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Organising Knowledge Management and Dissemination in New Product Development

Lessons from 12 Global Corporations

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New Product Development is one of the most knowledge intensive processes in business and is itself constantly creating new knowledge. As NPD relies heavily on collaboration within cross-functional teams, the question of how such knowledge, which to a large extent is tacit, should best be managed and disseminated is crucial. Studying this problem with data from the multi-project NPD environments of 12 large global manufacturing companies, we identify three typical organisational structures for knowledge management, one as a central strategic function, a second where KM is internal to individual projects and a third where it is the affair of specialized functional departments.

We assess the strength of each option in terms of clarity of mission, how supportive they are in promoting the transfer and sharing of knowledge, and what sort of frictions may accompany their use. A focused area of the research is the alternative formats for job rotation that each structural style promotes, and the prospect of some 'ideal type' of knowledge management structure as a hybrid of these styles is examined.

Introduction

With a steady record of more than 500 new products launched per year since the mid 1990s, the successful growth and development of Euro Supplier 1, a European-based global supplier of automotive components, is in a large part due to its systematic focus on managing the product

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Knowledge Management is a subject at the top of the product development strategic agenda in large manufacturing firms.

development process as a continuous learning process. Since taking office 5 years ago, Jack D. (the Divisional Head of R&D), has consciously led all activities, processes and players involved in the product development process with three key objectives: activating the knowledge embedded in existing product solutions, extracting as much as possible of the tacit knowledge held by people, and capturing as much as possible of the new knowledge created in each development project. Measured by steadily improving R&D productivity in terms of cost and lead-time reductions for an increasing functional complexity and growing numbers of new products, his mission has been largely successful. Jack D. attributes this success to a mix of clear support structures, effective operating procedures and a climate that favours the sharing of knowledge during operational problem solving as natural, all under the umbrella of a project intelligence unit and his personal supervision as division head.

Few product development managers are as fortunate as Jack D. While product development is widely recognised as one of the most knowledge-intensive processes in business, as a 'place' — a *ba*, - where knowledge resides, expands and continuously changes shape as a result of action and problem-solving practice,[1] there have been no in-depth analyses and few recommendations as to how Knowledge Management (KM) should best be *organized* and *formally structured* in development-intensive firms engaged in a multiple parallel development projects. This issue becomes even more intriguing when taking into account the complexity of large-scale product development projects, which Clark & Fujomoto's landmark study of New Product Development (NPD) performance has characterized as similar to solving a huge equation system.[2] Starting from framing the 'problem' as the product to be developed, the 'equations' address a numerous series of detailed and highly volatile technical and organisational questions. These questions take time to answer, and the 'solution' will depend on compromises between a large array of requirements represented by different internal and external players, each with different priorities, professional backgrounds and cognitive frameworks.[3]

… the complex knowledge flows in NPD are crucial for advancing the process but difficult to manage.

The complexity of the NPD process is reflected in the complexity of the related knowledge flows, which are both crucial for advancing the process but at the same time difficult to manage.[4] More specifically, part of the knowledge needed for developing a new product already exists within the organisations involved, while fresh knowledge is created as the process unfolds, problems are analysed, and the product is developed, refined and ultimately launched on the market.[5] The existing knowledge, stored or embedded in the minds of people, in archives, in existing products and in procedures and equipment, needs to be recognised, retrieved and made available to engineers and other project participants. The newly created knowledge developed by practical problem solving needs to be analysed, shared and integrated with previous knowledge, to ensure a spiral of continuous expansion and development/refinement of knowledge for future use in the NPD process.[6] There is a consensus in literature and practice alike that the transfer and sharing of knowledge are critical components for enabling this integration of newly created and previously existing knowledge, and thus for efficient NPD.[7]

In spite of the apparent importance of how to organize for Knowledge Management in NPD, the literature on the subject is almost nonexistent. Project management research assumes that effective KM will be a positive side-effect of an optimised project structure, while research focusing on