

ALPHABIO CONTROL

United Kingdom, www.alphabiocontrol.com

An Anglo-Italian research-based venture is developing a number of new product lines in parallel with open innovation partners. Each collaboration has a different focus and partners are involved at different stages up to market entry. The OI focus is always different and the partnerships can change as the project matures

Executive Summary

Alpha Bio has developed a full portfolio of products originating from discoveries made in the area of science at the convergence of natural chemistry and microbiology. The company developed several partnerships over time while the projects move from ideation to commercialization. The case shows how new product lines need to be developed in different stages with a different focus till they are ready to go to market. The emphasis is always different and the partnerships can change as the project matures. The Alpha Bio case shows how open innovation has to be considered as a dynamic process, aligned to the needs of a project at specific points in time.

The focal project is the entire R&D track of the company: their portfolio of products and R&D processes are driven by their open innovation experiences.



CASE N° : UKISO

SECTOR: CHEMICALS

TECH INTENSITY: HIGH-TECH

LIFE CYCLE STAGE: START-UP

INNOVATION VECTORS: PRODUCT

01 PARTNERS: PSR, LARGE CORPORATION

KEYWORDS: Insecticides, herbicides, fungicides

- BACKGROUND FRAMEWORK
- INNOVATION CHALLENGE & MARKET OPPORTUNITIES
- OI TRAJECTORY
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BACKGROUND

AlphaBio is a British/Italian company registered in the UK and based in Cambridge. Its principal commercial office is in the Italian city of Reggio Emilia. The company operates at the forefront of agricultural science in developing and commercializing effective, sustainable crop protection solutions (insecticides, herbicides, fungicides), providing growers with the products they need to meet the challenging requirements of today's rapidly evolving food production environment.

The company was founded in 2011 to commercialize the ideas that had been developed in agri-tech by Italian agricultural scientist, Alfeo Vecchi. Alfeo has a background working for AgriGenetics, Monsanto and Mycogen in a wide range of agricultural technologies from seed, transgenicis through to biopesticides, thereby providing a wide knowledge base and range of connections. The initial financing of the company was done with the founder's own money.

AlphaBio Control has ambitions to re-start some relations they have in the USA. They are also keen to secure commercialization partners to drive forward their technology and product development.

INNOVATION CHALLENGE & MARKET OPPORTUNITIES

The company was financed at the start entirely by the four founding partners and focused on the development work already undertaken but not completed by their research director, Alfeo Vecchi. The first stage was to look at how to generate an income from his ideas.

The company operates at the forefront of agricultural science in developing and commercializing effective, sustainable crop protection solutions (insecticides, herbicides, fungicides). The natural chemistry that they use in the products they have developed drastically reduces their environmental risks and harmful impact.

OPEN INNOVATION TRAJECTORY

Concept development

Technology development took place around three pillars: natural chemistry, hybrid technologies and microbiology. In each of these areas there are teams of scientists working on projects that are funded either by the company or through UK government funding. The company's know-how and IP on natural chemistry and hybrid technology is unique in a way that they are able to combine knowledge of natural chemistry with the resistance mechanisms that enables them to reduce the level of activity of synthetic chemistry and therefore reduce environmental risks.

The development process, IPR and competition strategy

The SME established teams of people to work on the three pillars from universities and companies in Italy and the UK. In each of the product development lines, AlphaBio Control engages in OI in slightly different ways with partners according to their different needs and the external expertise required. Within natural chemistry they work on insecticides, herbicides and fungicides. For the insecticides and herbicides the SME has followed a route of registration and then national-level distribution relationships.

Within hybrid technologies they had a first project funded by the Innovate UK programme which produced results of highly improved efficacy in low dosage and they are now looking to license the results; another hybrid technology formulates copper more effectively than existing formulations on the market. Here they have tried to find partners – usually larger companies – to enter into a license agreement and a co-development agreement to develop the products.

In microbiology they have developed projects on biopesticides (nematicide, plant growth promoter and soil sterilant, among others). Again, the company has used different partners at different moments in the development and commercialization of the various products.

For example, they work with a professor at the department of agriculture at the University of Naples and one of his team is funded by AlphaBio Control on a particular project to look at combining Uni Naples' micro biology with AlphaBio's natural chemistry to act in a synergistic

way. They have filed a patent with the co-inventors coming from both organizations. From this project they have so far developed one formulated product which is ready for early-stage commercialization, and they have a number of other projects running as well.

According to Iain Flemming of AlphaBio Control, they will be looking to develop relationships with bigger players to fund and co-develop the technology in order to offer them wide scope in a range of different areas of crop protection, including diseases, pests, nematodes, plant growth promotion, etc.

Another interesting development project, run in collaboration with external partners, involves a plant pathogen which grows at very low temperatures in soil and can be used to control overwintering grubs. For this AlphaBio Control teamed up with a UK-based advisory service that promotes the use of biopesticides globally, called CABBY, and also the British Antarctic Surveys in order to do proof of concept work – testing the efficacy of the technology. Flemming says, "We are now looking at peripheral toxicity of that and in due course, once we have proved the value, we will then be looking to work with partners to co-develop that technology."

This case is a good example of how new product lines need to be developed in different stages with a different focus till they are ready to go to market. The emphasis is always different and the partnerships can change as the project matures.

AlphaBio Control is using different strategies for co-developed technology, according to the individual circumstances. In one case, they agreed to surrender rights to future revenue in return for a large up-front payment because the co-investor needed the money quickly. In other cases, they take into account development costs and agree on a share/percentage of revenue going forward.

The USP of the company is to provide crop protection solutions with a less harmful environmental impact compared to competing products. The fundamental feature that differentiates AlphaBio Control from its competitors is the hard science which underpins everything they do. For example, in the case of their insecticide they coordinated their work with that of a prominent researcher at Rothamsted Research (world-leading agricultural research institute) who brought forward a definition of the mode of action for the AlphaBio Control chemistry that shows that it is unique.

Commercialization and follow-up

As the company is currently entering the roll-out phase with some of its products, it is still a little early to talk about scaling up and rolling out the business. However, the SME has a clear understanding that they will need to commercialize with external partners.

AlphaBio Control has found a partner who is interested in commercializing one of their inventions. In this case the IP remains with AlphaBio Control. They are negotiating what each side can contribute to the collaboration: AlphaBio Control has the basic data on the natural chemistry, which will be their contribution to developing the regulatory application.

The partner company holds data on the synthetic chemistry and access to it in regulatory terms. They will also contribute a major part of the financial backing for the commercialization phase. AlphaBio Control will receive an upfront fee calculated on the value of the regulatory work, and they are negotiating royalty fees based on revenue streams.

The special interpersonal skills of Alfeo Vecchi have been highly advantageous to the company. His ability to maintain the company's network of relationships – people like to work with him – has extended to the entire company's ethics: trust and integrity to develop lasting relationships and making sure they look after the people they work with.

In the case of building new alliances, the SME highlights its ability to listen and understand what very research-orientated people are offering. These people have ideas that have not attracted much interest and are not accustomed to communicating their work. AlphaBio Control's task is to use their technical understanding and combine it with their own commercial understanding and direct it towards a market opportunity.

BUSINESS IMPACT

The company has developed skills in managing collaborative dynamics. It started from an initial idea and is moving steadily through the different stages of a radical innovation process in which open innovation targets and partners are changing over time. The company has the ability to move from one stage to the other while developing new partnerships that are crucial for the next stages of the project.

The company has learnt how to

- Understand in a more structured way how open innovation partnerships work.
- Develop its own philosophy which is based on integrity and looking after its partners.
- Manage relationships upstream with other scientists/technology partners and downstream with its market partners. Others can learn from AlphaBio Control how to differentiate between relationships with technology partners on the one hand and market partners on the other hand.

The timing and sequencing of open innovation partnerships is important too, as the project is moving forward from ideation towards commercialization. Open innovation is a dynamic process. It is a learning point for many firms since they may see open innovation as being too static.

AlphaBio Control has filed several patents. The company is still early-stage and the revenue they are generating is limited although beginning to accelerate. Securing a large, strategic industrial partner to help take forward the technologies to the commercialization stage will have an important impact on the company's bottom-line.

LESSONS LEARNED

This case demonstrates how an SME started off by piggybacking on its founder's established contacts and research work. The company is involved in managing a range of different OI relationships both upstream and downstream. They are too small to do everything on their own – both in terms of personnel and financially – and must therefore manage their network successfully in order to build their business.

Main lessons learned:

1. AlphaBio Control's philosophy is based on integrity and looking after its partners.
2. Skills in maintaining complex relationships upstream with other scientists/technology partners and downstream with its market partners are often linked to the abilities and dynamic personality of a key member of the company.