

Start-up's Performance: An Empirical Study on Dynamic Capabilities under the Contributions of Bricolage and Social Capital

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ABSTRACT

This paper examines how a new venture builds and shapes dynamic capabilities through the contributions made by the bricolage and social capital of a management team based upon data drawn from an online survey of 221 new ventures in the UK. The results show that by using resources at hand and exploiting social capital a management team is likely to improve the development and application of dynamic capabilities, which in turn increase a new venture's performance.

Keywords: Start-ups, performance, dynamic capabilities, social capital, and bricolage

INTRODUCTION

The nature of dynamic capabilities encapsulate earlier studies on distinctive competence (Selznick, 1957), organizational routine (Nelson & Winter, 1982), core competence (Prahalad & Hamel, 1990), and combinative capability (Kogut & Zander, 1992). Dynamic capabilities are defined as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997, p. 516). The value of those capabilities is derived from the capacity of a management team to sense and shape opportunities and threats, to seize opportunities, and to reconfigure the firm resources and operations (Teece, 2007). Dynamic capabilities help to answer a fundamental question of how a company can develop skills and competencies create and sustain the competitive advantage that underpins firm performance (Zahra et al., 2006).

Within the entrepreneurial context, dynamic capabilities emerge during the venture creation process (Corner & Wu, 2012) and help a start-up to overcome the challenges of commercializing innovative technologies or know-how and the difficulties in surviving and sustain competitive advantage in dynamic and complex business environments (Salunke et al., 2011; Paradkar et al., 2015). Furthermore, Zahra et al. (2006) suggest that firms need to develop and utilize dynamic capabilities to maximise the venture's goals. However, recent research into the processes and antecedents of dynamic capabilities have only indicated the roles of substantive capabilities, learning capacity (Zahra et al., 2006), entrepreneurial resources (Wu, 2007), and entrepreneurial orientation (Campos et al., 2014). Thus, there is limited available evidence that investigate the contributions of social capital and bricolage of management teams on the development and use of dynamic capabilities in start-ups.

This study evaluates the contributions made by management teams to the dynamic capabilities of 221 new ventures in the UK and will address two questions: if the social capital of a management team influences the dynamic capabilities of a new venture, and if the bricolage of the team contributes to the development and use of dynamic capabilities. The results of this study indicate that the rational and cognitive dimensions of social capital appear to have a positive contribution on the dynamic capabilities of management teams in new ventures. Furthermore, the empirical analysis reveals that bricolage has a strong influence on the development and use of dynamic capabilities of such ventures. These results suggest that a start-up can develop its dynamic capabilities to secure competitive advantage and improve its performance through absorbing social capital and exploiting the bricolage of management teams. To make those arguments, this research first constructs a research framework and hypotheses based upon extant literatures in social capital, bricolage and dynamic capabilities. This research then estimates and examines those hypotheses based upon data drawn from 221 new ventures in the UK. The paper ends with the discussion of the results from the statistical analysis followed by implications and suggestions for future research.

DYNAMIC CAPABILITIES, BRICOLAGE AND SOCIAL CAPITAL

Dynamic capabilities are intangible assets of a firm, which involve specific and identifiable processes (Eisenhardt & Martin, 2000; Ambrosini & Bowman, 2009), learned and stable patterns of collective activities, and organizational routines (Zollo & Winter, 2002). As such they inform the behavioural orientation of a firm inherent in adapting, renewing, reconfiguring and re-creating resources and core capabilities to respond to changing business environments (Wang & Ahmed, 2007). A combination of those resources and capabilities enable new strategies (Eisenhardt & Martin, 2000) and facilitate the creation of resources that are valuable, rare, inimitable and non-substitutable in competing with others (Winter, 2003). Dynamic capabilities thus address a fundamental question of how a firm builds advantage and improved performance in a competitive market place (Teece et al., 1997; Teece, 2007).

Dynamic capabilities are a firm's capability-learning capacities that result in its ability to reconfigure resources and routines to solve problems (Zahra et al., 2006; Prashantham & Floyd, 2012). Rather than being bought in, dynamic capabilities are created and developed over time as a result of the organizational processes adopted by new ventures (Teece et al., 1997; Corner & Wu, 2012). These processes evolve from the often "ad hoc" approached taken towards problem solving (Winter, 2003). This is often achieved through trial-and-error, improvisation and experimentation (Ahuja & Lampert, 2001; Miner et al., 2001), where learning is achieved while undertaking the activities (Minniti & Bygrave, 2001) which has the effect of embedding capabilities into the DNA of a firm as a consequence of the learning process (Teece, 2007; Argote & Ren, 2012; Prashantham & Floyd, 2012). Moreover, dynamic capabilities are associated with a firm's resource-based changes, which include the improvement of existing capabilities and the development of new capabilities (Prashantham & Floyd, 2012). Thus, this study employs the capability learning model of Prashantham and Floyd (2012) and the micro-foundation approach of Teece (2007) to construct a research framework that scrutinizes the contributions that the social

capital and bricolage of management teams have on the abilities of new ventures to reconfigure assets to maintain competitiveness.

Routine micro-processes and capability learning

Zahra (2005) has posited the need for capability learning to help new ventures overcome the liabilities of newness and smallness. This learning concept has been defined as “being an observable change in behaviour” (Bingham et al., 2015, p. 1803) and cognitive changes based on experience that sometime lead to better outcomes (Miner et al., 2001). It includes the exploration of new capabilities and the exploitation of existing capabilities that require an organizational routine to develop (Benner & Tushman, 2003). However, within the new venture context, capability learning is defined as “improvements in an organization’s ordinary or substantive capabilities” (Prashantham & Floyd, 2012, p. 547) referring to “the set of abilities and resources that go into solving a problem or achieving an outcome” (Zahra et al., 2006, p. 921). It is therefore expected that new ventures improve existing capabilities and develop new capabilities to enable them to exploit new opportunities and tackle the liabilities of newness and smallness (Prashantham & Floyd, 2012). Furthermore, Teece (2007) and Prashantham and Floyd (2012) have provided a micro-level understanding of how a new venture creates and improves capabilities by exploring and exploiting internal and external resources.

Based upon the study of Feldman (2000), Prashantham and Floyd (2012) introduced a micro-level explanation of the capability learning of new ventures through analysing the performative and ostensive aspect of routines. A routine is defined as “a behaviour that is learned, highly patterned, repetitious or quasi-repetitious, founded in part in tacit knowledge” (Winter, 2000, p. 983). The performative aspect of a routine consists of “specific actions, by specific people, in specific places and times – that is, routine in performance”, whereas the ostensive aspect of routines refers to “the pattern of specific actions and action sequences for accomplishing a particular task” (Prashantham & Floyd, 2012, p. 548). According to Feldman and Pentland (2003), if people perform a venture’s routine in different ways, the performative aspect of routines changes on the basis of the context faced. Prashantham and Floyd (2012) argue that variability in the performative aspect of routines is associated with improvisational learning and new capability development.

A performative variation shows the improvisational effort of a firm in undertaking a given routine (Miner et al., 2001). The improvisation described as “the capacity to adjust routines on the fly” (Zahra et al., 2006, p. 945) commonly occurs in the early stages when the experience of principal decision-makers is low (Autio et al., 2000; Zahra et al., 2006). Inexperienced principal decision-makers, who are uncertain about how to proceed with new venture’s routines to overcome the challenge from a changing business environment, are suggested to try out various tactics that challenge a firm’s existing routines (Sapienza et al., 2006). In such circumstances, principal decision-makers “did not search broadly for, or plan in advance for specific resources, but rather drew on resources readily at hand” (Baker et al., 2003, p. 264). This finding of Baker et al. (2003) is akin to the improvisation theory of Weick (1993) and Innes and Booher (1999), who adopted “bricolage” concept defined as making do with available resources and creating new

forms from materials and tools at hand (Levi-Strauss, 1966). Within the new venture context, creation and execution often occur at the same time, and the ability to plan procurement for specific activities is limited. Thus, bricolage, making use of whatever materials are at hand and improvisation, is employed (Baker et al., 2003). The negative and positive outcomes of those improvisational activities will be reflected by the changes that are derived from the cognitive schema of routines (Bingham, 2009). Those changes or judgments will be articulated, codified and (re)combined with other routines to construct new capabilities (Zollo & Winter, 2002). Thus, this study hypothesizes that bricolage has a positive influence on dynamic capabilities of new ventures through contributing to the creations of new capabilities.

Hypothesis 1. Bricolage positively influences the dynamic capabilities of new ventures

On the other hand, “the ostensive [aspect] incorporates the subjective understanding of diverse participants” towards the patterns of actions that make up a routine (Feldman & Pentland, 2003, p. 101). Prashantham and Floyd (2012) argue that the variability in the ostensive aspect of routines is associated with learning by trial-and-error that leads to improvements to the existing stock of capabilities. Drawing upon the organizational learning theory (Miner et al., 2001), ostensive variations refer to ““trial” in the trial-and-error mode of capability learning” (Prashantham & Floyd, 2012, p. 551). According to Zahra et al. (2006, p. 937), unlike improvisation, trial-and-error learning involves “planning to utilize part of the firm’s “bag of tricks” to learn how it should proceed in the future.” Trial-and-error learning is therefore likely to occur when decision-makers have experience and knowledge about the market (Knight & Cavusgil, 2004), that has been derived from networks (Carmeli & Azeroual, 2009). The negative and positive outcomes of trial-and-error learning will prompt small changes in the patterns of specific actions and lead to modest modifications in the ostensive aspect. Those changes and judgements in the ostensive aspect do not lead to the creation of new capabilities, but offer incremental improvements to the existing capabilities of new ventures (Moorman & Miner, 1998; Prashantham & Floyd, 2012). Thus, social capital derived from networks is an important source of external knowledge and existing capability improvements.

Hypothesis 2. There is a positive relationship between the structural dimension of social capital and the dynamic capabilities of management teams

Hypothesis 3. There is a positive relationship between the rational dimension of social capital and the dynamic capabilities of management teams

Hypothesis 4. There is a positive relationship between the cognitive dimension of social capital and the dynamic capabilities of management teams

METHODS

Sample

We draw the sample from 211 start-ups across the United Kingdom from a web-based survey. All respondents are members of a management team and 92% of were part of the founding team

that created the new venture. The firms are in various sectors: 27.4% in information, computing and telecommunications, 23.6% in retail and service, 19% in creative industry, and 13.2% in hospitality and health and the majority, 73.9%, were created after 2006. The actual breakdown is: 14.2% in 2012, 13.7% in 2011, 9.5% in 2009 and 2013, 8.5% in 2007 and 2010, 5.7% in 2008, and 4.3% in 2014 or later.

Construct measurements

To ensure the content validity of measurements, questions employ a seven-point Likert scale using constructs from existing start-up and management studies. The dynamic capability measurement was developed by adapting models from previous research (Teece et al., 1997; Teece, 2007, 2014). Three dimensions of social capital measurement were constructed in the areas of structural, rational and cognitive capital (Tsai & Ghoshal, 1998; Carr et al., 2011; Karahanna & Preston, 2013). To understand the bricolage of a management team, this study employed a measurement first developed by Senyard et al. (2014).

Validity and reliability

To reduce common method bias, previously validated measurements were employed (Spector, 1987) and a pilot test on 40 new ventures was undertaken to help fine tune the survey instrument. To avoid measurement errors, the study conducted survey measures and used a construct validation test (the empirical indicators actually measure the construct) for validity (convergent and discriminant) and reliability.

RESULTS

Firstly, exploratory factor analysis (EFA) is used to construct the research indicators. The results from the EFA of the social capital, bricolage and dynamic capability measurements revealed that item loadings were mostly significant (over 0.5). Secondly, by using all items identified from the EFA, the average scores of all variables were estimated before testing the research hypotheses.

Table 1: Dynamic capability regression analyses

| | Model 1 | Model 2 | Model 3 | Model 4 |
|---------------------------|-----------|-----------|-----------|-----------|
| Bricolage | .292*** | .275*** | .282*** | .280*** |
| Rational social capital | .108 | .109 | .114 | .131* |
| Structural social capital | .052 | .044 | .051 | |
| Cognitive social capital | .209* | .228** | .220* | .247** |
| <i>Firm's age</i> | | -.075 | | |
| <i>Firm's size</i> | | .132* | .126* | .126* |
| R ² | .268 | .289 | .284 | .283 |
| Adjusted R ² | .254 | .268 | .266 | .269 |
| F value | 18.868*** | 13.835*** | 16.239*** | 20.284*** |

* $p < .1$, ** $p < 0.01$, *** $p < 0.001$

The results from regression analyses (Table 1) reveal that bricolage, cognitive capital and rational capital significantly positively influence the dynamic capabilities of new ventures (0.280, $p < 0.0001$; 0.247, $p < 0.001$; 0.131, $p < 0.1$). In other words, hypothesis 1 in which bricolage positively influences the dynamic capabilities of new ventures is supported. Hypotheses 3 and 4 are also supported meaning that both cognitive and rational dimensions of social capital have significant contributions in the development and use of dynamic capabilities of new ventures. However, the results show that the structural dimension of social capital does not have a significant impact on the dynamic capabilities of new ventures leading to a rejection of hypothesis 2. The empirical analysis results also reveal that the age of a new venture does not have any impact on the dynamic capabilities of the firm; however the size of the firm, as measured by number of employees, significantly positively influences the development and use of dynamic capabilities in a new venture.

DISCUSSIONS AND IMPLICATIONS

This paper investigates the impact on dynamic capabilities as a consequence of the bricolage and social capital exhibited by management teams associated with the performance and growth of new ventures. The research is distinctive in its focus upon new ventures in the UK and the use of management teams as the unit of analysis. This research posited that the bricolage and social capital (both rational and cognitive dimensions) of a management team would be positively related to improvements of the dynamic capabilities of a new venture. Those hypotheses were tested on survey data from 211 new ventures across the UK. The results indicate that a management team is likely to improve its dynamic capabilities by exploiting its own social capital and the resources it has at hand, and that these improved capabilities can help a new venture to enhance its performance and growth.

Teece et al. (1997) assumed a direct relationship between dynamic capabilities and a firm's performance. In addition, Zollo and Winter (2002) highlighted direct connection between dynamic capabilities and the survival of firms that operate in complex and dynamic business environments. Thus, developing and utilising dynamic capabilities is not a challenging process but are important in overcoming problems and achieved objectives. According to Pandza et al. (2003, p. 1028), "the process of how a firm acquires its capabilities cannot be separate from how it acquires its knowledge." The knowledge creation of a new venture is path-dependent and an accumulation through experience, which replicates or renews existing knowledge (Camuffo & Volpato, 1996; Lichtenthaler, 2009; Macher & Mowery, 2009). Both internal and external sources of knowledge contribute significantly to the development of dynamic capabilities (Kale & Singh, 2007). The results of this study strengthen our theoretical understanding about bricolage, as an internal knowledge, and social capital, as an external source of knowledge, develop and shape dynamic capabilities of a new venture.

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- Ahuja, G., & Lampert, C. M. (2001). Entrepreneurship in the large corporation: A longitudinal study of how established firms create breakthrough inventions. *Strategic Management Journal*, 22(6-7), 521-543.
- Ambrosini, V., & Bowman, C. (2009). What are dynamic capabilities and are they a useful construct in strategic management? *International Journal of Management Reviews*, 11(1), 29-49.
- Argote, L., & Ren, Y. Q. (2012). Transactive Memory Systems: A Microfoundation of Dynamic Capabilities. *Journal of Management Studies*, 49(8), 1375-1382.
- Autio, E., Sapienza, H. J., & Almeida, J. G. (2000). EFFECTS OF AGE AT ENTRY , KNOWLEDGE INTENSITY, AND IMITABILITY ON INTERNATIONAL GROWTH. *Academy of Management Journal*, 43(5), 909-924.
- Baker, T., Miner, A. S., & Eesley, D. T. (2003). Improvising firms: bricolage, account giving and improvisational competencies in the founding process. *Research Policy*, 32(2), 255.
- Benner, M. J., & Tushman, M. L. (2003). Exploitation, exploration, and process management: The productivity dilemma revisited. *Academy of Management Review*, 28(2), 238-256.
- Bingham, C. B. (2009). Oscillating Improvisation: How Entrepreneurial Firms Create Success in Foreign Market Entries over Time. *Strategic Entrepreneurship Journal*, 3(4), 321-345.
- Bingham, C. B., Heimeriks, K. H., Schijven, M., & Gates, S. (2015). Concurrent learning: How firms develop multiple dynamic capabilities in parallel. *Strategic Management Journal*, 36(12), 1802-1825.
- Campos, H. M., Atondo, G. H., & Quintero, M. R. (2014). Towards a Theory for Strategic Posture in New Technology Based Firms. *Journal of Technology Management & Innovation*, 9(2), 77-85.
- Camuffo, A., & Volpato, G. (1996). Dynamic Capabilities and Manufacturing Automation: Organizational Learning in the Italian Automobile Industry. *Industrial and Corporate Change*, 5(3), 813-838.
- Carmeli, A., & Azeroual, B. (2009). HOW RELATIONAL CAPITAL AND KNOWLEDGE COMBINATION CAPABILITY ENHANCE THE PERFORMANCE OF WORK UNITS IN A HIGH TECHNOLOGY INDUSTRY. *Strategic Entrepreneurship Journal*, 3(1), 85-103.
- Carr, J. C., Cole, M. S., Ring, J. K., & Blettner, D. P. (2011). A Measure of Variations in Internal Social Capital Among Family Firms. *Entrepreneurship: Theory & Practice*, 35(6), 1207-1227.
- Corner, P. D., & Wu, S. Y. (2012). Dynamic capability emergence in the venture creation process. *International Small Business Journal*, 30(2), 138-160.
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21(10-11), 1105-1121.
- Feldman, M. S. (2000). Organizational routines as a source of continuous change. *Organization Science*, 11(6), 611-629.
- Feldman, M. S., & Pentland, B. T. (2003). Reconceptualizing Organizational Routines as a Source of Flexibility and Change. *Administrative Science Quarterly*, 48(1), 94-118.
- Innes, J. E., & Booher, D. E. (1999). Consensus building as role playing and bricolage - Toward a theory of collaborative planning. *Journal of the American Planning Association*, 65(1), 9-26.
- Kale, P., & Singh, H. (2007). Building firm capabilities through learning: The role of the alliance learning process in alliance capability and firm-level alliance success. *Strategic Management Journal*, 28(10), 981-1000.
- Karahanna, E., & Preston, D. S. (2013). The Effect of Social Capital of the Relationship Between the CIO and Top Management Team on Firm Performance. *Journal of Management Information Systems*, 30(1), 15-56.
- Knight, G. A., & Cavusgil, S. T. (2004). Innovation, organizational capabilities, and the born-global firm. *Journal of International Business Studies*, 35(2), 124-141.
- Kogut, B., & Zander, U. (1992). KNOWLEDGE OF THE FIRM, COMBINATIVE CAPABILITIES, AND THE REPLICATION OF TECHNOLOGY. *Organization Science*, 3(3), 383-397.
- Levi-Strauss, C. (1966). *The Savage Mind*. Chicago: University of Chicago Press.
- Lichtenthaler, U. (2009). ABSORPTIVE CAPACITY, ENVIRONMENTAL TURBULENCE, AND THE COMPLEMENTARITY OF ORGANIZATIONAL LEARNING PROCESSES. *Academy of Management Journal*, 52(4), 822-846.
- Macher, J. T., & Mowery, D. C. (2009). Measuring Dynamic Capabilities: Practices and Performance in Semiconductor Manufacturing. *British Journal of Management*, 20, S41-S62.

- Miner, A. S., Bassoff, P., & Moorman, C. (2001). Organizational improvisation and learning: A field study. *Administrative Science Quarterly*, 46(2), 304-337.
- Minniti, M., & Bygrave, W. (2001). A Dynamic Model of Entrepreneurial Learning. *Entrepreneurship: Theory & Practice*, 25(3), 5.
- Moorman, C., & Miner, A. S. (1998). Organizational improvisation and organizational memory. *Academy of Management Review*, 23(4), 698-723.
- Nelson, R. R., & Winter, S. G. (1982). The Schumpeterian Tradeoff Revisited. *American Economic Review*, 72(1), 114-132.
- Pandza, K., Polajnar, A., Buchmeister, B., & Thorpe, R. (2003). Evolutionary perspectives on the capability accumulation process. *International Journal of Operations & Production Management*, 23(7-8), 822-849.
- Paradkar, A., Knight, J., & Hansen, P. (2015). Innovation in start-ups: Ideas filling the void or ideas devoid of resources and capabilities? *Technovation*, 41, 1-10.
- Prahalad, C. K., & Hamel, G. (1990). THE CORE COMPETENCE OF THE CORPORATION. *Harvard Business Review*, 68(3), 79-91.
- Prashantham, S., & Floyd, S. W. (2012). Routine microprocesses and capability learning in international new ventures. *Journal of International Business Studies*, 43(6), 544-562.
- Salunke, S., Weerawardena, J., & McColl-Kennedy, J. R. (2011). Towards a model of dynamic capabilities in innovation-based competitive strategy: Insights from project-oriented service firms. *Industrial Marketing Management*, 40(8), 1251-1263.
- Sapienza, H. J., Autio, E., George, G., & Zahra, S. A. (2006). A capabilities perspective on the effects of early internationalization on firm survival and growth. *Academy of Management Review*, 31(4), 914-933.
- Selznick, P. (1957). *Leadership in Administration: A Sociological Interpretation*. Evanston, IL: Row Peterson.
- Senyard, J., Baker, T., Steffens, P., & Davidsson, P. (2014). Bricolage as a Path to Innovativeness for Resource-Constrained New Firms. *Journal of Product Innovation Management*, 31(2), 211-230.
- Spector, P. E. (1987). Method Variance as an Artifact in Self-Reported Affect and Perceptions at Work - Myth or Significant Problem. *Journal of Applied Psychology*, 72(3), 438-443.
- 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. (2014). A dynamic capabilities-based entrepreneurial theory of the multinational enterprise. *Journal of International Business Studies*, 45(1), 8-37.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Tsai, W. P., & Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal*, 41(4), 464-476.
- Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, 9(1), 31-51.
- Weick, K. E. (1993). Organizational redesign as improvisation. In G. P. Huber & W. H. Glick (Eds.), *Organizational Change and Redesign* (pp. 346-379). Oxford: Oxford University Press.
- Winter, S. G. (2000). The satisficing principle in capability learning. *Strategic Management Journal*, 21(10-11), 981-996.
- Winter, S. G. (2003). Understanding dynamic capabilities. *Strategic Management Journal*, 24(10), 991-995.
- Wu, L.-Y. (2007). Entrepreneurial resources, dynamic capabilities and start-up performance of Taiwan's high-tech firms. *Journal of Business Research*, 60(5), 549-555.
- Zahra, S. A. (2005). A theory of international new ventures: a decade of research. *Journal of International Business Studies*, 36(1), 20-28.
- Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: A review, model and research agenda. *Journal of Management Studies*, 43(4), 917-955.
- Zollo, M., & Winter, S. G. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, 13(3), 339-351.