Examining the role of dynamic combinative capability and learning in service innovation-based performance in project-oriented service firms

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Abstract

This paper addresses the limited empirically founded approaches to model the antecedents of service innovation/new service development (NSD) and service firm performance. Drawing on the dynamic capability-based view of competitive strategy, the paper attempts to model the role of dynamic capabilities in NSD and firm performance using the project-oriented firm context. The model conjectures that entrepreneurial project-oriented service firms pursuing innovation, build and nurture dynamic combinative capability and learning capabilities. The findings of a study of 190 project-oriented firms confirm that the ability of the firm to strategically combine resources is linked to service innovation-based performance. Implications for theory and practice are discussed.

Keywords: Dynamic combinative capability, project-oriented service firms, innovation-based competitive strategy, dynamic capabilities.
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Background

With the growth of the service sector in both developed and fast growing economies, there has been a substantial interest in the role of NSD in service firm performance. Reflecting this interest, the literature on NSD and firm performance/competitive advantage has grown in significance over the last decade. However, the literature is fragmented and reflects several inadequacies. First, the literature examining the antecedents of service innovation has been limited. Second, a substantial number of researchers have attempted to model the service innovation process using new product development (NPD) (e.g., Cooper, 1994; Scheuing & Johnson, 1989) which is suggested to be inappropriate as services as well as the NSD process, substantially differs from the NPD process. Third, the literature examining the link between NSD and service firm performance/competitive advantage remains inconclusive. This is attributed to the fact that majority of such studies have been undertaken in financial service industries. This suggests the need to examine NSD and performance in an appropriate industry context where longer term customer relationships and co-creation aspects can be examined. This paper addresses these research gaps. Building on the dynamic capability-based view of competitive strategy, this paper conjectures that the capability of project-oriented service firms to combine resources to address different needs of projects is a key driver of NSD in project-oriented firms. This capability is influenced by the project-oriented firm’s ability to learn from multiple sources. The paper reports the findings of a study that examines how the project-oriented firm’s dynamic combinative capability interacts with learning capabilities in NSD and performance. Project-oriented service firms potentially reflect several characteristics unique to service settings. In addition to the co-production aspect in services, project activities and outcomes are unique and customer centric (Davies & Hobday, 2005), often highlighting the service characteristics of intangibility, perishability, heterogeneity and inseparability (Berry, 1980). The project-oriented firm’s capability to combine resources to produce innovative outcomes is reflected in the findings which suggest that accumulation of knowledge resources influences combinative capability which in turn drives service innovation and performance in project-oriented service firms. Implications of findings to theory and practice are presented.

Dynamic capability view of competitive strategy

The dynamic capabilities view of competitive strategy proposes that dynamic capabilities are a source of competitive advantage and emphasise two aspects of dynamic capabilities: 1) the shifting character of the environment and 2) the key role of strategic management in appropriately adapting, integrating and reconfiguring internal and external organisational skills, resources and functional competencies toward the changing environment (Teece & Pisano, 1994). A dynamic capability is a “learned and stable pattern of collective activity through which the organisation systematically generates and modifies its operational routines in pursuit of improved effectiveness” (Zollo & Winter, 2002, p. 340). Helfat el ’s (2007) recent work highlights three processes as fundamental to the concept of dynamic capabilities, namely, “create”, “extend” and “modify”. They define dynamic capabilities as “the capacity of an organisation to purposefully create, extend or modify its resource base” (p. 4).
Conceptualising the NSD process in project-oriented firms

A project-oriented firm is an organisation in which the functional organisation has become obsolete where the needs of the project are more important than functional influence on decision-making (Blindenbach-Driessen & van den Ende, 2006). Projects require multi-disciplinary teams for effective execution where the project managers combine various resources to address the project’s needs. This requires a matrix organisational structure which accommodates the drawing of required resources to meet different project needs. In this context, combinative capability plays a critical role in a service firm’s ability to pursue competitive strategies and performance. Kogut and Zander (1992) introduced the concept of combinative capability which represents the synthesis and application of current and acquired knowledge by the firm. An outcome of this activity is innovation, whereby new applications are generated from existing knowledge contributing to improved firm performance with positive implications in a competitive environment. Innovation literature suggests that internal and external sources of knowledge are critical to the innovation process. Schumpeter’s (1934) definition of innovation as a process of combining existing stocks of productive means in new ways suggests that the reconfiguration of knowledge is linked to new value creation through innovation. This knowledge reconfiguration-innovation link has been supported by many researchers (e.g., Henderson & Clark, 1990).

Proposed model and theoretical relationships

Based on the foregoing discussion, we theorise that entrepreneurial project-oriented firms pursuing service innovation, build and nurture relational learning and customer-focussed learning capabilities, and combinative capability. The learning capabilities impact dynamic combinative capability, which in turn, leads to service innovation and performance. The proposed relationships are presented in Figure 1 and are discussed next.

Entrepreneurial intensity

The dynamic capability-based view assigns a prominent role to entrepreneurial key decision-makers in the development of dynamic capabilities (e.g., Zahra, Sapienza, & Davidsson, 2006) in that it argues that these capabilities are built and nurtured by entrepreneurial key decision makers. Entrepreneurial strategic intent is also reflected in Zollo and Winter’s (2002, p. 340) definition of dynamic capabilities: “a learned and stable pattern of collective activity through which the organisation systematically generates and modifies its operational routines in pursuit of improved effectiveness.” This reflects managerial initiative in building learning routines in the dynamic capability building process.

Figure 1: Dynamic combinative capability and learning in NSD-based performance

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\begin{center}
\begin{tikzpicture}
  \node [anchor=north west,inner sep=0] (image) at (0,0) {
  \includegraphics[width=\textwidth]{figure1.png}
  
  \end{tikzpicture}
\end{center}
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Dynamic learning capabilities

As knowledge synthesis and application is fundamental to the notion of combinative capability, the generation of new knowledge through learning capabilities is critical to its operation. The importance of relational learning and client-focused learning has been highlighted in the services context. Researchers have placed emphasis on learning from two sources, namely, external networks and linkages such as suppliers, competitors or other collaborative linkages (i.e., relational learning) (Weerawardena & McColl-Kennedy, 2002) and customers/clients (i.e., client-focused learning) (Davies & Hobday, 2005). Prior research has also highlighted the importance of learning from customers/clients (e.g., Gouthier & Schmid, 2003; von Hippel, 1989) and customer involvement and input in the service innovation process (Alam & Perry, 2002). Using the dynamic capabilities view, we conceptualise relational and client-focused learning as the project-oriented firm’s capacity to purposefully create, extend and modify knowledge from its external networks and from its clients respectively, to pursue improved effectiveness. Thus, successful firms create knowledge by exposing themselves to a variety of external knowledge sources through relational and client-focused learning that enables them to generate new knowledge and reshape competencies.

Dynamic combinative capability

As noted earlier, there is a growing interest in the notion of combinative activity within the firm. Combinative capability has been linked with absorptive capacity (Van den Bosch, Volberda, & de Boer, 1999), leveraging resources (Koruna, 2003) organisational learning (Mathews & Cho, 1999) and knowledge integration (Kenney & Gudergan, 2006) with positive implications for firm performance. It is also linked to changes in the firm’s environment (Kogut & Zander, 1992). Adopting the dynamic capabilities view, in this research, combinative capability is defined as the firm’s capacity to purposefully create new knowledge from combination of tangible and intangible resources, extend such knowledge to value creating activities and modify such knowledge to address the changing market conditions. As discussed in the foregoing sections, entrepreneurship drives the selection, building and nurturing of dynamic learning capabilities, with the accumulated knowledge resources being critical to the operation of combinative capability.

Hypothesis 1: Entrepreneurial intensity in project-oriented firms is positively related to its dynamic relational learning capability.

Hypothesis 2: Entrepreneurial intensity in project-oriented firms is positively related to its dynamic client-focused learning capability

Hypothesis 3: Dynamic relational learning capability in project-oriented firms is positively related to its dynamic combinative capability.

Hypothesis 4: Dynamic client-focused learning capability in project-oriented firms is positively related to its dynamic combinative capability.

Innovation-based firm performance

As noted earlier, researchers have proposed a link between combinative capability and innovation (e.g., Henderson & Clark, 1990; Kogut & Zander, 1992; Schumpeter, 1934). Firms combine knowledge resources to create new value either incrementally or radically (Vainio, 2005). The literature also suggests that service innovation improves overall firm performance.
and is a source of competitive advantage (e.g., Bharadwaj, Varadarajan, & Fahy, 1993; Gray, Matear, Deans, & Garrett, 2007; Johne & Storey, 1998). Innovation competence (e.g., Menor & Roth, 2008), innovation-related learning (e.g., Blazevic & Lievens, 2004), and diverse external linkages (e.g., Eisingerich & Bell, 2008) are linked to innovation-based performance in service firms. More specifically, it has been demonstrated that pursuit of service innovation has positive effects on cost/competitive/business performance (e.g., Blazevic & Lievens, 2004; Menor & Roth, 2008).

**Hypothesis 5:** Dynamic combinative capability in project-oriented firms is positively related to its service innovation intensity.

**Hypothesis 6:** Service innovation intensity in project-oriented firms is positively related to its competitive advantage.

**Methodology and Analysis**

We conducted 13 in-depth interviews with senior managers of project-oriented firms to understand their view on innovation and firm performance. Following recommended scale development procedures (e.g., Churchill, 1999; DeVellis, 1991), we developed new scales using items from literature and the depth interviews, ensuring adequate coverage of the theoretical domain. Existing scales were adapted for the entrepreneurship (e.g., Covin & Slevin, 1986) and competitive advantage construct (e.g., Weerawardena, 1998) and tested for suitability. The resultant survey was administered by post to a sample of 2088 Australian project-oriented service firms (e.g., consultancy, engineering, architectural, and construction firms), who received a package containing a letter explaining the purpose of the study, the questionnaire and a reply-paid envelope. A three-step mail contact procedure was followed which included two follow-up mail-outs sent as reminders. A final telephone follow-up for non-respondents was carried out for Queensland-based firms. A useable response rate of 10.04% was achieved. Potential non-response bias was assessed by comparing early respondents with late respondents, a procedure widely adopted in literature (e.g., Armstrong & Overton, 1977; Doney & Cannon, 1997; Heide & John, 1992).

A two-step approach using confirmatory factor analysis using structural equation modelling (AMOS) was undertaken (e.g., Anderson & Gerbing, 1988). First, the measurement models for the constructs were assessed using the process of modification. The entrepreneurship construct was assessed as a two-factor structure comprising 9 items; the CC construct - a one-factor congeneric model (7 items); the relational and client-focussed learning capability constructs - one-factor congeneric models (6 items each); the service innovation construct – two-factor structure (8 items) and; competitive advantage construct - one-factor congeneric model (6 items). The fit indices for the measurement models specified for each of these construct were found to be acceptable. Next, the structural model specifying the aforementioned relationships (H1…H6) and comprising the constructs of entrepreneurship, relational learning, client-focussed learning, combinative capability, service innovation and competitive advantage was assessed following partial disaggregation (Bagozzi & Heatherton, 1994). The path estimates and fit indices of the final model are presented in Table 1. The estimates in Table 1 present the path estimates and goodness-of-fit statistics for the final model are acceptable, thereby indicating that the model is good fit to the data.
Table 1 – Path Estimates and Goodness of Fit statistics for the final model

<table>
<thead>
<tr>
<th>Relationship</th>
<th>β</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 -- Entrepreneurial intensity → Dynamic relational learning capability</td>
<td>0.65</td>
<td>6.613</td>
</tr>
<tr>
<td>H2 -- Entrepreneurial intensity → Dynamic client-focussed learning capability</td>
<td>0.83</td>
<td>7.355</td>
</tr>
<tr>
<td>H3 -- Dynamic relational learning capability → Dynamic combinative capability</td>
<td>0.48</td>
<td>5.954</td>
</tr>
<tr>
<td>H4 -- Dynamic client-focussed learning capability → Dynamic combinative capability</td>
<td>0.43</td>
<td>5.200</td>
</tr>
<tr>
<td>H5 -- Dynamic combinative capability → Service innovation</td>
<td>0.70</td>
<td>8.200</td>
</tr>
<tr>
<td>H6 -- Service innovation → Firm performance</td>
<td>0.71</td>
<td>8.239</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model fit</th>
<th>$\chi^2$</th>
<th>$p^*$</th>
<th>df</th>
<th>RMR</th>
<th>GFI</th>
<th>NFI</th>
<th>IFI</th>
<th>CFI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>99.3</td>
<td>0.009</td>
<td>39</td>
<td>0.044</td>
<td>0.914</td>
<td>0.914</td>
<td>0.946</td>
<td>0.945</td>
</tr>
</tbody>
</table>

$p^*$ value – Bollen-Stine $p$ was reported as the data was non-normal
→ The reported parameter estimates are standardised regression weights (β) and the CR value (equivalent to T-values).

Discussion and implications for theory and practice

Addressing an important research gap in the NSD-based competitive strategy literature, this paper attempted to model the role of three key dynamic capabilities antecedent to NSD-based performance. Our findings suggest that entrepreneurship-driven relational and client-focussed learning capabilities positively impact combinative capability, which in turn drives NSD-based performance. That is, entrepreneurial intensity had a significant and positive impact on relational and client-focussed learning (RL β = 0.65; CL β = 0.83), which in turn had a moderate and positive impact on CC (RL β = 0.48; CL β = 0.43). CC had a large impact on service innovation (β = 0.70), which in turn had a significant and positive impact firm performance (β = 0.71). The model explained 49% variance in service innovation and 50% of variance in firm performance. The findings highlight the central role played by the CC in NSD and service firm performance. The paper contributes to the service firm innovation literature by attempting to model the antecedents of NSD and firm performance which is an area that lacks sound empirical foundation. This research may be first effort to examine the role of dynamic capabilities in NSD and firm performance. To practitioners, the findings suggest that project-oriented service firms pursuing innovation achieve higher performance by adopting an entrepreneurial posture as well as building and nurturing dynamic capabilities.
References


