Managing innovation dilemmas: The cube solution

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Abstract Innovation has become a universal feature of corporate life. Almost no company can survive without innovation. However, when it comes to developing innovation strategies, managers often are left alone to decide which innovation types to pursue, how to balance them in an overall portfolio, how to allocate resources, and how to implement them. In short, managers face a variety of innovation dilemmas. One of the most pertinent problems is how to distinguish innovation types in a meaningful way. In this article, we introduce the innovation cube, a tool that helps position innovation types in a managerially meaningful way. Once managers know how to relate and compare their innovation types to those of other companies, the cube helps them to better formulate their innovation strategy.

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1. The innovation jungle

The widespread agreement that innovation is important does not prevent the recognition that hardly anybody agrees on what innovation actually is. There is no unambiguous definition of innovation, and research provides inconclusive terms and overlapping classification systems (Crossan & Apaydin, 2010). One of the most common distinctions is that between product and process innovation. Others distinguish between business model innovation (e.g., hub-and-spoke airline routes), operational innovation (e.g., business process reengineering), and services innovation (e.g., commercial pet sitting). If there are only small changes, we refer to incremental innovation (e.g., changed size of canned soft drinks) whereas huge modifications (e.g., the ballpoint pen) are named radical. If innovations create a new market segment by destroying an old one, we classify them as disruptive (e.g., the personal computer basically eliminated conventional typewriters). However, sometimes the distinctions are blurred. Take, for example, Apple’s

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iTunes music store: It represents a radical change in the organization’s business model (i.e., online music distribution). But MP3 players already existed and had been successfully introduced by competitors, so the introduction of the iPod was only an incremental innovation for the market. This terminological jungle in innovation literature could easily be extended with many other examples.

As a result, it is very difficult for managers to compare innovation types. Most research on innovation strategy is not particularly helpful because it classifies innovation types after the company has successfully or unsuccessfully implemented them. That is, looking for advice on how to launch an innovation project may not be successful because companies started out from a different vantage point than what is reported in research results. All this leads to problems in language, understanding, and operationalization which, in turn, impede other important decisions, such as how many and what kind of resources to allocate to different types of innovation or what risk profiles to accept.

In response, we aim to provide conceptual clarification and practical advice. Using insights from extant literature and several case vignettes, we develop an innovation cube, which positions the multitude of innovation types in a way that is meaningful for managers.

2. Classifications and typologies

Many disciplines have focused on innovation, ranging from economics, technology management, strategy, to organizational behavior (Daft & Becker, 1978; Rothwell, 1978; Teece et al., 1997; Utterback & Abernathy, 1975). It is not surprising that an equally large number of classification systems exist (e.g., Adams, Tranfield, & Denyer, 2011; Crossan & Apaydin, 2010; Rowley, Baregheh, & Sambrook, 2011). But to date, it has remained unclear what innovation really is and research provides little value to practitioners. A short excursion into attributes may help to locate the origin of the problem. Typically, a phenomenon can be described according to its primary or secondary attributes (Downs & Mohr, 1976). Primary attributes describe an organization independent of its context—it always remains the same. For example, innovations that are classified as new to the world will always be so—for every company that invents them—because the defining characteristic is their very first appearance on the market. However, most studies focus on secondary attributes: They focus on the context in which an innovation may differ. For example, internet service is a sustaining innovation to catalog retailers, because it extends their existing markets by offering better value, but the same innovation is disruptive for department stores, challenging their very existence (Danneels, 2004).

These examples are reflected in existing classification systems and show some of the problems related to classifying innovations. Some classifications focus on the degree of required change in a corporation, the impact on the industry at large, or on organizational sources of innovation. However, the potential linkages across the different systems of classification are usually ignored. In addition, a classification that focuses on innovation intensity rarely includes the distinction between different areas of focus (e.g., product vs. process, product vs. technology, product vs. administration) (Adams et al., 2011). In a similar vein, a classification based on the impact of the innovation on the industry, such as sustaining vs. disruptive (Christensen, 1997), does not necessarily account for the strategic anchor of the innovation in which a particular business function drives innovation (e.g., marketing or logistics) as opposed to a corporate-level, system-wide innovation (e.g., value chain configuration). Without such links though, companies cannot identify the relevant capabilities and requirements for change or prepare fully to implement successful innovations.

To address this problem, we propose an integrative framework that connects different innovation types and lends itself to the development of innovation strategies.

3. The innovation cube

Although innovation can refer to products, processes, systems, administrative procedures, or technologies, managers need to think holistically (Sawhney & Wocott, 2006). To adopt such a holistic perspective, we use three dimensions: change impact, strategic impact, and market impact.

All three dimensions are well established in academic literature and, in isolation, have served to classify innovations. Some other dimensions could permit comparisons too (there are 53 innovation attribute classifications) (Adams et al., 2011) but we selected these three because they have attained consistently high acceptance in interactions with managers during executive teaching and consulting projects worldwide (Salaman & Storey, 2002). Furthermore, these three dimensions support comparisons of existing classification systems that identify their similarities and differences. That
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