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Market Leadership from R&D strength

Implementing Business Strategy with Virtual R&D teams

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Abstract

Outsourcing has been on the increase over the last 30 years, driven by the difficulty of maintaining world-class standards across all aspects of business activity and a desire to reduce costs. It started with the outsourcing of support activities such as facility management and IT, and then moved on to mainstream activities such as manufacturing, distribution, sales and customer service. Non-technology companies have often outsourced product development, but for technology companies this activity has remained largely in-house.

This paper is aimed at R&D decision makers, who maybe considering or actively planning the outsourcing of more of their development activities. The paper discusses some of the issues surrounding the outsourcing of R&D activities and presents some strategies and practical tips for successful implementation.

Keywords

R&D; Outsourcing; Virtual teams, Technology strategies; Technology road mapping; Business modelling; R&D management; Resourcing and Virtual enterprises.
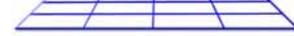
Introduction

The principle purpose of business R&D is to develop differentiated products and services to meet the market needs. For technology companies, this is core to their survival. It is increasingly difficult however, to stay abreast of all technology developments and new competitive threats. Therefore, time to market is all-important and with the success of other outsourcing activities, even technology companies are beginning to experiment with development outsourcing strategies.

Of course, not all outsourcing is driven by strategic change. In many cases, neglect in the management of core-competencies has lead to a loss of leadership and/or key skills, and outsourcing is a quick fix to provide time for the development of new strategies.

Assuming R&D outsourcing is performed within the correct strategic framework and implemented effectively, the following benefits can be expected:

- Exposure to new ideas stimulating innovation [1]
- Development cost reduction and service improvement
- Reduced time to market and better management of risk
- Reinforcement of business transformation and development of higher value in-house skills
- Access to new specialist skills and Intellectual Property (IP) [2]
- Resource flexibility and extension of enterprise leverage from the new virtual R&D teams
- Potential access to new markets

As with any new business strategy, there are many hurdles and pitfalls to overcome, even when R&D outsourcing is properly driven. These include:

- Lack of cooperation from staff
- Spiralling costs due to poor R&D supplier selection
- Loss of control as suppliers develop critical IP
- Delays and poor performance due to lack of management processes
- Competitive threats after the termination of R&D supplier relationships

These issues can be successfully mitigated through the introduction of the right strategic and tactical management processes.

Business Strategy

It is vital to be clear about the goals and reasons for outsourcing R&D so that the correct activities are outsourced with the proper level of co-operation from the in-house team.

In many cases it is a change in business strategy [3] that brings R&D outsourcing to the top of the agenda. For instance, a company transformation from product to market orientation will probably obsolete many of the old core-competencies and lead to the development of new competencies that better differentiate it's service offer. Either way, until your company is proficient, it is best to restrict development outsourcing to non-core areas.

The business strategy must be translated into technical strategy so that the right demarcation between outsourced and in-house activities can be achieved. Product and technology road mapping is an effective tool that achieves this strategy to technology translation and helps build the support from your own organisation.
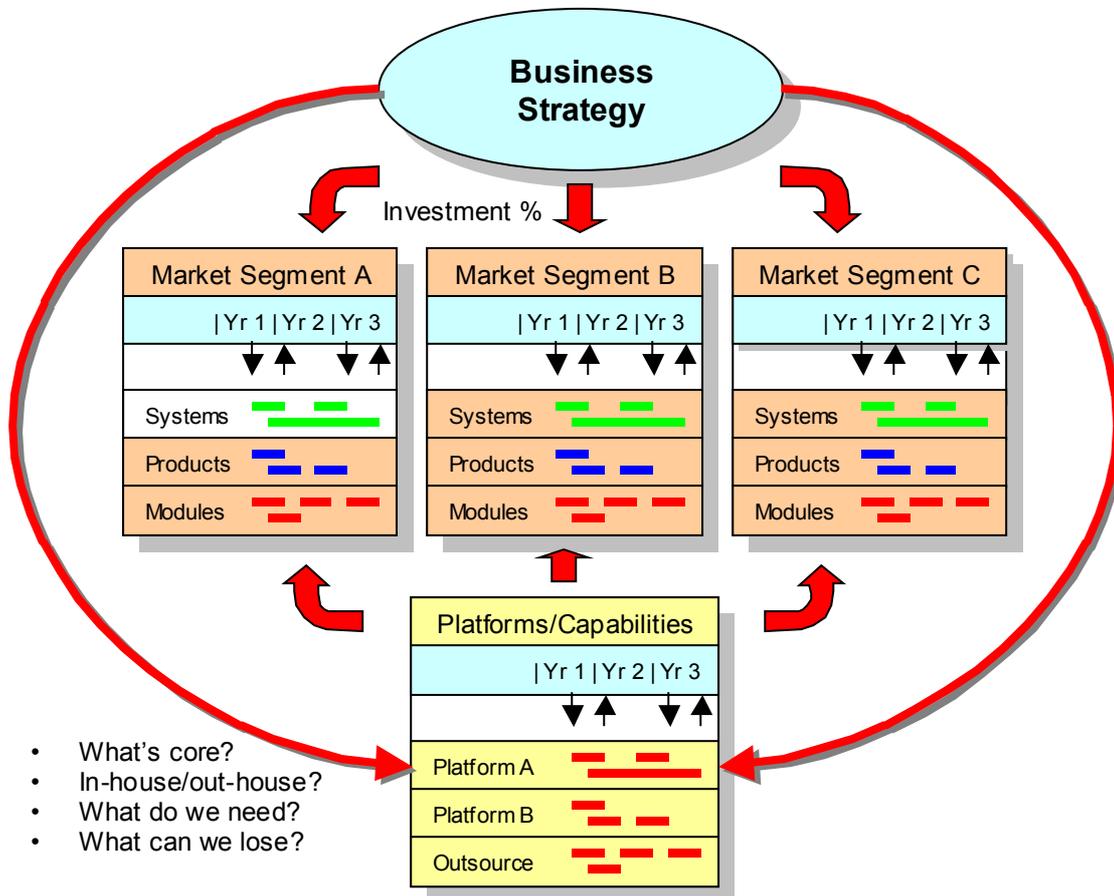

Figure 1: Business directed R&D strategy by technology road mapping

Defining The Business Strategy

In all business, it is important to have a well-defined business strategy, and development outsourcing is no exception. There are many ways of preparing one but the key elements are shown in Figure 2. For preparing the product/technology roadmap the main output from the business strategy should be:

- Where are we going to compete?
- Who have we got to beat?
- Why and when will we be successful?
- How important is it?
- What resources are we prepared to make available?

Figure 2: Business Strategy Process

Product And Technology Road Mapping

There are many approaches to technology road mapping. A generalized process is outlined below, however a detailed discussion of the available techniques is outside the scope of this paper, and if this exercise has not been previously attempted within your own organisation then it is advisable to seek specialist support. The technology roadmap will highlight which of your capabilities or platforms enable the most differentiation in your products or which create the greatest barriers for competitor entry. These capabilities should become your core competencies and tight control retained or captured to help create your business strategies. The book Platform Leadership [4] discusses at length the different strategies that top technology corporations take to gain and maintain market leadership.

The first step of a technology road mapping process is to understand the current and future market (customer) requirements for each targeted market segment. These requirements should be prioritised and combined with the priority of each market segment, resulting in an overall weighting for each requirement, or vector of differentiation.
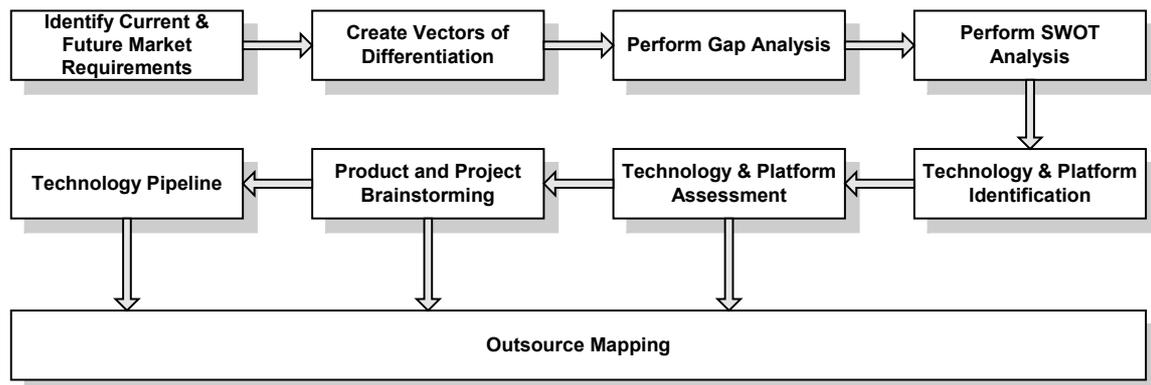
Figure 3: Technology Road-mapping Process

The current in-house and competitor offerings are then assessed against these vectors of differentiation and a Gap analysis performed. The strength of the match when combined with the relative weighting of the vector allows the comparison of the in-house offerings against the market requirements, and against the competitors' offerings. The resultant Gap analysis will help identify which vectors require the most strategic attention. This can be enhanced through the identification of Strengths, Weaknesses, Opportunities and Threats in each market segment (SWOT analysis).

Potential technologies and platforms that may address the market requirements are then identified. These can then be assessed against the vectors, to understand their suitability and relative importance. Candidate technologies can then be selected and investigated to understand the risks and investment required for exploitation.

This road mapping process will have helped identify the key vectors of differentiation, a timeline and which technologies will effectively address them. To create a pipeline of technology development and adoption, product ideas should be brainstormed and the business case evaluated. If they are attractive then they should be turned into projects and submitted for review within your project pipeline process.

Making it work in a Virtual World

Outsource Management and Contracts

A project focus, as shown in figure 4, is probably an essential pre-requisite to outsourcing, but your project processes should now also include all the commercial steps. Contracts are likely to be far more complex and require more effort than a more traditional commodity or service outsource. There are many different ways to collaborate with your R&D partners:

- Strategic partnering
- Joint ventures
- Manufacturing coupled R&D contracts
- Contract development
- Contract resourcing
- Pre-competitive IP sharing
- Risk and return sharing
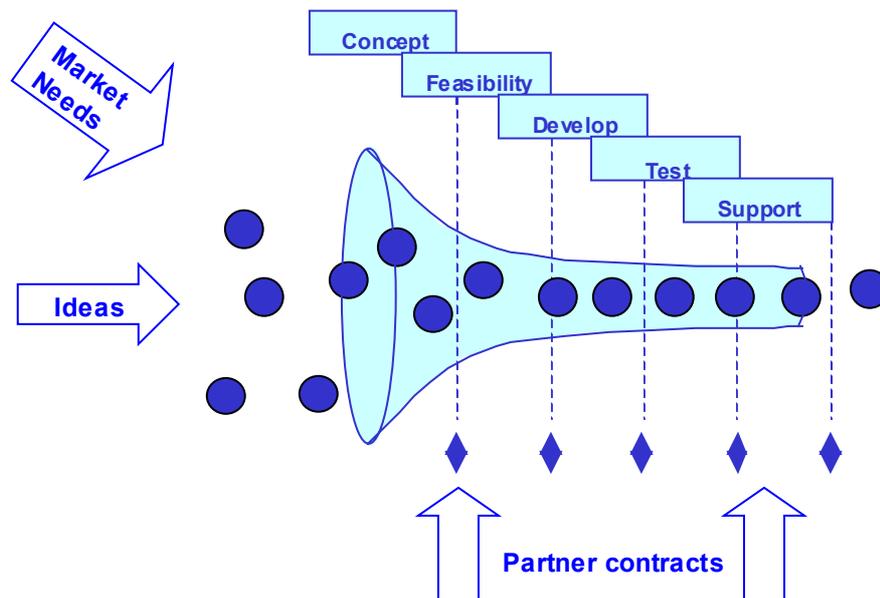
Figure 4: *Project Development Pipeline* [5]

The appropriate collaboration model depends on your objectives and in practice you may well be running with a combination of models for different activities. The extent to which the R&D activities are outsourced, and how much influence suppliers have on the process, will depend on the collaboration model selected and the relationship with the suppliers.

Initially, it is likely that individual development projects, identified in the roadmap process, will be outsourced to the most capable supplier providing it does not involve the generation of critical IP. Later, "tier 1" suppliers may well be involved in the development of critical IP providing the contracts are well thought through and the partnership is based on a long-term commitment. The "tier 1" suppliers are likely to be involved in your road mapping process, helping to identify technologies and products. The most extreme model will have these suppliers responsible for whole lower layers of your road map with only strategic input from your own organization.

Project & Relationship Management

Outsource developments should be continuously managed and reviewed in the context of realistic expectations. With your suppliers involved in your strategic discussions, then they should be well committed to their deliverables. However, even with good relationship management, some difficulties can still arise because of the cultural gap between different organizations. This should be taken into account during supplier selection.

The development of Internet technology has now enabled close collaboration with distant R&D teams and countries like India are making a strong play for providing

high value R&D services more cheaply than their western counterparts. However, the effective management of such relationships is vital.

At any instant, not all of your development partners will be active in your current programs. However, in the future when you need them again, they will probably be required quickly. Therefore, the relationships across your virtual enterprise should be continuously managed to create partner commitment and a sense of belonging to your development community. Newsletters, on-going strategy discussions and a community web site are an excellent way of performing this task. An example of a development and innovation community can be found at R&D Business Exchange [6].

The co-operation of the current in-house team is of vital importance during the transfer to outsourced resources, and in ensuring that the strategy is successful. This always requires careful management, as they are likely to be suspicious of any strategy they see as a threat to their positions. Identify the key staff and involve them in the process as soon as possible, then ensure that their concerns are taken seriously. This team will form the core of your future in-house technical capability, their importance to the organisation will increase accordingly as they take on the program management activities. In order to ensure the best performance from this team, it is advisable to recognize their strategic value and importance.

If your outsourcing was accompanied by restructuring then the remaining internal team may not have the competence to properly manage highly technical contracts. In these cases, an independent competent auditor should be built into the program costs.

Conclusions

Developing a virtual organisation for outsourcing your R&D can deliver many benefits providing you choose the right goals and take into account the practical steps outlined in this paper. The development and management of outsource contracts can range from being straightforward to highly complex and possibly irreversible if you get it wrong. However, in a global market all companies should be seeking the best competencies to include in the development of their products and services wherever they may be found.

References and Further Reading

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[6] *Mindsheet R&D Business Exchange* resource website at www.mindsheet.net

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