Project-Based Organizations, Embeddedness and Repositories of Knowledge: Editorial

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Welcome to the World of Project-Based Organizations

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Project-based organizations refer to a variety of organizational forms that involve the creation of temporary systems for the performance of project tasks (Lundin and Söderholm 1995; DeFillippi 2002). Project-based organizations have received increasing attention in recent years as an emerging organizational form to integrate diverse and specialized intellectual resources and expertise (DeFillippi and Arthur 1998; Hobday 2000; Gann and Salter 2000; Keegan and Turner 2002; Lindkvist 2004). Recent interest in the emerging knowledge economy has reinforced the view that project organizations in their many varieties are a fast and flexible mode of organizing knowledge resources. Project-based organizations can circumvent traditional barriers to organizational change and innovation, since each project is presented as a temporary, relatively short-lived, phenomenon. As such, it does not pose the same threat to vested interests as would the creation of a permanent new department or division. Moreover, project-based organizations allow for low-cost experiments. Because of their limited duration, project-based organizations do not constitute irreversible resource commitments of fixed costs. Hence, companies and other types of organization may launch a variety of ventures through project-based organizations and may terminate unsuccessful ventures at low cost and little disturbance to the organizational sponsor (DeFillippi 2002).

Project-based organizations are found in a wide range of industries. These include consulting and professional services (e.g. accounting, advertising, architectural design, law, management consulting, public relations), cultural industries (e.g. fashion, film-making, video games, publishing), high technology (e.g. software, computer hardware, multimedia), and complex products and systems (e.g. construction, transportation, telecommunications, infrastructure). For many of these industries, project-based organizations are employed to meet the highly differentiated and customized nature of demand, where clients frequently negotiate and interact with project organizers over the often-innovative design of products and services (Hobday 1998).

However, firms in all types of industries are undertaking projects as a growing part of their operations even while their primary 'productive' activity might be volume-based or operations-oriented (e.g. Midler 1995; Keegan and Turner 2002). Hobday (2000) refers to these as *project-led organizations* and

distinguishes them from *project-based organizations*, which organize most of their internal and external activities in projects. These 'project-based' organizations can either be entire firms (as in construction, consultancy and professional services) or multi-firm consortiums or networks (Hobday 1998). DeFillippi and Arthur (1998) identify *project-based enterprises* as single-purpose production organizations that contain all production support functions within a temporary project organization setting while the marketing and distribution of the company's products are typically managed by more durable independent organizations. Such project-based enterprises are most common in cultural industries such as film production and theatre, and also in professional services such as public relations and conference management. Similarly, Lindkvist (2004) identifies as *project-based firms* those companies that do most of their work in projects and/or have a main emphasis on the project dimensions rather than the functional dimensions of organizational structure and processes. However, other observers, as will be seen in several papers included in this Special Issue, point to the nesting of project organizations within subsidiaries or divisions of larger corporations.

As suggested earlier, project-based organizations need to include organizational forms that reach beyond intra-organizational and organizational levels of analysis. There may also be project networks based on alliances between participants from multiple organizations (Windeler and Sydow 2001) and even project ecologies linking many different types of individual, organizational and institutional participants, who are co-located within a field of cooperation and mutual influence (Grabher 2002). The articles in this Special Issue illustrate many of these diverse forms of project-based organization.

Dilemmas for Practice and Theory Needed

Project-based organizing seems to pose a recurring set of dilemmas for managerial practice that have implications for the theory of project-based organization structure and project organization practices. One such recurring dilemma or tension within project-based organizations is between the autonomy requirements of project participants and their embeddedness within organizational and interorganizational settings that demand integration of project activities within organization command and control routines and/or interorganizational coordination efforts. While the success of project-based organizations may indeed depend upon decentralized team working and the actions of relatively autonomous project managers (O'Dell and Grayson 1998), coordination within and across organizations is often critical for ensuring, for instance, that knowledge gained in a particular project is stored for use in other projects or that project routines are improved over time.

A related, recurring tension within project-based organizations appears to be between the immediate task and performance demands of the project at hand versus the opportunities for learning and disseminating project practices that can be employed in subsequent projects. Some argue that the one-off and non-recurring nature of project activities provides little scope for routinized

learning (Winch 1997; Hobday 2000) or systematic repetition (Gann and Salter 2000). However, Davies and Brady (2000) argue that 'economies of repetition' can be obtained by learning to improve the efficiency and effectiveness with which a growing volume of bids are submitted and projects executed.

Dealing with these dilemmas will make it necessary to challenge fundamental assumptions in normative project management theory. As evidenced by the contributions in this Special Issue we have come a long way from looking upon the field of project management practice as merely a toolbox, i.e. 'a collection of organizational, schedule and cost-control tools — a largely middle management, intra-organizational skill' (Morris 1994: 104). The integration and knowledge/learning dilemmas posed above need to be explored using quite different frameworks. These dilemmas are addressed theoretically in the papers that follow this editorial, and their common occurrence across multiple papers are worth noting. Before presenting the approaches taken by the authors in this Special Issue, we outline some basic features of the related theoretical fields. Such an overview will thus serve both as background to the contributions and also to explain our motivation in editing this Special Issue: namely, the need to account (often simultaneously) for the issues of embeddedness and knowledge/learning in a multi-level and processual perspective.

Contextual Embeddedness of Projects and Project-Based Organizations

Organizing projects is a temporally limited process, but projects, as temporary systems, are likely to be embedded in more permanent contexts. For rather a long time, this has been acknowledged with regard to formal organizations. In the meantime, however, it has been recognized that the contexts of projects and project-based organizations can be very diverse, ranging from organizational units to organizational fields. Some even highlight the embeddedness of projects in the wider society, which, itself, is thought of as becoming more and more 'projecticised' (Ekstedt et al. 1999).

Acknowledging this contextual embeddedness of temporary systems in the more permanent, and hence overcoming the 'organizational amnesia' (Grabher, in this issue) of project management is important, since actors, when organizing projects, can draw on some structures, i.e. rules and resources, of these very systems. In this process, the actors more or less reflexively tend to couple or decouple the project with or from its context, for instance by referring or not referring to a project practice as typical or even compulsory in the organization or in the organizational subunit. Sahlin-Andersson and Söderholm (2002: 19) refer to this as the 'attachment–detachment dilemma', which, due to resource interdependencies and learning necessities, may be difficult to manage.

A Variety of Contexts: From Organizational Units to Fields

In more systematic terms, at least four levels of contexts can and should be considered when investigating and/or practising project-based organization: organizational units, organizations, interorganizational networks, and organizational fields. At the level of organizational *units,* it matters a lot whether the organizing of a project is embedded in a functional or business unit, for example. A project that is carried out in the marketing department, for example, relies on resources and expertise that are likely to be more specialized than the knowledge of a business unit. On the level of the entire *organization* it may be necessary (yet not sufficient) to differentiate between the well-known mechanistic and organic types of organization (Burns and Stalker 1961). For both archetypes are likely to provide very distinct contexts for managing a particular project or a portfolio of interrelated projects that, on the level of the organization, may constitute a very important context in itself. As is very common in the cultural, consulting and engineering industries, organizations may even be entirely based on projects. Such 'project-based enterprises' (DeFillippi and Arthur 1998) or 'project-based organizations' (Hobday 2000), which supply all their products and services through projects, seem to operate in a mode of governance that is quite different from mechanistic as well as cultural-organic conceptions of organizations (Lindkvist 2004). Though unlikely to exist in a pure form, they again provide a distinctively different (organizational) context for project-based organizations, as do 'virtual organizations' (Davidow and Malone 1992) which, in most cases, are likely to be based upon an interorganizational network. Nevertheless, the coupling and decoupling of a project and these types of organization will matter, not least as they are expected to contribute to organizational renewal and survival.

On the level of such *networks*, different types may again be distinguished. For instance, the 'strategic networks' (Jarrillo 1988) that are common in the automotive and electronics industry may provide a context for projects that is very different from more heterarchical forms of interorganizational cooperation like those to be found in the Emilia Romagna and some other regions (e.g. Brusco 1982). As a third kind of network, projects may be embedded in 'project networks' (Windeler and Sydow 2001) that cut across single organizations. Project networks are as much an outcome of as a condition for project-based organizing, and, for example, are very common in the television industry. As important as different types of networks may be, it is even more essential to recognize that in these interorganizational networks hierarchies continue to exist and to be relevant for the interorganizational coordination of projects. Dahlgren and Söderlund (2001), for instance, capture this aspect well when they ask for a 'matching of hierarchies' in interfirm industrial projects. Finally, at the level of *fields* or, more precisely, 'organizational fields' (DiMaggio and Powell 1983) or 'project ecologies' (Grabher 2002) that co-evolve with projects and project-based organizing, one may distinguish between particular regions or industries, for instance. In the case of regional or national innovation systems, in particular, it may be useful to combine both

dimensions and add a certain level of organizational interaction that makes a field or ecology into a 'cluster' (Porter 1998). Also at field level, national or regional 'business systems' (Whitley 1992) may provide a particular context for project-based organizing, for instance, if state regulations or culturally embedded practices are relevant for projects and project management. On the same level as organizational fields, professional communities or 'communities of practice' (Brown and Duguid 1991) provide an additional, yet quite different, context that may hinder or support the organization of projects.

Social Embeddedness and Structuration

From a more theoretically informed perspective, project-based organizational activity, like any social activity in the economic realm, should — on each of these recursively interrelated levels — be conceived as socially embedded in time *and* space. Approaching the problem from a network-theoretical perspective, Granovetter (1985), most prominently, points to the 'social embeddedness' of any economic activity in interpersonal networks. In the meantime, a more general view of social embeddedness has highlighted the dependency of individual and collective action (like project organizational practices) on the structures of social systems (like the ones mentioned above) and their recursive interplay.

   Social systems extend in time and space, depending upon their degree of institutionalization, and exhibit structural properties to which agents refer in their organizing practices. The more systems 'stretch' across time and space, 'the more resistant they are to manipulation or change by any individual agent' (Giddens 1984: 171). While structural theories provide traditional contextual views and tend to emphasize the impact of these structures on social interaction, interpretative or cognitive approaches point to the role of agency in giving life to structures and contexts. A structuration perspective on the 'duality of structure' (Giddens 1984) highlights the recursive interplay between action and structures and, thereby, the restraining as well as enabling role of structures, or social embeddedness, for action. Moreover, this processual perspective succeeds in conceptualizing contextual embeddedness, not as something external to action, but as inherently produced and reproduced by social practices. Referring explicitly to structuration theory, Windeler and Sydow (2001) demonstrate how changes in the organizational field of television production in Germany influence social practices of coordinating project networks in this industry — and how these project practices, in turn, shape the field.

   Overall, projects are likely to be at least loosely coupled to a multitude of organizational and transorganizational contexts. Therefore, only multi-dimensional *and* multi-level conceptualizations are likely to capture the complexity of this contextual embeddedness of project-based organizing, not least for project-based learning and the development of project capabilities. In order to keep these complexities manageable, studies of project-based organization, like those included in this Special Issue, will generally concentrate on only one or two contextual levels of embeddedness among project

participants. However, a distinctive contribution of many of the Special Issue papers is their appreciation of the structuration of project organization contexts and embedded project practices as a recursive, reciprocally influencing process.

Project-Based Organizations and Repositories of Knowledge

Apparently, projects come in many kinds and most definitions are quite vague, pointing rather to an empirical field of interest than a clearly bounded theoretical subject area. Before we outline possible project-knowledge/learning connections some qualifications are thus called for. Generally, for us, projects as temporary systems refer to groups comprising a mix of different specialist competences, which have to achieve a certain goal or carry out a specific task within limits set as to costs and time. Such a view is informative of the transient and multidisciplinary nature of projects — features that fundamentally contribute to shaping the possibilities as well as the obstacles for generating knowledge and accumulation of learning. However, a large number of quite different empirical practices would qualify. Primarily, the focus in this Special Issue is on the kinds of short-term project that are attached to specific customers or identified customer needs, i.e. projects lasting, say, for one or two years, and where typically a new mix of members from different backgrounds is assigned to each new project. In contrast, projects comprising people with highly similar knowledge bases would appear to have other knowledge-relevant features. Moreover, projects with a duration of 10 to 15 years, not uncommon within the military and pharmaceutical industries, should give rise to knowledge/learning features which are not very different from those of permanent organizations.

The quite transient project practices that we focus on seem to share some distinct knowledge-related characteristics. First, projects are highly autonomous within goals set in terms of time, money and outcome qualities. While 'what' to achieve is typically well specified from the start, 'how' the project should be run is for the project leader or the team to decide. It is a matter of 'freedom with responsibility' where creative and innovative activity is both a possibility and a duty. Another characteristic is that projects comprise members that represent different specialties, with different knowledge bases and ways of interpreting experience. As suggested by Dougherty (1992), functional units may even develop their own 'thought worlds'. In such contexts there is thus a limited overlap of knowledge bases, and little time to build communal knowledge during the lifetime of a project. Project teams may thus have difficulty developing into a 'tightly knit group' or a 'community of practice' operating on the basis of shared knowledge (Wenger 1998). Instead, work in such knowledge-distributed settings may be seen as reflecting the notion of a 'collectivity of practice', i.e. less well-developed groups operating on a minimal basis of shared knowledge and understandings (Lindkvist forthcoming). In such a practice, it is the well connectedness of individual knowledge bases, rather than knowledge base similarity, that is enabling work and knowledge integration.

Possibilities and Obstacles

Project contexts offer a variety of interesting possibilities for exploring knowledge-related issues. It would appear that projects provide excellent preconditions for creating new knowledge. Projects involve the development of new products or services to be carried out by a highly autonomous multifunctional or multidisciplinary team. The relative absence of hierarchy and the diversity of frameworks involved should provide fertile soil for creativity and innovation (DeFillippi 2001; Swan et al. 2002). The need to come up with new, more or less customized solutions, within a strictly limited period of time, means that project settings present unique possibilities to learn more about time pacing and promotion of knowledge development processes (Gersick 1988; Lindkvist et al. 1998).

Turning to the more ambiguous or troublesome features of projects, we may notice that the virtues of highly focused, fast and autonomous knowledge work carried out in projects have their corresponding downsides. Being focused means that you care less or not at all about things outside the project; working fast means that you have little time to reflect on and document your experiences or lessons learned; and being autonomous means that you or your project team may develop into a knowledge silo, not available to members in other projects or the firm more generally. While projects work well and people learn a lot during their execution, there is thus a risk that the wheel — in the organization, in the network or in the field — will be reinvented over and over again. In order to bring about inter-project learning and learning across organizational levels, firms or interfirm collectivities may, however, use a variety of strategies and means for knowledge transfer. They may adhere to a codification or a personalization strategy (Hansen et al. 1999) or make a choice from the multitude of alternative means for inter-project learning suggested by Prencipe and Tell (2001). In their 'learning landscape' metaphor they incorporate a very rich account of different forms of experience accumulation, knowledge articulation and knowledge codification.

Multiple, Nested Levels

It should be noticed that the 'transfer' of knowledge and learning between organizational and interorganizational levels is far from being a straightforward matter. For example, individual learning may simultaneously be a matter of organizational learning, where project members typically move from project to project. Similarly, firms may encourage informal, spontaneous processes of knowledge exchange, and make no a priori attempt to transform individual learning into organizational learning. Erecting 'competence networks' that provide arenas where people may learn who knows what represents one way of promoting such processes (Lindkvist 2004). Such organizational networks, very much like interorganizational networks, then function in a transactive memory fashion, where each individual is responsible for remembering different pieces of knowledge and where people know about locations rather than details (Wegner et al. 1991). Additionally, learning experience occurring

simultaneously at different levels may be 'nested' as suggested by Levinthal and March (1993). This means that learning at one organizational level may be a substitute for learning at another and/or that a trade-off between learning at different levels may be considered.

The above slightly paradoxical features of projects, implying that successful performance at project level may have counterproductive effects at another level, suggest that the analysis of the project-knowledge connection would benefit from a multi-level approach considering a variety of contexts: generation of new knowledge as well as the accumulation of learning may take place within project teams, between project teams, at the level of the firm, and certainly also between firms.

Contributions to the Special Issue

In the light of these discussions we summarize below for each Special Issue contribution the type of project organization and the focal practices examined, the contextual embeddedness of the organization and the practices, the dilemmas reflected in their project organization context and practices, and the knowledge/learning implications.

Grabher opens our Special Issue with a comprehensive project ecology framework whereby four contextual layers of project organization — the core team, the firm, the epistemic community and the personal network — constitute the interrelated embedded contexts for project-based learning. Grabher next uses the notion of a learning architecture as a kind of theoretical template for exploring the learning processes in two different ecologies, the computer industry and the advertising industry. In each of these analyses Grabher also discusses the role played by learning at the team, firm, community and network levels. In the final analysis he addresses how this two-fold typology may be extended and applied to other industries or ecologies.

Grabher's ecology framework illustrates the doing versus learning dilemma by explicitly examining how the modularized nature of software tasks facilitates cumulative learning, whereas the idiosyncratic, client-driven tasks of advertising encourage an emphasis on original and often disruptive learning. Additionally, Grabher summarizes how the task requirements for disruptive versus more incremental or cumulative innovations tend to foster distinctive routines for personal, team, organizational and communal learning in the software and advertising project ecologies.

Grabher also illustrates the structuration character of each context and their recursive co-production and mutual configuration of project organizing practices. Grabher's comprehensive project ecology framework thus offers the possibility for examining multiple embedded actions and interactions as both project practice and organizing context without privileging either context or practice. In conclusion, Grabher's project ecology framework offers a structuration perspective on project organization and knowledge practices within multiple embedded contexts.

Sapsed and Salter next analyze a global or dispersed program of projects cutting across numerous geographical sites and several functional communities of practice within one organization. Their study emphasizes the dilemmas of project boundaries and the use of project management tools as boundary objects. The concept of boundary object (Star and Griesemer 1989) is currently being applied to project management tools as a means of promoting the sharing of knowledge in practice between diverse groups (Brown and Duguid 2001; Yakura 2002).

However, Sapsed and Salter's own examination of the use of 21st-century project coordination tools by a geographically dispersed global project organization demonstrates the limits of such project management tools. Despite the availability of web-based communications devices as boundary objects, Sapsed and Salter conclude that these boundary objects are relatively marginal, complementary coordination mechanisms that do not replace the role played by face-to-face interaction as a means of integrating diverse project member perspectives and practices. In dispersed programs where there is no opportunity for face-to-face interaction, and/or ambiguous lines of authority, project management tools will be ineffectual as boundary objects and prone to avoidance, especially where interdependencies between parties involved are weak.

In the absence of such face-to-face interactions for managing the challenges of time–space embeddedness of dispersed projects, Sapsed and Salter observe a pattern whereby geographic units at some distance from the centre (headquarters) of project activities lost their voice and face vis-a-vis the co-located project participants at the central organizational units of the dispersed projects. An irony was the push by distant units to reinforce the use of web-based project coordination tools and the avoidance of their use by more centrally located project participants. The boundary object tools thus became an object for the negotiation of power relations between centrally localized and geographically dispersed project participants.

Bresnen, Goussevskaia and Swan next examine the embeddedness of projects in an organization with regional divisions which is, by and large, project-based, and they focus on how new knowledge may become embedded in a project-based firm operating through a highly decentralized project structure. Taking their empirical point of departure in a construction firm, the ambition is to understand how new knowledge may be embedded in a setting where there is a strong action imperative and where already existing knowledge is deeply and tacitly embedded in practice. The new knowledge they considered was the introduction of a new management practice, a dashboard-type performance measurement system. By and large this initiative failed and in their conclusions they point to a number of circumstances that might explain why such a knowledge codification attempt would not be a viable or appropriate one in such a setting.

Reflecting the dilemmas inherent in the doing versus learning paradox, Bresnen et al. observe how deeply ingrained project practices resulted in localized resistance to the new project practices imposed by a central authority. For many time-pressured project managers, their existing toolkit

of tacit project practices was also a way of legitimating a mode of project organization that privileged project task completion over conformity to organizational (and headquarters) formalisms. Some of the greatest resistance to the dashboard arose in regions where project managers had suffered a diminution in regional influence within the entire organization. Hence regional project management resistance to the dashboard also represented resistance to further inroads of their power base. Similarly reflecting the dilemmas attached to the project autonomy versus organization integration paradox, Bresnen et al. point out that by encouraging the decentralization of project team task decisions and thus promoting project autonomy, project sponsors were increasing the difficulty of subsequently integrating the resulting project activities within an overarching set of organizational systems and processes.

The central message to emerge from their overall analysis is that the diffusion and embedding of new management knowledge in project-based organizations is influenced by a complex interplay between structural conditions within the organization and existing project management practices. This is a structuration argument and also supports some of the findings by Sapsed and Salter regarding the use of boundary objects for the negotiation of power relations between multiple dispersed project participants.

Engwall and Westling, drawing on the dramaturgical concept of 'peripety' (moment of sudden change), examine the process dynamics and sense-making in a complex R&D project. Their paper exemplifies how time and evolution have to be included in the analysis of project management and temporary organization. They observe that the so-called design freeze stage of project development is as much a matter of social construction and cognitive convergence as it is a process of project control. Their study reveals that certain physical artefacts or product concept models are the result of a process of ongoing dialogue between project participants. Their description of the peripety or turning point at which a project makes the transition from divergent to convergent perspectives has little to do with formal decision-making, stage-gate models, schedules, or written product specifications. The peripety instead represents a significant cognitive shift, changing the concept of the project completely. Hence, boundary objects may be a consequence of project team consensus rather than a driver of project team integration and consensus of priorities.

Engwall and Westling analyze the peripety process over a five-year time period (1995–2000) for a large-scale technology development platform project situated with an R&D division of a telecommunications firm. The project organization drew personnel from multiple functional departments into a formal matrix structure. The project was managed according to a sophisticated in-house project management model, encompassing most methods and techniques that, during the study period, were considered best practice. However, these project management practices were not effective in moving the project forward until the project members were able to develop a shared vision for the project and subsequently take advantage of their shared practice for implementing the project.

The Engwall and Westling study arises among relatively co-located team members within an R&D division and thus the issues of project boundaries and shared project practices would appear to be less problematic for project members than was the case for the geographically dispersed project organizations in the cases studied by Sapsed and Salter and Bresnen et al. However, the boundaries that prevent project convergence in the Engwall and Westling study are cognitive boundaries. Prior to the peripety moment, project learning seems to be non-cumulative, episodic and exploratory. Only after the peripety does the project organization make the cognitive shift from exploration to the exploitation of cumulative learning that can build upon a shared project vision and product definition.

Scarbrough, Swan, Laurent, Bresnen, Edelman and Newell compare two large-scale engineering design and development projects in two different organizations, one a construction firm and the other a water supply and treatment firm. Their analysis focuses primarily on organizational context, including the cross-functional and cross-organizational composition of the project teams, and they examine the embeddedness of project-based learning and organizational learning within the social context of communities of practice.

Their framework postulates that learning emerges within communities of practice but these same communal learning contexts create divisions of practice in establishing boundaries to the acquisition and sharing of knowledge within organizations. Scarbrough et al. argue that the divisions of practice among functional units versus operating project team members create para-doxical conditions in which project team members will create new project practices in overcoming their functional practice — differences that in turn are at odds with organizational practices. Hence, project doing may foster project learning but may inhibit organization learning. This finding reflects the learning versus doing dilemma inherent in project-based organizations.

Scarbrough et al. examine the autonomy versus integration dilemma of project-based organizations. Their two case studies reveal that the project organization that invested in aligning through co-location their company and project administrative personnel, and also fostered project autonomy in response to project requirements, experienced considerable project learning. By contrast, in the other case study, where company and project practices were both spatially and administratively separate and where project autonomy was constrained to the repetition of deeply learned project and organizational routines, the new project generated little project learning. Unfortunately, in neither company context was there evidence of significant transfer of learning from the project to the organization, which is one focus of our final Special Issue contribution.

Brady and Davies conclude the Special Issue by outlining the problems associated with learning from projects. While noticing that considerable research has been devoted to this general problematic, they rightly observe that little of that research has focused on how project-based learning might contribute to large-scale transformation of firms or firm subdivisions. Their research is based on in-depth case studies of project-based learning and

capability-building in two capital goods suppliers — Ericsson and Cable & Wireless — between 1994 and 2003.

Brady and Davies examine embeddedness largely in terms of how projects are sequentially related to each other in building project and organizational capabilities. Their model of project capability-building consists of two interacting levels of learning. The initial level of capability building is the bottom-up, 'project-led' phases of learning that occur when a firm moves into a new technology/market base: an exploratory 'vanguard project' phase; a 'project-to-project' phase to capture lessons learned; and a 'project-to-organization' phase when an organization increases its capabilities to deliver many projects. Their model lastly addresses the 'business-led' learning (within which the project-led learning is embedded) that occurs when 'top-down' strategic decisions are taken to create and exploit the company-wide resources and capabilities required to perform increasingly predictable and routine project activities. In summary, their capability-building model offers a template for understanding how an organization can resolve the doing versus learning dilemma through a succession of project initiatives.

With respect to learning outcomes, the authors report that as both firms progressed through the phases of project-led learning, the emphasis of their activities switched from knowledge exploration in the vanguard phase, through the transition phases when the exploratory learning was transferred to other projects and exploited by the project business organization. At the business level, the emphasis of organizational learning and strategy implementation was to move rapidly toward knowledge exploitation, by creating global service organizations with capabilities to leverage corporate-wide resources and to perform repeatable and routinized project activities. Finally, Brady and Davies provide rich case details on how Ericsson and Cable & Wireless initiated a variety of organizational and procedural practices to manage the centripetal tendencies of project autonomy versus organizational integration and thus resolve the dilemmas posed by these tendencies.

Note

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