

Lasting temporariness: Projects as capability bridges across time and organizational levels

Abstract

This study reveals how learning and experiences accumulated in temporary projects contribute to capability development and change of strategic orientation in project-based organizations. We argue that capability development in project-based organizations must rest upon an understanding of projects as “capability bridges”, thus contrasting extant literature’s common treatise of the temporariness inherent in project-based organizing. This paper presents an analytical framework that identifies how capabilities develop over time and across levels in specific contexts. The empirical data is derived from a longitudinal case study of capability development in an international project-based professional service firm. The case study demonstrates how projects function as bridges connecting both past, present and future, and individual-, project and- organization levels, thus illustrating the temporality of capabilities, on the one hand, and the multi-level features of capabilities, on the other hand. Thus, this study shows how knowledge and experiences accumulated from past and current projects influence the formation of future capabilities and strategies. Simultaneously, anticipations of the future influence current activities and the utilization of past project experiences. This leads to an improved understanding of how capabilities are developed across organizational levels and time.

Keywords: Capability bridges, Capability development, Longitudinal case study, Multi-levelness, Professional service firms, Project-based organizations, Temporary organizing.

Introduction

Project-based organizing is an organizational form that has become ubiquitous in a wide range of sectors (Sydow et al 2004). Traditionally, projects are viewed as promoting short-term focus and deadline-centric behavior. Scholars have also posited that this may be detrimental for the development of organizational capabilities (Grabher, 2004; Lindkvist, 2005; Sydow et al, 2004). In contrast, based on empirical findings, we argue that projects function as “capability bridges” across both time and organizational levels. Hence, an organization’s current capabilities need be to viewed and evaluated in light of the future. Accordingly, what is relevant in an organization’s past accomplishments depends on where the organization is heading and what paths the organization would like to preserve. As evidenced in prior research, the past also constitutes an important mechanism of forgetting – ignoring what the organization wants to ignore and remembering what the organization wants to remember (Schultz & Hernes, 2013). Thus, this paper suggests that capability development needs to be understood as the merging of past and future in the present and that research needs to develop more theoretical knowledge addressing the temporality of capabilities and capability development.

The bridging role of projects has hitherto not been investigated to address the tensions between the permanent and temporary elements of organizing. Instead, the temporariness of projects has been seen as a major problem, something even to be avoided as it is problematic for the development of organizational capabilities (Sahlin-Andersson & Söderholm, 2002). In contrast to previous research, we emphasize the importance of accumulated experience and strategies for the future in capability development. Our study focuses on the process of capability development rather than variance studies across firms concerning the development of capabilities. However, we argue that it is the projects that bridge what the organization already knows with what the organization attempts to become (Tsoukas & Chia, 2002). In

many firms, it is also the projects that bridge what the organization would like to learn from the past into the future (Anand et al, 2007; Løwendah et al , 2001; Skjølsvik et al, 2007). Projects therefore need to relate to the permanent structures of the organization as well as the shifting body of individual expertise. The latter is particularly important as individual performance and individual activities are bounded and enhanced by the scope of the project. Moreover, the utilization and contribution of different project-based outcomes have different effects on individuals and organization.

We argue that projects function as bridges between past, present and future as well as bridges across organizational levels. This also corresponds with previous research showing how the intelligent application of prior experience and prior knowledge in itself constitutes an important capability (Helfat and Peteraf, 2003; Kaplan and Orlikowski, 2013), and thus spurred the scholarly interest in capability lifecycles (Helfat and Peteraf 2003) and related work on the antecedents and maturation of capabilities (Montealegre, 2002). Thus, we aim at extending this specific capability development perspective with an understanding of how temporary organizing structures such as projects function as capability bridges. In our framing, capability development is defined as a temporally embedded process informed by the past (in its habitual aspects), oriented toward the future (as a capacity to imagine alternative possibilities), and located in the present (as a capacity to contextualize past habits and future directions within the contingencies of the moment) (see also Kaplan and Orlikowski 2013). By identifying projects as capability bridges, we explain how the temporal aspects of projects contribute positively to the continuation of organization by bridging time and multiple levels in the process of strategy change. Thus, in an attempt to respond to the need for a capability development theory which addresses temporality and organizational dynamics, we formulate the following research questions: *What roles do projects play in the development of*

organizational capabilities in project-based organizations? What are the implications of this on the understanding of change and development of project-based organizations?

To fully grasp the complexity of projects and their multiple roles for capability development, we present a detailed multi-level analysis of an international project-based firm (henceforth Verico, codename). Verico is unique in a number of respects. It is international and it has grown internationally for the past two decades to the extent that it is currently the leader in its line of business globally. It is also unique because projects have come to play a critical role for the everyday functioning of the firm but also for the strategic development of the organization. Our research approach allows us to understand how capabilities relate to temporal shifts in an organization, including how people look upon the past and the future and how that affects the knowledge processes inside the firm (Staudenmayer et al, 2002). In the empirical study presented below, we were primarily interested in how the development and the use of capabilities facilitated internal change, and thus influenced strategic choices in the firm.

In conceiving the multi-level nature of capability development we follow Van de Ven and Poole (2005) who emphasize the criticality of understanding change at multiple interacting levels of analysis (see also Sydow et al., 2004). The bridging role of projects extends two important dimensions (time and levels) that have rarely been combined in empirical studies of capability development (Kozlowski and Klein, 2000). This theoretical framing responds to the critique of research on organizational capabilities that research tends to ignore the dynamics between organizational levels and that capabilities are considered to be existing no matter the skills of the individual employees (Berggren et al 2011). Hence, this paper addresses how different organizational levels contribute to the development of capabilities. To support our arguments, we draw on the findings presented in Brady and Davies (2004) on the links between organizational capabilities and project capabilities and

how these capabilities mutually constitute each other. Further, consequently, such a framing also informs our understanding of the time and timing of capabilities – what capabilities matter and when those capabilities matter most. Such an analysis would also add to prior research into the lifecycle of capabilities (Helfat and Peteraf, 2003). Thus, in addition to contribute to the capability development literature, this study also contributes to the understanding of evolutionary development of project-based organizations.

The paper begins with a presentation and discussion of prior research on capability development. This section ends with a presentation of the analytical framework suggested for the empirical investigation. Previous theoretical perspectives on capability development was combined into an analytical framework (see Figure 1) and thus informed and structured the empirical study (Eisenhardt and Graebner, 2007). In the following section, we present the research design and methods applied in the empirical study. The paper continues with a presentation and analysis of the findings of capability development in Verico from between 2000 and 2010. At the end of the paper, we present a theoretical framework for capability development in project-based organizations that addresses how to deal with the relationship between the temporary and the permanent part of the organization.

Capability Development

Strategic capability development refers to the renewal of the organizational capabilities which are sources of competitive advantage (Kashan and Mohannak, 2014; Koka et al, 2013; Laamanen and Wallin, 2009). An important contention in current research on strategy is the idea that the most important task of the firm and its management is the way that firms bring knowledge to bear on productive efforts. This argument has spurred a stream of research into the nature of organizational knowledge and the development of capabilities (Dosi, Faillo, & Marengo, 2009; Grant, 1996a; Kogut and Zander, 1992). Defined broadly, capabilities are a

firm's abilities to integrate, build, and reconfigure internal and external assets and competencies so that they enable it to perform distinctive activities (Teece, Pisano, & Shuen, 1997). The concept of capabilities relates to Edith Penrose's (1959) notion that the profitability and growth of a firm should be understood in terms of the firm's possession and development of unique and idiosyncratic resources. Scholars subscribing to the knowledge-based view of the firm address the question of what kind of knowledge that leads to lasting competitive advantages, how these advantages can be nurtured, leveraged, and what considerations prevent the elimination of the gap between the cost of the retaining knowledge and the market value of its output (Grant, 1996b; Kraaijenbrink, Spender, & Groen, 2010).

Interpreted as the learned and stable patterns of collective activity, capabilities incorporate most of the idiosyncratic knowledge that may explain different rates of organizational success. Capabilities have been defined as the specific set of activities and processes, such as product development, supply chain management, and business development that are critical for the operation and change of the firm (Helfat et al., 2007). As such, capabilities typically involve the combination of factors pertaining to technological as well as organizational factors (Dosi et al 2009). Most capabilities relate to complex problem-solving processes across the organization, and involving the integration of resources and knowledge across functional and professional boundaries (Collis, 1994). According to Grant (1991), capabilities are the capacity of a "team of resources to perform a task or activity". Helfat (1997) argues that a capability should be seen as the utilization of resources in a coordinated manner to achieve a goal. Likewise, Amit and Schoemaker (1993) suggest that capabilities should refer to the firm's ability to exploit and combine resources in order to meet its goals. Thus, in the mainstream literature, capabilities provide a collectively shared and recurring way of solving problems (Cyert & March, 1963).

Capabilities are far from static. On the contrary, capabilities are developed over time and thus tend to be highly idiosyncratic and path dependent (Eisenhardt and Martin 2000). Previous literature on capability development argues that capabilities evolve over time to reflect the joint effects of passive learning-by-doing and deliberate firm-level investments in learning and organizational improvements (Cohen & Levinthal, 1990; Ethiraj, Kale, Krishnan, & Singh, 2005; Zollo & Winter, 2002). Teece et al (1997) advance the argument that the competitiveness of firms to a great extent lies with its managerial and organizational processes and its patterns of current practices and learning. Research has also demonstrated that capabilities are important to enable firms to adapt to and shape their environment (Teece, 2010). To be able to fully grasp the evolution of capabilities, Helfat and Peteraf (2003) suggest researchers view capabilities longitudinally. The authors suggest a lifecycle theory of capabilities encompassing a set of stages that define the evolution of capabilities, ranging from founding to maturity. On these lines, Montealegre (2002) presents a model that reveals that capability development in support of a new strategy is a gradual process that is cumulative, expansive, and very dependent on the way that difficult-to-imitate resources and actions are combined. He argues that actions that supported the development of the firm's capabilities seem to have contributed the most in the initial phase of the strategy formation and implementation. Largely, these actions made it possible for the firm to retain its flexibility and supported the development of the firm's capabilities to integrate across knowledge domains. Moreover, the key resources that supported the overall capability development included leadership, organizational culture, information technology, long-term view, and social networks. In Montealegre's analysis capability development is seen as a cumulative and expansive process where path dependency matters. Montealegre's model clearly shows that capability development is far from a black box and far from random. Instead, the process has to be seen in the light of the firm's overall strategy formation and implementation. Others

have pointed out this even more strongly saying that it is not only what and how an organizational develops capabilities, but equally when the organization learns and explores new capabilities (Eckert & Mayrhofer, 2005).

Zollo and Winter (2002) demonstrate how capabilities are built on different levels of organizational action, such as departmental, divisional, and corporate. Similarly, Crossan et al (1999) explain how capability development is more than a simple aggregate of individual learning processes. The authors show that capability development spans three levels of analysis: individual, group and organization where learning takes place at and between these levels. Along similar lines, a few studies recognize the importance of the micro-foundations of capabilities, in particular the role of managerial deliberation and individual agency in shaping capabilities. Ambrosini et al (2009) concur that it is essential that managers are located at the center for an analysis of firm capabilities. Salvato (2009) argues that understanding a firm's ability to systematically renew its strategies and underlying capabilities requires an in-depth understanding of the micro processes that make up an organization capability and its component routines. For that reason, Salvato (2009:385) suggests research should pay more attention to incremental renewal at the individual level and on "resulting transformations in the organizational-level capability". Correspondingly, Felin and Foss (2005) have called for studies at the micro level to better our understanding of actions and interactions in the formation of capabilities. Likewise, Spender (1996) pointed out the importance that individuals can only be proficient once they are socialized into the organization and have acquired much of the collective knowledge and understood the nature of the capabilities of the firm.

Despite their path dependency, capabilities are also regarded as triggers for change, especially because firms are able to systematically modify their capabilities by creating

“dynamic capabilities” (Eisenhardt & Martin, 2000; Teece et al., 1997). However, ordinary capabilities are also continuously changing, without necessarily being dynamic capabilities. Moreover, the time dimension is insufficiently addressed in extant research on capabilities, especially with respect to changes in strategy (Vergnier & Durand, 2011). Changes in strategy are management’s active pursuit of maintaining fit with changing external environments (Helfat et al., 2007; Helfat & Peteraf, 2003).

Further, capabilities are identified as context-specific (Eisenhardt & Martin, 2000; Ethiraj et al., 2005). However, prior research has failed to investigate in-depth the difference across contexts and organizational forms (Dosi et al 2009). Dosi, Levinthal, and Marengo (2003) identified six different contexts that need to be addressed and compared and pointed out particularly that the mode of production is essential for the development of capabilities. The authors argue that project-based activities place particular challenges for the development of capabilities. Similar arguments have been presented by Prencipe and Tell (2001) and DeFillippi and Arthur (1998). Brady and Davies (2004) argued that project-specific capabilities are particularly important to understand the dynamics between business-led and project-led learning and to understand how organizations reap the benefits from past projects. In project-based firms, operational as well as strategic tasks are organized as projects (Grabher, 2004; Hobday, 2000; Söderlund & Tell, 2009). These firms take on the assignment to solve complex tasks on behalf of their clients, be that the development of a new management control system, the implementation of a new IT system, or the global advertising agency taking on an assignment for a large client. In these organizations, value is created through project-based work. Thus, projects are important for developing new products, services and for innovation (Anand et al., 2007; Brock, 2012; Løwendahl et al., 2001; Skjølsvik et al., 2007). Projects are also important for coordinating production tasks (Bettencourt, Ostrom, Brown, & Roundtree, 2002). As a consequence, projects play multiple

roles in these organizations and they play a critical role for the change of the firm as well as the development and exploitation of capabilities.

Despite these important contributions, there are shortcomings with extant theorization on capability development. This review illustrates the importance of addressing the temporal and organizational dynamics of capability development. According to Montealegre (2002) little research has addressed the process of capability development. The dominant view seems to be that capability development is a lengthy, complex process influenced by multiple organizational dimensions. The issue of capability development is especially important for understanding how the past and future merge to create the present. It is important to understand what path dependencies and habitual behavior that emerge due to organizational lock-ins and collective routines. Likewise, it is equally essential how a long time perspective on the past may lead to broader perceptions of the future of an organization (March, 1991; Pettigrew, 1990). In sum, this literature review points to the need of studying in greater detail the *process* and *timing* of developing and using capabilities over time.

To demonstrate the multiple roles projects have in the capability development at different levels in the organization, we suggest an analytical approach consisting of two key variables: organizational levels (individual, project and organization) and time (Kozlowski & Klein, 2000; Sydow et al., 2004; Van de Ven & Poole, 2005). The time variable relates to prior work on temporality (Kaplan & Orlikowski, 2013). This is operationalize in a quite straight-forward manner: past, present, and future. We thus have nine different capability contexts in the respect that capabilities draw on past achievements (past), determine what occurs in the present moment (present), and direct what will happen in the future (future). We also believe that capabilities operate and constitute each other at three distinct levels. We might have a number of additional levels, however, for the purpose of this research, we believe the three levels addressed here are sufficient. This means that some capabilities are

purely organizational, others are primarily operating at the project level, yet others are residing at the individual level. Thus, we develop the following analytical model that bridges projects across time and levels that informs our empirical study:

Please insert Figure 1 about here

Research Methodology

Research design

This study deploys a theoretically sampled, inductive theory-building case study (Eisenhardt, 1989; Eisenhardt & Graebner, 2007) justified by the lack of knowledge about the potential time-bridging role of projects in development of capabilities. As for the theory-developing attempts, the single case study approaches was considered to be most relevant. Equally, our interest in process theory also influenced the selection of research approach (Pettigrew 1997).

The firm investigated in this study can be classified as professional service firm (Von Nordenflycht, 2010) which to a great extent relies on a professionalized workforce offering a portfolio of different project-based engineering services globally. The company is particularly suitable for the investigation of the role of projects as capability bridges as it offers professional, engineering-based services that are project-based and simultaneously need to relate to the permanent structures of the organization over time in building capabilities. Thus, this context provide a research setting with potential ability to enlighten the temporal dimensions of managing in time through process thinking (Hernes, Simpson, & Söderlund, 2013).

Research setting and case selection

Verico is a global engineering services firm with 300 offices in 100 countries. The company has approximately 10 000 employees representing more than 80 nationalities. Verico provides engineering services to energy and maritime industries, and consultancy services in energy, oil and gas, health care, and maritime industries. The business model of Verico is to provide third-party services based on expertise and high quality, in addition to capturing value from the deep and broad expertise they possess in the fields they work in, in combination with offering more services to the customers they already have. Their primary field is safety assessments for ships, oil rigs, pipelines, factories and power plants. The knowledge base in the organization consists mostly of highly qualified engineers and technical personnel. Its goals are to provide quality and comparability in globally distributed services, while maintaining uniform quality and expertise worldwide. The vision of Verico is to “*make the world safer*” by applying expert knowledge, mostly from engineering professionals, to help reduce risk and “*safeguard life, property and the environment*” (Verico’s Annual Report 2002). Thus at Verico, contributing to safety is the overarching aim and all efforts are focusing on being the most competent and reliable service provider on the global safety assessment market. Verico also strives to be known for its quality in all parts of their operations, as well as its reputation and deliverables. At the same time, the usual business conditions apply; the company needs to be competitive, master the most recent technological developments and maintain a financial strength to recruit the top experts required to compete internationally. Hence, at Verico there is a particular focus on professional and transparent conduct with a high degree of documentation of what and how assessments have been done. Verico has managed to achieve this by being present at many locations, in combination with the effective and efficient utilization of its globally distributed expertise. The role of the headquarters is perceived to be top management and governance and is foremost a facilitator

of the work to be carried out is locally lead projects. However, the headquarters also delivers many different administrative services to the subsidiaries and maintains expertise in several areas. The strategy is to grow through quality and comparability into a global industry that requires a special accreditation to offer their services.

In Verico production activities occur in a plethora of small projects. This means that almost all production activities are organized through projects. The path of the organization is determined by managing a portfolio of a large number of concurrent projects. Balancing this wide portfolio of projects, there is a need to consciously consider utilizing the capacity and exploiting existing knowledge against updating competence and exploring new areas of knowledge. Thus, the selection of projects to fit into the current portfolio is a critical activity at Verico. The company's ability to maintain this over time is crucially linked to its performance.

Case selection

This case is a unique revelatory, extreme exemplars of a project-based organization (Eisenhardt & Graebner, 2007). First, it is longitudinal covering a number of years and strategic shifts. Second, it covers an interesting kind of organization – a professional service firm that largely relies on the skills and creativity of its individuals. Third, the firm under study to a great extent operates through projects. Projects in the context addressed here have become increasingly complex and international. In addition, the projects themselves are also becoming increasingly important to their host organization – strategies are formed and implemented in projects, hence the success of the firm to a greater extent relies on the success of the projects (Winter, Smith, Morris, & Cicmil, 2006). Further, Verico provided not only a fascinating story, but also unique access (Eisenhardt & Graebner, 2007). The detailed empirical account is presented elsewhere (Breunig, 2013). In addition, we had the possibility of following the firms in real time, not in hindsight and after the events have occurred but

when the war is going on (Flyvbjerg, 2006). Pettigrew (1990) argue that real-time cases are particularly appropriate for the study of evolutionary processes of organizational change (Langley, 1999; Langley, 2007; Pettigrew, 1992; Pettigrew, Woodman, & Cameron, 2001). This kind of access is, particularly important for the aim of the present paper – to document how capabilities evolve, to understand how people make sense of past achievements, and to better our knowledge of how people make use of capabilities to find more and better opportunities for future action. This was also one key explanation why we could address multiple levels of analysis and the temporality of capabilities – we had access to all organizational levels, and we had access to these levels for a considerable amount of time.

The observed changes originated internally as a portfolio of projects were initiated and completed over more than ten years. In that respect, we draw on the research design typically relied upon in strategy process research – namely the longitudinal case study design (Pettigrew, 1990). We also believe it is important to acknowledge the duality of capability development – that agents and contexts must always be recognized (Pettigrew 1997): “Contexts are shaping and shaped. Actors are producers and products.” This approach has proved to be particularly relevant for the study of strategy change and organizational development in a project-based organization context (Brady & Davies, 2004; Mintzberg & McHugh, 1985; Söderlund & Tell, 2009).

The choice of period is interesting but also highly relevant for the kind of theorizing presented here. The period prior to our study and the period following it is characterized by major changes. Before our study the organization diversified into several new markets such as the energy sector and inspection of industrial facilities and ISO certifications. Moreover, after our study, Verico acquired and merged with two of its largest international competitors, one within the ISO certification area and one within the maritime classification industry. Thus, the period we investigate, between 2000 and 2010 was a relatively stable period, with stable

structure, performance, management over the entire period, and with no big external shocks to explain observed changes in strategy. However, as our findings reveal this does not entail that the period was eventless.

Data collection and analysis

The study combines the multilevel, longitudinal research design (Rabe-Hesketh & Skrondal, 2008) with a research focus addressing a temporary and evolving phenomenon (Langley, 2009). To ensure sufficient breadth and allow for flexibility, we employed a mixed-methods approach (Balogun, Huff, & Johnson, 2003) which included interviews, a large number of observations (12 project management workshops, managerial meetings, training sessions) and document studies, such as newsletters, presentations, and internal documents. The interviews consist of 95 semi-structured interviews and five group interviews, with a total of 53 participants, as well as informal conversations with general as well as project management. In total 148 informants contributed over the period between 2000 and 2010 across 12 different locations in Europe, Asia and North and South America. We prepared a semi-structured interview guide that targeted the daily project work in the focal organizations. The informants were selected from all over the organization, from top managers at the headquarters, to engineers in client projects, and administrative and sales staff at the local offices.

The data were transcribed and coded using Nvivo8 software. The unit of analysis was project work, with the aim to detect how past and future is substantiated in present daily project activities to reveal the path dependence – the lasting element of temporary project work. We coded these data to reveal patterns of project work related to strategy (three time periods) - and across time (past, present and future) and levels (individual, project and organization) – see figure 1. We were particularly looking for how learning experiences obtained in past projects affects current project work and to what extent current project

activities shape future strategies. After the initial analysis, we discussed, presented and validated our preliminary results with top managers, middle managers and employees to evaluate the reliability of our analysis.

Findings

Projects as bridges between past, present and future

The most important resource in Verico are the people employed in the organization and thus an important factor in the capability development of the organization. The professional experts in Verico combine their in-depth technical knowledge with knowledge about legal requirements, safety standards and experience, with a wide array of contextual factors. Their work tasks include third-party safety testing for a variety of maritime vessels, oil and gas installations and industrial plants, as well as assessments of the safety of these according to class society regulations and relevant national and international safety standards. The workforce is highly educated; more than 80% have a university degree, 40% have a master's degree, and 5% have a doctorate. The majority has an engineering background and is encouraged to continue to specialize within their respective areas of expertise through Verico's training or external courses. Some of the professional engineers regularly participate at specialized academic conferences within their technical areas, e.g. on wind turbine technology.

During the ten-year period that data was collected for this study, the strategy of Verico changed. We identified three different stages in which strategies changed over the period 2000-2010 which influenced the capability development and how the work is organized and managed. During this period of time, changes affected the organizational structure, the ICT system, training and other HR initiatives, project management methodologies, as well as the adjustments in the portfolio of services offered. The strategic changes in Verico in this time

period were primarily endogenous driven based on knowledge and learning accumulated from the daily project work. The different strategic change periods are summarized below.

Stage 1: Uniform quality (2000-2004)

Prior to 2000, issues of guaranteeing uniform quality on Verico's globally distributed services had high priority. This was particularly important for their classification services as these service provisions are conducted in a similar way across the global Verico organization. Verico inspected vessels the size of several football fields and since a ship cannot be in a dock for several months to complete inspection the project tasks of inspection had to be segmented into sub-projects that could be performed by different teams at the different ports the ship visits. Due to the emphasis on uniform quality the organization of project work could not be arbitrary divided between the different port cities. With the opportunities provided by Internet during the late 1990s these efforts gained momentum. The strategic challenge emphasized by top management aimed at ensuring organizational persistence and predictability by implementing, i.e. ICT structures that were to ensure uniform quality of services worldwide. In this period most of the strategy aimed at the organizational level and was motivated by the need to reduce future risk. The risk of performing classification services wrongly can have enormous consequences. One example is the safety assessments conducted at the Deep Water Horizon platform. If the issuer of safety certificates to the rig should have identified problems to the safety of the rig when inspecting, this can result in loss of accreditation to issue these certificates in the future, and even pay compensation to the owner of the rig for the loss. Further, the company also faces risk to their reputation since the human, environmental and financial consequences of the disaster are enormous.

The major change to the global organization during this phase was the launch of an ICT-based work support tool called Vericus. This system was tailor-made to support the work

procedures of Verico providing technical information on vessels surveyed and data entered from prior inspections conducted by engineers across the globe. The system provided detailed checklists and steps in the inspections that had to be completed before for the relevant certificates could be issued. The ICT-enabled work support system thus link present project assignments with experiences and vessel information gained in the past to ensure that the classification service can be provided at all Verico offices around the globe according to the same standard. Further, that the classification service can be provided as a relay race to ensure that the customers do not suffer revenue losses due to safety inspections. Consequently, during this phase the individual engineers employed by Verico across the globe experienced a tremendous increase of standardization of their work practices and thus the capability of standardization were developed throughout the organization.

However, the different local subsidiaries also catered to local industry and developed different expertise and practices. This created a tension between the headquarters and local subsidiaries when the organization aimed at ensuring uniform quality of services. However, the individual experts employed at the local subsidiaries experienced how local client demands – in the present - can cause a variation from the globally standardized work practices. Thus, even though standardization and a uniform quality of service were emphasized during the period from 2000 to 2004 the tensions between the permanent and temporary were very evident. The reality of everyday project tasks was a to a great extent to strike a balance between meeting client's requirements, keeping up with the latest technological competence developments and innovations on the one side, and complying with Verico's requirements and standards regulations on the other.

In general, the company struggled with the tension between a high degree of routinization of work tasks to be performed identically around the world and local market conditions that had to be accommodated to remain competitive in local markets. The

identified challenge had an impact on organization of current work and individuals ability to mobilize experiences from the past. The aim at ensuring uniform quality of services was explicitly linked to the perception of time. Not only were the service offering organized into segmented sub-project tasks performed across time and space, but the criterion for service quality was determined by the accumulated experiences of the organization in the past. In addition, the required uniform quality was enforced due to the expected negative consequences for the future a noncompliance would entail. During this phase the emphasis was on the development and implementation of the ICT process system allowing for task segmentation and standardizing the way Verico's services were performed. The motivation for the emphasis on developing these organizational structures was future risk reduction by ensuring uniform global services.

Please insert Figure 2 about here

Stage 2: Networked facility (2004-2006)

The standardization efforts inaugurated during the period from 2000 to 2004 continued during the period following 2004. Between 2004 and 2006, the Vericus system was fully developed and implemented throughout the organization. The organization now experienced the effects of the implemented system. The job of classifying a ship that moves around the globe, or having a complete set of certification data of factories owned by global customers, implied the need to centralize all information and ICT systems in order to maintain a uniform quality of services. During this strategic period the challenge was to ensure that the new systems supported daily communication, information exchange and knowledge sharing between dispersed offices and countries.

In this period, projects were to a greater extent accomplished through Verico's global ICT network enabling the segmentation of task performed across different locations globally i.e. when ships were in the harbor for only a couple of hours. The logic of global project activities and a strong internal support to handle this were important focus areas in this period. Verico built a global, fast-response organization that was able to handle many simultaneous projects. In projects the external clients required an effortless experience from Verico's services; consequently a lot of emphasis was on building capable back office functions. To solve increasingly complex tasks required individual knowledge and expertise, as the structure needs to accommodate the mobilization of the right expertise at the right time. The effort involved both organization level structures but also the capability to connect and combine critical individual competences across the global organization when required.

The ICT systems to enable the effortless experience were tailor-made to Verico and highly specialized and adjusted for their organization and type of activities. The effect of the system on the goal of global uniform quality of services was generally very positive. The organization also relied on the smooth running of these systems to provide their services. If the system failed in one global region it could severely impact everyday project activities, and potentially also have subsequent effects on other global regions. The organization became increasingly dependent on Verico. The experts classifying ships needed to access servers and tools instantly in order to be able to complete the project task they were assigned to. Thus, in 2004, the main internal challenge was to ensure that Verico was available 24/7. The globally dispersed project activities were not only separated by geography, but also by time zone, culture and language. By establishing a system of back office knowledge hubs divided among the world's 24 time zones with eight-hour duty shifts based in Oslo, Singapore and Houston, the intention was to guarantee that the work support tools such as Verico was available for access around the world at all times.

The lesson drawn is that Verico combined investments in structures that enabled global division of labor, but also that it balanced the effect of these stabilizing structures with a flexibility provided by the organization of work in projects. Consequently, to operate the portfolio of temporary projects the organization deemed it necessary to implement a strong organizational structure that was external to its ongoing projects. During this phase the emphasis was on the uninterrupted performance of daily project assignments. The daily project assignments relied both on the dispersed individuals involved as well as the ability to access the global ICT support tool that was to ensure uniform quality of service on a global level. The motivation was linked to anticipation of future project performance if work was interrupted. However, to be effective and efficient, current project work also relied on past project experience. Such past project experience involved both the organization level and the individual level. There was a need to exploit acquired knowledge and provide important data from past assignments on, for instance, vessels as well as ensuring that the current portfolio of services was relevant to the market and maintained required quality. However, much of the experience gained in past projects could not be easily be transferred by the ICT system and remained tacit and individual and past projects was also an important arena for individual learning and training. These tacit and individual experiences had to be mobilized in present project activities to ensure high project performance.

Please insert Figure 3 about here

Stage 3: Project transparency (2006-2010)

Whereas the period prior to 2006 was characterized by top management attention on standardized work practices through the use of tailor-made ICT systems, the emphasis gradually changed to address the innovative aspects of activities at the micro-level of the

organization – a tension that became more visible during the periods of standardization. This entailed bringing the inside of the numerous daily distributed project activities out by creating more transparency of the daily conduct of individuals in projects. The strategic focus was on selling more services to the same customers and meeting the customers in a uniform way across different projects. Further, learning and knowledge transfer across projects were also emphasized. Thus, from 2006 there were several changes of the strategy aiming at increased professionalism linked to project management and the facilitation of increased transparency into the daily project work activities.

The documentation of experiences and lessons learned from projects are assumed to be important for subsequent mobilization in new projects. Verico worked to consolidate systems across borders to improve the retention and transfer of knowledge by enabling more transparency as the new system allowed everyone, regardless of their location, to search in the shared documentation system. The focus in Verico in this time period was to mobilize the right expertise from its distributed resource base. In general, there were many procedures to codify and record knowledge and standardize work procedures, and knowledge retention was perceived to have efficiency gains for the organization. In order to achieve higher degrees of knowledge sharing across project, new liaison roles or people with boundary spanning functions were included in the projects. Positions like segment director, customer relations managers, process owners and were established.

Further, human resources became engaged in how to transfer knowledge from one project to the other in this time period. The different business areas at Verico experienced rapid technological development within their respective fields. Further, the clients' future needs were also exposed in the on-going projects. Thus, the ongoing projects and client assignments were identified as important arenas for these kinds of knowledge and experience accumulation. Thus, transferring knowledge from one project to the other became of major

strategic importance. The effect of the increased emphasis on transparency of project activities visualized how the project had become the main engine of Verico’s competitiveness. Some of the knowledge and experiences accumulated in projects could be codified, but also a major bulk of this knowledge remained in the individuals and was tacit. Hence, projects were not only a source of revenue, but also very important for learning and competence development, training junior employees, creating good relations with key clients and identifying new potential markets or innovations.

The major challenge was to integrate and institutionalize the knowledge created in the projects in the Verico organization in order to decide what learning and knowledge accumulation should be of strategic importance for the future. Increasingly, the top management acknowledged the importance of the numerous distributed project activities as the link between the current expertise of the organization and the development of the future organizational sustainability on several levels: clients, services, knowledge bases and individual expertise. Consequently, in this period there was strong emphasis on project transparency of past experiences in projects and building social networks to transfer innate and tacit knowledge.

Please insert Figure 4 about here

The above empirical account shows how the strategic focus of Verico changed throughout the period 2000-2010. In the first period, the focus was on developing capabilities for standardization, the offspring of this capability was to ensure transnational collaboration in an efficient way. In the last period, the focus was on creating capabilities that supported knowledge sharing across the distributed organization as not all knowledge and experience accumulated in projects can be codified. Thus, the link between the past, present and future

became more important. The focus in the whole period we followed the company was explicitly on the permanent organizational structures such as ICT systems, centralized training programs, development of shared procedures, practices and standing operating procedures, culture, routines and checklists for a uniform quality of work performance, effortless client experience and an ability to mobilize and build the globally distributed resource base. The managerial aim for all the three stages identified was to utilize experience gained in the past, in the present, to prepare for the future by create the most effective and efficient permanent structure of the organization.

In each of the three phases, there was distinct strategic challenges that emerged due to expectations about what the future would hold. Meeting these challenges in the present and affected the current practices and it ability to mobilize expertise from experiences.

Please insert Table 1 about here

Projects as bridges between the individual and organizational level in Verico

Since Verico is a professional service firm relying heavily on individual experts, and with most of its value creation stemming from project work, the permanent structures affected the project and individual levels over time. Paradoxically, the experience of the past, the present execution, and the expectations of the future occurred in projects conducted by individuals. Hence, these strategic changes are deeply embedded in a multileveled reality. The projects are never “cut-and-past”, there are always elements of customization of the service based on the local client context. Much of the required knowledge to adjust to these contextual requirements is based on professional experience and judgment. Identifying right technical skills required to carry out project assignments is an important part of scoping the work. What people demonstrate that they know in previous projects determines the type of projects they

are sourced to. Further, the type of tasks they are assigned to is thus of major importance to the ability to learn and develop expertise.

In addition, new business opportunities and possible service innovations may arise from the interaction with clients in projects. There are new opportunities that are captured locally by consultants, surveyors or other experts who interact with local clients. These individuals attempt to execute their tasks in the best possible manner to attend to their clients' needs, while at the same time abiding by global standards and corporate requirements. Even in situations in which there are no established standards and procedures to guide a delivery to a client, the individual will seek to provide the client with a solution to a given problem.

The organizational ability to create transparency and connectivity between individual professionals is thus intimately linked to overall competitiveness. It is through projects that the organization interacts with its external environment, and experiences the changes in market demand, competition and technical fitness. Projects thus involve both the use of organizational level capabilities such as ICT system, routines and procedures and an accommodative culture, but to a large degree also utilize the direct involvement of individuals, notwithstanding the client interaction and professional networks. Particularly related to knowledge sharing, problem searching and the sourcing and scoping of projects, the intricate balance between organizational level capabilities that produce repetitiveness and stability and individual level issues to overcome tensions between organizational requirements and client demands become visible.

Please insert Table 2 about here

Discussion

The paper is based on a detailed and longitudinal case study of a project-based organization. It offers novel insights into the capability building across time and levels - enabled through projects. The capability building process is exposed in a capability building framework (Figure 5) that addresses how capabilities are built across time and levels. The study shows how learning experiences obtained in terminated projects affect current project work and documents to what extent current project activities shape future strategies. Furthermore, the study shows how Verico exploited the experiences gained in the past to ensure sustained future performance. The activities conducted in the present shaped the opportunities of the organization in the future; reference projects and past project experiences created a path dependency and reputation and financial well-being determined the organization's ability to develop. Thus, projects function as capability bridges in the development of the organization. We find that projects are critical to utilize and build organizational capabilities and that this process over time involves multiple levels – individuals, projects and organization. Consequently, by identifying how the time dimension and the different levels interact across the entire period of investigation we uncover a pattern of how projects function as capability bridges.

We identified three strategy periods for which we identified a number of strategic challenges, changes, and how each strategic period had effects on the development of new capabilities that emerged from experiences accumulated in past projects. The main knowledge and experience accumulation process happens at the project level. Further, in projects the clients' needs and expectations about the future were also exposed. Thus, project work is about utilizing previous experience and the incorporation of past experience into the new delivery. Some of these experiences are only stored in individuals, whereas some become collectively shared, and yet other have contributions to the organization level, such as revenue, innovations, and reputation. Figure 5 identifies a pattern of project-based micro-

processes linking different organizational levels over time, suggesting that a multi-level and longitudinal analysis is required to capture how past, present and future affect project-based work. In essence, it is the projects that bridge what the organization already knows with what the organization attempts to become. The multilevel character implies that both organization-level resources and human resources matter. The organization level matters because without the organization the individual experts would not have been able to “land the project”, explore new opportunities, and they would not have been able to sell a “credible promise” to deliver something in a domain in which they lacked experience. In that respect, the organization offers projects that constitute important arenas for individuals to develop and use their skills, and the individual offers new knowledge and market insight back to the organization that enables sustainable performance. We observe how individuals in projects exploit prior experience and knowledge; company image, network of relationships, competence in the conduct of new projects, etc. The collectively shared experiences are the foundation upon which organizational routines are made explicit. Thus, the ‘project’ is the main bridge between the individual and organizational level in project-based organizations.

Please insert Figure 5 about here

The observations from these three periods extend prior studies of evolutionary capability developing processes of firms pointing to the multiple contributions offered by projects over time (Söderlund & Tell, 2009) and the effect of daily project activities on strategy – both deliberate and emergent (Mintzberg & Waters, 1985). The most obvious outcome of projects with external clients is their source of revenue; they provide potential value for owners through financial profits. However, in project management manuals the financial aspects tend to overshadow other important project-based outcomes. For example, a particularly

challenging project might become an important reference project opening up entirely new business opportunities, or being a major source of service innovation as well as building and maintaining necessary relations with important clients.

There is a potential tension between these different project-based outcomes that can be experienced differently at the organizational and individual levels. Individuals gain experience, competence, and networking benefits and the organization generates services that can be traded for money to external clients. In addition, the active experimentation in projects contributes to innovations, corporate image, reference projects as well as the repertoire of collectively shared experiences. It is important to mention that not all activities are strategic *per se*, although aggregate activity patterns can have strategic implications. Thus, the findings confirm that projects are central to the realization of strategy (Kaplan & Orlikowski, 2013).

Please insert Table 3 about here

Our study recognizes four main processes (Table 3) linked to projects, learning, and organizational competitiveness: exploration contributing (1) to organization level and (2) to individual level and (3) exploitation utilizing elements from the organization level and (4) individual level. By identifying these processes, we can distinguish between different paths of capability development, and show the relationship between the development of capabilities such as reputation, innovation, revenue generation and learning with projects.

The first identified micro process (organizational contribution on project performance) we observe how organizational assets such as brand name, existing client relationships, financial resources, standards, procedures, information systems, etc. are both constraining and enabling conditions for project success. The second micro process (project contribution on organization competence) is the one gaining most attention from management as the main

goal of projects is to generate revenue for the organization. However, the assets contributed to the organization in this micro process are not limited to revenue generation. Customer relationships, reference database, training, service innovation, knowledge experience data bases and industry knowledge data bases are assets that are produced as a by product of revenue generating activities. In the third micro process: Individual contribution on project performance (e.g. experience, expertise, attitude, coordinating skills) is mobilized and in the fourth micro process: Project contribution on individual competence; daily learning and network building occur as a by-product of daily project work.

Both the first and third micro process are related to the use of knowledge and thus to exploitation. The second and fourth micro processes are related to the creation of new knowledge generated in projects as exploration. The new knowledge built can be accumulated at either an individual or organizational level. The individual level involve tacit knowledge that the individual later needs to voluntarily mobilize in value-creating activities for the organization. Hard-earned experiences and valuable individual knowledge cannot be conscribed. It relates activities with the individual's experiences, relations and knowledge.

As seen in the empirical study, projects have a critical role for bridging levels and temporality in the professional service firms. We believe these observations have general implications for the understanding of the role that projects have in the modern firm. Project-based organizations are described in extant literature by the temporariness of how work is structured. There are several problems with temporariness addressed in this literature concerning i.e. the disintegration of project ventures after task completion and the opportunity to learn from projects due to this temporariness (Schwab, 2009; Schwab & Miner, 2008).

Based on a longitudinal in-depth exploration of an organization with a portfolio of several projects we suggest the contrary. In fact, projects can be perceived as important bridges across time and levels that specifically enable the organization to develop capabilities.

Capability development encompass a set of stages, involving the life-cycle of capabilities as these are not static but evolves over time in the interaction between organization and its environment and involving several organizational levels. The projects observed differ from the descriptions of large path-creating projects as Verico balances a large portfolio of a variety of projects. The case is thus particularly well suited for mapping capability development across levels over time.

Conclusion and Implications

An organization's most important mechanism to realize new business opportunities is linked to sales and the priorities made when deciding on what projects that should constitute the organizations portfolio of projects. Capabilities of the future, like capabilities of the past, are devices for developing capabilities in the present. Based on a longitudinal case study, this paper identifies the roles projects play in capability development, i.e. as capability bridges between the temporary and permanent, across levels, and between past, present and future. In order to map the development of capabilities over time and across levels, we developed an analytical framework (figure 1) that identifies nine different capability development contexts that addresses the relationship between time and levels in capability development. Besides this framework, the paper claimed that capabilities would need to be investigated not only over time and levels, but also in specific contexts. Drawing on the work by Dosi et al (2003), we claimed that the context of project-based production offers a particular fertile ground for theory development addressing the nature and dynamics of capabilities. Given recent years' increase in the complexity of projects in these settings, the analytical focus on projects offer ideas on how organizations use acquired knowledge and develop new capabilities. The increasing scope and speed requirements of projects, as seen in the empirical account, have

made projects not only more difficult to manage, but equally so, more important to manage well. Projects in these settings are not only mechanisms to coordinate operational tasks, they are also loci for strategy formation and strategic learning. No matter its focus, projects provide the arena for integrating past experience. Based on a longitudinal in-depth exploration of an organization with a portfolio of several projects we suggest the contrary. In fact, projects can be perceived as important bridges across time and levels that specifically enable the organization to develop capabilities.

Projects help actors envision the future – like future perfect thinking (Weick, 1995) they help actors imagine where the organization should be heading of the effects of current action in the organization as future client needs are exposed in previous and present projects. Hence, this research introduced the notion of capability bridges and argued that projects constitute capability bridges that are essential to overcome the interplay between interacting levels and to handle the integration between past experience, current action, and future plans. This contention has important implications for research. To a great extent current theorization has tended to view projects as largely a problem and project-based organizations as a context where the difficulties of developing capabilities are particularly challenging. Moreover, extant research has also underlined the risk of project-based organizations as suffering from short-sightedness and amnesia. However, this paper pointed out that projects tend to be essential for lasting organizational performance. In that respect, temporariness seems important for permanence. Our primary contribution is the illustration of projects as bridges between the permanent structures of the organization and the shifting body of individual expertise. We find that projects contribute to a bridging function between past and future, individual development and organizational change. However, this bridging function would not have been possible without the dynamics occurring during the course of the project – without a thorough understanding of what happens during projects with regard to the reconnection to prior

experience and the ongoing envisioning of future paths. Thus, this paper investigates the multiple project-based outcomes across project phases and organizational levels. This research thereby has implications for the understanding of the role that individuals play when project-based work interacts with permanent organizational structures. In that respect, we showed that the temporariness is an essential part of stability; that temporariness is a critical element of permanence. Hence, the crucial question is how organizations evolve over time to what they become. These processes involve both strategic choices based on past experience and expectations about the future, but also conduct in the present – sometimes with serendipitous and unexpected opportunities revealing themselves.

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Figure 1: Analytical model: projects as bridges across time and levels

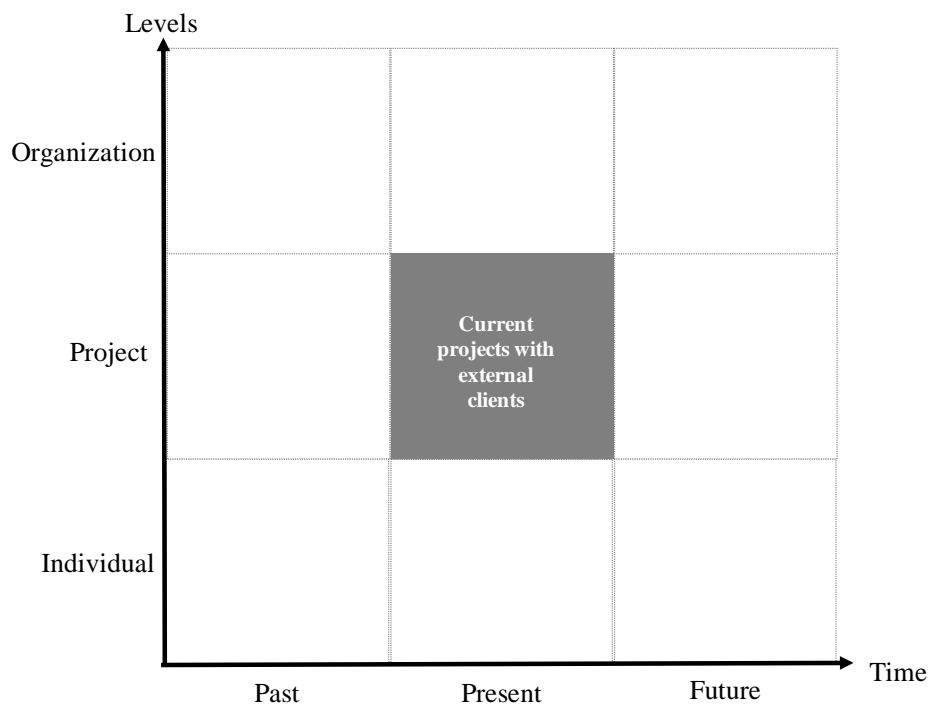


Figure 2: Stage 1 – Uniform quality (2000-2004)

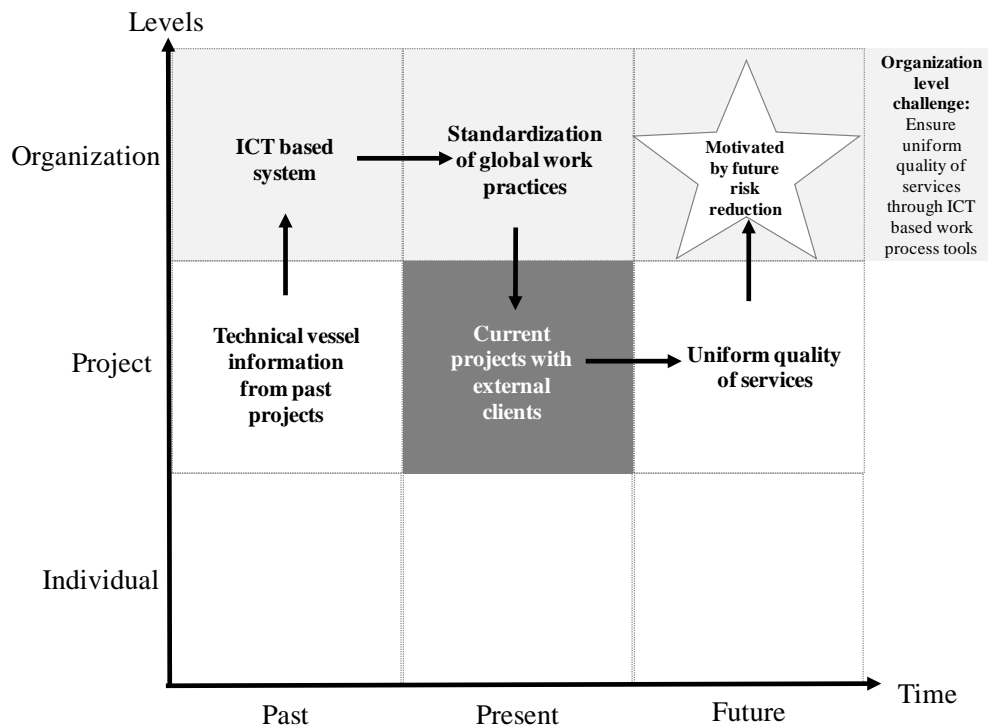


Figure 3: Stage 2 – Networked facility (2004-2006)

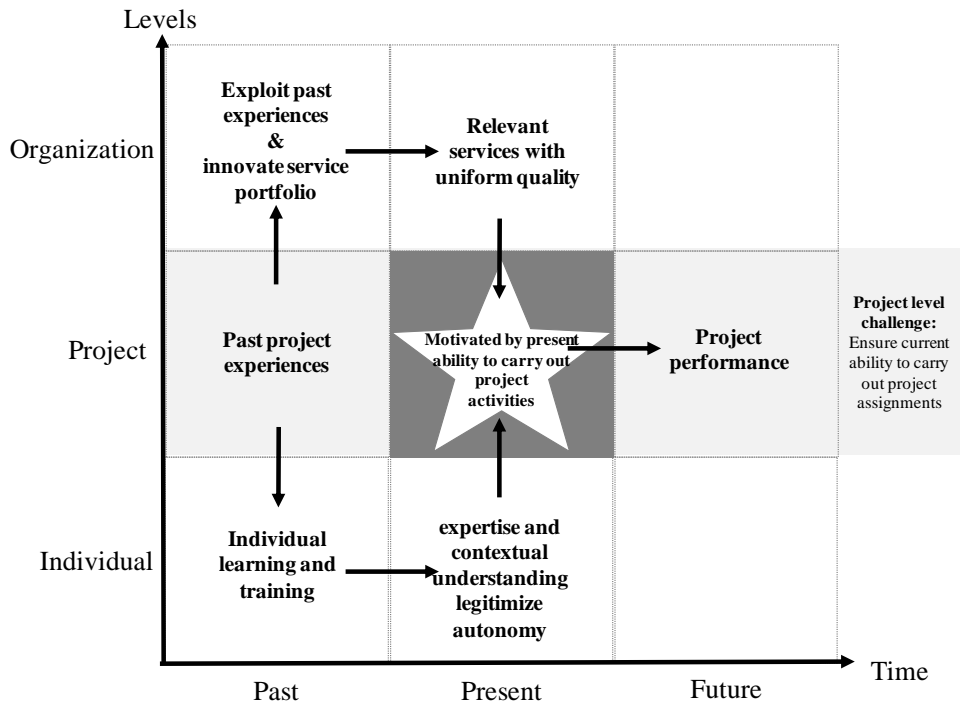


Figure 4: Stage 3 – Project transparency (2006-2010)

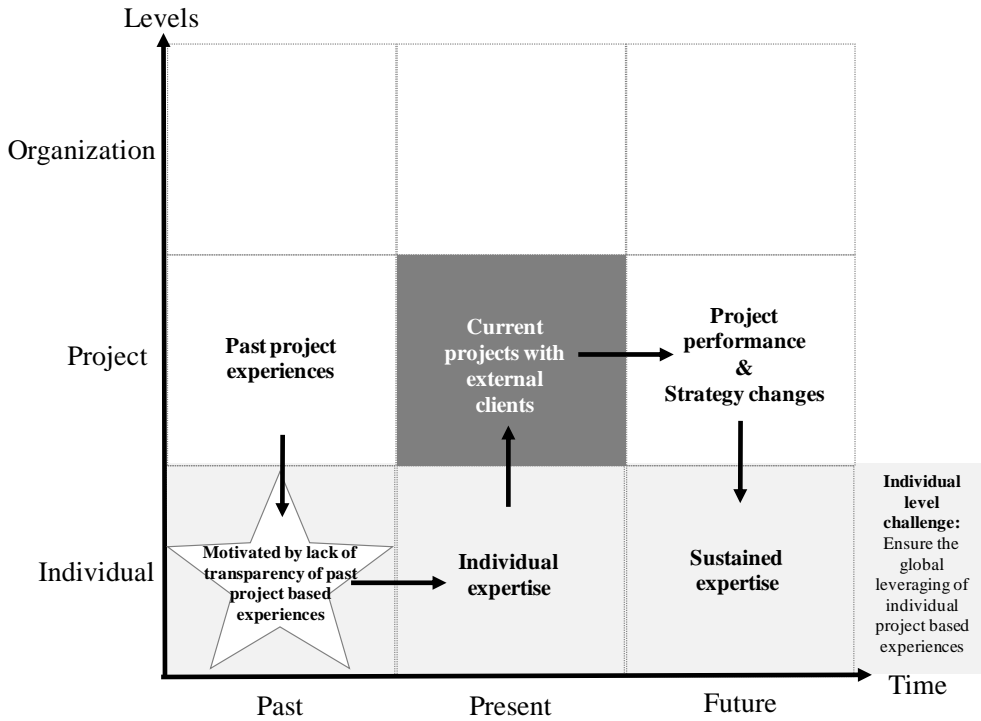


Figure 5: Projects as capability bridges across time and level in project-based organizations

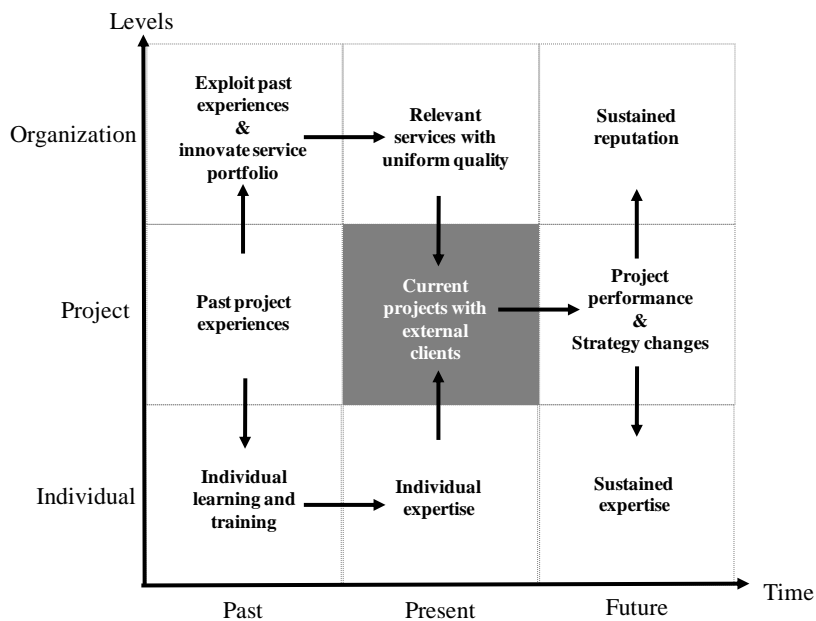


Table 1. Quotes illustrating efforts to meet identified challenges

Period	Identified strategic challenges	Quotes
The uniform quality period	Ensuring organizational persistence and predictability by implementing, i.e. ICT structures that were to ensure uniform quality of services worldwide	<i>It will be a good tool mainly for the work on quality coordination – we can stop and request that people should have completed all the required paper work.</i>
		<i>If I need a particular competence from another office, my search is based on communication with the manager of other offices...identify the need for knowledge support, ask if they potentially have the capacity to share this [and] help us out, then identify the right expert...often ask for a resume, look for and assess qualifications and experience with similar clients...this is important because context really matters to our industry; advice that is very correct in one setting can have fatal consequences in a different setting., they are of little use in this industry</i>
		<i>We experienced a tremendous standardization effort to accommodate the uniform quality requirement</i>
The networked facility period	Ensure that the new systems supported daily communication, information exchange and knowledge sharing between dispersed offices and countries.	<i>There was an increased attention on our ability to cooperate with the other offices</i>
		<i>We do it all the time in projects... of course we both reuse and invent... but there are differences between projects and even between different project phases. Some projects involve almost entirely the exploitation of the previous experiences of others, such as pilot projects...but they are the exceptions; the average project delivers both and we need a portfolio of projects that are revenue generating as well as innovation and learning intense</i>
		<i>When we met and started the discussion on the project I was astonished about the depth of his experience, without this particular challenge we would never have combined experiences spanning 20 years back...the entire meeting, as well as the solution we provided, was truly creative...never landed on that solution alone</i>
The project transparency period	Integrate and institutionalize the knowledge created in the projects	<i>We use the portal to identify reference projects we can use in our own tenders...also beneficial to look at other projects when we design our own</i>
		<i>The experiences one gets in the projects? It is all in the heads of each of us... and to some degree in the reports. That is why it is so nice to work with (name) with all the experience she has</i>
		<i>The most rewarding part of this job is that I continuously develop my expertise</i>

Table 2: An overview of empirical findings

	Stage 1	Stage 2	Stage 3
Time	2000-2004	2004-2006	2006-2010
Strategic challenge	Reduce risk of damage to reputation or accreditation	Effective and efficient project deliveries across time and place	Leveraging local and individual knowledge
Organization changes	Ensure uniform quality of services through global standardization	Development of transnational work practice	Ensure transparency of knowledge and experiences gained in projects
ICT investments	ICT based workflow system	Support facility for the ICT based workflow system	Project management tool
Competence development initiatives	Standardized work practices	Correct use of the workflow system to prevent down -time	Project management training and experience exchange seminars to allow transfer of individual and tacit experiences
Management initiatives	Development of global ICT system to standardize work processes	Establishing global help desk available 24/7	Initiating joint project management system across the global organization
Project features	Current projects with external clients are segmented into sub-tasks performed at different locations	Project performance is linked to the ability to utilize past project experiences in current project assignments	Project performance is linked to individual and contextual project based experiences

Table 3. Four micro processes: a comparison

Micro processes	Project contribution to organizational performance	Project contribution to individual competence building	Organizational contribution to project performance	Individual contribution to project performance
Main characteristic	Present project activity exploration linked to expectations of the future and contributing to organizational performance	Present project activity exploration linked to expectations of the future and contributing to individual competence and network	Present project activity exploitation organization level capabilities built in the past	Present project activity exploitation individual competence built in the past
Main capabilities developed	Customer relations Training Reference database Service innovation Knowledge base New leads Revenue	Workplace learning Network building	Brand Existing customers Financial resources Procedures, Rules, Standards, ICT	Experience Expertise Attitude Coordinating skills
Effect of project work across time	Exploration, utilizing knowledge built in the past		Exploration, building knowledge for the future	