REVISITING DYNAMIC CAPABILITIES AND THEIR MICROFOUNDATIONS: A STUDY IN THE CONTEXT OF BUSINESS SCHOOLS

Patrick Loux

Ecole de Management de Normandie

64, rue du Ranelagh 75016 Paris

ploux@em-normandie.fr

Jean-Denis Culié

Ecole de Management de Normandie

9, rue Claude Bloch 14052 Caen Cedex 4

jculie@em-normandie.fr

Abstract: During the past twenty years, the dynamic capabilities concept has been largely developed but it seems that the main concepts of this framework, as well as the relationships between these concepts, are still not completely stabilized. For example, there is a debate about the way of viewing the three assets orchestration processes of sensing, seizing and transforming proposed by Teece: some authors consider these orchestration processes as clusters of dynamic capabilities whereas others consider them as drivers of dynamic capabilities. Another debate concerns the microfoundations of dynamic capabilities whose nature is not precisely defined. For, microfoundations are often considered as ordinary capacities of generic management good practices.

The purpose of our paper is to clarify the interdependent notions of dynamic capabilities, assets orchestration processes and microfoundations, and to propose specific dynamic capabilities that offer better insights for practitioners.

Empirical research was undertaken in 2011-2012 in the sector of Business Schools. This choice may be mainly explained by the fact that Business Schools have recently faced unprecedented challenges. The research design consists in two case studies, one Business School located in UK and the other one in France. Most of the data collected is based upon 40 interviews with key staff in each School, key stakeholders in the region and also businesses and organisations who were 'clients' of the Schools.

Our findings suggest that a dynamic capability encompasses the three assets orchestration processes of sensing, seizing and transforming. Each orchestration process is based upon the activation of one or more specific microfoundations. Microfoundations may be viewed as socio-cognitive processes that include different inputs and produce outputs in one of the three processes of sensing, seizing and transforming.

Moreover, we identify two specific dynamic capabilities with their microfoundations that seem able to give a sustainable competitive advantage to the Business Schools under study: the capability to match the divergent interests of the key stakeholders and the capability to exploit relational assets in a value-enhancing path.

Key words: Dynamic capabilities, Microfoundations, Business Schools, Stakeholders

Work-in-Progress Paper

INTRODUCTION

In spite of significant developments over the past twenty years, the dynamic capabilities literature pioneered by Teece, Pisano and Shuen (1997) still needs further clarification regarding the definition of some of its main concepts along with their relationships. First, the three assets orchestration processes of sensing, seizing, transforming proposed by Teece are considered either as clusters or as drivers of dynamic capabilities. Second, the precise nature of the microfoundations of dynamic capabilities is not clearly established and tends to include generic and standard factors such as effective leadership and avoiding decision errors (Teece, 2007) or project selection (Dixon, Meyer and Day, 2014). Furthermore, propositions of specific dynamic capabilities tend to lose their substance as they are associated to already existing concepts in strategic management, such as adaptation and innovation (Dixon, Meyer and Day, 2014). Thus, this paper has two intertwined purposes: 1) clarifying the interrelated notions of dynamic capabilities, assets orchestration processes and microfoundations 2) proposing novel dynamic capabilities that offer better insights for practitioners in the context of business schools.

Business Schools were selected as the empirical field of the paper as this sector has been facing significant changes in its highly competitive environment over the past decade (Morsing and Rovira, 2011; Thomas et al., 2013). The research design consists in two case studies, one from UK, the other one from France. Data collection is mainly based on forty semi-structured interviews conducted over a six-month period with a wide variety of Business Schools' stakeholders.

Our findings identify two specific dynamic capabilities along with their unique microfoundations that seem highly valuable in the context of Business Schools: the capability to match divergent interests between the key stakeholders (companies, institutional partners, students) and the capability to exploit relational assets in a value-enhancing path.
Moreover, our results suggest that the emergence of specific dynamic capabilities requires the continuous activation of microfoundations that are rooted in the three generic orchestration processes of sensing, seizing and transforming. Microfoundations can be conceptualized as specific socio-cognitive processes that mix different inputs, and produce intermediate outputs in one of the three interrelated areas of sensing, seizing and transforming.

THEORETICAL BACKGROUND
THE NATURE OF DYNAMIC CAPABILITIES

The dynamic capability approach attempts to understand how a firm can achieve a sustained competitive advantage in turbulent environments (Eisenhardt and Martin, 2000; Teece, Pisano and Shuen, 1997). It stresses the critical role of signature processes (Gratton & Ghoshal, 2005) anchored by difficult-to-imitate - or VRIN - resources (Barney, 1991) for supporting a firm's long-term survival and growth when the business environment changes rapidly (Teece, 2014).

Dynamic capabilities can be better understood when compared with ordinary capabilities. Ordinary capabilities, also called zero-level (Winter, 2003) or first-order (Danneels, 2002; Teece, 2014) capabilities, are generally described as the lower-order combinations of productive resources that enable a firm to perform administrative, operational and functional activities which are necessary to make and/or deliver current products and services (Collis, 1994; Teece, 2014; Helfat and Winter, 2011). Such capabilities are about supporting a firm's technical fitness – that is, "doing things right" - (Teece, 2007), and they determine "how we earn a living now" (Winter, 2003 : 991). Even though they matter for firm performance, Teece (2014) suggests that strong ordinary capabilities may neither be sufficient nor necessary to drive a sustained competitive advantage in the long-run. First, they tend to be highly imitable because best practices in performing such capabilities can often be learned easily or transferred between firms. Second, their value-creating potential can be rapidly weakened as changes in markets, technologies, and the broader business environment occur.
In contrast and in a broad sense, dynamic capabilities deal with change and "involve higher-level activities that can enable an enterprise to direct its ordinary activities toward high-payoff endeavors" (Teece, 2007). In other words, dynamic capabilities support a firm's evolutionary fitness - that is, they are about "doing the right things" as the external environment shifts (Teece, 2009). Many dynamic capabilities scholars agree that they should be considered second-order capabilities compared to ordinary or operational capabilities (Collis, 1994; Winter, 2003; Teece, 2014).
In a more detailed perspective, the seminal article developed by Teece et al. (1997) defined dynamic capabilities as "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece et al., 1997 : 516). The notion of dynamic capabilities was subsequently discussed, refined and expanded in scope, though a unique, concise and comprehensive definition of this concept has not been reached yet. For example, Helfat et al. (2007 : 4) define dynamic capabilities as "the capacity of an organization to purposefully create, extend or modify its resource base". Helfat and Peteraf (2003) suggest that dynamic capabilities lead to a change in a firm's capabilities in order to sustain a competitive advantage in the long term. Protogerou, Caloghirou and Lioukas (2012) describe dynamic capabilities as referring primarily to the transformation and reconfiguration of operational capabilities. Augier and Teece (2007: 179) and Teece (2014: 329) refer more broadly to the capacity to integrate, build, transform, configure and reconfigure internal and external assets or resources to address and shape rapidly changing business environments in order to maintain competitiveness. Dynamic capabilities not only seek to adapt resources to an evolving business environment, but also allow firms to shape their environment through innovation and collaboration with their customers and other key external stakeholders (Teece, 2007). It brief, "dynamic capabilities govern other organizational activities. They can allow an enterprise to generate superior profits by developing and producing differentiated products and services that address new and existing markets where demand is robust" (Teece, 2014 : 329).

Significant differences in the conceptualization of dynamic capabilities can be highlighted along three main dimensions.

First, compared to other scholars who focus on how dynamic capabilities modify a firm's resource base (Helfat et al., 2007; Helfat and Peteraf, 2003; Eisenhardt and Martin, 2000 among others), Teece (2014) argues that dynamic capabilities can "orchestrate" both internal and external resources to allow firms to achieve congruence with the changing environment. The scope of dynamic capabilities can thus be seen as either restricted to a firm's internal resources or expanded to a firm's internal and external resources. The latter broader perspective is especially fruitful when a firm's competitiveness partly depends on developing inter-organizational ties.

Second, many authors conceptualize dynamic capabilities as systematic routines for modifying ordinary or operational routines (Protogerou et al., 2012; Winter, 2003; Eisenhardt and Martin, 2000). However, Teece rejects this narrow representation of dynamic capabilities. In his view, dynamic capabilities involve a combination of both organizational routines *and* creative managerial and entrepreneurial acts (Teece, 2014; Teece, 2012; Augier and Teece, 2009; Teece, 2007). It is only by recognizing the role of entrepreneurial acts or non-routine actions (e.g., sensing unique opportunities or creating new markets) that the dynamic capabilities framework can account for disruptive moves and long-term survival and growth (Teece, 2014).

Third and following the preceding line of argument, the ability of dynamic capabilities to sustain competitive advantages in the face of changing environments is debated. On the one hand, Eisenhardt and Martin (2000) suggest that dynamic capabilities are a set of well-delineated processes such as product development, strategic decision making and alliancing that share common features across firms. Rather than being entrepreneurial and innovative in nature, dynamic capabilities could be characterized by best practices and hence easily imitated as they do not meet the VRIN criteria. On the other hand, Teece (2014) holds the view that Eisenhardt and Martin describe in fact ordinary capabilities and miss the true nature of dynamic capabilities. Teece argues that dynamic capabilities are extremely difficult to transfer to other companies and cannot be entirely or rapidly codified into best practices. Thus, they can bring about an enduring state of performance heterogeneity between competitors (Jacobides and Winter, 2012). A central reason is that they are rooted in complex and systemic "signature processes" which are idiosyncratic in their detail and path dependent in their emergence. They arise from a company's unique history of past actions, irreversible commitments and collective learning embedded in a specific business environment. Therefore, dynamic capabilities tend to get built and cannot generally be bought. In addition, they appear as "causally ambiguous" (Reed and DeFilippi, 1990) for would-be imitators, which makes them hard to replicate. In the long-run though, Teece recognizes that such signature processes could grow transparent, become ordinary capabilities and be imitated by competitors. When this occurs, only strong dynamic capabilities will enable a firm to reinvent its signatures processes and stay ahead of competition.

MICROFOUNDATIONS: PROCESSES UNDERLYING DYNAMIC CAPABILITIES

Within the dynamic capabilities literature, a major stream of research revolves around the identification and analysis of their component factors along with their microfoundations - that is, the underlying drivers that enable them. Teece (2007) proposed to disaggregate dynamic capabilities into three primary clusters: "sensing", "seizing", and "transforming". As resources need to be managed and organized to satisfy market needs, these three clusters of activities are described as "asset orchestration processes" (Teece, 2014). Basically, this framework addresses (1) how new opportunities are identified and created, (2) how resources

are realigned, deployed and allocated to enable adaptation and innovation and (3) how resources are modified, extended, enhanced, protected, created and built. These entrepreneurial processes need to be repeated to produce enduring value. Even though other classifications of dynamic capabilities exist, the framework proposed by Teece offers a satisfactory balance between precision and clarity. For example, the "seizing" and "transforming" ideas articulated by Teece are similar to the two functions of dynamic capabilities developed by Helfat et al. (2007 : 4), namely the "deployment" function, and the "search, selection and creation" function. The former is similar to the "seizing" process, while the latter is close to the "transforming" process. As another illustration, Protogerou et al. (2012) develop the concept of "strategic competitive response capability", which basically encompasses the "sensing" and "seizing" processes.

"Sensing" refers essentially to the identification or creation of new market opportunities. It should not be limited to the rather generic ability to scan the environment. More importantly, it should include the ability to interpret and make sense of objective data in a creative fashion, which involves evaluation, assessment, and judgment processes that are hard to imitate (Teece, 2007, 2014). Being aware of a need or opportunity for change does not necessarily translate easily into effective action. For example, empirical evidence suggest that companies experience difficulties to address effectively even minor technological changes (Tushman and Anderson, 1986; Henderson and Clark, 1990). "Seizing" basically requires the mobilization of productive resources to capture value from opportunities in an innovative way (Teece, 2014). In this regard, Teece et al. (1997) and Teece (2014) stress the role of coordination/integration routines to combine and deploy the various elements of a given set of resources in an entrepreneurial fashion, for instance for the development of new products and services. To seize new opportunities and capture value from innovation through successful commercialization, companies need to invest in complementary assets and capabilities such as manufacturing, distribution and complementary technologies (Teece, 1986). In addition, a responsive organization or business model must also exist to enable the adequate exploitation of new opportunities as they are identified (Kohli and Jaworski, 1990; Atuahene-Gima, 1996; Chesbrough, 2010; Teece, 2010).

The capability to sense and strategically respond to environmental opportunities and threats finally depend upon the ability of a firm to reconfigure or transform its resource base. This is a challenging task for at least three reasons. First, "incumbent firms face overwhelming inertia due to micropolitical social practices, "bargains," and/or relational contracts within the company and are, as a result, displaced by organizations better suited to the changed context" (Teece, 2014). Second, prospect theory (Kahneman and Tversky, 1979) and the related concept of loss aversion (Kahneman, 2011) suggest that "the disadvantages of a change loom larger than its advantages, inducing a bias that favors the status quo (…) Loss aversion implies only that choices are strongly biased in favor of the reference situation" (Kahneman, 2011: 292). Following this argument, top managers in successful firms may exhibit a natural tendency to favor the current situation or only small changes rather than the apparently more risky alternative of leading and managing a major transformation. As Teece (2014) puts it: "Anti-cannibalization instincts and entrenched interests often stand in the way for incumbent firms and undermine their dynamic capabilities". Third, organizations tend to favor the adoption of the "action-generating mode" where activities are performed in an automatic, efficient and repetitive way (Starbuck, 1983). When comfortably numbed in an exploitation mindset, organizations focus their attention on incrementally improving their activities. Along the way, the action-generating mode tends to reinforce organizational inertia and to turn organizational capabilities into core rigidities (Leonard-Barton, 1992). When this occurs,

cognitive structures within the organization become rigid, and an increasing volume of potentially valuable environmental signals grows unnoticed (Nystrom and Starbuck, 1984; Starbuck and Milliken, 1988). The ability to identify, create and seize opportunities is progressively hindered without managers being clearly aware of the underlying process at work. Therefore, when the environment changes, such organizations are prone to responding by a slight adjustment of their underlying assets and capabilities, which will typically not be enough to achieve congruence with the new environmental conditions. Instead, an adequate course of action would be to reconfigure fundamental elements of the business model and the resource base (Kindström, 2010) and "break embedded path dependencies that are faulty" (Kindström, Kowalkowski and Sandberg, 2013).

These serious challenges may be overcome by organizations through different "transforming" (also called "reconfiguring") orchestration processes (Teece, 2007, 2014). Their function is to enable both new resource creation and alteration of an existing resource base (Dixon, Meyer and Day, 2010) in order to keep a firm's resources in tight strategic alignment (or fit) with customers, partners and the broader business environment (Teece, 2007, 2014; Sirmon, Hitt, and Ireland, 2007). "The "transforming" aspect of dynamic capabilities is needed most obviously when radical new opportunities are to be addressed" (Teece, 2014).
"Transforming" orchestration processes include a wide variety of mechanisms. First, the top management team plays a prominent role in managing change, most notably in adopting and infusing new states of mind to subsequently enhance an organization's ability to sense and seize new opportunities (Helfat and Peteraf, 2014; Teece, 2014). Second, unlearning may also appear necessary for an organization to survive as past learning tends to inhibit new learning (Nystrom and Starbuck, 1984; Hedberg, 1981). The unlearning process can be facilitated when top managers encourage dissenters to voice their divergent views. Nystrom and Starbuck (1984 : 60) argue that "Top managers should listen to and learn from dissenters, doubters, and bearers of warnings. Not all dissents are valid, and warnings are often wrong, but dissents and warnings should remind one that diverse world views exist, that one's own beliefs and perceptions may well be wrong." Whenever a firm's top managers show reluctance to discard their inadequate ideas and to become receptive to new ideas, their replacement may appear necessary to avoid a serious crisis (Nystrom and Starbuck, 1984). Third, organizational learning processes strongly contribute to the creation of dynamic capabilities (Eisenhardt and Martin, 2000; Mahoney, 1995; Pisano, 2000; Zollo and Winter, 2002) and to the attainment of strategic renewal (Teece, 2014). Exploring new ways through experimentation and repetition ultimately strengthens a firm's ability to sense and seize new opportunities (Teece et al., 1997; Teece, 2014). Learning benefits from empowering management practices (Zhang and Bartol, 2010) that foster bottom-up entrepreneurial initiatives and interactions among people both within and beyond organizational boundaries (Teece, 2014; Pisano and Teece, 2007).

In spite of its significant contributions and improvements, two aspects of the dynamic capabilities approach raise challenging problems.
First, key concepts still appear ambiguous and can subsequently be interpreted in different ways by scholars. In particular, the asset orchestration processes proposed by Teece (2007, 2014) can be interpreted in two distinct perspectives. On the one hand, they can be conceptualized as three clusters of dynamic capabilities (Kindström et al., 2013). On the other hand, they can be understood as interrelated drivers that necessarily need to be at work for building any strong dynamic capability. The concept of microfoundations also lacks a clear definition, and is often described using generic examples of assets and capabilities. For instance, Teece (2007) proposes microfoundations such as "processes to identify target

market segments", "assessing appropriability", "demonstrating leadership", "achieving incentive alignment" or "know-how integration", while Dixon et al. (2014) suggest "knowledge dissemination" (Huber, 1991) or "project selection" among others.

Second, specific dynamic capabilities tend to be described by using already existing concepts from the management literature, which strongly limits their interest and their ability to offer novel insights. For example, Dixon et al. (2014) make a distinction between adaptation and innovation, the former being broken down into exploitation (March, 1991) and deployment (Helfat et al., 2007), and the second into exploration (March, 1991) and path creation (Garud and Karnoe, 2001). Other specific types of dynamic capabilities include product development processes (Eisenhardt and Martin, 2000), ambidexterity (O'Reilly and Tushman, 2004), architectural innovation (Galunic and Eisenhardt, 2001), absorptive capacity (Hotho et al., 2012; Zahra and George, 2002), dynamic managerial capabilities (Adner and Helfat, 2003; Helfat et al., 2007), or dynamic marketing capabilities (Bruni and Verona, 2009).

Actually, it turns out that the ambition to propose dynamic capabilities that would be valid for a wide range of different industry sectors produces mixed and unconvincing results.

Empirical research was undertaken in 2011-2012 in the sector of Business Schools. This choice may be mainly explained by the fact that Business Schools have recently faced unprecedented challenges (Morsing and Rovira, 2011; Thomas et al., 2013). For, Business Schools worldwide have suffered a crisis of legitimacy (through recent economic and corporate scandals) (Morsing and Rovira, 2011), and those in the public sector (or part public sector) are increasingly asked to become more competitive (Durand et Dameron, 2008) and justify their existence, through increasing their research output and impact, engaging more closely with industry, and engaging with enterprise, supporting a range of functions, including the development of high technology businesses. In many universities, they have a unique mission as a 'corridor' between the university and the wider world, which has led to criticisms over the balance between theory and practice (Bennis and O'Toole, 2005) and at times a perceived lack of intellectual rigour (Khurana, 2010). Of course, in many countries, there is a strong competitive element too, with many providers of business education, public and private, separate schools and embedded in wider institutions.

The two business schools were identified as individual case studies (Eisenhardt, 1989; Yin, 2003) with the potential to generate distinctive insights to inform each other, on the basis of five criteria. First, both Schools have extensive network connections to industry and other structures in their context, enabling us to probe how the 'conduit to the community'; second, the national dimension of each School allows the examination of cultural specificities in regard to relationship development. Third, the geographical scope of each School's reputation − more internationally focused for the UK case and more nationally focused for the French case - may influence the initiation and maintain of the network of relationships with industry partners. Fourth, the degree of autonomy of the School may foster or impede the development of its networks: the UK School is embedded within a large, multidisciplinary University whereas the French School is an independent entity. Fifth, the UK School is focused on research, while the French School is focused on embedded commercial relationships. Finally, the nature of the main stakeholders may alter the importance of managing relationships according to the strategic priorities. If the fees of the students represent in both cases a significant part of the budget, public funds come from the government in the case of the UK School, whereas they come from the region in the case of the French business school. As Thomas et al, (2013) show, British and French Business Schools are interesting to compare as their roots are quite different, offering contrasting trajectories as they seek to establish themselves and compete in global markets. French "Grandes Ecoles" have tended to develop their linkages through an emphasis on professional and technical training and problem solving, related to their origins in relation to Chambers of Commerce. Most UK Business Schools, and certainly the one at the heart of this study, tend to partner only where there is a research element to the collaboration, seeking outputs that educate and solve problems, but also result in high quality publication or funding outcomes.

The following section is dedicated to a short description of each case.
The *UK School* dates from 1997. It is located on the main campus of a large Russell Group University (research-driven) which is incorporated as an exempt charity. At the time of the study (2011-2012), the School had around 70 academic staff, and around 500 undergraduates, 700 postgraduates and 80 PhD students. The School had five BSc programmes, 18 specialist MSc programmes and a MBA accredited Association of Masters in Business Administration (AMBA). It also hosted five Research Centres, developing foci in specialist areas such as

Management Science, Risk, Finance, Banking and Innovation. Within its host Higher Education Institution (HEI), the School was overshadowed by much larger, powerful engineering schools. In terms of industry relationships, the School had a small number of post-experience industry programmes, and a wide range of partnerships driven by the research capabilities of individual faculty. The *French School* dates from the end of the 19th century and is structured as a non-profit association. At the time of the study, the School had three campuses situated in two different regions. In its mission statement, the French business school stressed the importance of being deeply rooted in its regional environment and of contributing to the regional economic development. In 2012, more than 2,600 students and professionals followed programmes provided by the School in pre-experience and continuing education. The main programme offered by the School was a master's degree accredited by EPAS[1] in 2011. The School also had over 8,800 alumni. The School faculty members amounted to 54 permanent professors, 32 of them holding a PhD, and 5 affiliate professors. Completing the academic input, 420 professionals contributed with their experience to the programmes. The School worked permanently with a wide range of French and international companies (around 10,000 companies), and actively sought to maintain and develop this business network.

RESEARCH DESIGN

As the dynamic capabilities perspective has thus far had limited application in educational contexts, we chose a qualitative approach (Miles and Huberman, 1994) that enabled us to proceed cautiously in identifying the dynamic capabilities and their microfoundations.
Semi-structured interviews were used to examine the School in its industry and governance context. Forty people were interviewed, 24 in France and 16 in UK. Interviewees include key staff in each School (i.e. those with a specific role or view concerning the management of resource in relation to the development of strategic assets or external networks), key stakeholders in the region (e.g. Regional/City Councils, Chambers of Commerce) and also businesses and organisations who were 'clients' of the Schools in some capacity. The interviews were carried out in English where possible, and transcribed. French (or dual French English) interviews were transcribed and translated into English. Transcriptions were confirmed with participants. The authors met at least monthly face-to-face after reading and re-reading the transcripts, to discuss nuance, meaning and understanding as the project unfolded. From these discussions, we sought to identify dynamic capabilities and their microfoundations embedded in the processes of sensing, seizing and transforming (Teece, 2007) particularly where a changing context dynamic was providing an opportunity or a challenge to organisational routines that had arisen from a particular path dependency.

---

[1] European Foundation for Management development (EFMD) Accreditation for Business and Management Programmes.

FINDINGS

The following tables detail each dynamic capability and its microfoundations. For each microfoundation, we included illustrative quotes.

Table 1: Dynamic capability 1 - capability to match the divergent interests of the key stakeholders (companies, institutional partners, students)

Sensing	
Microfoundation: interactions with practitioners at the edge of good practices	*"You have to look at a number of things that break down the perceived cultural divide between small business and big education. So that is the first thing. And I think you do that by, probably, looking at small events. The difficulty with anything is getting people to turn up to them, I'm sure you've come across that with other things." (Head of a UK Federation of SMEs)*
Seizing	
Microfoundation: Ability to build a flexible arrangements' portfolio of collaborations between students and companies	*"Sometimes those two tensions are completely fighting each other, where the company wants the student basically to do some menial task and the student wants to write a literature review or something (...) And I think [my colleague] is very good at scoping and I really think you need somebody with a real understanding of the academic requirements of the programme and you know, what the students have to demonstrate in order to prove they've met the requirements of the Master's as well as you know the consultancy side, keeping the client happy" (Professor and Associate Dean for Research, UK Business School)*
Transforming	
Microfoundation: Ability to strengthen the relevance of the arrangements according to each part's evolution and expectations	*"Once a year we have a job fair, attended by all the Master 1 and Master 2 students, and at the end of the job fair, we have a big survey, internal survey, and we ask them the feedback about the kind of companies which visited us, the kind of offers they got, is it matching their expectations? Do they have some wishes? Of course they will all answer that they want more luxury companies in general, but that is a feedback to help us to see in which direction we have to aim for the company relationships, and what kind of dream companies they have in mind, and try to set up relationships afterwards. We don't give any guarantee, because you can have dreams and you can't fulfil them, but we try at least to get the feedback." (Marketing Director, French Business School)*
Microfoundation: Ability to make aware each part of the evolution of the other part's expectations and interests	*"There is a big question: what is tomorrow's companies going to expect from our students? Now, they are the persons we have to train (...) And we also have a role in the other direction, to say "careful" to the companies (...) We see that the expectations of lots of young people are certainly to have a job, this remains a basic obsession but they attach more and more importance to other factors. The environment, the opportunity of making an international career, space for freedom, the managerial style which are things they were previously not known about (...) We should have a pedagogic role to help people understand that the*

	expectations are a little different." (CEO, French Business School)

Table 2: Dynamic capability 2 - capability to create and exploit relational assets with external stakeholders in a value-enhancing path

Sensing	
Microfoundation: Ability to provoke opportunities	*"Sometimes the project is more global, and if I don't find the persons here, then I can decide on doing it anyway. 'Well, nobody seems to be keen but I'm sure that we can do it', so I wrote the project, I prepared the budget, and then said I will submit it, and if it's selected, then maybe the people will be Ok to do it, because I will tell them 'Yes, but we have money'. You can invite teachers, I can finance your trips, and then it's more 'real'". (European Projects Officer, French Business School)*
Microfoundation: Ability to match different mindsets	*"Not only could researchers ask for an audience, researchers could also publish their results to an audience and make available their findings much more easily. What we have is this introverted system of teaching and research; there's not external connection to make that easy and there's no pull; there's not two hundred businesses in the creative industry sector saying 'oh, should I be getting into a new language; what's on the horizon?' And universities are respected when they talk about 'horizon scanning' and what's coming down the line in five years because that's where we think universities live. You know the teaching is usually ten years ago but outside people assume that research is ten years ahead and that's a good thing. So the ability to trade easily is not there formally which is disappointing" (Visiting professor, UK Business School)*
Seizing	
Microfoundation: Ability to reshape a business problem from an operational mindset to a research mindset	*"Companies have the issue, it's like the marketing story, customers don't always know what they want. So you've got the basic problem with businesses; they might know they've got a problem, but often they articulate it in terms which is either too short scale, or too limited. So they might ask us: 'Can you give us a solution to this problem?' And our answer is: 'No, we've got no one who actually does that'. However, if someone took the time to talk to them and say: 'Is this really your problem? Is there something else?' And then you say: 'Well, you thought you needed was A, but we think B & C are more important to you, and actually we can do B & C for you. And by the way A will be covered'" (Director of Business Development, UK Business School)*
Microfoundation: Ability to propose tailored solutions	*"We're at the moment right in the middle of saying: 'What's our niche in that line? Executive Education and consultancy, maybe even research based'. And I think there are two dimensions to it: first of all let's go local, let's create an area that we say we are going to focus on, which we can draw fairly broadly; then, let's not go to people with any offering at*

	all, but just to say: 'What we will do is different to other providers. We will listen and we will design solutions to meet your needs'. So I'm very against us having a brochure that says: 'We can do this for you'. I think we may have what I would call some sort of capability statement: 'You know, we have capabilities in these areas, but we don't have offerings'" (Head of UK Business School)
Transforming	
Microfoundation: Ability to foster connections between already existing arrangements and to create new arrangements	*"I am actually working with two other colleagues in HRM (...) so I sit there while they're all talking about these HR things about which I know nothing. Again, it's quite typical. I think that this sort of research is quite collaborative so... In a way this is quite a good illustration of the sort of way things happen because although the initial contact was through me, the actual link and the project has nothing to do with management science really, it has more to do with HR and behaviour." (Professor and Associate Dean for Research, UK Business School)*
Microfoundation: Ability to foster the intellectual versatility of the Faculty	*"I guess my career has always been between universities and business, in the space between them (...) It started by bringing lots of businesses into the universities; small businesses to benefit from mentoring. It then evolved to other types of programmes where predominantly I am trying to help small businesses; typically high technology, possibly high growth and they can use the university help quite a bit in facilities, in resources. And so I have designed and been involved in lots of different programmes to get the two to work together from student placements through to incubation and collaboration and consultancy and events and seminars" (Visiting professor, UK Business School).*
Microfoundation: Ability to develop cross-disciplinarity	*"One of the important contributions is that [the French Business School's Dean for Faculty] started the Inter-lab project. If [the Dean for Faculty] had not been in the [French Business School] and hadn't come to us, we would never have started the Inter-lab. Today the Inter-lab is really important for the group...I see some big changes when they are together; but for us when we have a project idea we just say: 'OK, here is the project, what can you do?' And they are working together and say: 'Well, yes, I can work with you on that'". (SMEs Corporate Relations Manager, French competitiveness cluster)*

DISCUSSION AND CONCLUSION

There is a puzzling paradox in the developments that have been unfolding within the dynamic capabilities literature since its inception. On the one hand, its central tenet holds that organizations need to reinvent and transform themselves to survive and grow in the long-term; but on the other hand, many attempts to further this theory come down to "semantic reconfigurations" that offer limited interest – that is, rephrasing and even recycling of well-known concepts grounded in the strategic management, innovation and organizational literatures. This tendency can be observed both at the level of dynamic capabilities themselves and at the level of their microfoundations. The former can be illustrated in the distinction made by Dixon et al. (2014) between adaptation and innovation, while the latter is exemplified by generic factors such as "effectively communicating" (Teece, 2007) and "project funding" (Dixon et al., 2014). Moreover, some ambiguity persists in the definition of key concepts along with their relationships, especially the asset orchestration processes and their microfoundations.

In this paper, we attempted to address the aforementioned gaps by pursuing two interrelated purposes. First, clarifying the concepts of dynamic capabilities, asset orchestration processes and microfoundations; second, proposing novel dynamic capabilities in the specific empirical setting of business schools.

If the dynamic capabilities approach is to become a theory rather than an overarching and generic framework, our findings suggest that it is necessary to decrease the level of abstraction for identifying meaningful context-specific dynamic capabilities along with their peculiar microfoundations. This requires identifying key trends in the business environment faced by the population of organizations under study.

Beyond their differences, business schools face two major challenges. First, the redefinition of competitive frontiers that result from a spatial widening in the sphere of influence of many business schools through their internationalization efforts. Second, the increasing and ambivalent institutional pressures created by rankings and accreditation bodies that force business schools to cope with conflicting goals. For example, meeting standardized quality assessment criteria while developing a unique identity, mission and competitive positioning; finding new sources of funding to enable growth strategies while creating at the same time new expectations from new stakeholders that conflict with those of current customers and partners; setting high-quality performance targets for the Faculty while expanding the scope of their missions.

To overcome these challenges, we show that two dynamic capabilities have a prominent role in supporting business schools' ability to survive and grow: 1) the capability to match divergent interests between the key stakeholders, especially companies, supportive local authorities and students and 2) the capability to create and exploit relational assets with external stakeholders in a value-enhancing path. Among others, a key microfoundation common to these two dynamic capabilities lies in the ability to foster the intellectual versatility of the Faculty through a complex process of experimenting new interactions, experiencing vicarious learning, and deliberately activating knowledge spillovers across Faculty members' areas of expertise.

At a more abstract level, our findings suggest that the emergence of specific dynamic capabilities requires the continuous activation of microfoundations that are rooted in each of the three generic orchestration processes of sensing, seizing and transforming. In other words, rather than being independently clustered into three distinct categories (sensing, seizing and transforming), we propose that dynamic capabilities encompass and integrate in a continuous cycle the three orchestration processes of sensing, seizing and transforming.

Moreover, recognizing that dynamic capabilities govern assets and ordinary capabilities does not mean that their microfoundations should be defined as isolated generic categories of assets and ordinary capabilities. In our view, it would contradict the very definition of dynamic capabilities as hard-to-imitate organizational processes that are the basis of long-term competitive advantages. It would be awkward to posit that a higher-level, hard-to-imitate, organizational capability is driven by unique and fragmented factors described in ordinary and generic terms without explaining how they interact in a non-routine way. Therefore, we propose that microfoundations should be defined as specific socio-cognitive processes that organically assemble in a unique fashion different inputs and produce intermediate outputs in one of the three interrelated areas of sensing, seizing and transforming. More precisely, microfoundations bind four types of inputs together whose generic categories are 1) assets, 2) ordinary capabilities, 3) interest alignment systems and 4) cognitive structures. By stressing the socio-cognitive and processual dimensions of microfoundations, the preceding definition allows for ordinary assets and capabilities to be integrated and combined within a unique and hard-to-codify action mode grounded both in a specific exchange logic for aligning conflicting interests and in a collective cognitive mindset. This holistic and organic conceptualization of microfoundations departs from the rather mechanistic and fragmented view adopted by Teece (2007, 2014) to describe them.

BIBLIOGRAPHY

Adner, R., and Helfat, C. E. (2003). "Corporate effects and dynamic managerial capabilities". Strategic Management Journal, 24(10), 1011–1025.

Atuahene-Gima, K. (1996). "Market orientation and innovation". Journal of Business Research, *35*(2), 93-103.

Augier, M., and Teece, D. J. (2009). "Dynamic capabilities and the role of managers in business strategy and economic performance". Organization Science, 20 (2), 410–421.

Barney, J. B. (1991). "Firm resources and sustained competitive advantage". Journal of Management, 17 (1), 99–120.

Bennis, W. and O'Toole, J. (2005). "How business schools lost their way". Harvard BusinessReview, 83, 96–103.

Bruni, D, & Verona, G (2009), "Dynamic Marketing Capabilities in Science-based Firms: an Exploratory nvestigation of the Pharmaceutical Industry", British Journal Of Management, 20, pp. S101-S117

Chesbrough, H. (2010). "Business Model Innovation: Opportunities and Barriers". Long Range Planning, *43*(2-3), 354-363.

Collis, D. J. (1994). "Research note: How valuable are organizational capabilities?" Strategic Management Journal, 15 (S1), 143–152.

Danneels, E. (2002). "The dynamics of product innovation and firm competences". Strategic Management Journal, 23 (12), 1095–1121.

Dixon, S, Meyer, K, & Day, M (2010), "Stages of Organizational Transformation in Transition Economies: A Dynamic Capabilities Approach", Journal Of Management Studies, 47, 3, pp. 416-436

Dixon, S., Meyer, K. and Day M. (2014), "Building dynamic capabilities of adaptation and innovation: a study of micro-foundations in a transition economy", Long Range Planning, 47 (4), 186-205.

Durand, T. and Dameron, S., (2008). *The Future of Business Schools*, UK, Palgrave Macmillan.

Eisenhardt, K. M., and Martin, J. A. (2000). "Dynamic capabilities: What are they?" Strategic Management Journal, 21(10–11), 1105–1121.

Galunic, D.C., Eisenhardt, K.M., (2001). "Architectural innovation and modular corporate forms". Academy of Management Journal 44, 1229–1249.

Garud, R., Karnoe, P., (2001). "Path creation as a process of mindful deviation". In: Garud, R., Karnoe, P. (Eds.), Path Dependence and Creation. Lawrence Erlbaum, London, pp. 1–38.

Gratton, L., Ghoshal, S. (2005). "Beyond best practice". MIT Sloan Management Review, 46 (3), 49–57.

Hedberg, B. (1981) "How Organizations Leam and Unleam" in Paul Nystrom and William Starbuck's (eds.) *Handbook of Organizational Design,* Vol. 1 (Oxford University Pr«ss).

Helfat, C. E., Finkelstein, S., Mitchell, W., Peteraf, M. A., Singh, H., Teece, D. J., and Winter, S. G. (2007). *Dynamic capabilities: Understanding strategic change in organizations*. Oxford, UK: Blackwell.

Helfat, C. E., Peteraf M. (2003). "The dynamic resource-based view: capability lifecycles", Strategic Management Journal, 24 (10), 997-1010.

Helfat, C. E., and Peteraf, M. A. (2014). "Managerial cognitive capabilities and the microfoundations of dynamic capabilities". Strategic Management Journal, in press.

Helfat, C. E., and Winter, S. G. (2011). "Untangling dynamic and operational capabilities: Strategy for the (n)everchanging world". Strategic Management Journal, 32 (11), 1243–1250.

Henderson RM, Clark K. (1990). "Architectural innovation: the reconfiguration of existing product technologies and the failure of established firms". Administrative Science Quarterly **35**: 9–30.

Hotho, J.J., Becker-Ritterspach, F., Saka-Helmhout, A., (2012). "Enriching absorptive capacity through social interaction". British Journal of Management 23, 383–401.

Huber, G.P., (1991). "Organizational learning: the contributing processes and the literatures". Organization Science 2, 88–115.

Jacobides, M. G., and Winter, S. G. (2012). "Capabilities: Structure, agency, and evolution". Organization Science,23(5), 1365–1381.

Kahneman, D, & Tversky, A (1979), "Prospect Theory: An Analysis Of Decision Under Risk", Econometrica, 47, 2, pp. 263-291

Kahneman, D, & Tversky, A (2011) Thinking, fast and slow. Penguin books

Khurana, R. (2010), *From higher aims to hired hands: The social transformation of American Business Schools and the unfulfilled promise of management as a profession*, Princeton University Press

Kindström, D. (2010). "Towards a service-based business model – Key aspects for future competitive advantage". European Management Journal, *28*(6), 479-490.

Kindström, D, Kowalkowski, C, and Sandberg, E (2013), "Enabling service innovation: A dynamic capabilities approach", Journal Of Business Research, 66, 8, pp. 1063-1073

Kohli, A. K., and Jaworski, B. J. (1990). « Market orientation: the construct, research propositions, and managerial implications". Journal of Marketing, 54(2), 1-18.

Leonard-Barton, D. (1992). "Core Capabilities and Core Rigidities: A Paradox in Managing New Product Development". Strategic Management Journal, *13*(Summer), 111-125.

Mahoney, J. T. (1995). "The management of resources and the resource of management". Journal of Business Research, **33**, 91–101.

March, J.G., (1991). "Exploration and exploitation in organizational learning". Organization Science 2, 71–87.

Miles M.B., Huberman A.M. (1994), *Qualitative data analysis*, Thousand Oaks, California, Sage Publications

Morsing, M. and Rovira, A. S. (2011). *Business Schools and their contribution to Society,* London: Sage.

Nystorm, P, and Starbuck, W (1984), "To Avoid Organizational Crises, Unlearn", Organizational Dynamics, 12, 4, pp. 53-65

O'Reilly, C. A., and Tushman, M. L. (2004). "The ambidextrous organization". Harvard Business Review, 82(4), 74–81.

Pisano, G. P. (2000). 'In search of dynamic capabilities: the origins of R&D competence in biopharmaceuticals'. In Dosi, G., Nelson, R. R. and Winter, S. G. (Eds), *The Nature and Dynamics of Organizational Capabilities*. Oxford: Oxford niversity Press, 129–54.

Pisano, G., and Teece, D. J. (2007). "How to capture value from innovation: Shaping intellectual property and industry architecture". California Management Review 50(1), 278–296.

Protogerou, A, Caloghirou, Y, and Lioukas, S (2012), "Dynamic capabilities and their indirect impact on firm performance", Industrial & Corporate Change, 21, 3, pp. 615-647

Reed, R. et DeFilippi, R.J. (1990), "Causal Ambiguity, Barriers to Imitation, and Sustainable Competitive Advantage", Academy of Management Review, 15, p. 88-102.

Sirmon, D. G., Hitt, M. A., and Ireland, D. (2007). "Managing firm resources in dynamic environments to create value: Looking inside the black box". Academy of Management Review, 32(1), 273–292.

Starbuck, W. H. (1983), "Organizations As Action Generators", American Sociological Review, 48, 1, pp. 91-102

Starbuck, W. H. and Milliken. F. J. (1988). " '"Executives"' perceptual filters: What they notice and how they make sense'. In: Hambrick. D. C. (Ed.) Tiw Executive Effect: Concepts and Methods for Studying Top Managers. JAI Press. Greenwich. CT, pp. 35-65.

Teece, D. J. (1986). "Profiting from technological innovation". Research Policy, *15*(6), 285–305.

Teece, D. J. (2007). "Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance". Strategic Management Journal, 28 (13), 1319–1350.

Teece, D. J. (2009). "Dynamic capabilities and strategic management: Organizing for innovation and growth". New York: Oxford University Press.

Teece, D. J. (2010). "Business Models, Business Strategy and Innovation". *Long Range Planning*, *43*(2/3), 172-194.

Teece, D. J. (2012). "Dynamic capabilities: Routines versus entrepreneurial action". Journal of Management Studies, 49(8), 1395–1401.

Teece D.J. (2014), "The foundations of enterprise performance: dynamic and ordinary capacities in an (economic) theory of firms", Academy of Management Perspectives, 28 (4), 328-352.

Teece, D. J., Pisano, G., and Shuen, A. (1997). "Dynamic capabilities and strategic management".
Strategic Management Journal, 18 (7), 537–533.

Thomas, H., Lorange, P. and Sheth, J. (2013), *The Business School in the Twenty-First Century*. Cambridge : Cambridge University Press.

Tushman M, Anderson P. (1986). "Technological discontinuities and organizational environments". Administration Science Quarterly **31**: 439–465.

Winter, S. G. (2003). "Understanding dynamic capabilities". Strategic Management Journal, 24 (10), 991–995.

Yin R.K. (2003). *Case study research - Design and methods*. Thousand Oaks, California, Sage Publications

Zahra, S.A., George, G., (2002). "Absorptive capacity: a review, reconceptualization, and extension". Academy of Management Review 27, 185–203.

Zhang, X. and Bartol, K. (2010) "Linking empowering leadership and employee creativity: the influence of psychological empowerment, intrinsic motivation and creative process engagement", Academy Of Management Journal, 53, 1, pp. 107-128

Zollo, M., Winter, S.G., (2002). "Deliberate learning and the evolution of dynamic capabilities". Organization Science 13, 339–351.