

AQUALIFE SERVICES

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An open innovation collaboration with a Scottish university and a large company enables an SME in the fish farming business to develop a new process leading to the offer of a new service to clients and increased reputation and revenues

Executive Summary

The case involves a small Scottish fish vaccination company with a strategic interest in the Norwegian salmon farming industry. With the increasing use of automation in the market, the SME looked for new business opportunities to complement their vaccination by-hand services. The vaccination of "cleaner" fish was identified as offering a higher profit margin than salmon. The company undertook an OI with a PSR and large company which yielded useful outcomes before completion of the project. Two key outcomes were the development of a new niche service and increased recognition of being a leading company in the fish vaccination market, leading to an increase in business.



CASE N° : UK120

SECTOR: AQUACULTURE

TECH INTENSITY: LOW-MEDIUM TECH

LIFE CYCLE STAGE: ESTABLISHED

INNOVATION VECTORS: PROCESS, SERVICE

01 PARTNERS: PSR, LARGE CORPORATION, INNOVATION CENTRE

KEYWORDS: Fish vaccination, partnership with PSR and large company, new niche service, new technology, Increased brand awareness

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Aqualife
FISH CARE PROFESSIONALS

SEAWEED

BACKGROUND

Aqualife Services started as a family-run company in 1998 with two brothers and a friend vaccinating farmed salmon against bacterial infections. Today all farmed salmon are vaccinated either by hand or increasingly by machine. Aqualife has expanded from being a small Scottish business to operating in other countries, particularly Norway, organizing teams of vaccination staff to visit salmon farms. Aqualife vaccinates 100 million salmon per year and mainly still by hand. A previous knowledge transfer partnership with the University of the West of Scotland resulted in the development of a prototype of a better hand-held vaccination device and vaccination process.

Ronnie Soutar started his career as a veterinary doctor and then worked as a business manager at the School of Veterinary Studies at the University of Edinburgh. In 2014, Ronnie joined Aqualife as the company's managing director to expand operations further into fish health and welfare.

The company has future plans to develop further vaccination technology using robotics to help automate the fish vaccination process.

INNOVATION CHALLENGE & MARKET OPPORTUNITIES

An increasing business challenge for Aqualife has been the rise in the use of machines to perform vaccinations. Skala Maskon in Norway has already developed an almost fully automated machine for vaccinating fish, which is gaining popularity in the industry. Due to the large size and cost of the machine, it is only currently cost-effective for larger companies vaccinating 500 million young salmon per year. Despite these disadvantages, Aqualife sees automation as the future for their industry.

The company looked for further business opportunities in aquaculture systems around the world, in addition to automation. A lot of the systems found are low-margin operations when compared to the high-value products produced by salmon farms. Therefore these are not currently attractive propositions for vaccination services.

However, sea lice are a big problem as a parasite in the salmon farming industry as they consume salmon flesh and can lead to the death of a salmon. Sea lice are difficult to treat with

medicines. One alternative solution is the use of cleaner fish, such as wrass and lumpfish, to eat the sea lice off the salmon. However, wrass and lumpfish still suffer from infections and need to be vaccinated.

Aqualife saw an opportunity to vaccinate lumpfish. Only one lumpfish is required for every ten salmon in a salmon farm; however, as their main market in Norway is ten times larger than the UK, there is potentially the same number of lumpfish in Norway, as salmon in UK.

OPEN INNOVATION TRAJECTORY

Concept development

Ronnie's experience in working at the University of Edinburgh and assisting in setting-up Knowledge Transfer Partnerships (KTP) provided useful insight into the value that can be gained when an SME works collaboratively with an academic partner.

Vaccinating lumpfish is tricky as lumpfish have a sucker that causes them to stick to vaccination tables. The company decided to undertake an OI project to focus on investigating the best way of vaccinating lumpfish. The drive for involving a university partner was marketing-focused rather than for knowledge transfer purposes, as the company needed to demonstrate the best vaccination method and have it independently verified. The company approached the Scottish Aquaculture Innovation Centre (SAIC) to discuss the project and potential funding.

The development process, IPR and competition strategy

Aqualife formed a collaborative project with the University of Stirling's Institute of Aquaculture and a large company, Scottish Sea Farms. The involvement of Scottish Sea Farms provided Aqualife and researchers from the Institute of Aquaculture with access to its range of marine sites across Scotland. A grant of £177 000 was provided by SAIC and £168 400 from the other partners. The project started in August 2015 and was expected to finish in August 2017.

A challenge during the project was a limited supply of lumpfish, which were required by the researchers. A virus outbreak at lumpfish producers in Iceland prevented their export, as it was a notifiable disease that only affects rainbow trout. While no rainbow trout were involved in the

study, import/export restrictions applied. This unexpected biological factor led to delays in the project.

During the project, a new water-covered rippled vaccination table was developed to prevent lumpfish sticking to the table. Researchers then assessed the fishes' welfare through the process of vaccination with the new table.

The competition strategy adopted by Aqualife has been to focus on the high value/high quality end of the vaccination market. The strategy of undertaking the project is to be seen as industry leaders and the first company to develop new technology to solve a specific industry problem. The overall aim is to raise brand awareness to attract further vaccination service contracts.

Commercialization and follow-up

The purpose of the project has not been to develop new IP. No patent has been filed relating to the project, e.g. for the vaccination table. In fact the company is aware that the table design has already been copied. Furthermore, SAIC was set up based on the principle of open knowledge exchange. As the project is part-funded by SAIC the results of the project will be made available to Scottish stakeholders.

An early benefit of rolling-out some of the early outcomes of the project has been that Aqualife has vaccinated all the lumpfish in the UK. Although there were no challenges in rolling-out the initial project outcome, the company did indicate that they would have liked quicker penetration of the Norwegian lumpfish market.

The company has used the experience of their collaborative project as part of their UK marketing efforts. The relationship with the funder SAIC yielded further press coverage relating to the project and its benefits to the fishing industry. The project is now being used as part of a marketing campaign in Norway to target companies with lumpfish vaccination requirements.

Although the project has not finished at the time of writing, the company expects to undertake a follow-on QI project with a university partner to look at further automation of the fish vaccination processes.

BUSINESS IMPACT

The development of a better upstanding of vaccinating lumpfish, leading to the development of a better process and new specialist equipment

have been of direct benefit to Aqualife. This, in combination with project dissemination activities, has resulted in a new line of business vaccinating lumpfish in the UK and in Norway. An extension has been provided by SAIC to the project consortium to enable the academic researchers to complete their work. On project completion there may be additional outcomes for the project partners.

The company has also gained insights into how it wishes to develop its business and what further work is needed to achieve this. This relates in particular to developing the improved service to access a new market segment and reach new customers.

The company cannot provide figures that can be directly related to the project, but it believes that it has led to a year-on-year increase in business in Norway.

The salmon vaccination business is becoming more seasonal but the cleaner fish business is a batch production process throughout the year. This allows the company to give work to its key vaccination staff and to keep them with the business, rather than losing them to other employers. The cleaner fish vaccination service is currently, at this early stage, offering a better margin per fish than salmon.

LESSONS LEARNED

Ronnie Soutar has a number of recommendations for SMEs wishing to undertake a QI project, including:

- speak to someone who has already undertaken a QI project for advice;
- try to get a feeling for what the academic partners seek to gain from the project;
- be clear upfront as to how important the IP is to the company, as this may affect the funding routes available;
- understand the motivating factors of partners, for example, the need for academic partners to publish in the public domain and the effect on their impact ratings assessment;
- build on existing personal relations with universities, even if other potentially better partners exist;
- be prepared to invest significant amounts of time in a collaborative project;
- listen to your staff working 'on-the-ground' for ideas or options for undertaking innovation projects.

According to their managing director, Aqua life has had a very positive experience of OI projects and has also been well supported by Scottish Enterprise in their provision of advice, direct grants and introductions to other organizations. He also explained that their positive experience of collaborative projects and the relationships created as a result of the projects, have helped to encourage the company to undertake future projects. Ronnie also found it helpful that the administrator from SAIC assisted in managing the project partners and monitoring the project to keep it on track.

This case highlights the value of OI projects where the development of IPR is not the goal of the lead SME but rather forms part of a strategic approach to raise the profile of the SME and be seen as an industry leader. This in-turn has been shown to lead to increased business and new niche service offerings.

The involvement of an academic partner has been carefully considered by the SME to reflect the wishes/aims of the researchers, while also providing the SME with the benefit that their desired project outcomes have been verified by a third-party.

Main lessons learned:

1. New IPR may not be the driver and motivation for partners in a OI project.
2. OI projects may be seen by the SME as a method to raise its profile leading to new business rather than as a means to create new or improved products, services or processes alone.
3. At the outset, lead partners need to understand the outcome needs of all the partners.
4. Innovation Centres can be key in helping to form collaborations, provide funding and project monitoring to allow OI projects to reach completion.
5. Building projects on existing relationships with other organizations, even if not the best partners available, may be the best course of action to overcome project challenges.
6. OI projects need to assess adequately the unusual risks (and mitigation methods) that could affect the project delivery timescale or the quality of the outcome, e.g. import/export bans or changes in legislation.
7. Providing access for SMEs to other SMEs that have already undertaken OI projects for advice, may encourage and help first-time OI SME partners undertake their own projects.