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Research Policy 31 (2002) 1317–1332

research
policy

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Incongruities as a source of organizational renewal in corporate management of R&D

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Received 17 September 2001; received in revised form 20 December 2001; accepted 25 February 2002

Abstract

The heydays of the central R&D laboratory as the ‘dominant design’ of corporate R&D in large technology-intensive companies is over. The last decades have witnessed not only downsizing of central R&D, but also ongoing experimentation and restructuring of the modes of managing corporate R&D. What is the logic behind these ongoing restructurings? The paper argues that different kinds of organizational incongruities constitute critical sources of change in the organization of R&D. The paper seeks to align a contingency and an evolutionary perspective in analyzing two Danish technology-intensive companies characterized by highly different organizational trajectories.

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Keywords: Management of R&D; Management of technology; Corporate strategy

1. Introduction

During recent years, the traditional ways of organizing industrial R&D in large companies have been subject to massive challenges. The central lab placed close to Headquarters and equipped with extended authority to lead and control the company’s R&D policy represented the dominant paradigm for managing R&D in large R&D-intensive corporations after World War II and way into the 1980s (Whittington, 1990). However, as large companies have increasingly become multi-divisional, multinational, multi-business and multi-technology companies, they have become increasingly difficult to assist from central R&D labs. As a result, R&D-intensive large companies have over the last two decades experienced a general wave of downsizing, decentralization, outsourcing and internationalisation of R&D (Coombs and Richards, 1993;

Coombs, 1996; Floyd, 1997; Gerybadze and Reger, 1999; Howells, 1990; Iansiti, 1997; Kaufman et al., 1996; NSB, 1992; Rubenstein, 1989; Whittington, 1990). However, these tendencies have not been equally powerful in all industries and categories of companies, and rather than a new dominant paradigm in managing corporate R&D we have witnessed ongoing experimentation with different governance structures in which new more market-like and market oriented structures are combined with efforts to assure both long-term and coordinated R&D investments (Birkinshaw and Fey, 1999). Hence, the times of one dominant paradigm of organizing corporate R&D seems over.

What is the logic behind what seems an endlessly ongoing process of restructuring of the R&D organization in many technology-intensive companies? In analyzing this question, the paper applies a structural contingency perspective and seeks to align this with an evolutionary view. It is argued that different kinds of organizational incongruities constitute critical

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sources of change in the organization of R&D. One such organizational incongruity may evolve between the overall changes in the structure and strategy of the company, and the existing mode of managing and organizing R&D. Most large companies are subject to long periods of relative inertia in terms of organizational and strategic development. They develop along what we shall term corporate organizational trajectories. The paper holds that much restructuring of the R&D organization reflects adaptations to such overall trajectories. Another type of organizational incongruity reflects tensions developing within the R&D organization, either between emerging new strategic objectives in R&D investments and the existing mode of managing R&D, or between emerging new R&D structures and the existing R&D strategy.

Since it is difficult, if not impossible, to precisely measure efficiency and effectiveness in the management of R&D, changes in organizational practices related to R&D tend to be based on management's attempts to come up with organizational solutions to remedy inter-subjectively perceived deficiencies or accommodate new strategic objectives. Such perceived incongruities and deficiencies constitute ongoing sources of organizational modification and restructuring. However, while this contingency perspective seems to provide valid explanations of individual restructuring decisions, the evolutionary notion of corporate trajectories may explain the way the pattern of decisions over the longer term may be locked into particular company-specific paths of development or mobilized for new paths.

The suggested framework is used to interpret a comparative, longitudinal study of two Danish technology-intensive companies, one representing a decentralizing organizational trajectory (Danfoss), the other a centralizing and integrative trajectory (Grundfos). The question to be faced is, what are the determinants of the major or minor transformations in the management of R&D, and what is the underlying logic behind the pattern of such decisions over a time span of several decades?

Section 2 gives a short account of the analytical framework. Sections 3 and 4 present the two-case companies. The historical trajectories of corporate organization and management of R&D are outlined in a descriptive fashion. In Section 5 the case studies

are analyzed and discussed according to the analytical framework. Section 6 concludes the paper.

2. Analytical framework

The inherent tensions between different and changing strategic objectives and between strategic ambitions and organizational solutions provide a continuous source of trade-off concerns and compromises in the evolutionary development of the company's strategy, organization and culture, and most large and growing companies have to deal with the never-ending issue of harmonizing these concerns in a context of bounded rationality and institutional constraints (Roberts and Greenwood, 1997). In accordance with this view, the present paper applies a structural contingency perspective and seeks, in an explorative manner, to align this with an evolutionary perspective on the analysis of dynamics of R&D management in large companies.

Consistent with Chandler's notions of strategy and structure, management of R&D is here analytically differentiated into R&D strategy, that is, the explicit or implicit longer term direction of R&D investments, and the R&D structure, that is, the organizational mode of managing R&D. Management of R&D is divided into two sub-functional categories, management of innovation and management of technology.¹ Management of innovation signifies the management and organization of the individual innovation processes with the objective to produce product or process innovations. Management of technology signifies the management and organization of the company's technology base (the portfolio of existing and prospective technological capabilities underlying product and process innovations).

The contingency perspective takes its point of departure in Chandler's (1962, 1977) theory of strategic and organizational dynamics implying that accumulating organizational tensions or incongruities give rise to organizational changes that seek to re-establish coherence between the strategy and the organizational structure of the firm. Extending this perspective into the area of management of R&D, the policy implications

¹ We use the concept of R&D in a broad sense including for example management of process technologies which typically lies outside the domain of the R&D departments. For a critique of the institutionalized R&D concept see Christensen (1995).

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