Business case ID Card



Title: The proteins of the future

Sector(s): New food products, Proteins

Value chain: *Food*

Name of the company: Hermetia

Country: Germany

Size of the business: *SME*

Contact: info@hermetia.de

Background

The world is revaluating the incredible potential of insects and their role in people's or animals' diet as experts underline the remarkable advantages of these 'new' kinds of proteins. Not only do their production use fewer resources and generate lower greenhouse gas emissions compared to animal farming but they are also cheaper and more nutritious. This perspective has motivated two brothers to launch the Hermetia business in 2006. The two brothers had hopes of producing their own insect-based pet food but pe food manufacturers kept kicking them out. Between 2008 and 2011, insect meal has become the

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subject of research worldwide. A lot of research on the impact of protein gaps on dogs' and cats' skin was published and many pet owners changed their opinion on insect food and demand for this product grew dramatically. The most important change in perception happened in 2011 with the publication of the FAO report on edible insects for food and their positive implications. The topic gained a lot of media attention and suddenly, pet food manufacturers started contacting the business for insect-based protein and the SME started making profit.

Today, Hermetia is the leading insect producer in Germany. The company turns fly larvae into animal feed. Hermetia is selling its insect-based feed mainly for dogs and cats, but also caters for several fish species, poultry, pigs, birds and reptiles, thanks to the high presence of amino acids. The company wants to extend its market and is currently communicating with wood producers to work on the production of sustainable glue for wood production.

The company is also expanding its business in other parts of the Brandenburg region and they received several requests to cooperate with companies in Portugal, Italy, Russia, Egypt, South Korea and more. The company's success encouraged other firms to enter the market. In addition, it has received many invitations from countries in Europe and beyond to share their experience and technology with them. International researchers and institutes also visit them to learn from their experience, knowledge and technology.

Main activities

Hermetia focuses on the production of an alternative protein-rich feed component for carnivorous animals. The business farms the Black Soldier Fly because of its rapid rate of reproduction and high nutritious values. The flies are put in optimal conditions for mating. The fertilised eggs are then collected and the larvae hatch. They are fed with wheat meal, chicken meal and green waste, chicken meal being the preferred feed as it is the most nutritious substrate for the larvae's development. The larvae then leave the food substrate and are led into a dry, protected area where they can moult. The larvae metamorphoses into an insect and the entire process starts again. In the third cycle, the larvae are separated from the remaining substrate, killed and dried and the oils separated from the proteins. The protein is sold on the market while the insect-oil is used in experiments for diesel-production. The company will use the experience of the German compost industry to develop efficient ways to dispose of the substrate which has become compost in the repeated cycles of larvae development. The High-quality compost could be packed in small units of 5 to 20 l and distributed via DIY stores and garden centers. Compost could also be disposed of free of charge by private individuals or businesses collecting it themselves. Larger quantities of compost are intended for application on agricultural land and could be sold for €20 per ton.

The company tries to produce the larvae close to the substrate sources, allowing for the reduction of logistics costs. The Black Soldier Fly Larvae are farmed in six bioreactors who have the capacity to produce 350 tonnes of Black Soldier Fly

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Larvae per year. The site has a storage area where the end products (dried insect flours) can be stored up to six months.

The company today has over 50 employees and has a reputation for creating very attractive positions for young and skilled people in a rural area where job opportunities are scarce. The site's location allows for facilitated logistics thanks to the proximity to other industries and institutes in the area. Deutsch post and other carriers are coming on a regular base to collect and transport into the destination areas. However, logistic is still considered to be a problem due to the sensitivity of the product.

Market

The revenues come from selling the various end products to different supermarkets who sell pet food. However, recently the company has been developing a new business model to produce other technical products like glue made out of insect protein. Due to the uniqueness of insect feed, the competition is quite low. The protein obtained from the Black Soldier Fly has quite unique properties for the skin of dogs and cats and this makes it a preferred product on the market. The customers are found in Germany and all over Europe. 100% of the sales are destined for the external market. Pet owners in Germany and Europe are the main customers. The firm is quite active in different networks and takes part in meetings and conferences to share their experience and knowledge; this is how they recruit most of their customers. Given the high demand in the market -and the increased interest of investors for this growing market- the company is now upscaling through the opening of a second big firm in the same region. This would allow the company to further develop its supply for the market. However, Hermetia is now outsourcing some of its activities for other companies and they are now working with an engineering company for the expansion of the firm on that second site.

The revenues of the firm increase constantly and amounted €350,000 for the year 2018 with a subsidies value of €45,000. Total costs of the year 2018 amounted to €638,600. However, the increase in investors helped balance the high costs.

Challenges and solutions

The main challenge was the regulatory challenge. Being a very new sector, policymakers have not yet provided clear rules to guide the production and marketing of such products. This severely restricted Hermetia's possibilities to commercialise the product. The company had to seek support from various organisations in order to support certain legislations and get the approval for the commercialisation of the product. Today, if the company decided to produce feed from another insect species, it would have to wait for the approval of a new legislation specific to that insect species. This rigidity of the system due to a lack of knowledge is a persisting challenge which was particularly constraining at the

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early stage of the firm's life. There is a need to create networks of cooperation with different organisations in order to change the business environment of rules and regulations.

The second obstacle was the knowledge and the technology. The first insects were brought from the United States and at that time there was no available knowledge in the surrounding environment, so it was up to the firm itself to develop the needed knowledge and technology. The firm did a lot of experimenting. The owners themselves are experts in the field, this helped a lot in the initial development phase. In addition to this, they also started to develop networks with various research institutes and universities. However, logistic is still considered to be a problem due to the sensitivity of the product.

The main concern for the future remains the need for automation due to the development of the company. This requires many resources and technology, but the firm is hoping that the increased interest of investors for that market will help them overcome this challenge financially, while cooperation with research institutes and universities will provide them with the necessary technology.

The last challenge is the location. Indeed, most of the employees live in Berlin and do not want to drive every day to the company. The company therefore decided to open a research centre in Berlin which is an extra cost for the business.

Funding

The owners' own family funding of €2 million was enough to start the business. It was difficult to find investors in times of need at the beginning and it took Hermetia close to 10 years to find a first investor. This is because this market is new, and investors often underestimate the demand for this type of product. Nevertheless, given the current development in terms of market demand of the product, Hermetia doesn't have problems of funding and finance. The firm is collaborating with different research and universities to apply for funding and has investors who are ready to invest in the sector.

What makes this case innovative?

Hermetia seized a market opportunity which has a very promising future: closing the protein gap in Europe via insect farming. The firm did not hide technological information or research results but believes in the exchange of information. The company shared its knowledge with different partners across European countries such as Poland, Austria, and Belgium. In addition, the business also developed research and innovation networks with the University of Giessen and the Free University of Berlin. The networks they developed were big and encompassed a wide range of different actors. This helped the exchange of technical knowledge and technological development which was crucial for the initial phases of development of the business.

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What makes the company's new production technique unique is that it encourages organic and low input farming, reduces levels of soil and land pollution, reduces land use and water use. The use of Black Soldier Fly Larvae participates in closing the loop of sustainable agriculture while addressing a pressing need: creating alternative protein to meet rising global food demand. The production methods developed by Hermetia combine ecology and economy while using low levels of resources, to produce maximum output. It is a sustainable and profitable alternative to Soy-based protein that produces compost at the same time.

Lessons learnt

The most important aspect to make this business successful was the research on the available knowledge and technology. The second crucial factor was the understanding of the regulatory challenges and how to overcome them. The company thought that there was a loophole in the regulations to provide their product in the market at first, but the public agents hindered their application. It was very late when the company learned about the restrictions and the processes to get an approval were very long.

Another aspect to be wary of when entering such a new market is that the external conditions needed to change, and the values and perceptions of consumers are highly supported by the business environment. In this case, the research outputs and the medias have played a significant role in shaping the values and perceptions of consumers.

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