



Strategic pathways to product innovation capabilities in SMEs

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Abstract

The study articulates a two-dimensional typology of dynamic capabilities, grouping them by the life-cycle stage and the timing of expected returns. Using a cross-industry sample of manufacturing SMEs, we validate and map four distinct innovation strategies onto specific sets of product innovation capabilities. Results show that human capital development efforts catalyze both the external absorption and the internal emergence of novel capabilities. Stronger emphasis on product features and broader market access stimulate the effective replication of extant capabilities, yielding immediate payoffs. Process-focused strategies are a double-edged sword: they facilitate the acquisition and incorporation of external insights yet bound internal capability development.

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1. Executive summary

Prior research has documented the positive influence of different types of dynamic capabilities on small firms' survival prospects and their innovative, financial, and market

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performance but paid scarce attention to the up-stream association between specific strategic choices and advances or alterations in firms' sets of dynamic capabilities. This study takes a dynamic capabilities perspective to examine how bundles of innovation strategies shape the ability of SMEs to invent, develop, introduce, and commercialize innovative products. It fleshes out the set of best practices which underpin successful product innovation and tackles two complementary research questions: (a) which strategic maneuvers help nurture different types of dynamic capabilities and (b) to what extent do specific strategic choices motivate distinct capability-development trajectories.

Using the dynamic resource-based view as a unifying theoretical framework, we group dynamic capabilities according to their life-cycle stage (Helfat and Peteraf, 2003) and the timing of their expected payoffs (Zahra and George, 2002). We then draw on prior typologies of innovation strategies to identify four distinct strategic triggers and examine their direct and indirect effects on the activation of specific product innovation capabilities by SMEs. Strategic initiatives which guide learning efforts towards capability sets with immediate payoffs can help young or small firms quickly improve their innovative performance, despite their lack of experience and/or their initial resource constraints. Strategic initiatives aimed at rejuvenating stagnating capabilities can help mature SMEs adapt to external trends more swiftly and/or nurture the emergence of internal creative insights more effectively.

The hypothesized relationships between innovation strategies and product innovation capabilities were tested on a subpopulation of 3065 SMEs in the Canadian manufacturing sector which introduced at least one new product between 1997 and 1999. The primary collection of firm-level responses regarding their innovation strategies, activities, and outcomes by Statistics Canada was supplemented with a comprehensive set of secondary indicators reflecting firm performance and industry characteristics, some gathered at multiple points in time.

Using a combination of exploratory and confirmatory factor analyses on two nonoverlapping, randomly selected halves of the subpopulation of SMEs, we derived and validated four distinct innovation strategies—product, process, market, and human capital development. The direct effects of each innovation strategy on several types of product innovation capabilities were then examined using survey-estimated negative binomial and robust regression models. The findings show that human capital strategies stimulate the emergence of novel capabilities. On one hand, they expand the breadth of external knowledge searches and facilitate the acquisition of innovative ideas from outside sources. On the other, they foster ingenious knowledge cross-pollination within the firm. Strategic emphasis on process efficiency intensifies external learning efforts—complementing the beneficial effects of human capital strategies—but stifles internal creativity. Product development strategies increase SMEs' knowledge acquisition capabilities and strengthen their efforts to develop and commercialize both new and improved products. Market expansion strategies encourage larger-scale incorporation of novel inputs into existing operations and accelerate the commercialization of radical innovations. Structural equation models provide consistent support for the hypothesized direct effects, confirming the robustness of the findings. They also highlight nested indirect effects of specific strategic initiatives on SMEs' capability-building efforts, delineating alternate strategic pathways to successful product innovation.

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