

Core Competencies, R&D Management and Partnerships

BERTRAND QUÉLIN, *HEC Paris Graduate School of Management*

Constantly focused on the role of competencies and resources, firms' strategic management teams are becoming increasingly interested in discovering an effective way of managing the competencies that they possess. In high-tech sectors, these competencies have a direct impact on the firm's future competitive positioning. In other sectors, technological competencies will determine the renewal of product lines. This article examines how firms manage their proprietary research and development programmes and how they succeed in establishing a co-operative relationship with their environment. Our background research includes forty interviews conducted in both the US and Europe. © 2000 Elsevier Science Ltd. All rights reserved

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Main R&D Challenges

Research and development programmes, like other business units, are under pressure to yield concrete results. Consequently, analysts are increasingly focused on key success factors, such as time-to-market, lower R&D costs, and greater control over the uncertainty that is an inherent part of any R&D activity (Arrow, 1962; Burgelman *et al.*, 1996; Brown and Eisenhardt, 1998). We will be taking a closer look at these issues and at the solutions that a proactive management of technological competencies can provide.

To meet today's R&D challenges, many of the companies we interviewed have been attempting to devise new methods for managing technological competence (i.e. compiling skills directories, managing the breadth of the competence base, or monitoring the competencies that accumulate at the business unit

level). These efforts have often involved the formation of certain types of internal horizontal structures (project management, virtual R&D workgroups) as well as the establishment of a co-operative working relationship with actors in the surrounding environment (including universities, laboratories, competitors, clients and suppliers).

In managing technological competencies and R&D cycles, the main concern is uncertainty. This phenomenon affects firms throughout their activities — from their attempt to mobilise the basic technological competencies, to their efforts to learn to internally control the interactions between these competencies, and to their ability to mobilise all useful competencies, including external ones.

When the companies in our sample diagnose their own operations, they tend to focus on the interfaces between their operational divisions and the R&D laboratories. They seek for solutions to provide to their clients and for the corresponding technologies required. They sometimes create horizontal workgroups to foster the sharing of experiences and to facilitate the development of new ideas. They also commonly adopt project management structures. The purpose is to simplify the transfer of information from the marketplace to the technology research process, thereby ensuring that the preoccupations of potential users are considered in the R&D cycle.

In their efforts to heighten their exposure to universities, competitors, suppliers and clients, companies also instil two policies: (1) increase R&D monitoring capabilities by improving internal procedures, and (2) implement procedures that allow for an effective evaluation of these projects. Through these linkage strategies, and by establishing durable relationships with external research partners, firms are able to stay abreast of current developments, increase their proximity to centres of competence, and gain access to the

Table 1 Why Develop a Strategic Management of Competencies?

Adaptation: a competence, whether individual or collective, must enhance the firm's flexibility
It increases the company's added value: a firm's clients assess its ability to generate added value from its products, processes and organisation
A firm's performance is determined by its competence
Competencies are a new source of capital growth
Individual and organisational competencies need time to develop
The mobilisation of competencies infers the existence of a structured approach, methods and tools

resources, knowledge and know-how that they do not possess.

As such, the management of technological competencies faces two challenges. First, competencies must be identified and evaluated internally and/or in their manifestations as products or services. Second, as firms compete, they want to gain access to the complementary competencies that their rivals control and as a result, must increase their exposure to the external environment.

The Strategic Management of Competencies

More and more, the strategic management field is focusing on the role of competencies and resources that accumulate within a firm (Dierickx and Cool, 1989; Barney, 1991; Quélin and Arrègle, 2000). This orientation attests to the specific and unique nature of how each firm accumulates technological and organisational competencies — even for two companies from the same sector. In the past, companies used to focus their energies on adapting to their environments (Porter's viewpoint). Their concerns included those linked to being present in booming market segments, to servicing clients and to dealing with supply constraints. Now, more and more, these firms strive to develop a set of competencies that coordinates well with their strategy. They seek to implement horizontal and/or cross-division structures appropriate for accumulating resources and competencies, controlling strategic business(es), and fostering innovation.

An increasing number of companies now prioritise the effective management of competencies (i.e. through directories, databases, project groups, horizontal structures). Diversification policies, new product development, new partnerships — nowadays, all of these decisions depend primarily on firms' perception of the ideal role of their strategic business units (i.e. a receptacle for the various types of knowledge, know-how, expertise and competence that the firm possesses). Tables 1 and 2 show that these factors have become the foundation upon which innovations and new products must be developed.

Management of technological competencies has become a major issue for the functions (or persons) who are directly affected by it — and for whom the issue of a company's technological competence is crucial. In high-tech sectors, technological competence determines how a company positions itself competitively (Brown and Eisenhardt, 1998; Doz and Hamel, 1998). In other sectors, it becomes the basis for product line renewal, or for the re-arrangement of market segments. As a result, companies in all activity sectors need to manage their R&D cycle carefully — and they need to be ready to launch their innovations at the right time. Consequently, they are often on the lookout for ways to benchmark.

Managing the R&D Cycle: The Main Problems and the Possible Solutions

Research and Development Programmes Have Become Increasingly Market-Oriented

One of the main concerns of the companies that we interviewed was how to shorten the R&D cycle — in

Table 2 The Core Competence Approach: The Example of an Agrobusiness Company

Definitions

A **heritage**: a collection of individual or collective knowledge bases and/or experiences

A **process of mobilisation**: the implementation and validation of competencies through action and by outcome

The heritage

Knowing: all of a company's knowledge, culture, professional experience and way of thinking

Knowing how to do: all of the practices and solutions that are meant to solve problems

Knowing how to be: everything within the organisation that allows it to comprehend and to evolve

The implementation of competencies

Knowledge in practice: **knowing how to act**

The adaptation of the tools that are available to the firm: **being able to act**

Special processes: **interactions, information management and evaluation**

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