Fishbox: Satisfying consumer demands under varying supply

The UK seafood industry faces a plethora of challenges in both catching and consumption. With recovery of stocks, changes in the species available due to climate change and time poor customers interested in sourcing fresh product, fish wholesaler Coast and Glen saw an opportunity to create a home delivery service for fresh fish.

The result was Fishbox (www.fishbox.co.uk), a business aiming to supply fresh fish from Scottish fishing vessels and give everyone in the UK the opportunity to have quality fish products delivered directly to their door. Fishbox hopes its business model can reduce waste across the seafood sector by purchasing fresh fish which can struggle to find buyers.

An ultimate aim is for the business to grow to the point where it can become a major player in regional fish markets, reinvigorating fishing communities, creating demand for a variety of fish species and eventually, become a household name. Its creators want to share their ideas and business model with others in the seafood industry in the hope of reducing waste across the sector by encouraging consumers to try alternative fish species.

2013 – Changing traditional business models

In 2013 Magnus Houston, Managing Director of Coast and Glen Ltd, believed he could find a way to cut both waste and reduce the time it took to get fish from the ocean to the kitchen.

The growth of online grocery shopping and home delivery, which is set to make up one fifth of all UK food shopping by 2020, created a new opportunity to sell fish and promote its seasonality. Many grocery and vegetable home delivery companies began to only stock products when they are in season and use alternatives when supply was reduced and prices fluctuated.

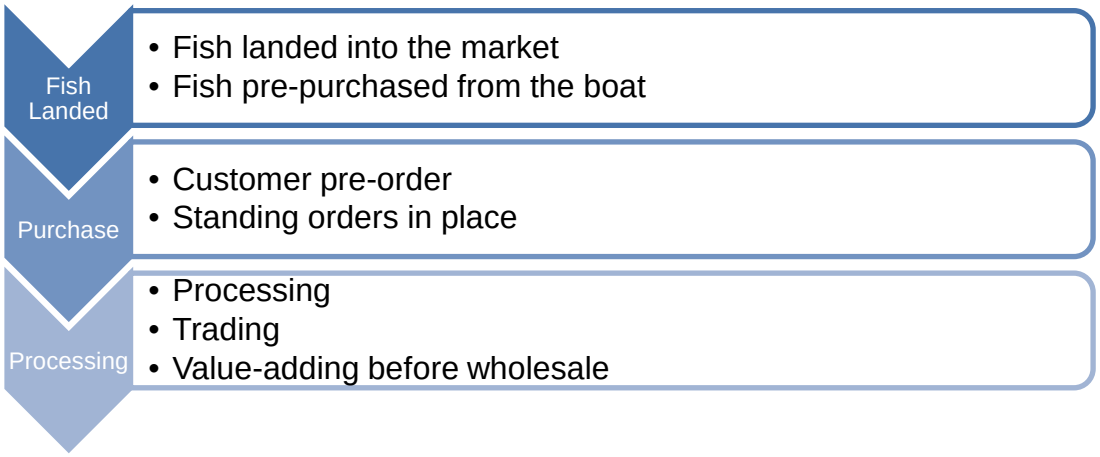
Seeing this opportunity for the seafood sector and struggling himself to find the time to shop for high quality locally sourced produce, Magnus decided to adapt food home-delivery boxes to sell high quality fresh fish direct to consumers. It's a simple model; customers sign up to an online subscription and choose the quantity of fish they want based on three box sizes. However, unusually, consumers don't select exactly the species or product they receive.

Magnus explains: "To ensure we make the most of available fish and what's in season, our customers don't choose the specific fish they get in their delivery. Instead we use a preference system where people say if they 'love', 'like' or 'dislike' a product.

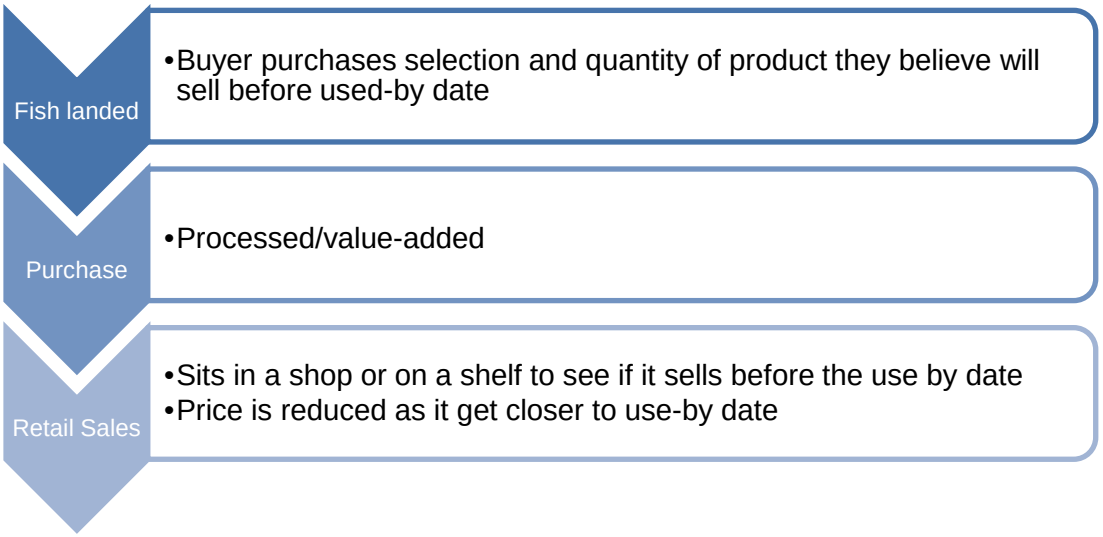
Customers never receive a product they 'dislike' and we always aim to give them the species they 'love' first. This flexibility means we aren't forced to buy certain species if they aren't available, are poor quality or are out of our price range. It means we can send out the freshest, highest quality fish at a competitive price."

The flow charts below provide a comparison between the Fishbox business model and the traditional wholesale and retail purchase models.

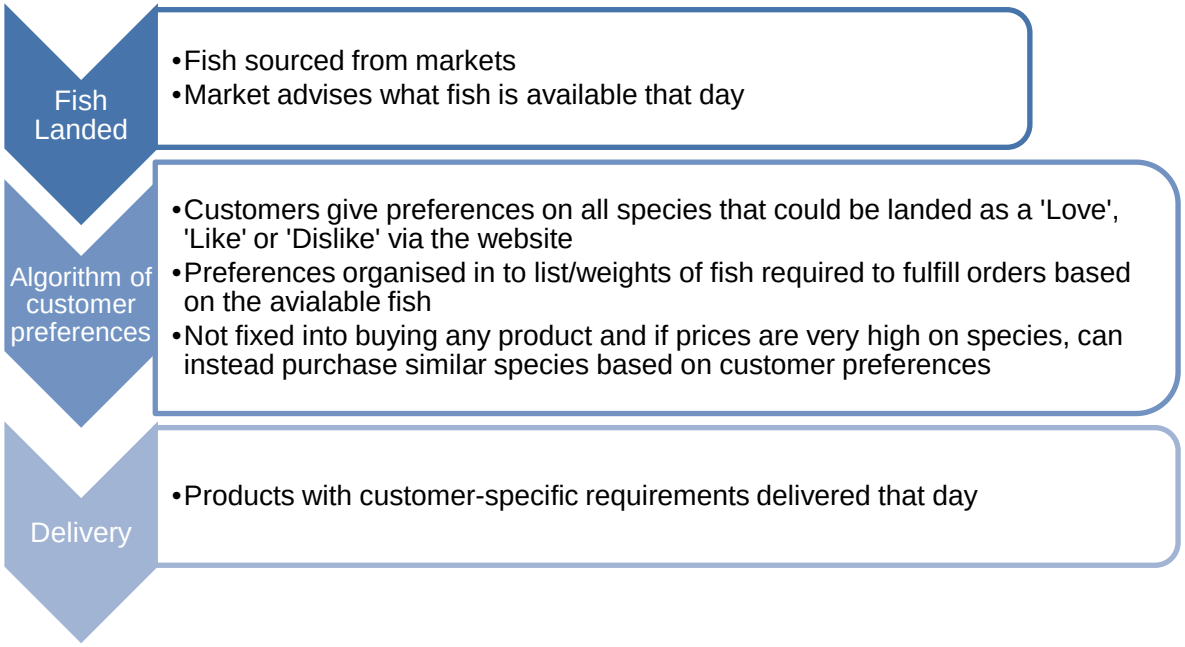
Wholesale business model



Retail business model



Fishbox business model



The availability of certain species of wild fish on the market can be driven by a range of factors from weather, seasonal migration of fish stocks and management measures. Fishermen often catch a mixture of species in addition to well-known species such as cod and haddock. This fluctuating supply means there is a risk of some fish with no market going to waste or being turned into products not fit for human consumption such as fishmeal or pet food at a reduced price, hence there is potential loss of value to the fishermen. This challenge of variable supply has shaped Fishbox's unique business model which is focused on growing consumer understanding of seasonality and encouraging them to try a variety of species.

2014 – Increase in customers drives system development

By mid-2014, Fishbox had grown to service a customer base of over 500, however, its growth created pressure on the system of customer preferences and dislikes.

Magnus said: "I realised we needed a structure where we could keep the same business model and cope with the growing customer base. We thought we could create an algorithm system which could manage customer likes, fish availability, viable price range for species and the volume of a similar species needed if the first preference was unavailable. This algorithm would work in conjunction with buyers at the markets who could check the quality and variety of fish available in real-time and ensure that two Fishbox buyers at different markets don't double-buy products."

While the idea behind the algorithm was relatively straightforward, it took until the end of 2014 to begin working with The University of Stirling on the project. It then took over two years of development for the algorithm to be created.

2015 – Seafish Strategic Investment Programme funding enables adaptation of packing process

Seeing that there were likely potential benefits to the wider seafood sector from this innovative business model, Seafish allocated Strategic Investment Programme (SIP) funding to Fishbox to support its next stage of development and growth.

SIP funding was instrumental in;

- Adapting the factory systems at Fishbox to streamline how fish is allocated to customer boxes, using the University of Stirling algorithm to divide the available fish according to customer preferences. The funding aided the development of a coding system which calculates how many fish of a certain variety are needed to fill orders and pack individual boxes.

- Aided in the development of the customer ordering system on the website and to enable improved communications through the systems

- Trialling the systems in the factory and staff training.

There is potential to adapt this business model across the country to increase consumer demand for a wider suite of species while reducing waste. Reflecting this, a requirement of the SIP funding is that Magnus will share his Fishbox experience with other interested parties including presenting at Workshops and Conferences.

Magnus describes the system as akin to a car factory where the products are brought to the packer as they need them. Or as a weekly shop for a street full of families: “The system is like doing your weekly shop for your whole street. Imagine a trolley with five different slots, five different orders. The packing program tells you the most efficient route to take to fill out all your orders at once.”

2016-2017 – Customer base and business growth

The packing system created with the SIP funding has enabled Fishbox to adapt the algorithm but it will need to evolve as customer numbers increase. Magnus estimates packing methods will need to change in the next 12-18 months as consumer numbers grow.

Magnus Houston said: “The system has to evolve with customer numbers, the same as a shop or a restaurant; you have to expand and evolve to deal with growth.

“The system is expected to work with up to 5000 customers but beyond that will need to be modified. With our progression we believe that will be within the next year and a half timescale.”

It has taken two years to get the mathematical code developed by the University of Stirling to become the functioning algorithm up and running in a PC format. It is currently working in conjunction with the original business model and Fishbox is in constant contact with its market buyers to keep them informed about what stock is needed. Magnus is aiming for the algorithm to be optimised for mobile use in the next 12 months.

He said: “We want our market buyers to be able to have a live shopping list in the hand, enabled by the algorithm to collate the data provided by markets about what they have to sell and what we need to fill orders that day.

We envisage our market buyers checking the quantity of fish of each species required on tablet computers channelling live updates as to what species we need and what volume we are after, sorted by our algorithm.

To get to that point we do need to have a platform created to host it, employ a software designer to implement more advanced software to improve usability and give our staff on the ground time to learn the new system and be comfortable with it.

The best thing about it is that it is a system that will ensure zero waste of fish purchased and it will grow with us as a company, as our customer base scales up so too will the algorithm.

Until we are packing 91,000 fish boxes a day we won't have a constraint on supply or transport, which gives us so much room to grow.

With our box sizes and the fact we use around 80 species of fish, the University of Stirling estimates there are 130 million different possible combinations for each box. With the algorithm fully running our ability to make the best choices when purchasing and packing the fish will ensure customers get the best price and quality and reduce the amount of wasted fish out there.

We want to make sure the fishing industry is there for years' to come. We are passionate about industry and protecting its future and hopefully programs like Fishbox will help give a market for all fish caught around the UK."

The future of the industry

The future of wild fish stock supplies is uncertain with trends in climate affecting the availability of fish species and variable weather patterns potentially impacting boats' ability to go to sea. There has been a recovery of stocks and the implementation of management measures, such as the Landings Obligation, will mean more fish are likely to be landed. All these factors will have an impact on the UK's catch and the mixture of species on the market. The ability of the Fishbox model to satisfy consumer desires under varying conditions of supply is a key feature in adapting to changing conditions.

The Fishbox business model could be adapted by other organisations to encourage consumers to try fish species they don't regularly eat, reduce waste and provide consumers with products at a consistent price rather than be subject to market fluctuations.

Fishbox has increased its sales by 100% this year; in addition to providing consumers with a tasty and convenient product it has also been able to promote the sustainability benefits that come from choosing less well known species. There is hope the business will have an industry-wide impact with small fishing communities finding a market for their catch through the Fishbox focus on locally –sourced seafood delivered directly to consumers.

In Magnus' own words: "Working in conjunction with the University of Stirling and having support from Seafish's Strategic Investment Programme has led to a new and exciting way to sell seafood. It has enabled Fishbox to scale our business with precision, as a human would not be able to order the correct volume of fish to satisfy customer preferences. The project has made us a zero-waste business, increasing profitability. Not only has it benefited our business, but it's helped us reduce our environmental impact. We feel proud that we have created a business model and system that is benefiting fish stocks by diversifying the

range of species we sell. This allows us to not only support the fishing industry but gives us a fantastic marketing story to tell our customers and amplify our brand nationwide.

“It has been a monumental undertaking by Fishbox to complete this project and it is by no means finished, We could have never achieved this without the collaboration of University of Stirling for the initial algorithm, Dogfish Ltd for their work on the coding of the system and Seafish for support in the scaling up of the project into a functioning business. We would like to thank them all and encourage others to collaborate in their future projects.”

Conclusion

Fishbox grew from a small business, just Magnus with a van, to have a staff of around 24 workers. Its customer base has also risen to over 1800 active members – proving that this business model can be scaled up with the right systems in place. The number of Scottish seafood fish products provided to customers has increased from forty to eighty in the last two years. This confirms the Fishbox model’s ability to expand its customer base and the range of products offered.

Magnus hopes the success of this project will encourage a continual expansion of this innovative sector, which holds a great deal of potential in having a positive impact on the amount of unpurchased seafood going to waste. His aim has always been to send no product to waste with Fishbox’s sister company Coast & Glen already recycling waste product in to bait for creel fishing. Magnus hopes as the sector’s client base gets bigger it will drive demand for an even greater variety of seafood being landed into UK markets.

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