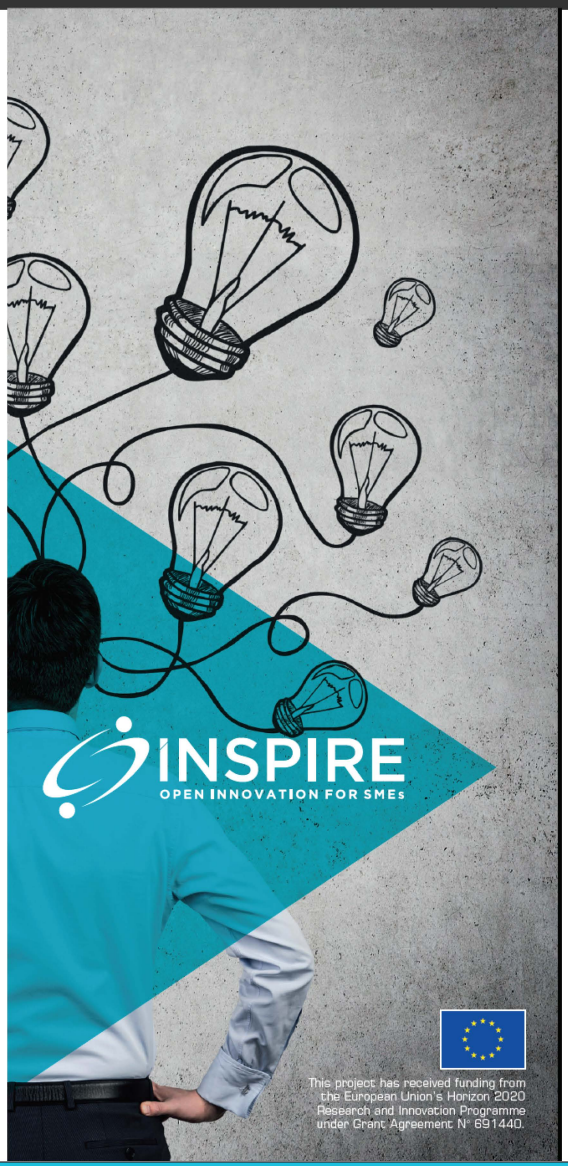


# FISH BOX

United Kingdom, www.fishbox.co.uk

A small husband-and-wife company delivering fresh fish directly to the customer's door makes use of an innovation voucher scheme and an academia-industry problem-solving facility to develop an algorithm for matching their fish stock with customers' preferences

**Executive Summary**

Fishbox is a brand fully owned by Coast and Glen, a seafood wholesaler started by Magnus Houston in 2011. The company has worked with the University of Stirling to develop an order and delivery algorithm. Fishbox runs an on line seafood subscription delivery, supplying the public with boxes of fish delivered to home or work which are tailored to the individual depending on previous preferences.

CASE N°: UKI16

SECTOR: FOOD & DRINK

TECH INTENSITY: LOW-MEDIUM ECH

LIFE CYCLE STAGE: START-UP

INNOVATION VECTORS: PROCESS, SERVICE

01 PARTNERS: PSR

KEYWORDS: University, retail, onlIne

- BACKGROUND FRAMEWORK
- INNOVATION CHALLENGE & MARKET OPPORTUNITIES
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- BUSINESS IMPACT
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FISHBOX™

# BACKGROUND

The company Coast and Glen was formed as a fish wholesaler by Magnus Houston. Previously Magnus had worked on a fishing boat, where he observed that some boats supplied fish directly to local hotels, etc. as there was demand for fresh local produce. In particular, he discovered there was demand for fish that was 'fresh off the boat' i.e. had been landed within the previous 24 hou;s (this is deemed within the industry to be a significant indicator of quality).

For the first twelve months it was a 'man and a van' operation which entailed Magnus buying the fish from the markets and driving the sales van around to customers himself. He then took on a couple of staff the following year and has expanded since then to a staff of around 10. Now Coast and Glen supplies more than 300 hotels and restaurants all across Scotland, as well as London restaurants including multiple Michelin starred venues.

Two years into the business the idea for Fishbox arose. When working on the boat, the crew would take some catch home for their own consumption; this led to the question 'how could other people get access to this level of quality?' (This measure of quality was in particular related to the freshness of the catch.) The idea went on the back burner for a while, but when Magnus' wife Fiona joined the company, the retail, direct-to-public arm was started and an on line fishmonger was set up. The concept was to have freshness as the USP - every other online fishmonger works by stack and sell, so the produce is no fresher than a high street fishmonger. Magnus wanted to do something different. The concept was similar to the widely available vegbox, meatbox, etc. but with fish. In Magnus' words: "farmers do it so why not fishermen?"

The aim is for 24-hour delivery anywhere in the UK, meaning sea to plate in 36 hours. Some people have a personal network for this - i.e. people know fishermen - but most people have no access to that level of fresh fish. Even those with a network have no guarantee of consistency of supply.

Future plans include implementing a system so that a 'shopping list' for the buyers on the quayside is updated in real time by taking into account the demand from customers, purchases at other ports, availability of products across multiple ports, etc.

# INNOVATION CHALLENGE & MARKET OPPORTUNITIES

The Fishbox model is based on providing customers with different products dependent on preferences, previous ratings, etc. Buying the required amounts of fish to minimize wastage and satisfy as many customer needs as possible is a complex exercise and, given the growth level of the business, is becoming increasingly difficult.

The business model is scalable, but the stock management system is not. This is the key problem which makes the company difficult to manage. Magnus looked for off-the-shelf software and carried out his investigations around the Brussels seafood show, a major international exhibition. He soon came to realize the complexity of the problem, even if it looked easy at first glance.

Three stock management software companies were initially interested in developing a solution but two dropped out quickly. The remaining company is one of the big players in the sector (MIREL}, which did some significant investigation into the problem, culminating in the CTO coming over to visit and evaluating the requirement for an adaptive stock management and purchasing system.

Eventually the MIREL CTO thought that the requirements as stated by Magnus meant that a system was not possible, and highlighted some significant challenges: for farmed fish you can anticipate the yield, but for wild fish (which is 90% of the market) you are at the mercy of the seasons, weather, luck with respect to what is landed; also it is very difficult to rate customer preferences in a box system - how do you re-compute in minutes and balance preference against availability? So the idea went on the back burner, although the investigation emphasized the fact that such a system would deliver a competitive advantage as no supplier had a similar system.

# OPEN INNOVATION TRAJECTORY

## Concept development

A year or so later Magnus attended an

entrepreneurs' course at MIT. The differences between the entrepreneurial landscape in Boston and the Scottish Highlands are huge and somewhat obvious. Amongst the things he learned about was the possibility of developing mathematical algorithms to address the problem, something which he had not heard of previously. At first, he tried downloading and working on a MOOC from Stanford related to algorithms, but quickly realized this was not something he could do himself.

## The development process, IPR and competition strategy

Shortly after this (2014), Magnus discovered Interface and put out a problem around that organization. Interface is an access portal to Scottish universities. Any business looking for assistance can go through this route to request help from academics in the area. A short A4 form is completed and then sent around the universities, inviting responses. Fishbox obtained three responses – from Edinburgh, Napier and Stirling Universities. From these options, Magnus chose Stirling University because of the enthusiasm of the academic involved and her background as a mathematics academic using algorithms to work on food security problems. The academic also had a PhD student who was keen to work on the problem, having previously developed algorithms across multiple subjects including the food industry.

The process began in 2014 supported by an Innovation Voucher and a Follow on Innovation Voucher from Interface/ Scottish Funding Council. Magnus is clear that the refinement of the idea and analysis of the problem could only have been done through a discussion that was open-ended and fairly blue sky- form filling, questionnaires or back and forward Q&A over email would not have drawn out all of the factors involved in the challenge. It was established that it was a very multi-criteria problem and at the start the company did not understand what all the criteria actually were. Magnus was clear that this is the nature of innovation: "If there are no problems and unforeseen challenges emerging during the work, it is probably not an innovative idea in the first place."

All IP is owned by Coast and Glen/ Fishbox.

The competition strategy for the company remains as previously – delivery of a personally tailored fish box with a level of freshness not available elsewhere. However, the process innovation allows for scaling up the business which would be difficult (or impossible) to manage with existing systems.

## Commercialization and follow-up

The algorithm is now written, but still needs to be coded in a suitable language in order for it to become a practical application for the business to use.

The maths element of the project is largely complete; now the challenge is to find someone with the necessary coding skills to turn the algorithm into a programme (one done professionally with a full development path and documentation). Then there will be challenges around IT infrastructure, communications and networks, distributed system challenges, staff training, etc. For example, buyers with a shopping list how is this list updated, in both directions, with respect to time, price, amounts, different locations of landing, etc.

This development is a process improvement and as such will not be directly marketed. Its purpose is to allow the company to scale up a current product and as such the marketing does not change; it just allows the product to be marketed to a wider clientele. The process allows the delivery of their USP as stated above (i.e. fish to door in 24-36 hours) for a larger number of customers than the current process they use would allow. In this way, it is a process enabler which allows a scale-up of the company which would otherwise be very difficult to achieve.

Eventually Magnus wants Fishbox and Coast and Glen to be able to stand independently of each other so that an exit would be viable. (Fish box and Coast and Glen are currently part of the same company and although they could be split up and run independently this is not necessarily the way Magnus would want to go.) There is also the future possibility of selling the algorithm or more precisely the software developed from it to other suppliers/ areas with similar fluctuating supply and demand constraints. There is also potential to work with Sea Fish (UK government body supervising the fishing industry) to help manage the fishing industry as a whole with respect to reducing waste and bycatch.

The follow up activities require different sets of skills, in particular coding/ programming and expertise in developing distributed systems. Although these kinds of skills are available commercially, they are expensive, particularly because this type of continually fluctuating system is similar to the stock market in many respects, hence the high demand (and cost) for these skills. Although this represents a significant challenge, there is an overriding desire to implement the innovation.

# BUSINESS IMPACT

The main outcome is the algorithm. The company now has the foundation to build the stock management system they need to grow further, although a full system will still require significant work. The project led to the company improving their packing and scanning system. Talking through the company's existing processes also led to some improvements. The company has gained significant publicity as part of the process (published case studies by the University of Stirling and Interface).

The process gone through over the last couple of years has given the company reason to think about problems in their supply chain that they may not have considered until a later time in their growth, i.e. potentially when these issues became a direct and pressing problem. There is some key learning about the factors which will affect business growth being thought of in a proactive way which potentially affect the development of the company, rather than being dealt with in a reactive way in the future. The company has a better understanding of the challenges of scaling up their model than they would have had without going through this process.

The key potential for future benefit is recognized, in particular with regard to avoiding obstacles to company growth and minimizing wastage.

# LESSONS LEARNED

This case demonstrates a good experience of academic – industry interaction. The SME feels positive about the experience and the project has delivered an algorithm which should be able to produce the functionality the business wants.

The way this project was initiated and funded demonstrates a system (Interface for access plus innovation voucher funding) within Scottish universities that has, in this case, produced a positive outcome for the company.

## Main lessons learned:

1. The brief given to the academic has to be clear.
2. The academic involved has to be motivated by the project.
3. Both parties have to understand that there is a shared set of goals, and understand the other partner's goals as well.
4. It will be a longer journey than you initially think.
5. Regular contact helps to create a sense of progress and motivation.
6. Set timescales and expectations, but allow for the unexpected.
7. Communication between the parties is crucial.
8. Academia needs to understand the urgency in business; expectations around the time taken to respond to queries or deliver actions can vary substantially.
9. Prevent 'scope creep'.
10. Set priorities around the problems and challenges.
11. Having a go-between to support the relationship between the academic and the small business may help with many of the above points.