



Innovation in start-ups: Ideas filling the void or ideas devoid of resources and capabilities?

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ABSTRACT

We investigate how access to different types of resources affects the success of entrepreneurial start-up firms at early stages of development in small isolated economies by studying 12 start-ups based in New Zealand. We find that successful commercialization of innovations depends on the availability of complementary assets, and that capability-based resources, especially dynamic capabilities, have a greater impact on competitive advantage of start-ups than other intangible and tangible assets. For the start-ups in our study, alliances with partners are particularly important, and so the ability to form alliances is a key capability. Successful start-ups leverage their available resources to attract alliance partners in order to access necessary complementary resources. The start-ups in our study clearly demonstrated the ability to attract partners locally but struggled to do so internationally, thereby limiting their growth potential.

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1. Introduction

Entrepreneurial start-up firms usually begin with high hopes for what they want to achieve, but many fail because they do not have the requisite capabilities (Dosi et al., 2000). In this paper, we address the challenges faced by start-ups at early stages of development in economies that are relatively small and geographically isolated and relate these challenges to the dynamic capabilities perspective (Teece, 1986, 2014; Teece et al., 1997) and the relational view (Dyer and Singh, 1998). Our objective is to explore the ways in which access to resources affects start-ups and the commercialization process, and to identify which types of resources contribute most to competitive advantage and why. Studying start-ups in these respects is important in order to illuminate what it takes for start-ups to succeed (while others fail).

The full set of resources and capabilities required to solve critical business problems is often beyond the scope of individual firms, especially in their early stages of development (Groen and Walsh, 2013). Teece (2014, p. 18) draws an important distinction between 'ordinary' (and easily replicable) capabilities and 'dynamic' (hard to replicate) capabilities: "Ordinary capabilities support technical fitness, while dynamic capabilities support evolutionary fitness". Firms that are able to build capabilities by combining resources in unique ways, such as establishing superior organizational routines and partnering with firms that have complementary assets (Dyer and Singh, 1998), can access intricate bundles of resources with which to

successfully compete against rivals (Hervas-Oliver and Sempere-Ripoll, 2014).

Although forging relationships with other firms in order to obtain complementary assets is generally associated with improving a start-up's chances of success, this is not guaranteed; for example, Velu (2015) recently reported that such alliances can be harmful as the degree of business model innovation rises. In contrast, Teece (1986, p. 294) identifies circumstances under which contractual or partnering strategies are ideal: "If the innovator's technology is well protected, and if what the partner has to provide is a 'generic' capacity available from many potential partners, then the innovator will be able to maintain the upper hand while avoiding the costs of duplicating downstream capacity." However, assembling such inter-firm linkages poses a particular challenge for start-ups, especially in small isolated economies where ideal partners may not exist locally.

As reviewed in the next section, most research into innovation and the dynamic capabilities perspective is based on data or case studies from large developed economies such as the US. Start-ups in large developed economies have the advantage of sizeable domestic consumer markets and well-developed venture capital and stock markets. These advantages enable US start-ups to experiment with their commercialization activities with relative ease and get early feedback from customers, enabling them to adapt their strategies quickly. On the other hand, start-ups in large economies are exposed to more aggressive competitive pressures than start-ups in smaller economies.

The setting for our research, which involves studying 12 start-ups in a variety of industries ranging from aviation to cosmetics, is

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New Zealand. With a population of just 4.5 million and its closest neighbor, Australia, more than 2000 km away, New Zealand does not have the advantage of a large domestic consumer market and well-developed venture capital and stock markets. Given such constraints, incubating and commercializing inventions rapidly can be highly challenging, requiring intense entrepreneurial orientation and capability on the part of innovators (Clausen and Korneliusen, 2012; Wonglimpiyarat, 2005).

Our study contributes to the innovation literature in the context of entrepreneurial start-ups at early stages of development in small isolated economies by providing evidence for the following main conclusions. First, successful commercialization of innovations depends on the availability of complementary assets. Second, start-ups' capability-based resources have a greater impact on competitive advantage than other intangible and tangible assets. For the start-ups in our study, alliances with partners are a particularly important asset, and so the ability to form alliances is a key dynamic capability. Successful start-ups leverage their available resources to attract alliance partners in order to access necessary complementary resources.

2. Theoretical underpinnings and research propositions

Innovation comes in many forms and its intensity varies in terms of its impact on consumers and competitors (Christensen and Rosenbloom, 1995). Innovations range from the discovery of complex scientific principles and the invention of radically new technologies to simple incremental additions to existing knowledge. In order to generate financial returns, an innovation has to deliver benefits that consumers perceive as valuable (Drucker, 1985; Rogers, 2003; Sheen and MacBryde, 1995). Start-ups that are ultimately successful compete with rival firms by creating entirely new benefits for customers or by significantly improving extant ones.

Transforming the benefits from an innovation into a commercially viable product is a multi-stage process, which is accomplished only when the full set of resources required for commercialization is available to the innovator firm (Clark, 1985; Dosi, 1982; Teece, 1986; Teece et al., 1997). Such resources include potentially all assets, capabilities, organizational processes, firm attributes, information and knowledge (Barney, 1991). Firms cannot expect to simply purchase sustained competitive advantage in markets; instead, sustained competitive advantage depends on access to resources that are valuable, rare, imperfectly imitable and non-substitutable (VRIN) (Barney, 1991). Moreover, as Newbert et al. (2007, p. 444) explain, "it is not the mere possession of but rather the *exploitation* of a firm's resources via its strategy that determines its performance."

Capabilities are an especially important type of firm resource. Teece (2014, p. 14) defines a capability as "the capacity to utilize resources to perform a task or activity, against the opposition of circumstance. Essentially, capabilities flow from the astute bundling or orchestration of resources." Grant (1991) argues that capabilities may take the form of routines and interactions by which the firm's other resources are coordinated. Likewise, according to Nelson and Winter (1982, p. 104): "An organization does not become capable of an actual productive performance merely by acquiring all the 'ingredients', even if it also has the 'recipe'. What is central to a productive organizational performance is coordination." Koryak et al. (2015) distinguish two broad types of capabilities: "substantive (growth) capabilities, which enable a firm to compete in its market on a day-to-day basis; and dynamic capabilities, which extend, modify or create new substantive (growth) capabilities."

Marino (1996, p. 41) draws a distinction between capabilities, which are "rooted more in processes and business routines", and competencies, which have a technology or knowledge-based component. Newbert et al. (2007) find that firms established on the strength of their managerial capabilities emphasize demand-pull

strategies at founding, whereas firms based on technological competencies emphasize technology-push strategies. The authors also conclude that technology-intensive new firms emphasizing technology-push strategies perform better than firms emphasizing demand-pull strategies.

According to Teece (2014, p. 14): "The dynamic capabilities framework ... emphasizes the importance of (signature) business procedures, both inside the firm and also in linking the firm to external partners." The importance of relationships with one or more partner firms for the success of a firm is emphasized by the relational view of competitive advantage, which includes the idea that the combined resource endowments of partner firms are more VRIN than if they are kept completely independent (Dyer and Singh, 1998). For firms not in full possession of VRIN resources of their own, Newbert et al. (2008, p. 15) conclude that: "such firms may wish to consider developing inter-firm networks and alliances, perhaps with large firms that possess such resources and capabilities or with small firms with which they can be co-developed."

Central to the dynamic capabilities framework and the relational view is the fundamental role played by entrepreneurs in building their firm's requisite capabilities and managing relationships with alliance partners. Though Richard Cantillon coined the term 'entrepreneur' in the mid-18th century for a speculator engaged in activities with certain expenses and uncertain incomes (Blaug, 1997; Brewer, 1992), Jean-Baptiste Say laid the foundations in the early 19th century for the concept of an entrepreneur as not merely a bearer of risk but also a coordinator of the factors of production (Bruyat and Julien, 2001). Most contemporary scholars regard an entrepreneur as someone who is adept at managing risks and deploying resources and managing relationships in pursuit of profit opportunities.

Firms managed by entrepreneurs appraise markets, technologies and business models in novel ways (Teece, 2009) and strive to create new products or to transmute customer values with respect to existing products (Drucker, 1985; Stevenson and Jarillo, 1990). As well as exploiting their own ideas, entrepreneurial firms are adept at integrating the ideas of others and rearranging new or existing assets into meaningful and value-enhancing configurations (Christensen, 1997; Drucker, 1985; March, 1991; Shane, 2000; Shane and Venkataraman, 2000; Smilor, 1997; Teece, 2009). Thus, entrepreneurial start-up firms upset the status quo of established firms, disrupt accepted ways of doing things and alter traditional patterns of behavior (Schumpeter, 1934; Christensen, 1997; Drucker, 1985; Smilor, 1997).

Transforming an innovation into a commercially viable product requires that the know-how inherent in the innovation can be utilized in conjunction with complementary assets (Teece, 1986; Colombo et al., 2006; Sheen and MacBryde, 1995). Examples of complementary assets include manufacturing facilities, marketing and distribution networks, after-sales servicing, and specialized componentry and technology. Such assets are usually in short supply for entrepreneurial start-ups, especially at the early stages of development, which results in three types of problems.

First, start-ups at inception usually lack the financial resources needed to build or buy capital-intensive complementary assets. Initial resources such as business networks (Huang et al., 2012), the core team's commitment (Chorev and Anderson, 2006) and heterogeneity in the functional capabilities of the founders (Aspelund et al., 2005) may increase the chances of the firm's survival, but these resources do not fully compensate for its capital deficiencies. Second, acquiring or building complementary assets usually takes time, a luxury unavailable to most start-ups unless they have patient and deep-pocketed investors. Third, rival (incumbent) firms may already possess the assets or be better equipped to build them than start-ups. As a result of these problems associated with complementary assets, it is not surprising that commercialization is often regarded as more challenging than coming up with an invention in the first place (Arora and Fosfuri,

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