



The parent's legacy: Firm founders and technological choice[☆]



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ABSTRACT

Central to research in innovation and entrepreneurship is the argument that new ventures are influenced by the prior experiences of their founders. This study investigates how differences in founders' work experiences and prior career positions affect a new venture's technological choices at the time of founding. We argue that individual founders use their influence to guide the venture toward adopting their parent firms' technologies, and that founders with more valuable expertise will have a greater influence on the venture's technological choices. Our results illustrate that the structural and social influence of individual founders affect the degree to which founding teams of new ventures mimic the technologies of their parents.

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1. Introduction

Organizational founders are the earliest creators of the objectives and priorities of the new firm (Aldrich & Ruef, 2006). As Stinchcombe (1965) suggested, a firm's creation is the one period in its development when its management is not encumbered by the past history of the firm. During this period the firm's founders make critical choices around what the venture will do, what it will look like, and how it will compete. Thus the creation of the new venture is a crucial arena for the interplay of the backgrounds, beliefs, and interests of entrepreneurs as they work to determine the initial form and scope of the venture (Chen, 2009; Phillips, 2002; Walter, Heinrichs, & Walter, 2014).

Ventures in many industries emerge through 'spawning' from established firms (Agarwal, Echambadi, Franco, & Sarkar, 2004; Chatterji, 2009; Klepper, 2001), that is, are begun by founders coming from established incumbents. This study focuses on such ventures—progeny new ventures that are founded by former employees of established firms (i.e., parent firms) and gain founders' accumulated knowledge but do *not* have any formal relationship such as alliance, equity, or board membership with the parent firms (e.g.

Agarwal et al., 2004; Chatterji, 2009; Klepper, 2001). Former employees' prior experience at an incumbent firm often provides them both know-how and opportunity to begin their own new ventures (Phillips, 2002; Walter et al., 2014). Employees leaving a parent firm to found a new venture take with them routines, capabilities, and technologies developed by the parent that they can then put in place in their venture (Agarwal & Shah, 2014; Klepper & Thompson, 2006; Sørensen & Fassiotto, 2011). Although they are independent from their parent firms, new ventures inherit technological experience and expertise from their parents, and such inheritance can play a critical role in their development of new technologies and innovations (Agarwal et al., 2004; Chatterji, 2009; Klepper, 2001).

The inheritance of knowledge and capabilities from the parent firm help shape entrepreneurial activity; it is the career experiences of new venture founders that shape the formation of the new venture and its subsequent outcomes. One of the critical decisions made by founders, and shaped by their career histories with an incumbent firm, is the extent to which they should borrow from the knowledge base of parent firms for creating new knowledge (Agarwal et al., 2004; Bouncken & Kraus, 2013; Tsai & Li, 2007). For ventures in technology-intensive industries, the decision to borrow or not borrow from the parents' technological knowledge base is a particularly critical decision in the start-up process (Chatterji, 2009). Competing in technologies that are the same as the parent may ensure an early advantage to a new venture by building on the expertise of the parent (Agarwal et al., 2004). However, competing in the same technologies may also constrain the venture's own exploration, lock it to unrewarding technological trajectories, and result

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in direct competition with the parent firm. While research has recognized the benefits and downsides of drawing from parent technologies for progeny ventures (Agarwal et al., 2004; Chatterji, 2009), there has been limited examination of what factors in the career histories of founders influence this critical decision.

Further, although a venture's initial technological direction is primarily established by its founders, there is little understanding of important founder-level processes that shape this choice. Past work has argued that these critical decisions are made based on the founding team's collective perception of which parent (if any) can add value and how (Beckman, 2006; Klepper, 2001; Phillips, 2002). However, the extent to which a founder can influence venture choices may also play a critical role in the determining the extent to which ventures' and parents' technologies and innovations overlap. A specific founder's motivation and ability to mimic his or her parents' technologies are influenced by the range of experiences and capabilities the founder brings to the venture from the parent firm (Baron, Hannan, & Burton, 2001). Despite the recognition that founder experience influences entrepreneurial strategies and performance (Boeker & Wiltbank, 2005; Fern, Cardinal, & O'Neill, 2012), prior research has not explicitly related attributes of founders to their influence over a progeny venture's technological choices. This is a critical gap in the literature since ventures are often started by founders coming from multiple parents with diverse sets of technological resources and capabilities. It is therefore important to understand how the varying backgrounds of founders influence the extent to which they imprint their prior expertise on the ventures' technological direction.

To address these important issues this study examines the following research question: What is the role of founder work experiences and prior career positions on the nature of entrepreneurial choices regarding technology? As a point of departure from previous work, this research focuses on the *individual founders* of a new venture as the unit of analysis. These individual founders may have differing ideas about how the new venture should compete and what technologies it should build on to be successful. Our central argument is that the choices that founders make concerning the technological focus of the new venture are a result of their prior career history, and the expertise and influence that they bring to those decisions. Founders with more valuable and relevant expertise are likely to have greater influence on the choices that are made, and this influence will be reflected in stronger technological overlap with that founder's parent firm.

This study addresses these issues through an examination of a sample of 119 biotechnology ventures founded during the four year period 1996–1999 and tracked for nine years after founding. We examine the extent of technology overlap between the new venture and the parent firms of the founders, using patent data to examine the technological choices of founders and determine which parent firms are more closely mimicked. As noted earlier, a parent firm is the firm where the founder was previously employed and parent founding experience refers to a founder's experience in previously founding her or his own parent firm.

2. Theory

Freeman (1986) was among the first to argue that founders' immediate past experience in their prior employer (which he termed the 'parent' firm) would be the most salient in influencing their beliefs about how the new firm should operate and be organized. The role that the parent firm plays in the establishment of the new venture is critical since the skills and knowledge founders have acquired from their parent firm shape the activities of the new firm (Shane, 2001). Therefore, progeny ventures may inherit blueprints and models in the form of established routines, technologies and capabilities from their parent companies (Chatterji, 2009). This inheritance process is likely to shape not only the founding of the new venture but its long term behavior, leaving a lasting stamp on its development (Agarwal et al., 2004).

Prior research has provided valuable insights into what progeny ventures inherit from parent firms and how they imitate. Institutional theorists have argued that institutional pressures for mimetic isomorphism may make it more likely that founders imitate technologies they are familiar with, the most salient being those that were also used by their parents (DiMaggio & Powell, 1983; Phillips, 2002). Klepper and Sleeper (2005), for example, discuss a number of ways in which founders access information about new innovations and technologies from their parent firm. Parents' knowledge and technological expertise are reproduced through the creation of a new venture as founders rely on familiar routines from their previous employment experience. These routines, as elements of the parent firm's organizational and technological capabilities, are embodied in the mental models of the entrepreneurs coming from the parent firm and move with them as they found the new venture (Helfat & Lieberman, 2002; McKelvey, 1982).

Empirical evidence supports this model of technological inheritance. Klepper and Sleeper (2005) showed that progeny ventures exploited specific domains of technology inherited from their parents. Agarwal et al. (2004) demonstrated that the transfer of technologies and routines from the parent firm to progeny new ventures can also have important performance implications for the venture. Similarly, Chatterji (2009) found that the inherited strategy and market knowledge of executives improved the ability of new ventures to obtain funding, and government approval more quickly.

Past research examining mimicry and the transfer of routines and practices from parent firms to progeny has implicitly assumed that all founders are equally influential. But replication in organizations, unlike genetic determinism, can be modified by proactive individuals. This research argues that key decisions about the venture's technological direction, such as the degree of technological overlap with individual parent firms, are often based on the influence that individual founders can exert over the remaining founding team (Beckman & Burton, 2008). An influential founder can bring together the rest of the team around a specific technology or market opportunity that he or she recognizes while working at the parent firm.

The degree of technological overlap with parent firms can significantly impact the subsequent knowledge development of a new venture (Basu, Sahaym, Howard, & Boeker, 2015). Whether the possession of influence from both present role and background translates to the formation of technological overlap is ultimately an empirical question that we hope to address through this study.

2.1. Founder's role in the venture

A founder's influence is derived from individual characteristics such as their background, status, and experience. More powerful founders may be better able to promote and encourage technological choices that more closely match those of their parents, leading to a greater technological overlap with their parents' technologies. Less powerful founders may have weaker influence on the initial technology choices of the new venture, resulting in little imitation of their parent firms' technologies. A considerable part of the power that an individual founder has to influence the venture's technological choices arises from the founder's role in the focal venture. As depicted in Fig. 1, this study examines the factors relating to founders' work in their new ventures such as whether they are the chief executive and/or whether they have a primarily technological role in these ventures.

2.1.1. Founder–chief executive officer (CEO)

We begin by proposing that there will be greater technology overlap between a founder's parent firm and the new venture when the founder is the CEO of the new venture. This is because founders' knowledge and beliefs play a primary role in defining the form of the new venture, its technological choices, and the manner in which it will compete (Beckman, 2006; Bouncken & Kraus, 2013; Klepper, 2001; Phillips,

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