flavourtech

SUBMISSION

to the

HOUSE OF REPRESENTATIVES STANDING COMMITTEE ON SCIENCE AND INNOVATION

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INQUIRY INTO PATHWAYS TO TECHNOLOGICAL INNOVATION

Contact:
Dr Stephen Sykes
Research and Development Manager
Flavourtech Pty Ltd ACN 003 812 226
32 Lenehan Road, Griffith, NSW AUSTRALIA 2680
Phone: + 61 2 6964 4322; Fax: +61 2 6964 4344
http://www.flavourtech.com.au/

PATHWAYS TO TECHNOLOGICAL INNOVATION

Introduction

In this submission, the history of a small regionally-based engineering company which has achieved considerable success based on its innovative technology is briefly set out. It is intended that the terms of reference of the Inquiry will be addressed in the course of relating this history.

Company history

Flavourtech Pty Ltd is an Australian company specialising in the design of advanced food and beverage processing systems based on core aroma recovery and evaporation technologies. Flavourtech was formed in 1986 by Messrs Andrew Craig, Lionel Irving and Ron Potter for the express purpose of commercialising Spinning Cone Column technology, which had been developed by the (then) CSIRO Division of Food Research. All three principals of Flavourtech had backgrounds in the wine industry (winery engineering in particular), hence the company's location in Griffith, NSW.

Pathways to commercialisation

The process of technological innovation on which Flavourtech is based began with the late Dr Don Casimir of CSIRO's Division of Food Research. His field was food engineering, his particular interest fruit juice processing. His experience, both of the local industry and of activities in Europe and the US, suggested that the problem of aroma recovery in fruit juice processing had not, by the early 1970s, been satisfactorily solved. At this time he came across references to a mechanically assisted distillation column which had been developed in the 1930s for the separation of oxygen isotopes, but had since fallen into disuse. He recognised that such a column could form the basis of an effective aroma recovery system for fruit juices and set about developing it for this purpose. This was the Spinning Cone Column (SCC).

By the early 1980s Casimir's work on the SCC had reached a point where CSIRO considered the technology ready for commercialisation. Potential industrial partners were canvassed, but it was a chance meeting between Casimir and Mr Andrew Craig, then a Griffith-based wine maker, which led to the formation of Flavourtech Pty Ltd. An agreement between CSIRO and Flavourtech was entered into, with the scale-up of the prototype SCC the first major task undertaken by the fledgling company. The first commercial-scale SCC entered service in 1986.

Early in the development of the SCC it was recognised that the potential applications of the technology extended well beyond fruit juice processing. An early commercial use was the removal of the preservative sulphur dioxide from grape juice. The production of low-alcohol wines was another application which generated much interest and activity during these early years.

At the same time that new applications were being evaluated, engineering developments aimed at enhancing the efficiency and applicability of the SCC were undertaken at both CSIRO and Flavourtech. Flavourtech obtained world-wide patents for these key engineering developments in 1991 Much of this development work was funded, at least in part, by various Commonwealth grants.

Once a degree of patent protection had been obtained, Flavourtech embarked on a vigorous marketing campaign, particularly in Europe and the US. Again, Commonwealth support of this activity, under the Export Market Development Scheme, was crucial.

By 1993 sales of SCCs started to increase rapidly. Key applications of the technology at this time were dairy processing (de-odourisation of cream) and the manufacture of instant coffee.

During the course of dealing with the instant coffee industry, Flavourtech acquired substantial knowledge of the product and the processes conventionally used. By 2000 the company was in a position to develop an alternative system for the production of soluble beverages (i.e. coffee and tea). This Integrated Extraction System (IES) incorporated the SCC but also included decanters, centrifuges, filters and a specialised evaporator, the Centritherm. The operating principle of Centritherm, like that of the SCC, is based on thin centrifugally-induced liquid films. The Centritherm was developed and manufactured by Swedish companies Alfa-Laval and, later, Tetra-Pak.

The three-year programme of research and development on which the IES was based began in 2001 and was supported in part by an AusIndustry R&D Start grant. During this period Tetra-Pak, now owners of Centritherm technology, moved to divest themselves of this part of their business. Flavourtech seized this opportunity and acquired the Centritherm business from Tetra-Pak. This represented a substantial capital investment, but since the acquisition this technology has become a key part of Flavourtech's business. It would be fair to say that Centritherm technology, and the associated commercial activity, has been wholly re-vitalised since its transfer from Tetra-Pak to Flavourtech.

Other comments addressing the terms of reference:

Pathways to commercialisation
An active R&D programme has been important in the process of commercialisation, especially in-house R&D activity. The use of our own trial facilities, whereby the technology can be demonstrated to potential purchasers, has been crucial. Few companies are willing to make the large investments required, particularly with relatively small equipment manufacturers, without proof that a novel technology will deliver. The investment in both capital and personnel required to provide such facilities is significant.

Intellectual property and patents
Intellectual property is Flavourtech's most important asset. Protecting and increasing the value of this asset is complex and involves a number of strategies.

Patents do not offer real protection of intellectual property. Their principal value seems to be as a deterrent. If it ever came to having to defend a patent in court the strategy will have, in a sense, already failed. The main function of patents is to reassure customers and to deter competitors. The size of our company relative to that

of any adversary could be a significant disadvantage if wanting to pursue any patent infringements. The danger is that we could find ourselves spending all management time in court instead of running the business.

Confidentiality agreements are entered into with all customers; no substantive interaction occurs until a confidentiality agreement is in place.

Existing intellectual property is protected mainly by a rigid policy of non-disclosure.

Ultimately, the best protection for our intellectual property seems to be to increase and enhance it on a continuous basis; i.e. we strive always to be ahead of our potential competitors. It is this more than anything else which prevents them from changing from potential competitors to actual competitors.

Skills and business knowledge
Flavourtech grew out of the experience of the company's founders in industry . The skills and business knowledge built up were brought to bear for Flavourtech's benefit.

Capital and risk investment
In any development activity such as that which Flavourtech has been involved in, the risk of investment is high. Over its life Flavourtech has seen many of its contemporaries fail through over-optimistic sales and growth forecasts and the use of external finds in attempting to achieve them. Flavourtech has used internally generated cash flow and shareholder funds to develop and grow the business, as opposed to loans from external sources. The risk associated with failure to achieve sales is then completely handled internally.

Research and market linkages
Collaboration with institutions such as CSIRO, University of Sydney and Charles Sturt University has been an important part of Flavourtech's R&D effort. This aspect of our R&D culture has many benefits and is to be maintained.

Close relationships with all of our customers has facilitated the identification of existing processing issues, and hence opportunities to engineer novel processing solutions.

Factors determining success
A key factor has been the acceptance that the market place extends beyond the shores of Australia. The products and services of Flavourtech are specialised and only have a small market within Australia. Once we made the first step offshore we were exposed to the larger world. Much of what we do today is a result of this experience.