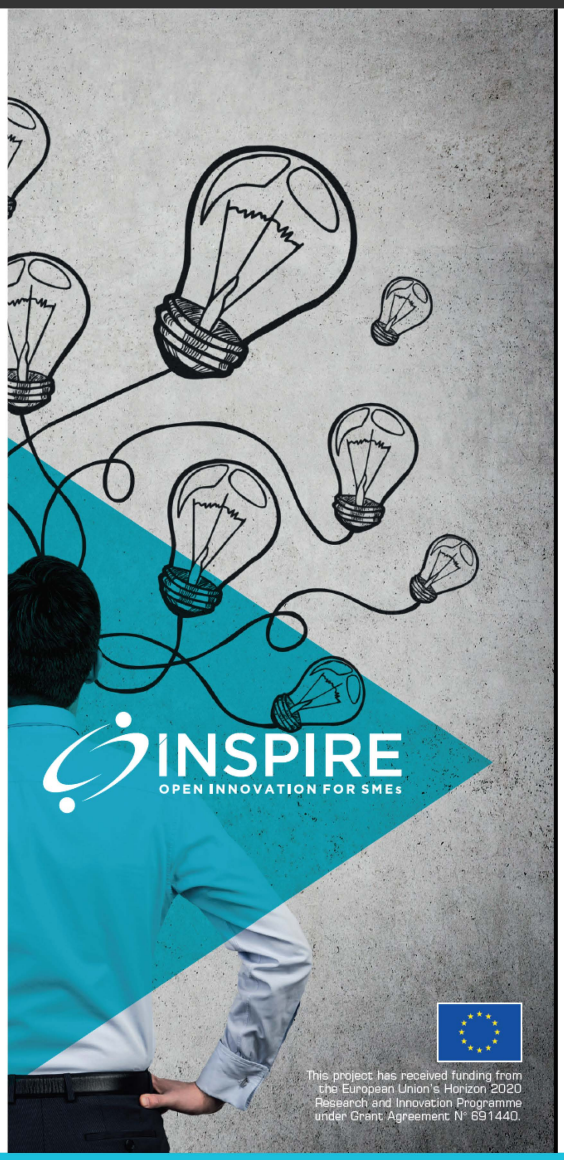

HANNEMANN ENGINEERING

Denmark, www.hannemann-eng.dk

To overcome the financial crisis of 2009–2010, a Danish engineering company turned to a national technology institute to develop a new prototype for a CNC machine tool and changed its business model thanks to collaboration with a university economics department

Executive Summary

The case presents a successful collaboration between the Danish company Hannemann Engineering and multiple academic and industrial partners who assisted in developing the prototype and business case for their automatic Computer Numeric Control (CNC) filling machine, the ProFeeder. From spinning off a new company to focus fully on the product to establishing marketing ties with external partners, the case provides an interesting perspective on how a specialized equipment manufacturer managed to develop a novel solution in a challenging market. Furthermore, the case is about trying to achieve economies of scale in a market where customization is the norm. The product goes through continuous iterations and has also been adapted to provide customized solutions for clients based on their requirements. The ProFeeder has attracted interest throughout Scandinavia and the company is now looking to establish direct exports throughout Europe.

CASE N°: SC98

SECTOR: MECHANICAL ENGINEERING

TECH INTENSITY: LOW-MEDIUM TECH

LIFE CYCLE STAGE: RENEWAL

INNOVATION VECTORS: PRODUCT

01 PARTNERS: PSR, OTHER SME

KEYWORDS: University-industry collaboration, robotics, spin-off

- BACKGROUND FRAMEWORK
- INNOVATION CHALLENGE & MARKET OPPORTUNITIES
- OI TRAJECTORY
- BUSINESS IMPACT
- LESSONS LEARNED

Hannemann Engineering ApS

BACKGROUND

A mechanical engineer and blacksmith by profession, Palle Hannemann had previously been engaged in prototype and project development for a number of small companies before he started working as project co-ordinator for Lachenmeir. In 2007, Palle decided to establish his own company, Hannemann Engineering, as a spinoff from Lachenmeir, to supply specialized equipment and conveyor systems. The core expertise and knowledge of the company centred on mechanical engineering and more specifically, handling and lifting equipment.

During the early years, the company grew organically as it established its own manufacturing, hired employees and showed a healthy increase in turnover. However, the economic crisis in 2009-2010 had a negative impact on the company's turnover that resulted in a need to revise the business model and seek new opportunities. Today, the company employs a business model that sees its customers as partners in the company, offering each on of them a unique set of tailor-made solutions

INNOVATION CHALLENGE & MARKET OPPORTUNITIES

When the financial crisis (2009-2010) started to have an effect on the economy, Hannemann Engineering realized that in order to grow, the company needed to revise its business model and approach and focus more on collaborating with partners who had complimentary skills. At this point, Hannemann decided to take a step back and look at their internal procedures and practices to sharpen their relationship with existing customers. Upon reflection, the company realized that not having complete control over all phases of a project had cost them a lot of money in the past and had stymied their growth in the market.

In 2012, Hannemann Engineering was working on a project for one of its customers that needed a concept to fill and empty a CNC machine. Palle believed that such a solution already existed and was readily available on the market, but it turned out otherwise. With the prospect of scaling up the product, the company immediately envisaged a standardized solution that would suit all classes of CNC machines. The objective of this solution was to increase productivity and efficiency levels by using an automated robotic arm, which at the same time liberated production operators from repetitive and time-consuming tasks and instead allowed them to engage in more value-adding activities. This is how the idea to develop a Pro-feeder machine was initiated.

OPEN INNOVATION TRAJECTORY

Concept development

Owing to the diverse setup of production facilities across the world, the company wanted to develop multi-dimensional setup capabilities that would allow easy integration in a variety of production setups. Apart from developing a user-friendly interface that required little to no initial training, the company also wanted to ensure maximum compatibility with industrial robotic solutions like KUKA, ABB, Fanuc and Motoman.

One of the challenges of this type of model is the proof of concept of the product before it is even introduced in the market. The logic is that if the product is unsuccessful in the market, the company will have allocated unnecessary time and financial resources to the development of the concept. Apart from bearing the risk of failure, there is also an inherent risk of revealing specifications and details to competitors in the market when the client approaches other competing companies for a quotation for the concept with specifications that Hannemann Engineering has invested time and resources to develop.

Two partners were therefore approached to lower the financial risk when developing the Pro Feeder concept. The University of Southern Denmark (SDU) assisted with the business case and analyzing the market potential, while the company was able to allocate a number of hours to work on the prototype and secured a small amount offunding thanks to a research project in collaboration with SDU and other Danish companies. In addition, the Danish Technological Institute (DTI) supported the company with its robotics know-how and collaborated in developing the prototype. The collaboration with DTI proved critical to the project and plays a key role to this day.

The development process, IPR and competition strategy

Hannemann identified strategic partners for the collaboration including the Danish Technological

Institute (DTI) on the technology side to assist with developing the robotics, the University of Southern Denmark to analyze the market and propose a business case, as well as some investors for financial support.

The main challenges in the development process were not related to collaboration per se, as the collaboration with partners (DTI and SDU) went smoothly. The main challenges were linked rather to a lack of financial resources to develop the prototype and bring it to market, as well as to the allocation of personnel and time to develop the project, at the expense of day-to-day operations. The company started to search for investors to secure some financial support and collaborated with the Danish investment company that provides expertise and loans to Danish companies.

The initial IP rights to the development remained with Hannemann Engineering. No external technologies or licensing-in models were involved.

The company was able to take advantage of theirs first mover strategy and their unique product offering meant that there were no other competitors in the Scandinavian market at that time. Even to this day, Hannemann's price and flexibility differentiates the SME from any other solution providers that have made their way into the market with an outstanding product.

Its cross-platform features and universal compatibility with robotic systems meant that the offering is appealing to customers who are comfortable with their existing systems and do not wish to invest in new and complicated solutions.

Commercialization and follow-up

In order to put extra emphasis on the development of ProFeeder, a new spin-off company, called Easy Robotics, was formed. Palle transferred the rights of the concept from Hannemann Engineering to Easy Robotics, a company in which Palle and his former boss Per Lachenmier are co-founders, along with a 25% equity shareholding from Syddansk Innovation. Syddansk Innovation loaned the capital requirement for Easy Robotics, contingent on the other founders providing 8% of the total investment for the company. As part of their scaling-up strategy, the company is partnering with other companies (agents) who sell the product as one of their solutions.

The licences were transferred to Easy Robotics to put full focus on the Pro-Feeder product line, allowing Hanemann to concentrate on its existing business and customers. The Pro-feeder has been patented.

The major part of Hannemann's customer base is Danish and although the company does not engage in direct exporting, they "piggyback" through their customers' exports to other countries. Easy Robotics has expanded the target customer base by engaging in direct exports with partners from other countries outside the Danish market, such as Germany.

The company has identified markets where salaries are high like Scandinavia, the UK and Germany to expand their business and are looking to market their products for semi-automated production facilities. Typically, the ProFeeder is destined for highly flexible and low-volume facilities which are more suited to producing customized parts instead of mass produced products. This includes SMEs and even large corporations with niche production lines.

Blue Ocean Robotics acts as a global marketing partner, while Per and Palle are focused on the Danish and German markets. The company is looking to recruit professional and experienced sales expertise with a view to establishing direct exports for the ProFeeder.

Palle decided to diversify Pro-Feeder by offering 3 distinct options for customers based on their different requirements. The ProFeeder Light is suitable for small series production; in the case of an increased need for automation and production efficiency, the ProFeeder or ProFeeder Multi solutions can be offered. The modular concept is an affordable and quick way to get their customers started with robotic automation. The ProFeeder has also been patented to prevent other companies from replicating it.

The University of Southern Denmark is involved with the further development of ProFeeder by addressing issues like data logging and smart sensors for its integration in Industry 4.0. The product is undergoing continual upgrades to comply with future technological trends in industrial automation.

BUSINESS IMPACT

Thanks to its collaboration with the University of Southern Denmark, the company has learned how to carry out market analysis and seek new opportunities with a revised business model approach that focuses on fulfilling the needs of a customer while searching for other customers with similar problems to offer a standardized solution.

One of the principal outcomes of Hannemann's open innovation collaboration has been to develop

and commercialize customized product offerings for its clients. Instead of making generalized product offerings for the market, the company is now focusing on building their business model around the needs of individual customers. The SME believes that this strategy will pay off in the long run, when they can commercialize the product to customers with similar needs for their production facilities.

Easy Robotics is therefore focusing on building a network with agencies and dealers to sell their products and convince customers of the commercial benefits of this arrangement. The importance of defining clear final objectives and identifying strategic partners to achieve them is crucial for the end result of the collaboration. In addition, the ambition to achieve economies of scale in a market where customization is the norm, is starting to bear fruit.

It is still too early to put a figure on the contribution of the new product to the bottom line of the business as not enough units have been sold so far.

LESSONS LEARNED

This case shows how the company uses strategic partnerships to address the technological, business and even capital requirements for launching a new product. This collaboration not only resulted in a novel solution for the market, it also helped the company to establish a long-term relationship with its partners.

In terms of open innovation, we see explicit examples in the form of collaborations and spin-offs. The role in particular of the Danish Technological Institute in prototype development and the University of Southern Denmark in developing the new business model validates the benefits of university-industry collaboration even for smaller companies and for both sides of the business – technology and strategic business development. The case also highlights the importance of revising and innovating the core business model and involving other partners in the commercialization stage to reach new markets.

Main lessons learned:

1. Spinning off into a new company proved beneficial as it allowed the SME to focus fully on the development and sales of the product.
2. Focusing on individual customer needs can help companies to identify novel ideas for new products.
3. The strategy of learning from particular clients and trying to apply these solutions to new customers with similar needs is a good strategy for achieving economies of scale.
4. University-industry collaboration is important for providing a platform for prototyping, new product development and business model innovation.
5. Having a mix of investors and shareholders can help to overcome capital requirements and reduce the risk of launching a new product.
6. It is important to identify your core skills and involve strategic partners in order to achieve your vision.