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Ambidexterity lost? Compromising innovation and the exploration/exploitation plan

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ABSTRACT

Although innovation is central to a firm's success and a top priority for most technology managers, firms commonly report disappointment that innovation outcomes do not match their original plans. This paper examines the difference in intended innovation and realized innovation using an exploration/exploitation framing. Its focus is on changes to defined innovation plans that occur after planning phases end. Extant literature and field research form the basis for hypotheses that are then tested using a large scale survey of an entire population of small and medium-sized high-technology enterprises (SMEs).

Findings of compromised exploration in favor of exploitation, during the development phase, is quantified. Firms divert resources away from novel emergent exploration and into existing product development, thereby undercutting innovation plans. Intended innovation, established during the planning stages, is found to be compromised.

Our hypotheses, that agency and resource dependence underpin a shifting between explorative and exploitative development, have support. The paper's theoretical contributions include the application of novel agency and resource dependence perspectives onto innovation. It informs ambidexterity research by indicating where, how much, and why erosion in the balance of exploration/exploitation occurs and provides new avenues for research into low innovation outcomes.

1. Introduction

Why do innovation outcomes fall short of expectations? 79% of respondents to the Boston Consulting Group's (BCG), 2015 survey on innovation ranked innovation as a top three strategic priority and 91% considered innovation critical to competitiveness. Other research suggests that between 30 and 50% of firm sales and profits come from new products, introduced within the previous five years (Griffin, 1997; Hauser, Tellis, & Griffin, 2005). However, disappointing innovation outcomes are common. Approximately half of respondents were unsatisfied with the results of their innovation spending, a consistent result for 10 consecutive BCG surveys. This suggests that, while innovation is vital to on-going organization success, firms struggle with innovation processes.

March's (1991) seminal article introduced the concepts of exploration and exploitation into strategy discourse, and since then the distinction between the exploration of new possibilities and exploitation of old certainties has been widely adopted to frame innovation research and organization studies (see Almahendra, 2015; Lavie, Stettner, & Tushman, 2010; Medcof, 2010 for reviews of the literature). While the exploration/exploitation lens has been applied broadly to innovation, researchers using this lens have tended to concentrate on those earlier phases of the overall product process that take place prior to research and development (R & D)

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– in search, planning and project selection phases – and also on outcomes (Lavie & Rosenkopf, 2006; Li, Lin, & Chu, 2008; Medcof, 2010). During the early phases of the product process, managers arrive at some plan for development projects that balance both exploration and exploitation activities for the firm to pursue (Katila & Ahuja, 2002). Then, to accomplish such plans, firms need to demonstrate "ambidexterity"; an ability to carry out both (O'Reilly & Tushman, 2008). The basis of ambidexterity is that demands on an organization are, to some extent, in conflict, and while tradeoffs are unavoidable they must be reconciled in a way that enhances long term performance (Gibson & Birkinshaw, 2004). To date, conclusions suggest that to improve innovation outcomes, firms should realign their plans for exploration/exploitation towards more exploration (Bauer & Leker, 2013; Benner & Tushman, 2003; Rosenkopf & Almeida, 2003).

Tradeoff decisions made during planning stages (e.g. search, planning, and project selection) when choosing the proportion of exploitation and exploration development to pursue, have been shown as being clearly important to innovation outcomes (Garcia, Calantone, & Levine, 2003; Lager, 2002). However, any changes made to those plans that occur later (e.g. during the lengthy research and development phase) are more overlooked. Thus, questions related to intended ambidexterity versus realized ambidexterity comprise a gap in the research.

Interviews at multiple technology firms, which informed the development of our study (Table 1), supported prior research that firms generally have a planning phase during which a development plan with a clear intentions for some balance between exploration and exploitation innovation is established. It emerged, however, that this intended plan was subject to instability; detours and insertions could occur abruptly after planning ended. Thus, to what degree intended ambidexterity might be compromised after planning ends and why firms' intended balance might change became the questions of interest.

Low innovation rates can be a function of plans that contain insufficient exploration, or they can be a function of compromised ambidexterity. The purpose of our study is to further the prior research on organizational capacity for ambidexterity. We do this by focusing specifically on the status of innovation plans after planning ends. Thus, we first investigate how stable the overall plans for exploration and exploitation are post-planning. Second, we analyze the individual forces that may lead to any changes in the intended exploration/exploitation proportion that do occur in later stages. Hence, our research questions center on firms' capacity for operational ambidexterity and degree of divergence from development intent.

Our research began with site interviews at technology SME's, and followed by the large scale survey. The field inquiry informed the question "*are original plans for exploitation versus exploration generally reflected in what development (R & D) completes?*" and was the prelude to our large scale quantitative study investigating the research questions "*to what extent do exploration versus exploitation plans change after planning ends?*" and "*what forces link to any change*?" We posited that competing organizational demands and unforeseen customer opportunities and requests may undercut original, ambidextrous plans for innovation. As a result, the proportion of exploration versus exploitation innovation could significantly adjust.

To test the ideas gleaned from the literature and our own field evidence, we conducted a large scale postal survey of the entire population of SMEs in the US-based non-consumer software industry; a technology industry known for innovation activities. The findings indicate that, during the development stage, conflicting tensions do lead to some shifting of resources away from planned exploration on emerging technology and towards more short-term exploitive projects. We first quantify the degree of compromise to ambidexterity and, based on prior innovation research, we make theoretical links to both resource dependence and agency-based independent variables.

Thusly, our work contributes to both theory and practice. Theory contributions come from our applying an ambidexterity exploration/exploitation lens specifically to the development phase, and also from our investigating exploration innovation based on established tenets from both agency and resource dependence theories. This extension of exploration/exploitation to the R & D phase and the application of agency and resource dependence are novel. For managers, our contribution can help identify where innovation compromises may occurs – at what stage of the overall process - and the mechanisms for why changes happen. Our findings suggest that managers of innovation and development must carefully and continually monitor the tradeoffs – big and small – between short-term revenues and future innovation, especially after development plans are completed.

The paper starts with a review of theoretical precepts that emerged from literature and our on-site evidence. Second, using prior research and our field data, we lay out the basis for seven propositions. In turn, we discuss the methodology of this papers investigation – testing our propositions via a large scale survey to an entire population. Next we present the results of the survey and discuss the findings. We conclude by offering a number of areas for future research.

2. Theoretical development

The early phase of this research included staged, iterative site interviews within our target population of small and mid-sized (SME) software firms.[1] Patterns were observed, constructs were outlined, potential theories were appraised and models were built as interviewing occurred and evidence was situated within extant literature and existing theory. The interviews and scholarly literature were reviewed in conjunction, and as constructs emerged, pre-existing theoretical concepts were considered (Danneels, 2002; Edmondson & McManus, 2007; Eisenhardt, 1989a, 1989b; Eisenhardt & Graebner, 2007). In line with this approach, the hypothesis development section is organized as follows; first we locate this study within the technology and innovation literature, then the hypotheses are separately developed within the theoretical framings of prior literature and our field evidence.

[1] See Table 1 and the Methodology section for more on data sources and analysis.