

Balancing exploration and exploitation: The moderating role of competitive intensity

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Abstract

Drawing on Miles and Snow's classification of strategy type, this paper addresses the contingency role that competitive intensity plays in explaining the relationship between exploration/exploitation and firm performance. We further refine our firm performance measure into separate measures of effective and efficient firm performance. Our conceptual argument posits that for defenders, exploration will be positively related to effective firm performance while exploitation will be negatively related to efficient firm performance as competitive intensity increases. Conversely, for prospectors, we assert that exploration will be negatively related to effective firm performance, whereas exploitation will be positively associated with efficient firm performance as competition intensifies. Empirical results provide general support for our predictions. The implications for business theory and practice are discussed.

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1. Introduction

Organizational learning is a necessary resource and capability for firms seeking to sustain a competitive advantage in today's marketplace (Barney, 1991). According to resource-based theory, resources include all the "assets, capabilities, organizational processes, firm attributes, information, knowledge, etc., controlled by a firm that enable the firm to conceive of and implement strategies that are efficient and effective" (Barney, 1991, p. 101). In this light, organizational learning, defined as the capability for organizations to create, disseminate, and act upon generated knowledge, can be regarded as a resource. Scholars have explored this capability using different types of learning: double loop vs. single loop

learning (Argyris and Schon, 1978); generative vs. adaptive learning (Senge, 1990); and product innovation vs. production-oriented learning (McKee, 1992). Despite the diverse terminologies, commonalities can be readily observed and two distinct concepts of learning can be identified. One branch of research is chiefly concerned with revolutionary change; change that requires tasks to be accomplished under new organizational assumptions and frameworks (e.g., "S" curve; Foster, 1986). The other is more concerned with evolutionary, incremental changes; improvements based on existing platforms that benefit from repetition and routine (e.g., experience curve).

This distinction suggests that double loop, generative, and product-innovation learning are closely aligned with exploration while single loop, adaptive, and production oriented learning are aligned with exploitation approach to learning. Having asserted that exploration and exploitation are different modes of organizational learning, we further posit that these two types of learning represent organizational resources and capabilities that firms can use to develop and sustain their competitive advantage under changing environmental conditions.

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Despite the apparent differences between the two types of learning, scholars and practitioners have long believed that a well-balanced combination of the two types of learning is essential for a healthy organization (Levinthal and March, 1993; March, 1991). Excessive exploration at the expense of exploitation can be costly, as the tangible outcomes of exploration will only be realized in the distant future and then only with considerable uncertainty. On the other hand, a concentration on exploitation without exploration discourages the organization from pursuing learning and development. This can direct firms to focus only on the near future and potentially miss out on long-term investments and opportunities that may prove valuable. Therefore, the recommendation of a well-balanced combination of the two should come as no surprise.

However, what is less understood and less well-documented in the literature is the contingency perspective of organizational learning that underscores the effectiveness of both types of learning under different contextual conditions. We draw on the strategy typology of Miles and Snow (1978) to examine how prospectors and defenders benefit by balancing exploration and exploitation when competition intensifies. We expect that the same exploratory or exploitative action will have different effects on performance depending on whether it is used by prospectors and defenders. The rationale for this belief rests on our assumption of prospectors' strong orientation towards exploration and defenders' strong orientation towards exploitation and the differential consequences of these actions under conditions of intensifying competition.

The goal of this paper is to develop a contingency model that tests the moderating role of competitive intensity on the relative effectiveness of exploration and exploitation on firm performance for prospectors and defenders. In addition, we provide a further refinement to existing measures of firm performance by looking at the categories of effective and efficient firm performance.

This study also explores the validity of Miles and Snow's (1978) construct of strategy type, using the concepts of exploration and exploitation. Despite the theoretical linkage between organizational learning (e.g., exploration and exploitation) and strategy type (e.g., prospectors and defenders), no research to date has empirically tested the validity of the models of exploration and exploitation and their differential effects on firm performance as a function of strategy type. Our study explicitly tests this assertion. Moreover, although prospectors and defenders, largely by assumption, are known to react differently to environmental change, no empirical results exist to confirm how the balance of exploration and exploitation alters for prospectors and defenders with intensified competitive pressure. In what is to follow, we provide the theoretical background for our argument along with testable hypotheses. This is followed by a presentation of empirical results and a discussion of the results. We end with a discussion of limitations and future research directions.

2. Theoretical background

2.1. Exploration and exploitation as organizational learning

March (1991) defines exploration as a learning mechanism which has the goal of experimentation with new alternatives. Exploration is thus a manifestation of organizational learning (Sinkula, 1994; Slater and Narver, 1995) and it entails activities such as search, variation, risk-taking, discovery, innovation, and research and development. Sitkin et al. (1994) associate total quality learning (TQL) with exploratory activities. These include such activities as exploring new skills and resources, testing definitions of customer need rather than accepting customer needs as given, and engaging in activities that might deliver breakthrough ideas.

March (1991, p. 85) posits that the outcome of exploration can be difficult to measure in the short-term. He argues that the organizational return from exploration can be uncertain, distant, and often negative: "the distance in time and space between the locus of learning and the locus for the realization of returns is generally greater in the case of exploration than in the case of exploitation, as is the uncertainty." In short, exploration might be effective but due to its long-term nature, it might lack a high degree of efficiency.

Whereas exploration is concerned with challenging existing ideas with innovative and entrepreneurial concepts, exploitation is chiefly interested in refining and extending existing skills and capabilities. The central thesis of exploitation is that it is possible to secure a comfortable position in the marketplace by committing sufficient/the bulk of the organization's resources to ensure the current viability of the firm against its competitors. Thus, the emphasis is on the organization refining and fine-tuning existing competencies and resources. Put another way, the emphasis is on operational efficiency, achieved by engaging in similar activities more efficiently (Porter, 1996). Exploitation includes, but is not limited to, such activities as refinement, production, efficiency, selection, implementation, and execution (March, 1991). The primary emphasis is on control, efficiency, and reliability or conformance to specification (Deming, 1981; Juran and Gryna, 1988). The returns from exploitation are typically positive, proximate, and predictable.

Organizational learning can be defined as a continuum, ranging from exploration on the one hand to exploitation on the other. Rather than emphasizing one at the expense of the other, a balance between the two approaches is necessary. Too great a reliance on exploration without complementary levels of exploitation can lead to "failure trap", placing a continuous drain on the organization's resources with no immediate financial reward in sight (Levinthal and March, 1993). On the contrary, an excessive reliance on exploitation without supporting levels of exploration can drive the firm into a "success trap", where the more certain short-term

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