

Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>



Building Project Capabilities in PBOs: Lessons from the French Special Forces

Tessa Melkonian*, Thierry Picq

EMLYON Business School, 23, avenue Guy de Collongue, 69130 Ecully, France

Received 4 June 2010; received in revised form 7 December 2010; accepted 4 January 2011

Abstract

Project-based organizations (PBOs) have become a widespread form of organizations, ideally suited to deal with unstable and dynamic environments. However, PBOs inherently incorporate the conflicting needs of, on the one hand, the temporary nature of projects and on the other hand, the more permanent organizational setting that defends long-term development and intra-organizational coordination. To overcome this differentiation/integration dilemma, the recent literature suggests that PBOs must develop Project Capabilities, defined as the internal ability of a PBO to create lasting performance based on multiple short term projects. But we still know little about how such Project Capabilities may be efficiently developed in PBOs. In order to contribute to the capabilities perspective on PBOs, this paper proposes to approach Project Capabilities building processes as a multi-level and dynamic process, and offers as an illustration the case of a very specific PBO — the French Special Forces (SF). The Special Forces context provides a particularly interesting illustration of how to build Project Capabilities over time, to the extent that they have been carrying out successfully multiple projects in extreme contexts for more than 60 years.

© 2011 Elsevier Ltd. and IPMA. All rights reserved.

Keywords: Project-based organizations (PBOs); Project Capabilities; Special Forces; Extreme contexts

1. Introduction

Project management has become a widespread practice in modern organizations (Whittington et al., 1999). In a time when a growing number of organizations are operating in complex knowledge areas and are facing high levels of uncertainty and risk (Illinitch et al., 1996), many authors as Huemann et al. (1994) have confirmed that project-based organizations (PBOs) are ideally suited to deal with unstable, dynamic and discontinuous environments. PBOs conduct the majority of their activities in project mode although maintaining functional structure and processes (Lindkvist, 2004). They inherently incorporate the conflicting needs of, on the one hand, differentiation (coming from multiple temporary, short term and unique projects) and on the other hand, integration (coming from the need for long term development, intra-organizational coordination, coherence and reliability over time).

Research works on project-intensive organizational settings have suggested a capabilities perspective on PBOs (Davies and Brady, 2000). The concept of Project Capabilities highlights the requirements of sustained performance to be based on a firm's capabilities to carry out in efficient way different types of project. Anchored in the Resource-Based View of the firm (Wernerfelt, 1984; Barney, 1986), Project Capabilities address the internal ability of a PBO to create lasting performance based on multiple short term projects. According to the literature, this ability is seen as a two-way relationship where strategic and organizational frames drive, orient and support multiple projects and are simultaneously constantly questioned and redefined through emergent and divergent practices brought by projects. This double-loop approach (top-down and bottom-up) of Project Capabilities sees the dilemma of integration–differentiation as a dynamic process, which links strategy to projects and vice versa in a complex interplay system (Morris, 2004). However, we still know little about how these complex and dynamics Project Capabilities are built and how to enhance PBOs performance (Thiry and Deguire, 2007). In this perspective, this paper aims at

* Corresponding author. Tel.: +33 478337800.

E-mail address: melkonian@em-lyon.com (T. Melkonian).

increasing our knowledge about the concrete and operational processes by which such Project Capabilities are built.

To do so, we have chosen to focus on a specific sub-unit within the French Military: the Special Forces (SF) organization. The Special Forces organization is a PBO created to fulfil specific military objectives in extreme contexts. The characteristics of extreme contexts are that they combine urgency, unpredictability, interdependency as well as highly consequential tasks (Klein et al., 2006). A growing number of organizational researchers observe and analyze the functioning of organizations operating at the extreme in order to grasp some of their mechanisms and retransfer them to more traditional corporations seeking to improve their reliability and efficiency (see for instance the High Reliability Organization literature (e.g. Weick and Roberts, 1993); or the recent literature on extreme teams (Klein et al., 2006)). French Special Forces are recognized as one of the best units in the world for highly risky, security-sensitive operations in international theatres (for a review see Denece, 2002). We were thus interested in studying how, as a PBO, the Special Forces build sustainable Project Capabilities over time.

In the first part of the paper, we investigate the theoretical framework of Project Capabilities as a double loop process. We then briefly introduce the case study of the Special Forces commando units and the specific characteristics of their project-based mode of operation, together with the particular methodology we had to adopt in order to approach it. We go on to detail how project and non-project activities interfere and get organized. We then discuss contributions that this “extreme” case study brings to our understanding of PBOs Project Capabilities building, highlighting the critical role that learning processes and HRM systems play, linking individual, collective and organizational levels.

2. Theoretical framework

2.1. From single project to PBOs

Managing projects has become a widespread practice in modern organizations (Whittington et al., 1999). At first, the classic project management literature has investigated the success factors in project operations (Kolltveit et al., 2007). A number of studies have documented the need for clear goals, powerful project managers, cross-functional team work, stakeholders communication, risk management, appropriate methodologies and toolkits, etc. (see Morris, 1994; Söderlund, 2005, for reviews). On a more practical side, a lot has been done to professionalize project management practices (Hodgson, 2002). The impact of professional associations (such as the PMI) has been strong to develop a shared body of knowledge, standard methodologies and trained project managers (Pant and Baroudi, 2008).

Progressively, in a more complex, uncertain and changing environment, leading successfully single projects has been recognized as no longer enough to create long term and sustainable performance. The proven added value of projects has lead to a “projectification” of firms and industries (Midler,

1995; Söderlund, 2005), facing the issue of creating repeated performance over time through projects. When non-routine activities have become dominant, firms had to make a move from single to multiple projects management, searching to generate project performance on a regular basis. Therefore, in a second stage, from the 90s, a new stream of academic research and a new area of practices have dealt with the implementation of project portfolios and programs management systems, with the main goals of coordinating a collection of projects that may be related or dependant of each other. Both researchers and practitioners stressed the importance of having a good organizational structure and robust processes for optimizing the efficient use of resource among many projects across the organization (Thiry, 2006).

More recently, the focus has moved from portfolio management to project-based organizations (PBOs), with a more strategic perspective. The interest for PBOs has stemmed from the need to manage benefits from multiple interrelated projects and better link multiple projects with the overall firm's organization and strategy (Morris, 2004). PBOs have received increasing attention in recent years, both from practitioners and academics as an emerging organizational form (Whittington et al., 1999). Broadly defined, the terminology of PBO includes all the organizations that carry out their core operations mainly or even exclusively in project form. In PBOs, projects are the dominant form of activity, value creation and sources of revenues (Hobday, 2000). However, this general statement refers to a more complex and multiform reality and not much research has been done to go beyond the general concept to better identify various types of PBOs. Following Hobday's framework (2000) we will use a simplified two-type distinction. The first type is project-based enterprises (also called by Söderlund (2005) pure temporary organizations) defined as temporary venture designed and implemented for a one-shot and non repetitive operation. One extreme model of project-based enterprises is “single project organizations” (DeFillippi and Arthur, 1998) where the entire organization is dissolved after completion of the project and totally disappears (e.g. sports events project such as the World Cup). Another model is when project activities, even though each time unique, remain hosted in more permanent contexts (e.g. construction projects or movies shooting conducted by studios or production companies). In both configurations, these organizations often rely on wholly outsourced teams (DeFillippi and Arthur, 1998), with people holding temporary employment contracts for the set amount of time of the project.

The second type is project-based firms (Lindkvist, 2004) or project-led organizations (Hobday, 2000), defined as organizations that conduct the majority of their activities in project mode although maintaining functional structure and processes (Lindkvist, 2004). Even though project is the primary business mechanism for coordination and integrating all the main competencies of the firm, there is a need for some functional support and coordination. The workforce is mostly affiliated to the organization rather than to the project, with permanent employment contracts, moving from one project to another or from projects mode to organizational roles.

Building on the above typologies, we have chosen to focus in this paper on PBOs of this second type, where multiple temporary projects are embedded into a permanent organizational context, with internal core employees outnumbering outsiders. This kind of intensive project organization faces very specific issues and difficulties, that all refer to the “dual structure” issue (functional and project-based) creating recurring tensions.

2.2. The dichotomy/dilemma of PBOs

These tensions have been intensively addressed by the PBOs literature, under various names such as dichotomy, dilemmas or contradictions. For example, [Sydow et al. \(2004\)](#) point out that PBOs inherently incorporate the conflicting needs of, on the one hand, the temporary nature of projects and on the other hand, the more permanent organizational setting that defends long-term development and intra-organizational coordination. As [Bredin \(2008\)](#) says, the fundamental principle of such PBOs is that the temporary meets the permanent and thus generates several types of dilemmas, like the tension between project’s search for autonomy, flexibility, adaptation and improvisation and the desire of a firm’s manager to implement stable and optimized bureaucratic systems to keep the operations under control ([O’Dell and Grayson, 1998](#)). Or else, what [Grabher \(2004\)](#) calls the “doing versus learning” dilemma that refers to the tension between the fact that Projects are short term and objective/result driven whereas organization is long term and vision/mission driven. Finally, projects by essence foster innovation whereas the organizational efforts concentrate on routinization and economy of repetition ([Brady and Davies, 2004](#)). These dilemmas, if not managed, may lead to value destruction. Due to dominant top-down and standardized approach, projects may lose their flexibility advantage and their potential strength in coping with emerging situations and responding quickly to evolving client’s needs or context’s constraints. On the other hand, too divergent project objectives may lead to inconsistency, chaos, struggle for resources, lack of coordination, poor performance monitoring, etc.

The emerging and recent recognition of the inherent tensions within PBOs paradoxically refers to a traditional and well known issue of Organizational Theory since [Lawrence and Lorsch \(1967\)](#): differentiation vs. integration tension. In PBOs, there is a strong need for differentiation: Projects can be seen as temporary and unique working arrangement, designed for complex, non routine and context-related tasks ([DeFillippi and Arthur, 1998](#)). No two projects are exactly the same. To be able to produce bespoke answers to clients’ needs and adapt to changing contexts, PBOs should behave like innovative intra-organizational units ([Keegan and Turner, 2002](#)), with a high degree of autonomy and differentiation.

However, the need for integration is as crucial: organizations need coherence and long term perspectives to create lasting performance. The centripetal tendencies of project autonomy must be balanced and the dilemmas generated by the dual structure managed. As identified by many authors (e.g. [Sydow et al., 2004](#)), in PBOs as previously defined, the autonomy requirements of project teams and the decentralized, distributed

knowledge and structure of temporary activities need to be embedded and integrated into strategic goals and aligned resources coordination at the firm level to prevent chaos, divergence and value destruction. To overcome this differentiation/integration dilemma, the recent literature suggests that PBOs must develop Project Capabilities, defined as the internal ability of a PBO to create lasting performance based on multiple short term projects ([Davies and Brady, 2000](#)).

2.3. The concept of project capabilities

Anchored in the resource-based view of the firm ([Wernerfelt, 1984](#); [Barney, 1986](#)), traditional works on core competencies ([Prahalad and Hamel, 1990](#)), organizational capabilities ([Chandler, 1992](#)) and dynamic capabilities ([Teece and Pisano, 1994](#)) have given us a platform to improve the analysis of firm’s performance ([Söderlund, 2005](#)). Firm distinctive competencies come from the internal ability to better organize its operation than the others. Broadly speaking, the notion of capabilities normally includes processes, management, coordination and governance ([Kogut and Zander, 1992](#)). Research works on project-intensive organizational settings have highlighted the interest to develop a capabilities perspective on PBOs ([Davies and Brady, 2000](#)). The concept of Project Capabilities highlights the requirements of sustained firm performance to be based on a firm’s capabilities to carry out in efficient way different types of project. In a project context, the practiced routines, skills and coordination processes of projects constitute such distinctive capabilities ([Söderlund, 2005](#)).

[Chandler \(1992\)](#) brought out the distinction between strategic capabilities (required to adjust strategies and organizational implementation to a changing environment) and functional capabilities (distributed expertise required to produce regular activities). Project Capabilities are a third type of organizational capabilities, necessary to perform in turbulent environment.

Opposite to [Bredin’s terminology choice of Capability in general \(2008\)](#), or [Söderlund’s \(2005\) choice of Project Competence](#), we use here the term “Capabilities” to accentuate that Project Capabilities is a complex and wide notion that contains various subsets of more delimited and precise capabilities. In the discussions of the temporary–permanent dilemma in PBOs, a Capabilities perspective contributes to the conception of what constitutes the more ‘permanent’ feature in an otherwise flexible, adhocratic organization. When structures, workforce and teams are changing in the short-run, the organizational long term and permanent feature become crucial to support a sustainable and reliable strategy that has a purpose that goes beyond the purposes of individual projects ([Thiry and Deguire, 2007: 655](#)).

But this is only one side of Project Capabilities. The other side, more bottom-up relies on the idea that projects are also potential means to shape and reshape the strategy and the firms organization, to foster evolution or even major changes at the firm level. In other words, in turbulent environments, constantly changing project conditions often result in emergent working practices that influence the organizational framework. This enactment process results in the recognition that project

management practice can and will influence organizational practices and even the strategic making process. The strategic and organizational frames drive, orient and support multiple projects and are simultaneously constantly questioned and redefined through emergent and divergent practices brought by projects. This double-loop approach (top-down and bottom-up) of Project Capabilities sees the dilemma of integration–differentiation as a dynamic process, which links strategy to projects and vice-versa (Morris, 2004) in a complex interplay system.

Following the above theoretical framework, we will thus define Project Capabilities as a two way relationship which recognizes that project management practices can and will influence organizational practices as well as the obvious reverse. For a PBO, building Project Capabilities by developing and managing this double-loop process may lead to sustainable performance and competitive advantages (in the sense of the Resource Based View approach).

The figure below (Fig. 1) summarizes the theoretical framework of Project Capabilities and suggests an integrated model to understand PBOs performance.

However, we still know little about these complex and dynamics Project Capabilities double-loop and how to enhance PBOs performance (Thiry and Deguire, 2007) In this perspective, we would like to contribute to the central PBOs research question of how Project Capabilities, as a two way

complex process, are built over time. To do so, we have chosen as an illustrative case a specific PBO: a sub-unit of the French Military, the Special Forces (SF) organization.

3. Research method

3.1. Research context: the French Special Forces commandos

The Military has long been a source of inspiration and benchmarking for the business community, but may be sometimes stereotyped as rigid and bureaucratic (Jordan, 2007). In this paper, we argue that the elite units of the Special Forces, constrained by the demanding nature of military action in volatile and risky situations, have accumulated considerable expertise in combining formal procedures and improvisational capacities in order to maximise reliable collective performance (Denece, 2002). The Special Forces organization is a PBO operating in extreme contexts within which team members cooperate to perform urgent, unpredictable, interdependent, and highly consequential tasks (Klein et al., 2006). Special Forces units always operate in project mode (called mission) with the following project team characteristics: distributed expertise, non permanent composition, high contextualization of actions in foreign theatres, non routine situations and extremely high stakes. Learning from such extreme contexts can enable us to better grasp highly visible organizational processes and

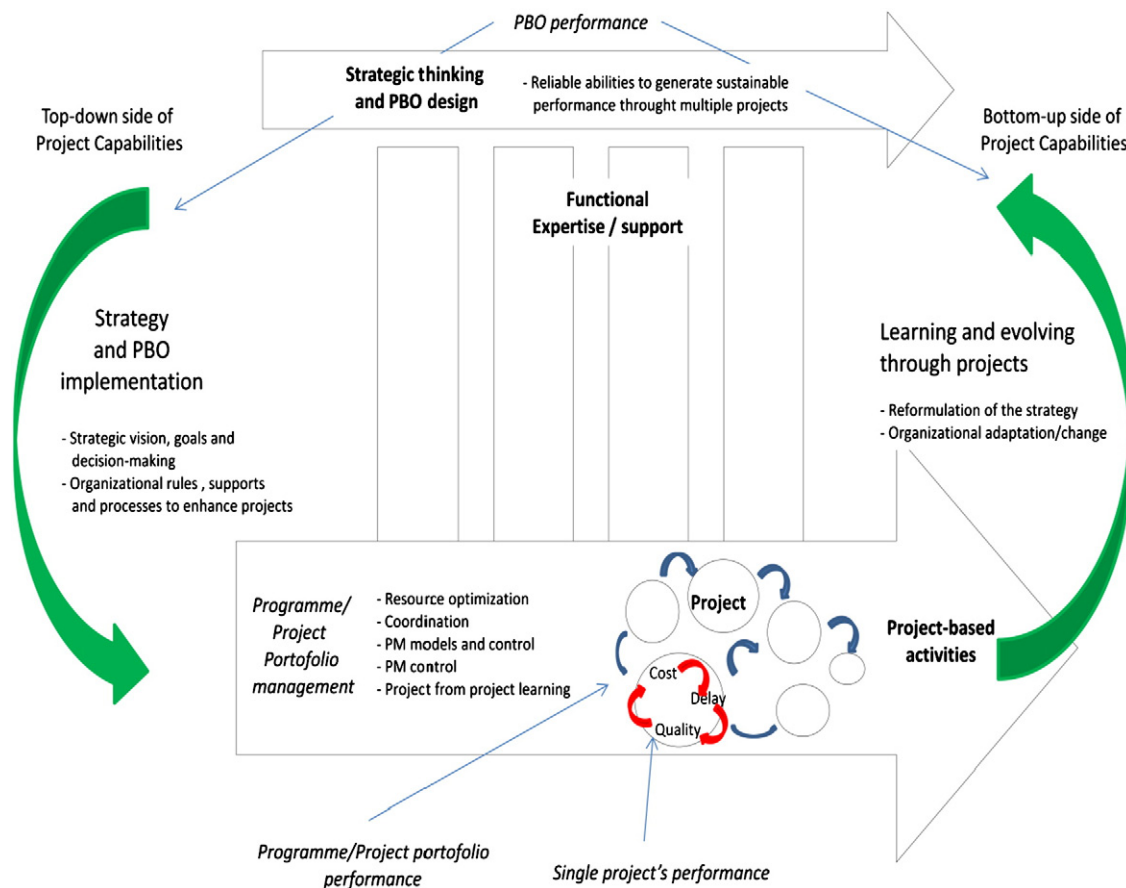


Fig. 1. An integrated model of Project Capabilities building.

practices because they have to be pushed to their limit to perform under such uncertainty and risk conditions. We were thus interested in studying how, as a PBO, the Special Forces build Project Capabilities over time.

The French Special Forces were established during the Second World War in the UK, against the background of the fight against Nazi Germany, at a time when the powers resisting the Axis forces were in a position of relative weakness. The commando units entrusted to Lord Mountbatten were a novel response to the enemy's overwhelming dominance that relied on undermining the other side's confidence by making audacious, one-off strikes. The use of unconventional actions to surprise the adversary and instil doubt into the minds of its leaders still lies at the heart of the values that drive the Special Forces today. The French Special Forces stemmed directly from the British SAS (Special Air Service), since the first French commando units were set up by the SAS with volunteers from the Free French Forces (Forces Françaises Libres), made up of Free French volunteers, who refused to accept the armistice signed by the Vichy Government in 1940. The know-how acquired during the Second World War was subsequently to be maintained and then refined during France's colonial wars in Indochina and Algeria. However, the end of the colonial conflicts, which gave way to the Cold War in which the Eastern bloc was pitted against the Western bloc, consigned these particular units to obscurity. They were redeployed to assist the secret services or the armed services from which they originated (army, navy or air force) in their clandestine operations. During the first Gulf War, the need to carry out unconventional operations in order to disrupt the enemy has been rediscovered. As a result, there was once again a call for light, highly mobile and well-armed units. The USA experience following the catastrophic Operation Eagle Claw, an attempt in April 1980 to free the American hostages from the US Embassy in Tehran that ended in failure in the sands of the Iranian desert, finally brought home the need for specific Special Forces units. This poorly planned operation, which had involved units from seven different commands without any real coordination, had led to the humiliation of the Carter presidency, of the United States and of its armed forces. Four years later, USSOCOM (United States Special Operations Command) was born. Now brought together under a single operational command, the special forces units of the three services saw their operational capacity strengthened by a common doctrine and training. France set up its own special operations command (Commandement des Opérations Spéciales/COS) in 1992, when its troops returned from the first Gulf War. It exercises operational authority over the Special Forces units of all three services. Today, only France, the UK and the USA have such a command and control structure.

3.2. *Special Forces as PBOs*

Project-based working is the dominant organizational mode in the Special Forces. The principle of a commando team is to select and combine competences that are separate, specialized

and complementary in order to attain a specific, precisely defined objective, under severe constraints. In organizational terms, Special Forces operations are structured around ad-hoc teams of 8 to 10 commandos, all of them are highly skilled experts best suited to fulfilling a specific objective in a high-risk and extremely uncertain environment. Their missions are very diverse, in terms of team size (from 8 to 15 commandos, themselves sometimes integrated into more important action groups), project lengths (from 2 days to several weeks), and goals (search for and transmission of intelligence, freeing of hostages, evacuation of nationals, elimination of targets vital to the enemy, protection of key figures, arrest of war criminals, etc.). The diversity of the project team can also vary, depending of the scope of the mission. Intra-unit operations can be found (such as intelligence for operations limited to information gathering or site watching), as well as army forces teams for ground operations, inter-army teams for more complex operations (gathering soldiers from the army, air force and navy commando units), intercultural teams from allies forces from different allied countries for international operations (for example in UNO or NATO campaigns).

However, Special Forces soldiers belong to different regiments, embedded in the three main military branches (Army, Air Force and Navy), where they go back when a mission is over. Their activities are composed of two main phases. The first is given over to the gathering of strategic intelligence, which is of crucial importance to the second phase, in which the operation proper takes place (arrest of war criminals, freeing of hostages, elimination of a terrorist group, for example). In the French special forces, these two phases (intelligence gathering and operations) are divided between two separate regiments: the 13^{ème} RDP (Régiment de Dragon Parachutistes, the French Army's long range reconnaissance patrol) for intelligence gathering and the 1^{er} RPIMa (Régiment Parachutiste d'Infanterie de Marine/Ist Marine Infantry Parachute Regiment) for the operations phase. The same division takes place in the Air Force and Navy Special Forces, but with a less important number of people. This division of responsibilities is specific to the French (the British 22nd SAS regiment includes both functions within the same unit) and enables them to optimise each regiment's specific expertise in its own area of specialism, thus avoiding a lack of focus. The consequence of this organizational choice is that it is up to each unit to develop the competences required to cooperate with the other unit and adapt its own working procedures to those of its colleague.

The specific characteristic of all the regiments (intelligence and operations in the 3 branches) is that they all develop cutting-edge functional specializations in different skills: explosives, signals, intelligence, optics, topography, marksmanship, or different type of context: desert, mountain, jungle, city guerrilla,... This necessary strong specialization leads to the challenge of combining distributed expertise within a temporary project team for the good of the mission as a whole. On top of this, the COS (Commandement des Opérations Spéciales) is in charge of the overall organization and management and must implement the most efficient inter-units coordination processes so that the strategic needs (providing the more adapted pool of

talent for a given mission decided by the French government) do not suffer from delay or weakness.

The Special Forces organization is a type of PBO that fits into our research scope: multiple projects (missions) are embedded into a permanent organizational context (Special Forces), with exclusively internal employees (commando soldiers) who are attached to functional units (regiments) with a strategic and organizational level (the COS) (Fig. 2).

3.3. Methodology and data collection

The classical stream of project management literature is primarily based on relatively broad surveys to identify projects' success factors. Following Söderlund's (2005) recommendations, we argue that an understanding of how firms develop Project Capabilities must rest upon an analysis of both specific projects and the development and change of the focal firm. We believe that such an understanding must be based on in-depth case studies. To do so, we conducted a qualitative field investigation of Special Forces organization. We argue that case study methodologies may prove more effective than survey research in revealing the deep structures and the dynamic nature of complex human systems (Eisenhardt, 1989), especially in project contexts (Blomquist et al., 2010). Access to data is not easy in a national defence setting. Due to the highly confidential nature of Special Forces operations, we were unable to directly contact commando team members, who are not allowed to give interviews without formal authorisation. We submitted an application for a research authorisation to the Special Operations Command headquarters, clearly indicating that we were not interested in the content of the missions but rather in better

understanding project and collective processes in such extreme contexts. Once we got the official green light, we were allowed to interview 12 commando members, ranking from simple soldier to general in command, from 33-year old to 50 year old. The interviews lasted from 2 to 4 h. The recording of the interviews was totally prohibited. To limit the loss of precious information or misunderstanding, all the interviews were carried out by both authors and notes were thoroughly compared.

Our study took place in two phases in order to improve the quality of the case building (Eisenhardt and Graebner, 2007). Our first phase was quite broad, aiming at understanding this specific organization, its histories and main characteristics through interviews with people with broad experience of the Special Forces context. We began by asking broad and open-ended questions (e.g. what is the process whereby the SF is integrated? How is a project team created?) in order to gain the 'native view' (Spradley, 1979). At this stage, we were primarily interested in understanding how Special Forces units can perform in such volatile, high-risk and politically sensitive operational contexts. As the research progressed, we started to focus more precisely on the different stages of project preparation, the characteristics of project coordination and the HR and managerial systems deployed in support of the project performance. Phase 1 involved in-depth unstructured interviews with current or past members of Special Forces units as well as the study of secondary data retracing the story of the creation and development of the Special Forces and the main structural changes they had been through. Phase 2 consisted of more precise semi-structured interviews and unobtrusive observation in a Special Forces training center. During each phase, we were able to meet more actors, with different levels of experience and

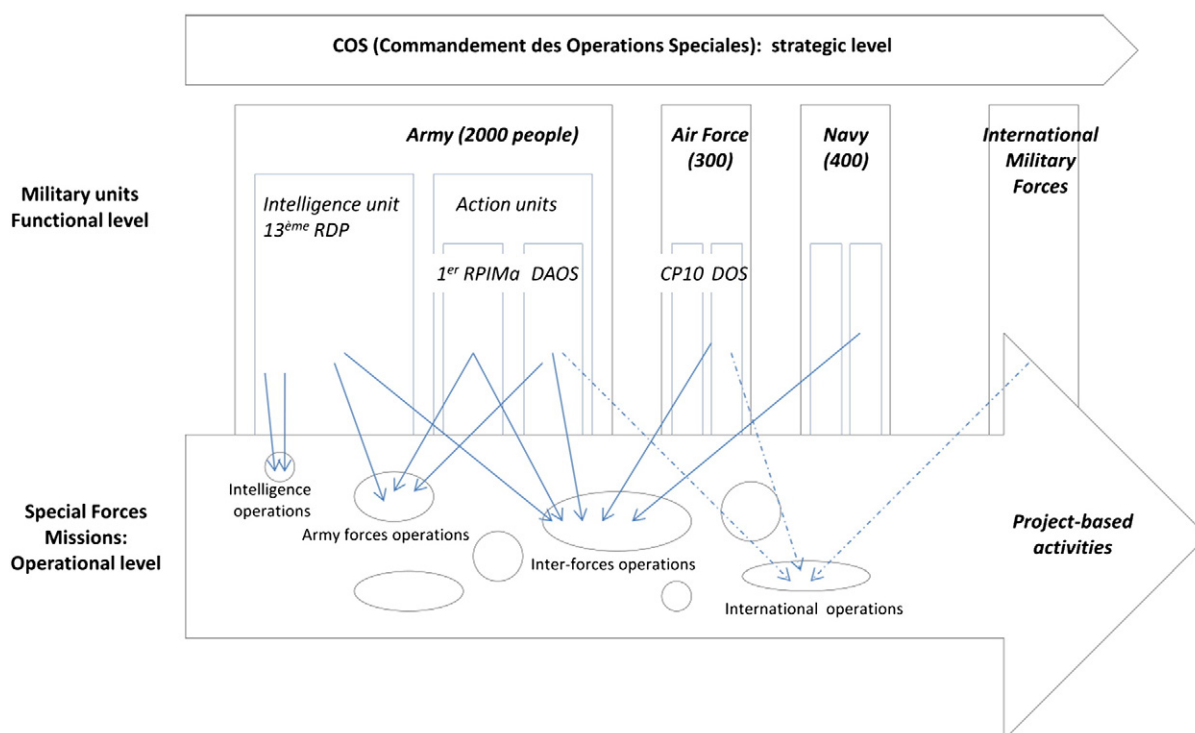


Fig. 2. Special Forces as a project-based organization.

holding various hierarchical positions (such as young and senior commando members, head of missions, unit chief officer and Special Forces HR managers). We fully transcribed the phase 1 and phase 2 notes and interviews. We carried out detailed analysis of the transcripts during and after each period of data collection.

4. A case study of Project Capabilities building: the Special Forces illustration

In this section, we illustrate how Project Capabilities are built over time by examining the French Special Forces organization. We provide a temporal case illustration starting with the recruitment of potential project members (commandos in Special Forces terms) and finishing with the end of the project (the mission in Special Forces terms).

4.1. Selection and training process

The development of individual and collective competences is at the very core of the FS functioning. After a very tough selection process – very challenging both physically and psychologically – from which only a small number of individuals will be retained, starts an intensive training program lasting about ten weeks.

“the selection process is very tough, I think that honestly only the most motivated can make it through... and those who make it are not necessarily the most impressive at first sight...” (Special Forces Soldier, commando team member).

Then, once the commandos have joined their units, they have to acquire additional specific skills (operational parachutists, elite marksman, radio, pathfinder etc.). These advanced skills are then reinforced over the course of their Special Forces careers by means of continuing training programs lasting from half a day to several days and amounting around a hundred days a year in total, to which are added the operations. The psychological ability to be able to face any unknown and dangerous situations is part of the training, as important as the technical know-how. Learning simulations always include stress management, capacity to survive in a hostile environment, pugnacity, resistance in extreme weather conditions, without sleeping, and fast decision-making.

To this individual competences development, should be added a collective dimension which is developed outside of missions themselves. These collective trainings take place through inter-service, inter-regiment and inter-speciality training events, during which commandos are permanently engaged in exchanges of experience. The objective is to establish an aptitude to combine the modes of operation associated with the various forms of expertise that might be mobilized during a mission. The constant testing during drill¹ ensures an entire

¹ Drill is an extremely rigorous military training technique, used in Prussia from the time of Frederick II onwards. The relentless repetition of a series of physical exercises makes soldiers able to carry out collective manoeuvres in situations of extreme stress rapidly and without hesitation or error.

individual engagement so that he can fully play his role within the group and learn rapidly to develop social bonds and cooperative behavior. During these collective training, commandos familiarise themselves with the common procedures for preparing and executing missions (Standard Operating Procedures) and for operating in degraded mode.

“each time we go through a training we learn the codes, the protocols and all standard operating procedures, but most of all we learn to work together and we start to know each other rather well... when you share certain situations, rather extremes, you get to know the people very well” (Special Forces Officer, in charge of a commando team).

As soon as an order of mission is issued by the French government, the French Special Forces headquarter (COS) establishes an inter-unit competencies specifications request. It is then the responsibility of each unit to provide as fast as possible (sometimes within an hour) individuals at the top of their expertise. For the Intelligence part, the best available experts are selected individually. For the Action part, already existing action teams are often mobilized together. Specific competences (such as medical skills) can be added, according to the needs of the mission. The group of top of the art experts is coordinated by an officer, coming from the Intelligence or Action Forces, according to the nature of the mission. This ad-hoc group has now to get prepared to act as a commando team during the mission.

4.2. Preparing the project/mission

Whenever it is possible, the preparation work of a mission takes place in a single physical location, in a dedicated room with modular walls switch to work in small sub-groups or to allow larger team meetings. The back office is at the center, and provides direct information about the context of the mission, to help teams to refine their preparation as new information from Intelligence scouts, already on the operation scene, is coming in. Coordination and control between intelligence and action is centrally managed by the officer in charge of the operation, so that the experts, when they are on the field, may be preserved as much as possible from any coordination issues, when they follow a given scenario. Experts and back office support staff are also remotely following the course of the mission.

The commandos team prepares collectively the mission by elaborating multiple scenarios or protocols. The unknown future is collectively visualized by pre-defined action paths (scenarios of actions), taking into account all the situational available information.

“ The entire team, including commandos, hierarchy , COS responsible is divided in sub-groups and work on a scenario elaboration that should be the most reliable ” (Special Forces Superior Officer, in charge of a 200-person unit).

There is then a plug-and-play that takes place between the distributed expertise and integration during which each

specialized sub-groups define his strategy and scenarios of action and simultaneously coordinate with the others.

“ We work in a dedicated ‘war room’, composed of removable walls that enables the commando to rapidly switch from specialized sub-groups to collective adjustments ” (Special Forces Officer, in charge of a commando team).

Then, there is a tough collective discussion to test the robustness of each scenario. Each individual can freely bring his views, ideas and comments to the discussion, without any barriers coming from hierarchy or status difference. During the scenario-building phase, experience matters above all. The entire hierarchical chain intervenes in the process and the discussion stops only when all alternatives have been thoroughly examined and challenged.

“ It is a very animated work session, the notion of rank disappears in the name of reliability of scenarios, each sub-team is challenged toughly by the audience ” (Special Forces soldier, commando team member).

Once this discussion is over, the entire team agrees on a multiple-scenario path of action that leads to a visual decision-tree (if A happens then we use plan B) used as a road-map for action.

“When a scenario has been chosen, it is described and drawn under the format of a decision-tree so that every member of the team is aware of the course of actions to follow according to the environment evolutions ” (Special Forces Officer, in charge of a commando team).

Then, each team member fully integrates the collective road-map and strictly follows it while in mission.

“ Once we have agreed on a scenario, every commando from the lower to the higher rank, learns it very carefully. No room for chance must remain ” (Special Forces Soldier, commando team member).

4.3. *Enacting the project/mission*

Thanks to their thorough preparation through shared scenarios and anticipative work on non-conform cases, the commandos team is “enacting” the mission. While in mission, the chain of command within the team follows the institutionalized military hierarchical chain (which is a common frame of reference for every soldier, whatever his expertise and unit). Team leadership is not invested in one or more individuals but in institutional positions (military ranks). This command framework avoids confusions, facilitates coordination and ensures that team members know to whom to defer in moments of uncertainty, ambiguity, conflicts or when team composition changes frequently.

While in mission, a central objective is for the commandos team to develop and share any environmental information that

could alter the prepared scenario. In their own words, their main objective is to maintain “situational awareness”.

“ Any member of the commando team must at any time report any change, weak signal or risk that he may encounter in the moment so that the group can quickly decide to make small adjustments or a major reorganization of the action ” (Special Forces Superior Officer, in charge of a Special Forces unit).

But Special Forces commandos also to be able to communicate between them immediately and efficiently when one key information is detected by one or several commandos and necessitates the team adjustment. In order to do so they developed over the years a specific code of communication, faster, less formal than in the traditional army team.

“ While in action, we continuously confirm or change our collective scenario of action through short instructions or non verbal coordination, such as small hand moves or even eye glances or winks ” (Special Forces soldier, commando team member).

Thanks to a very thorough individual, collective and organizational preparation, commandos teams barely need to improvise, in the pure sense of the term, while in mission. When asked about the situations in which they had to improvise, only one commando was able to find an example of real improvisation [over a ten-year career], meaning of a situation in which the team had absolutely no preconceived and shared action plan.

“The only case in which we had to improvise was back in the Balkans, when tracking down a war criminal. We had all the information about the house, its buildings, its surroundings, the number of guards, their surveillance timing, etc. From the satellite images, we thought that the house was surrounded by a pen with dogs. The only thing we could not imagine was that it was wild pigs and not dogs. They were too dangerous to be directly confronted so we had to change our plan and quickly decide to enter the house through another way.” (Special Forces soldier, Commando team member).

4.4. *Learning from the project/mission*

Two major modes of capitalization from the missions have been developed over the years in the Special Forces. The first mode is the immediate feedback that takes place at the very end of the mission, when the team gathers again after the mission completion. This immediate feedback aims at allowing team members to reconstruct a full cognitive representation of what happened globally during the mission, in order to recalibrate their perceptions of each team members actions and to share emotions.

“This exercise allows team members to reconstruct a full mental image and understanding of the different actions and

processes that took place on the scene” (Special Forces Officer, in charge of a commando team).

This immediate debriefing plays a role in the psychological support provided to team members, who are sometimes seriously distressed by their experiences during a mission.

“Sometimes we don’t say much but we are together sharing what happened during the mission, it is a crucial moment for us” (Special Forces Soldier, commando team member).

Post-mission management is an essential element in the preservation of human potential in the high-risk environment of Special Forces.

The second mode is the experience capitalization, also called Return on Experience (RetEx). This return on experience takes place about three weeks after the mission completion. An official report is issued by the mission commanding officer (or project manager) to point out what went well and according to the chosen scenario, and what went differently, unexpectedly or badly. It is a very important document that points out the best practices (reinforcing positive and efficient processes) as well as necessary adaptations, be they at the individual level (a new competency is required), collective (a management malfunctioning, a HR problem) or at the organizational level (the quality of the weapons or resources at hand). This formal procedure gives rise to a formalized document and record cards compiled from precise data linked to the operation: time charts, record of actions taken, visual media, etc. This document may lead to organizational adjustments, like changes in organizational structure (such as the creation of the special operations command after the 1992 Gulf War, for example) or in HR processes (such as the need to have regular inter-service training sessions) or more often in the contents and formats of training programs.

“ Experience capitalization takes place at different times: first right at the end of the mission, in the form of collective or individual informal debriefing to draw quickly the most visible learning points and then after a couple of weeks, through a formal procedure called RetEx (Return on Experience). This formal and compulsory procedure relies on precise data about the operation (precise hours recording, facts, visuals,...) and feeds a documentation and knowledge database. The objective here is to assess how a mission has been carried out in a learning and improvement way rather than punishment.” (Special Forces Superior Officer, in charge of a 200-person unit).

This final debrief also contains individual information regarding the behaviors and performance of each commandos and may lead to HR decisions regarding some individuals.

“ Each team members benefits from collective learning and improve their own skills and cognition of Special Forces-related behaviors and values. They build their personal development plan based on the RetEx and can readjust their

training program before the next mission”. (Special Forces Officer, in charge of a commando team).

HR decisions in terms of which type of missions should be proposed to the different individuals are also made on the basis of this formal debrief document.

The following table summarizes the precise Project Capabilities that we identified through the case, the practices that built them as well as their contributions.

5. Discussion

The objective of this paper was to contribute to the question of how Project Capabilities are built over time, in order to create sustainable performance in PBOs.

5.1. Learning and People Capabilities at the heart of Project Capabilities

From our Special Forces case study, we have identified precise Project Capabilities, dealing mainly with learning and people issues. The literature has already identified these areas as two main subsets of Project Capabilities. Building on the pioneer applied work of [Brady and Davies \(2004\)](#) on Learning Capabilities, and the conceptual framework of [Bredin \(2008\)](#) on People Capabilities, our analysis contributes to better understand, in a given case study, which practices and levers can help such capabilities to develop and what value they bring to the people and the organization, as shown in [Table 1](#).

PBOs face substantial obstacles in harnessing knowledge and in the re-exploitation of previously learned lessons due to the idiosyncratic and temporally limited nature of project tasks ([Bellini and Canonico, 2008](#)). Our case study illustrates the two side learning dynamic in PBOs:

- The Top-down loop, organization-to-projects, otherwise called by [Brady and Davies \(2004\)](#) business-led learning, occurs through institutionalized knowledge available for each new mission, for example in terms of scenario scripts to prepare the mission, lessons and best practices from previous missions, sourcing the best adapted commando based on their past performance and behavioral assessments, etc.
- The Bottom-up loop, projects-to-organization, otherwise called by [Brady and Davies \(2004\)](#) project-led learning, occurs through capitalization and collection from each particular mission, using the RetEx methodology and tools, but also human and social memory, through informal collective debriefing.

Another important component of Project Capabilities is dealing with HR issues. In the Resource Based View approach, the ability to manage human resources constitutes a key part of a firm’s organizational capabilities (see [Wright and McMahan, 1992](#); [Wright and Snell, 1998](#) for a Strategic HRM perspective). The Special Forces model illustrates the importance of taking care of such capabilities in project-based settings, due to the fact that the particular features of such settings challenge traditional

Table 1
Project Capabilities: description, building practices and contributions.

Project Capabilities	Building practices	Value and benefits
Capability to develop individual and collective competences	-Tough selection process -Continuous individual training -technical know-how -psychological readiness	-A pool of highly skilled talents -Physically and psychologically well prepared commandos -Cooperative behavior, teamwork readiness and shared standard operating procedures
Capability to thoroughly prepare the project	-Collective training (cross-unit & cross-expertises) -Competence sourcing to create the most appropriate ad-hoc project team -Co-presence in a single physical location -Plug-and-play scenario building methodology -Building a collective road-map for action	-Best adapted available skills -Building a common cognitive framework as a shared resource for collective action -Individual commitment and solidarity
Capability to act efficiently in a high-risk project	-Clear hierarchical decision making chain -Sharing situational awareness “on the field” -Continuous contacts with the headquarter to get updated information -Instant communication codes within the team	-Ability to continuously adjust the course of action -Ability to improvise when needed, in unexpected situations
Capability to learn from the project	-Collective debriefing within the team to reconstruct a full cognitive representation -RetEx methodology -Capitalization through formalized documents and precise data recording	-Inter-project learning -Changes/evolutions at the organizational level (methodology, structure, training content,...)
Capability to preserve and develop the Human Capital	-Immediate feedback within the team to share emotions -Assessment of the performance and behaviors of each commando	-Individual psychological support -Adjustment of individual development and career plan

ways of dealing with HRM and designing people management systems (Turner et al., 2008). Again, our case study illustrates People Capabilities as a two-side dynamic in PBOs:

- Top-down, corporate to project, through HRM policies and practices to select and prepare individual and groups able to work in projects, with sophisticated “plug and play” protocols to build shared cognitive scenarios for action.
- Bottom-up, projects to corporate, through feedback and learning loops to constantly adapt and improve the HR policies, project leadership skills and continuously re-adjust individual development plans, both in terms of competences and psychological support.

5.2. A dynamic two-way process of Project Capabilities building

As seen in the theoretical section, the literature informs us that building Project Capabilities is a two-way process, simultaneously top down, where organizational routines support project performance and bottom-up, where each different project contributes to organizational constant evolution and change. The present case study allows a more detailed understanding of these building processes that is synthesized in the figure below (Fig. 3).

As shown in Fig. 3, embedded top-down and bottom-up loops of Project Capabilities are recursive, and reciprocally influencing processes. Illustrating the necessity to combine both

top-down and bottom-up sides of Project Capabilities (Morris, 2004), the Special Forces have developed over the years a dynamic and recursive model of project management. On the top-down side, the performance of Special Forces project teams rely heavily on formalized and centralized HR processes designed to rigorously select and continuously train individual talents and provide the best resources for a given mission. Organizational systems select and prepare the best physically, psychologically and skilled individuals, ready to instantly perform in projects. During their operational commando career, individuals constantly learn from the different missions they are part of and, at the end of a mission, and get precise instructions to build their future training path and development plan based on a personal feed-back from the mission. In addition to these technical and methodological aspects, the immediate post-mission feedback also plays an important role in terms of psychological support, for commando members may have been heavily affected by events experienced during a mission. This top-down side is particularly articulated in terms of HR process, illustrating the cruciality of a people capability for PBOs to be successful (Bredin, 2008).

However, simultaneously, a bottom-up side of Project Capabilities is present and enacted through the organization. For example, these same debriefing sessions may lead to organizational modifications of protocols or routines and may lead to organizational decisions in terms of resources allocations for instance or restructuring processes. The organizational changes in turn lead to better collective efficiency on the field,

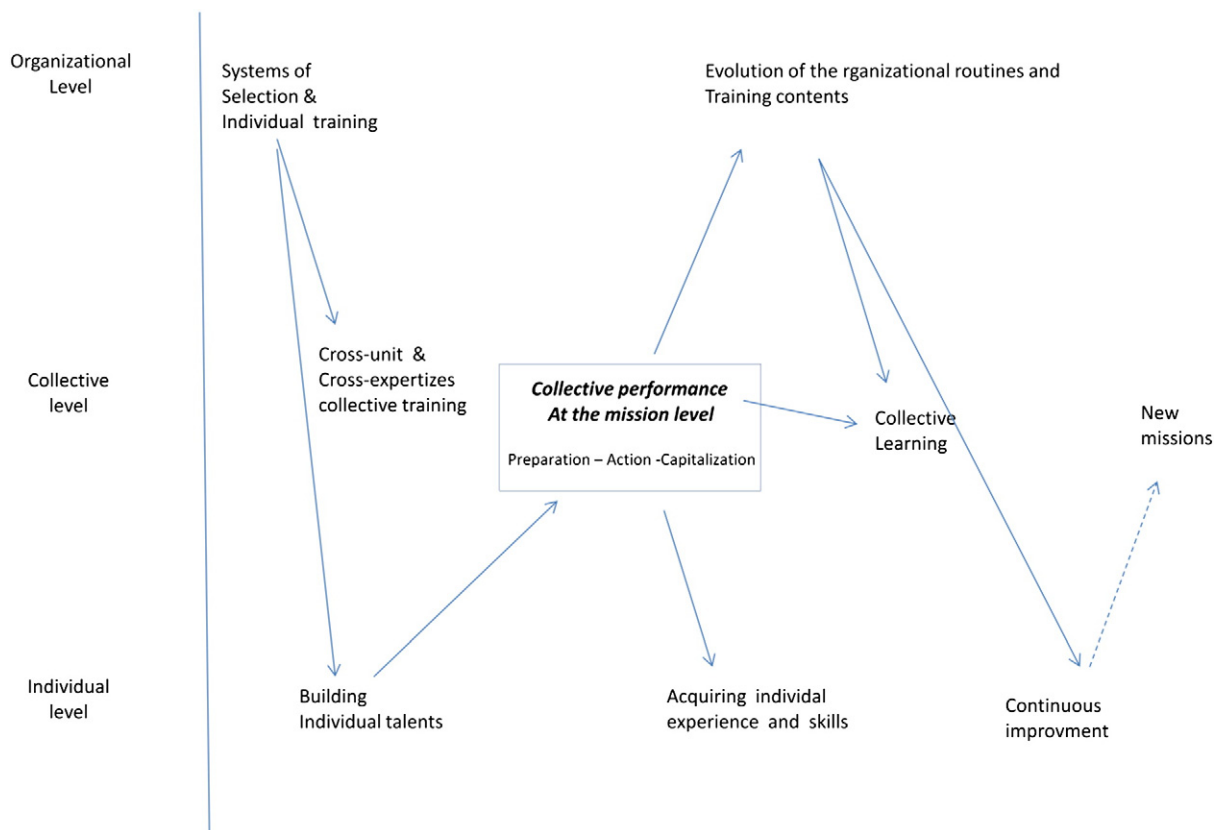


Fig. 3. The architecture of Project Capabilities in the Special Forces organization.

unlike most business contexts in which this bottom-up side is difficult to concretely implement, due to the domination of a top-down paradigm (Thiry and Deguire, 2007).

5.3. A multi-level approach of Project Capabilities

Between individual talents and organizational processes, the collective level plays a key role. To reach project performance, it is necessary to go beyond individual competences and combine them in a common endeavour (Maznevski, 1994). From this perspective, a project's strength lies in the ability to combine competences in order to produce an outcome that could not have been achieved by any one of them deployed in isolation (Ruuska and Teigland, 2009). Our research suggests that three different levels of analysis are involved in Project Capabilities: individual, collective and organizational levels, creating dynamic loops of interdependencies. These three levels should not be seen as separated performance systems, isolated from each other. They affect and influence each other, and can be mutually reinforcing. The Special Forces overall performance depends on individual talents, able to create collective competence within a multi-disciplinary action team, and supported by systems and protocols outside and within the mission. The end of the mission leads to new individual improvement, changes/adaptation at the organizational level, as well as learning transfer from one mission to another.

Of course, this framework is not static. The integration and interaction of the learning and people capabilities at the three levels are as constantly ongoing, embracing Teece and Pisano's (1994) call for dynamic capabilities, defined as "the firm's ability to integrate, build, and reconfigure its competences to address rapidly changing environments" (p. 516). These dynamic capabilities also address the individual level (individuals develop more technical, behavioral et psychological skills), collective level (teams are learning from one project to each other) and organizational level (routines and programs evolution and changes).

5.4. Managerial implications

If to some extent generally valid, our findings have managerial implications as well. A growing number of "classical" PBOs are created to better operate in complex knowledge areas and to face high levels of uncertainty and risk (Illinitch et al., 1996). Thus, the question of how PBOs can prepare themselves to perform in extreme contexts is especially salient today for research and practice alike. For instance our findings indicate that a crucial mechanism to the single-loop between project-based activities and strategic thinking and PBO design is the return on experience process. Beyond the mere debriefing process regarding the project itself at the team level, it includes a strategic potential for change, be it in terms of structures, material resources or human resources (Bresnen

et al., 2004). Depending upon the conclusions of the return of experience, changes in structures or resources may be decided by the organization, that are going – in turn – to affect the process functioning through the top-down loop. In other words, what is of practical importance is the strategic consideration of systemic return on experience, and true renouncement to the hegemony of top-down approach of Project Capabilities development (Thiry and Deguire, 2007).

The strategic dimension of HR is also highlighted in this Special Forces case. Unlike the traditional view that considers HRM as support activities only, the Special Forces model exemplify Kamoche (1996)'s argument that human resource policies are not only administrative procedures for managing human resource flows but behavioral patterns that underpin the HR capabilities. Pursuing this HR dimension, our findings also echo what some scholars have recently judged as crucial for PBOs success: the question of the risks associated to work situation for individuals in project-intensive organizations. For example, a survey conducted by Zika-Viktorsson et al. (2006) indicates that project work enhances the risk of overload and excessive pressure with no time for reflection, learning and recuperation between the projects. Turner et al. (2008) investigated how uncertain requirements and multiple role demands in project-intensive contexts may endanger employees' well-being and how HRM practices should be developed to care for project workers. We see from our model that the Special Forces as an organization has for long now implemented and institutionalized processes that help people to learn from projects (through the return on experiences processes) and to provide supports for moral and physical recuperation once a mission is over (through both the immediate feedback and the related HR processes of training and missions posting that follow). In the Special Forces model, these systems enable people to fully commit to another project with a high degree of motivation and energy.

6. Limits and conclusion

Our study is limited in a number of respects. The very specific features of Special Forces projects and organization should necessarily limit the generalizability of our findings. First, the reactive nature of Special Forces operations which, in a country like France that is not at war, arise out of an act of aggression (hostage-taking, prior act of terrorism, etc.) and are largely determined by external factors. Unlike traditional business contexts in which a critical component of Project Capabilities is to explore and select new projects (see Söderlund, 2005), the Special Forces projects are linked to opportunities or threats that are difficult to anticipate and there is no project generation issue as such, and their mission is reduced to the implementation/execution phase. Second, the Special Forces mission duration (from several hours to several weeks) and the limited number of team members (10 to 15) are other specific characteristics which inevitably limit generalization or comparison with different business project structure. Then, the standard focus on optimising quality, cost and deadlines that pervades the literature and project management

practices cannot be applied to commando operations as such. Finally, on the methodological side, even if we sought to triangulate our findings, we relied most heavily on interviews and retrospective data collection. As a consequence, we were exposed to the classical bias such as social desirability for instance. However, our goal was not to provide a critical assessment of this specific organization, but to better understand, in a situated context, which complex organizational and human processes supported the building of Project Capabilities.

Despite these limitations, we believe that our study contributes to such a better understanding of Project Capabilities building. First it opens the “black box” of Project Capabilities by identifying, in a situated context, precise learning and people capabilities, the practices that shape them as well as the value they create for both individuals and the organization. Second, through discussing how such Project Capabilities are built over time, we proposed an architecture based on a two-way process, simultaneously top down, where organizational routines support project performance and bottom-up, where each different project contributes to organizational constant evolution and change. Finally, our research suggests that three different levels of analysis are involved in Project Capabilities: individual, collective and organizational levels, influencing each other and creating dynamic loops of interdependencies.

References

- Barney, J., 1986. Strategic factor markets: expectations, luck, and business strategy. *Management Science* 42, 1231–1241.
- Bellini, E., Canonico, P., 2008. Knowing communities in project driven organizations: analyzing the strategic impact of socially constructed HRM practices. *International Journal of Project Management* 26, 44–50.
- Blomquist, T., Hällgren, M., Nilsson, A., Söderholm, A., 2010. Project as practice: making project research matter. *Project Management Journal* 41 (1), 5–16.
- Brady, T., Davies, A., 2004. Building project capabilities: from exploratory to exploitative learning. *Organization Studies* 25 (9), 1601–1621.
- Bredin, K., 2008. People capability of project-based organizations: a conceptual framework. *International Journal of Project Management* 26, 566–576.
- Bresnen, M., Goussevskaia, A., Swan, J., 2004. Embedding new management knowledge in project-based organizations. *Organizational Studies* 25 (9), 1535–1555.
- Chandler, A., 1992. Organizational capabilities and the economic history of the industrial enterprise. *Journal of Economic Perspectives* 6 (3), 79–100.
- Davies, A., Brady, T., 2000. Organizational capabilities and learning in complex product systems: towards repeatable solutions. *Research Policy* 29 (7–8), 931–953.
- DeFillippi, R.J., Arthur, M.B., 1998. Paradox in project-based enterprise: the case of film making. *California Management Review* 40 (2), 125–140.
- Denece E., 2002. *Forces Spéciales: l'avenir de la guerre ? De la guérilla aux opérations clandestines*. Editions du Rocher, Collection l'art de la guerre.
- Eisenhardt, K., 1989. Building theories from case study research. *Academy of Management Review* 14, 532–550.
- Eisenhardt, K.M., Graebner, M.E., 2007. Theory building from cases: opportunities and challenges. *Academy of Management Journal* 50 (1), 25–32.
- Grabher, G., 2004. Temporary architectures of learning: Knowledge governance in project ecologies. *Organization Studies* 25, 1491–1514.
- Hobday, M., 2000. The project-based organization: an ideal form for managing complex products and systems. *Research Policy* 29 (7/8), 871–894.
- Hodgson, D., 2002. Disciplining the professional: The case of project management. *Journal of Management Studies* 39, 803–821.

- Huemann, M., Turner, R., Keegan, A., 1994. The role of human resource management in project-oriented organizations. *Proceedings of the 3rd PMI Research Conference*, London, July.
- Illinitch, A.Y., D'aven, R.A., Lewin, A.Y., 1996. New organizational forms and strategies for managing in hypercompetitive environments. *Organization Science* 7, 211–220.
- Jordan, R., 2007. Reflecting on the military's best practices. *Human Resource Management* 46 (1), 143–146.
- Kamoche, K., 1996. Strategic Human Resources Management within a resource-capability of the firm. *Journal of Management Studies* 33 (2), 213–233.
- Keegan, A., Turner, R.J., 2002. The management of innovation in project-based firms. *Long Range planning* 35, 367–388.
- Klein, K.J., Ziegert, J.C., Knight, A.P., Xiao, Y., 2006. Dynamic delegation: shared, hierarchical and deindividualized leadership in extreme action teams. *Administrative Science Quarterly* 51, 560–621.
- Kogut, B., Zander, U., 1992. Knowledge of the firm, combinative capabilities and the replication of technology. *Organizational Science* 3 (3), 383–397.
- Kolltveit, B.J., Karlsen, J.T., Grønhaug, K., 2007. Perspectives on project management. *International Journal of Project Management* 25 (1).
- Lawrence, P., Lorsch, J., 1967. Differentiation and Integration in Complex Organizations. *Administrative Science Quarterly* 12, 1–30.
- Lindkvist, L., 2004. Governing project-based firms: promoting market-like processes within hierarchies. *Journal of Management and Governance* 8, 3–25.
- Maznevski, M.L., 1994. Understanding our differences: performance in decision-making groups with diverse members. *Human Relations* 47 (5), 531–550.
- Midler, C., 1995. 'Projectification' of the firm: the Renault case. *Scandinavian Journal of Management* 11 (4), 363–376.
- Morris, P., 1994. *The Management of Projects*. Thomas Telford, London.
- Morris, P., 2004. Moving to corporate strategy to project strategy: leadership in project management. *Proceedings of the 3rd PMI research conference*, London, July.
- O'Dell, C., Grayson, J., 1998. If only we knew what we know: identification and transfer of international best practices. *California Management Review* 40 (3), 154–174.
- Pant, I., Baroudi, B., 2008. Project management education: the human skills imperative. *International Journal of Project Management* 26 (2), 124.
- Prahalad, C., Hamel, G., 1990. The core competence of the corporation. *Harvard Business Review* 79–91 (May–June).
- Ruuska, I., Teigland, R., 2009. Ensuring project success through collective competence and creative conflict in public–private partnerships: a case study of Bygga Villa, a Swedish triple helix e-government initiative. *International Journal of Project Management* 27, 323–334.
- Söderlund, J., 2005. Developing project competence: empirical regularities in competitive project operations. *International Journal of Innovation Management* 9 (4), 451–480.
- Spradley, J.P., 1979. *The Ethnographic Interview*. Holt, Rinehart and Winston, New York.
- Sydow, J., Lindkvist, L., DeFillippi, R., 2004. Project-based organizations, embeddedness and repositories of knowledge: editorial. *Organizational Studies* 25 (9), 1475–1489.
- Teece, D., Pisano, G., 1994. The dynamic capabilities of firms: an introduction. *Industrial and Corporate Change* 3 (3), 537–556.
- Thiry, M., 2006. Managing portfolios of projects. In: Turner, J.R. (Ed.), *Gower Handbook of Project Management*. Gower Publishing, Aldershot, UK.
- Thiry, M., Deguire, M., 2007. Recent developments in project-based organizations. *International Journal of Project Management* 25, 649–658.
- Turner, R., Huemann, M., Keegan, A., 2008. Human Resource management in the project-oriented organizations: employee well-being and ethical treatment. *International Journal of Project Management* 26 (5), 577–598.
- Weick, K.E., Roberts, K.H., 1993. Collective mind in organizations: heedful interrelating on flight decks. *Administrative Science Quarterly* 38 (3), 357–381.
- Wernerfelt, B., 1984. A resource-based view of the firm. *Strategic Management Journal* 5, 171–180.
- Whittington, R., Pettigrew, Peck S., Fenton, E., Conyon, M., 1999. Change and complementarities in the new competitive landscape: a European panel study. *Organization Science* 10 (5), 583–600.
- Wright, P., McMahan, G., 1992. Theoretical perspectives for strategic human resource management. *Journal of Management* 18 (2), 295–320.
- Wright, P.M., Snell, S.A., 1998. Toward a unifying framework for exploring fit and flexibility in strategic human resource management. *The Academy of Management Review* 23 (4), 756–772.
- Zika-Viktorsson, A., Sundström, P., Engwall, M., 2006. Project overload: an exploratory study of work and management in multi-project settings. *International Journal of Project Management* 24 (5), 385–394.