

* By Dr Cecilia Kühn

R&D

Looking outside

Outsourcing research and development work is often crucial for food product innovation. In this article, the first in a series outlining effective use of external food product R&D, Dr Kühn explores this increasingly important practice

The ever increasing and ever more focussed R&D needs in the food industry together with a reduction of resources available have made it necessary for companies to look outside for resources. Yet, companies must carefully evaluate what type of work is to be done externally, since with outsourcing goes capability, and sometimes also control.

AN INCREASING TREND

Outsourcing R&D is an established trend in the food industry due to:

(I) Pressures on the manufacturing industry itself, such as:

- greater competition and
- globalisation, which both demand more and faster R&D results;
- fewer R&D resources;
- downsizing, mergers and acquisitions which have brought a decrease in R&D personnel;
- increased focus and support for business strategy needed from R&D;
- continuous shortening of product life-cycles; and
- lack of specialised internal staff in all areas of expertise.

(II) Inherent advantages of outsourcing ie:

- ability to engage the flexible services of specialists for specific tasks;
- the provision of higher quality information and results from external R&D while shortening development time;
- often lower costs for externally-sourced R&D in comparison to in-house development and maintenance of skills; and often less expensive and higher quality food products (2).

Outsourcing or 'obtaining from sources external to your company can be done in different ways: through

Tough market competition, increased need for more and faster R&D results with less resources, globalisation, and downsizing have all helped boost the trend to R&D outsourcing



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partnerships (ie simply asking your supplier to provide you with product technology), alliances or out-contracting. All forms have in common the lack of a permanent relationship between the partners. All are taking place with increasing frequency and with greater intensity. Fastest growing are partnerships and out-contracting.

Outsourcing relationships are flexible and matched to the needs and objectives of a given project; once achieved the relationship is dissolved or transformed. Outsourcing is thus a convenient and relatively inexpensive way of ensuring realisation of the work, that avoids painful layoffs or idle capital often found in permanent alternatives such as employment or vertical integration.

Partnerships between manufacturers and suppliers are probably the fastest growing outsourcing method in Europe. The reason is obvious: the manufacturer has part of its product development work done by the supplier without being charged for it. By giving this development support, a supplier tries to secure the business deal. But a manufacturer has often to disclose 'company-confidential' information and is (morally at least) committed to buy from the supplier.

Thus partner selection is a critical issue. Quality and trust have become more important than price. Often manufacturers select their 'preferred suppliers' which provide them with these and other advantages.

Since partnerships are not always possible nor desirable (for strategic or confidentiality reasons, business interests or expertise concerns), food companies also resort to out-contracting R&D work. This involves payment for the R&D work, but the contractor is free to select the 'realising' party, decide on project programme and timetable, claim confidentiality, proprietary rights and enforce other conditions. No commercial relationship needs to exist between the parties.

R&D work can be contracted at very many organisations and companies world-wide, including innovation centres, specialist food technological organisations (governmental, mixed, private), industrial associations, professional schools, universities; and also at smaller, very flexible and commercially-oriented private laboratories, product development and technological business development consultancies. Even ingredient suppliers and food manufacturers are nowadays increasingly willing to rent their facilities to other parties.

'DO' OR 'BUY'?

Types of work outsourced? Practically any type of R&D work can be outsourced, regardless of how applied or basic it is. It could involve new product or process development, adaptation of product formulations (e.g., for a foreign country), ingredients replacement (e.g., to achieve a 'natural' status). Further projects commonly outsourced are consumer sensory perception studies, development of new methods and applications, technological product benchmarking and even the more basic 'whys' of specific technological problems and effects of nutritional ingredients as well as physical, chemical, biochemical, microbiological aspects... you name it!

Warning: Carefully evaluate each time whether the R&D work should be outsourced, as indicated below.

Companies use external R&D services differently. Smaller food manufacturers may outsource even the basic formulation work for their products. Traditionally larger companies have developed their products in-house but this is changing, and more and more companies are employing outsiders' help for their product formulations (once secrecy is guaranteed, of course).

Food ingredient companies often outsource food application work, especially for distant, less important or markets in 'exploration'. As far as fundamental R&D work goes, a considerable part of it is done externally, since it is too expensive to do internally because of the specialist nature and the specific expertise required.

R&D work may be out-contracted on a project or continuous basis (term-contracts for years). In some cases, using specific organisations may require membership to an association.

Confidentiality levels vary from totally confidential (competitive R&D work) through partly (co-financed or subsidised projects) to non-confidential (e.g., fundamental, precompetitive R&D work at a university. Sometimes a 6-12 month delay in publishing work results is negotiable).

MAIN CONSIDERATIONS

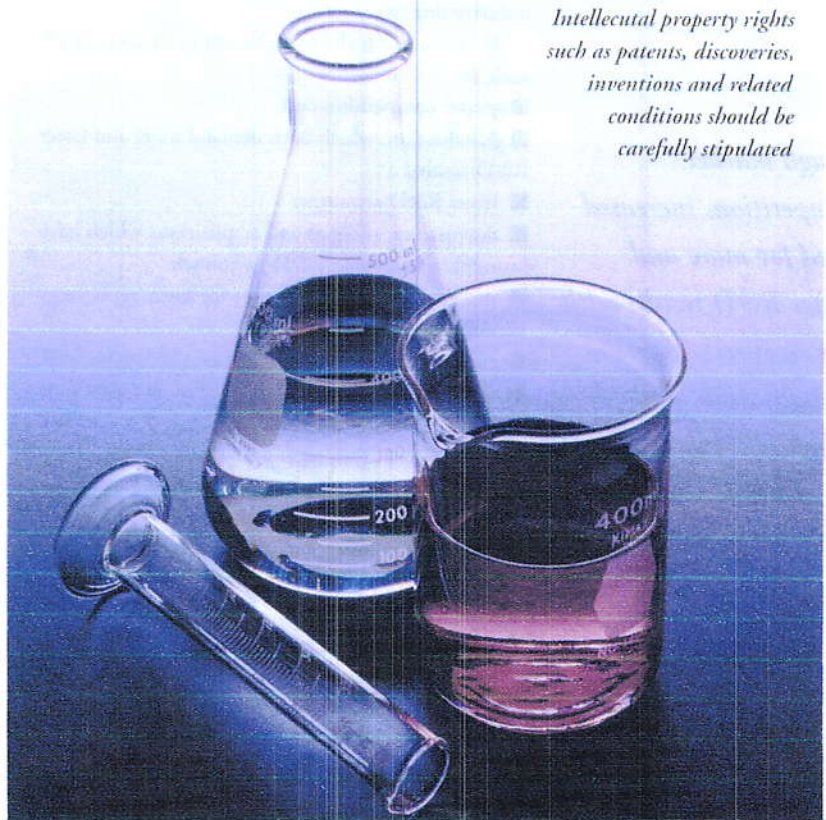
Because product technology is a major contributor to a company's competitive advantage, the decision to outsource involves careful consideration. Two main factors are taken into account to decide whether it is appropriate to outsource a piece of R&D work or not: How essential the work is to the company products, and a cost comparison of doing the work internally vs. externally (Fig 1).

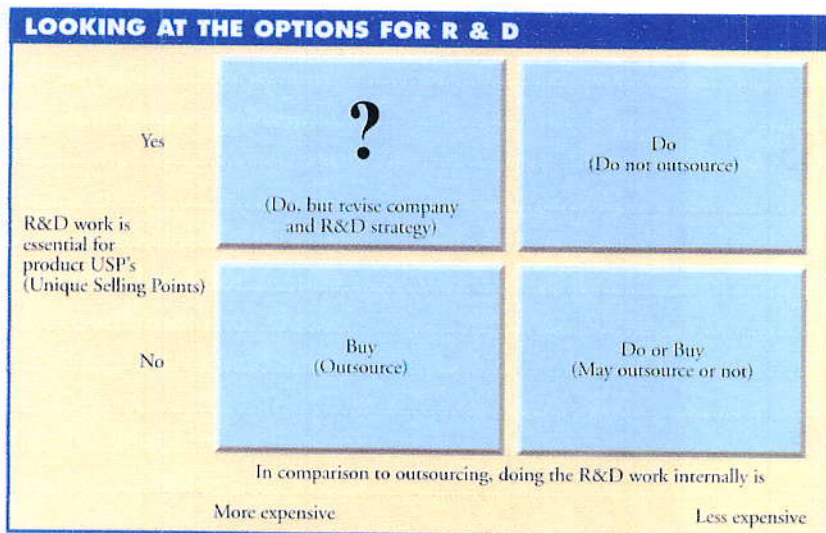
If it is, or may become, essential or 'core' to your products USPs, you should do it internally. Because it is your 'uniqueness', it should also be cheaper to do it internally. If it is essential but more expensive to do it than to buy it, you should carefully analyse your company's situation, since you may have a problem.

If it is necessary but not 'core', you can outsource it. For a strict 'focussing' of activities, you should only do essential work internally when this is cheaper than outsourcing it - which is seldom the case.

Warning: It should be emphasised that outsourcing 'essential' technological work highly endangers the company's future.

Intellectual property rights such as patents, discoveries, inventions and related conditions should be carefully stipulated





It should be emphasised again that outsourcing essential technological work endangers the company's future (3).

Other important considerations are whether the R&D work is Autonomous or Systemic (critical mass) and Precompetitive or Competitive, as further discussed in (1).

Selection of the appropriate outsourcing organisation is essential with respect to work approach, quality and applicability of results as well as overall effectiveness (cost, time). Yet it is often difficult to make the most appropriate match. The consequences are unsatisfactory results, high costs, loss of time, wasted money. This series of articles overviewing R&D organisations internationally is intended to assist you in this regard. For more assistance, ask other industries or look for professional help.

In our experience, the difference in objectives, communication and working approaches between the commercially-oriented industry and the technologically-oriented organisations may cause some costly difficulties.

Substituting fact-based decision making with judgement speeds up product development (2), but it must be based on extensive experience and expertise of the 'right type' for your business.

and network can help you to synergise with the available technological knowledge and help you with project design, realisation and implementation (technological development), while finding ways to simplify project work and reduce costs. Independent consultancies select the most appropriate R&D organisation for your project and may negotiate contract conditions.

They also help with commercial aspects: finding technology-based opportunities and searching, approaching and servicing appropriate clients (business development).

CONTRACT CONDITIONS

Agreements and conditions are critical issues in R&D outsourcing. They vary greatly depending on type of work, contractor and contracted parties.

Because R&D work creates, discovers and innovates, special attention should be paid to certain contract conditions such as work programme and reporting, proprietary rights, confidentiality, exclusivity, termination, liability, costs and legal aspects. The most critical conditions are briefly discussed below, to help you increase results efficiency and satisfaction, reduce costs and protect your rights.

WORK PROGRAMME

It is desirable to contract on a results-basis (total project contract). As this may be difficult due to the 'exploratory' nature of R&D work, then agree (in writing) as closely as possible the work programme and progress reporting system. Remember that the experience and judgement of the 'contracted' organisation may not fully apply to your situation. Coach work closely and allow frequent go/no-go decision points.

Proprietary rights (include intellectual property rights [IPR], such as patents, discoveries, inventions, copyright) and related conditions (confidentiality, secrecy, publicity, exclusivity) should be carefully stipulated with known and unforeseen market significance in mind. More on these and other contract conditions in (1).

FUTURE

Obtaining R&D from the best sources at often lower costs than in-house development lies behind the wide use and future expected growth in R&D outsourcing. New and exciting forms of cooperation are likely to develop in the 21st century to fulfil the increasing R&D demands of the food industry (2).

Confidentiality is a must, and as trust develops, more competitive R&D work will be outsourced, allowing companies to streamline further, specialise and focus their internal resources on essential needs.

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LOCALLY OR INTERNATIONALLY?

The location for your R&D work depends on your objectives and the type of work to be done, as well as on availability of expertise. Outsourcing costs and quality differ widely between different countries as it varies between organisations.

Also important are cultural, communication and consumer taste differences. Both in local and international situations there are important financial aspects (tax, subsidies, relative costs) to consider in outsourcing of R&D work.

Professional outsourcing support through an independent technological business development consultancy conveniently helps you to co-ordinate all aspects of R&D outsourcing for increased efficiency in approach, results, costs and time. Their experience