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The governance and performance of Xerox's technology spin-off companies[☆]

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Abstract

Companies that conduct internal research cannot fully specify the output from that research in advance. Inevitably, spillovers may result. A company might choose to create a technology spin-off company to realize value from such research spillovers. But how is such a spin-off to be governed? Effective spin-off governance structures in a highly uncertain environment must promote experimentation and adaptation, in order to unlock the latent value in a technology. These can conflict with structures intended to manage coordination with the parent firm's complementary assets.

This paper analyses 35 spin-off organizations that arose from the Xerox Corporation. Xerox's own initial equity position is negatively correlated with the subsequent performance of its spin-offs, but this is due not to their equity per se, but Xerox's practices in managing its spin-offs. Spin-offs with a higher percentage of venture capital investors on their Boards were associated with higher financial performance, while spin-offs with a Xerox insider as CEO were associated with lower financial performance. Qualitative interview data suggest that Xerox's practices caused its spin-offs to search locally near Xerox's own business, while spin-offs governed by outside investors' practices searched a broader space for commercializing their technologies. © 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

Companies conducting significant amounts of internal research cannot fully specify the outputs of that activity. Research outputs that do not "fit" with the strategic intent of the organization that funded the research will spill out into the external environment,

if the company cannot find another way to create value from that output. In some cases, the organization will simply terminate any further funding, accept the leakage and shut down the activity. In other cases, the organization may seek to place the output into its internal organization and hope that it may somehow be used. In still other cases, organizations may seek to license the technology to other firms. Finally, organizations may choose to spin-off a separate company to commercialize the research output.

Research managers must select the appropriate path for a technology based on a comparative assessment of the costs and benefits of each path. This paper seeks to inform that assessment by exploring the implications

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of this latter spin-off choice. We know little about how to set up the technology spin-off companies and we know less about how to govern them once they are established. Yet, it is likely that these choices condition the value that can be created from a technology spin-off and that value would in turn influence any comparative assessment of future paths for research output. If the value that can be gleaned from spin-offs is low, one would resort to that choice only rarely if at all. If the value is high, that would incline one to utilize that choice more often. One would then wish to know how best to organize the spin-off and how best to govern it once underway.

Section 2 of the paper discusses the literature on organizing spin-off companies and connects it to a separate literature on governance. The conjunction of these literatures leads to an appreciation of the need to coordinate complementary activities between the spin-off and the parent firm. It also leads to conflicting views of the relative merits of internal versus external governance structures for managing spin-offs and the relative value of internal versus external CEOs to lead the spin-offs. The Section 3 describes the field data collected on technology spin-offs from the Xerox Corporation and specifies the measures used in the analysis. The Section 4 analyzes the data and the Section 5 discusses the results. Concluding remarks follow.

2. Governance in technology spin-off companies

2.1. Motivations for creating technology spin-offs

A technology spin-off company is a particular type of spin-off company (Roberts, 1980; Garvin, 1983) that is created for the purpose of commercializing one or more research discoveries outside the main business of the firm.¹ These usually emanate from institutions that perform significant discovery oriented research activity, such as universities (Shane, 2000) or the central research laboratories of large corporations (Chesbrough, 2002). In Burgelman's (1983a)

conception, the spin-off is initiated voluntarily by the originating company to maintain strategic coherence with the originating company's strategy. In Garvin's (1983) conception, the spin-off may also be initiated to create financial value for the originating company. Block and Macmillan (1993) view spin-offs as a vehicle for spurring growth and entrepreneurial initiative within the firm.

The origins of these spin-offs lie in the spillovers, or unintended outputs, produced by the internal research activities of the firm. Burgelman (1983a) found that internal research was an important source of the "requisite variety" that corporations need to create new resource combinations, which in turn can lead to new strategies. Yet, the results of such long term research are difficult to predict in advance. Once internal research has generated the "requisite variety" needed to foster new combinations, corporate selection processes must then operate to restrict combinations to those congruent with the corporate strategy (Burgelman, 1983b). Resources must be quickly cut-off when certain paths seem to be inconsistent with the strategy, even as potentially promising paths must be given additional resources to further explore those possibilities. Managers' actions must be continually refocused on the paths with the best potential return, given the information then available.

In cases where new technologies were created to address nascent markets, these opportunities involve high degrees of both technical and market uncertainty. It is precisely here where experimentation is most needed and potential customers may be hardest to identify. And it is also here where internal resource allocation processes (Bower, 1970) and organizational routines (Winter, 1988) have been shown to frustrate the initiation of effective experiments.

In other contexts, innovation scholars have differed on how effectively companies can pursue new business opportunities through separate organizations. Tushman and O'Reilly (1997) have argued that managers need to cultivate dual processes (ambidexterity) internally to manage incremental and discontinuous change. Drucker (1974) argued long ago that these processes needed to be separately structured and managed in order to succeed. More recently, Christensen (1997) has also called for separate organizations to manage the conflicts involved in disruptive technologies.

¹ Spin-off companies can arise in many other contexts beyond those of research spillovers. As discussed in Garvin (1983), spin-off companies have arisen in fields as disparate as strategy consulting, advertising, and even rock music.

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