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Research Article

Asymmetric consequences of radical innovations on category representations of competing brands

Charan K. Bagga [a,c,*], Theodore J. Noseworthy [b], Niraj Dawar [a]

[a] Ivey Business School, Western University (formerly University of Western Ontario), 1255 Western Road, London, Ontario N6G 0N1, Canada
[b] Schulich School of Business, York University, 99 Ian Macdonald Blvd., Toronto, Ontario M3J 1P3, Canada
[c] A. B. Freeman School of Business, Tulane University, 7 McAlister Drive, New Orleans, LA 70118, USA

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Abstract

A cognitive level account of when and why radical innovations impact category representations of competing brands is developed and tested. The results suggest that competing brands are affected only when a dominant brand introduces a radical innovation that alters a core category attribute. Such an innovation leads consumers to see competing brands as less typical of the category with diminished evaluations. Crucially, neither core radical innovations introduced by a non-dominant brand nor equally radical innovations that alter peripheral (non-core) attributes have any impact on consumers' perceptions of competing brands. Implications for consumer preference formation and competition in the context of radical innovation are drawn.

Keywords: Dominant brands; Radical innovation; Categorization

Introduction

Radical innovations are conceptualized as new products that significantly improve customer benefit and technological delivery over existing products (Chandy & Tellis, 2000). Firms engage in radical innovations to attempt a high degree of differentiation over competitors (Gatignon & Xuereb, 1997). However, little is known about *how* radical innovations influence competition, and in particular, how radical innovations alter consumers' cognitive representations of competing brands. Bridging this gap is crucial as not all radical innovations have the same effect. While radical innovations that adversely impacted competing brands, such as digital cameras, the Windows operating system, or more recently the iPhone, come easily to mind, examples of those that did not are equally abundant. The Intellivision gaming console, the Newton PDA, Sub Zero refrigerator's air purification system, and Vibram's five finger shoes, all met the definition of radical innovation but did not significantly impact their competition (Floorwalker, 2013).

We propose that certain radical innovations, particularly those introduced by brands that are more central and dominant in a category, can instantaneously alter a competitor's typicality within the category and in turn affect how the competitor is evaluated. We examine four types of radical innovation, combining two principal factors. The first factor is dominance (of the innovating brand) that has been conceptualized as how representative and closely associated a brand is with its category (Herr, Farquhar, & Fazio, 1996). The second factor is whether the innovation targets core attributes (i.e., features that are considered functionally necessary) or peripheral (non-core) attributes (Malt & Johnson, 1992).

We find that category representations of competing brands shift when a dominant brand introduces a radical innovation that alters a core attribute of the product. Specifically, the

* Corresponding author.
E-mail addresses: cbagga.phd@ivey.ca (C.K. Bagga), tnoseworthy@schulich.yorku.ca (T.J. Noseworthy), ndawar@ivey.uwo.ca (N. Dawar).

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introduction of this type of radical innovation instantaneously diminishes the typicality of competing brands and lowers their product evaluations. In contrast, neither core radical innovations introduced by a non-dominant brand nor equally radical innovations that alter peripheral attributes impact perceptions of competing brands.

We contribute theoretically by integrating research on radical innovation and competition with categorization literature. We provide a cognitive level explanation of the impact of radical innovation on competitors and on product market structure (Ratneshwar & Shocker, 1991). Substantively, our findings inform brand management decisions about embracing or ignoring radical innovations. We return to the theoretical and substantive implications after we present the empirical studies and results.

Conceptual framework

Categorization

The categorization of products has primarily been conceptualized in one of two complementary ways: (1) as product categories consisting of diagnostic attributes including brands, and (2) as product schemas consisting of cognitive structures that guide inferences about functional intent and classification. In the former perspective, a product category consists of multiple brands that are members of the category (Loken & Ward, 1990; Mao & Krishnan, 2006; Nedungadi & Hutchinson, 1985). These categories have a graded structure such that certain brands are more prototypical of the category (Nedungadi & Hutchinson, 1985).

The schema conceptualization focuses on judgments of fit or the ability of consumers to make sense of products that violate expectations (Meyers-Levy & Tybout, 1989; Noseworthy, Di Muro, & Murray, 2014; Peracchio & Tybout, 1996). In essence, a product schema refers to an organized pattern of expectations about product categories (Sujan, 1985). New products are either congruent or incongruent with the existing schema. When people encounter new product information that is incongruent with existing category beliefs, they process it by either assimilating or accommodating it (Mandler, 1982). Assimilation occurs when a new product or instance is absorbed into an activated schema without modifying the schema itself – as in the case with incremental innovations (Noseworthy, Cotte, & Lee, 2011). Accommodation, on the other hand, occurs when individuals are faced with extreme incongruity – as is common with radical innovation (Meyers-Levy & Tybout, 1989; Noseworthy et al., 2011).

Successful accommodation occurs in one of two ways: (1) consumers restructure their existing schema (i.e., shift their category representations (or beliefs) to accommodate the innovation), or (2) they develop an entirely new schema (Mandler, 1982). If a new schema is developed, it initially takes the form of a subtype, an exception or special case (Taylor & Crocker, 1981). For example, when consumers encounter a "vitamin-infused beer," they may create a 'healthy beer' subtype.

Much of the research on accommodation focuses on the phenomenon of subtyping or rejecting the innovation. Very little work has explored Mandler's (1982) alternate notion of accommodation in which existing category representations shift. Knowing the circumstances that lead consumers to reject or subtype an innovation is important. However, knowing when radical innovations shift existing category representations is equally important as that has a direct impact on perceptions of competing brands.

Core versus peripheral innovation

Features that are integral to the product's perceived purpose or intended functionality (Keil, 1987; Rips, 1989) and are diagnostic of category membership are regarded as *core* attributes or rules for the category (Ashby, Alfonso-Reese, Turken, & Waldron, 1998; Malt & Johnson, 1992; Noseworthy & Goode, 2011). Of course, products include attributes that are neither necessary nor sufficient for category membership (Malt & Johnson, 1992). These are regarded as *peripheral* attributes.

Radical innovations can alter either core or peripheral product attributes. For example, vitamin-enhanced beer (a peripheral innovation) may well augment user utility and be seen as ingenious. But the presence or absence of vitamins does not call for a re-conceptualization of the concept of beer because vitamins are not core attributes of beer. By comparison, a radical innovation such as Dyson's bladeless fan (a core innovation) requires a suspension of the entrenched belief that all fans have blades. This necessitates an adjustment in existing category beliefs because the core feature being innovated is fundamentally linked to the category (Noseworthy & Goode, 2011). This is consistent with Mandler's (1982) notion of accommodating by reconfiguring existing category representations.

However, not all core innovations shift category representations. We suggest that those that do meet another condition: they are introduced by dominant brands.

Dominant brands

A dominant brand is one that is considered prototypical and representative of the category and is therefore recalled more frequently, classified faster, and recognized sooner than less dominant brands (Fazio, 1990; Herr et al., 1996; Nedungadi & Hutchinson, 1985). These advantages are consequences of more and stronger associations between the dominant brand and the central features of the category. For example, Apple and McDonalds are highly dominant brands in the smartphone and fast-food product categories. Sony and Arby's in contrast may enjoy high levels of awareness, equity, and innovativeness but they are relatively non-dominant in their categories.

We note that dominance may be correlated with other brand constructs such as equity, attitude, and familiarity (Keller, 1993; Loken & Ward, 1990; Sundar & Noseworthy, 2014). However, dominance is distinct from these constructs as it is by definition a relative concept and is category specific. This distinction is best illustrated by the *asymmetric* relationship of dominance with other brand constructs (Herr et al., 1996).