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# **Markt- und Unternehmensentwicklung Markets and Organisations**

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Bernhard Gold

# Silicon Valley Start-ups and Corporate Innovation

Approaches to Resolve  
the Innovator's Dilemma

 Springer Gabler

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München, Germany

Dissertation Ludwig-Maximilians-Universität München, 2017

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## Executive Summary

In the last two decades, start-ups have emerged as the masters of innovation. Their innovative products and technologies have not only profoundly changed people's lives but also put considerable pressure on established corporate players (Edison 2016). When they reach maturity, most industries slowdown in growth or even stop growing. Start-ups, however, threaten to disrupt these old industries with new innovations, and large corporations more than ever must innovate and create new businesses in order to survive. Especially given the fact that the pace of disruption by start-ups is accelerating. New software-based tech companies such as Amazon, Facebook, Google, Tesla and Uber, who were small start-up companies only several years ago, are threatening established players and their core markets today. Or as venture capitalist Marc Andreessen<sup>1</sup> famously said, "Software is eating the World", and corporations must react quickly if they want to survive.

However, it is still not completely understood how large corporations can benefit from start-up innovativeness while simultaneously leveraging their own capabilities to survive and secure long-term success. Against this background, the purpose of this dissertation is to examine this question by exploring different aspects of corporate innovation. Three interrelated studies are presented that examine the topic from different perspectives. Each of these studies differently explores how to approach and possibly resolve this 'innovator's dilemma'<sup>2</sup> (Christensen 1997). In this regard, this dissertation extends the existing organizational literature in academia. In addition, this dissertation presents valuable practical knowledge for both managers of large corporations and policy decision-makers.

The first study chooses a theoretical approach to address corporate innovation by applying the theory of ambidextrous organizations<sup>3</sup> to corporate venturing, which introduces a completely new perspective on this matter, i.e., a perspective that regards venturing as a tool not only for innovation and exploration but also for exploitation. In this way, the first study concludes with the development of a new theoretical model that is called 'Ambidextrous Corporate

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<sup>1</sup> A quote from an essay that Marc Andreessen wrote in The Wall Street Journal in 2011. <http://online.wsj.com/article/SB10001424053111903480904576512250915629460.html>

<sup>2</sup> According to Christensen (1997), the 'innovator's dilemma' describes the phenomenon that successful companies can do everything 'right', yet may still lose their market leadership or even fail because of 'disruptive innovations' (p. 10) that often come with new technology waves. The dilemma is that for most companies, it becomes difficult to efficiently execute their existing business while simultaneously innovating and developing new businesses.

<sup>3</sup> 'Ambidextrous Organization' describes corporations that can effectively exploit existing businesses and explore new businesses simultaneously (Tushman and O'Reilly 1997). The first study applies this theory to corporate venturing for the first time.

Venturing’ or the ‘ACV-Model’ as a basis for further studies. This first study also introduces the ‘Spin-Along Approach’<sup>4</sup> that is explored in greater depth in the second study.

The second study takes a more practical view of corporate innovation. Based on case study evidence, a new concept is created on how to practically realize ambidexterity in organizations and how to implement designs that secure long-term success. The results of this second study show that this concept can be realized through the Spin-Along Approach that combines internal and external venturing activities. Thus, by optimizing the structural-, contextual- and leadership-based antecedents of innovation, the innovator’s dilemma can potentially be resolved. Accordingly, organizational ambidexterity can be achieved by increasing exploration and exploitation capabilities while simultaneously balancing them to realize ‘the best of both worlds’, i.e., leveraging the innovativeness of start-up companies and the effectiveness and capabilities of the parent company.

In the third study, the perspective changes again. The first two studies take an inside-out view of innovation, i.e., starting with a company’s internal capabilities on how to successfully foster innovation, whereas the last study takes the opposite (outside-in) view. Here, the Silicon Valley ecosystem as one of the most important regions for technological innovation in the world is analyzed. Based on ten empirical case studies, the question is examined concerning what makes Silicon Valley companies so innovative and successful in internationalizing their businesses. Specifically, what success factors does the Silicon Valley ecosystem provide to these businesses so that they succeed internationally? Based on Porter’s Diamond model (Porter 1990), the effects of three hard factors (capital, talent and a large domestic market) and two soft factors (social network and business culture) on entrepreneurial innovation are analyzed. As a result, a comprehensive view on the very specific Silicon Valley ecosystem is provided, and a theoretical framework is developed. In addition, the concept of ‘intra-nationalization’ is introduced that describes the phenomenon that Silicon Valley companies are going international without even leaving the region.

Although the three studies in this dissertation focus on different aspects of corporate innovation, several general conclusions can be drawn. The ‘innovator’s dilemma’ can be resolved through ambidextrous venturing that is defined by combining the exploration and exploitation of innovations simultaneously. In practice, this combination can be realized by

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<sup>4</sup> ‘Spin-alongs’ are defined as separate organizational units that are kept under the control of the parent company to support the innovation of the parent company and to thus secure the parent’s long-term survival and success. The ‘Spin-Along Approach’ can be defined as a combination of internal and external venturing activities (Gold et al. 2010).

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the ‘Spin-Along Approach’ that enables the leveraging of the innovativeness of start-up companies with the capabilities of corporations to obtain ‘the best of both worlds’. Finally, to secure the international success of innovations, an ecosystem like the Silicon Valley enables the concept of ‘intra-nationalization’, where companies innovate and go global but staying local.

# General Introduction

## Motivation and Research Questions

The discussion concerning entrepreneurial and corporate innovation is more than 100 years old. Since Schumpeter (1911), it has been common sense in organizational literature that innovation is the critical dimension of economic change and that this change revolves around innovation, entrepreneurial activities, and market power (Schumpeter 1911). Accordingly, the innovation process can be best described as ‘creative destruction’<sup>5</sup>, a process that constantly revolutionizes the economic structure from within by incessantly destroying the old structure and creating a new structure (Schumpeter 1934).

Thus, one recurring topic in the organizational literature is how firms can achieve long-term success by being efficient and exploiting their current business while simultaneously being flexible to environmental changes and adaptive through innovations and the exploration of new opportunities<sup>6</sup>. Although this process of creative destruction is well known, it is still being discussed among scholars, who are also discussing how it can be managed successfully in a corporate context and how the ‘innovator’s dilemma’ (Christensen 1997) can be resolved.

Accordingly, the basic challenge of how to innovate successfully remains unresolved in organizational literature and continues to be highly relevant especially in the modern technological and globalized world. Moreover, it has become increasingly clear that corporate innovation that is merely based on internal corporate research and development (R&D) processes may no longer be sufficient to secure the long-term success that these companies must achieve. Specifically, start-up companies represent a new and very powerful engine of open innovation processes that greatly pressure established players with disruptive innovations (Spender et al. 2017). As a result, to address this challenge, corporations are starting to explore both the possibilities to profit from start-up innovations and the innovativeness of start-up ecosystems such as Silicon Valley.

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<sup>5</sup> In the German original: ‘Schöpferische Zerstörung’.

<sup>6</sup> Cf. Duncan (1976), March (1991), Tushman and O’Reilly (1997), Adler et al. (2009).

This dissertation addresses this highly relevant topic. Overall, this dissertation is mainly motivated by the following main research question:

*How can corporate innovation be managed successfully in the long-term, and to what extent can the environment of a firm contribute to innovation?*

In more detail, the three studies that are presented here seek to contribute to the organizational and management literature by investigating the following three different perspectives on corporate innovation: first, through theory and the ambidextrous organization (study 1); second, through the more practical means of venture capital (study 2); and third, on the level of the ecosystem of Silicon Valley and on the matter of successful internationalization (study 3). These three studies are interrelated and build on one another.

The studies in this dissertation are particularly motivated by the individual research questions as follows.

*Study 1: How can the theory of ambidextrous organizations be applied to corporate venturing to resolve the ‘innovator’s dilemma’?*

This study is a theoretical approach to corporate innovation. It concludes that the ‘innovator’s dilemma’ in theory can be addressed through ambidextrous corporate venturing that results in the Spin-Along Approach.

*Study 2: How should a spin-along be designed and organized to foster innovation and to thus realize a firm’s long-term success?*

The second study examines the spin-along phenomenon and explores it based on case study evidence that determines how exploration and exploitation capabilities can be combined to achieve ‘the best of both worlds’, i.e., the leveraging innovativeness of start-up companies and the effectiveness of large corporations.

*Study 3: What makes Silicon Valley companies so successful in internationalizing their businesses?*

The last study examines the innovative capabilities of the Silicon Valley region by exploring its success factors and the matter of what exactly this unique ecosystem provides to companies that allows them to innovate and internationalize their business successfully.

The following section provides a brief executive summary of the three studies.

## Summary of the Studies

### **Study 1: Ambidextrous Corporate Venturing - A Theoretical Approach to Resolving the Innovator's Dilemma.**

The first study<sup>7</sup> approaches the topic of corporate innovation from a theoretical perspective by determining how the theory of ambidextrous organizations can be applied to corporate venturing to realize long-term success, especially in dynamic environments such as the current highly competitive and globalized economy.

Abernathy (1978) suggests that a firm's focus on productivity gains inhibits its ability to innovate and called it the 'productivity dilemma', i.e., realizing short-term efficiency gains at the cost of long-term adaptability to changes in the environment. Duncan (1976) states that organizations must introduce a dual structure to optimize both of these activities, and he first introduced the term of the 'Ambidextrous Organization' in this context. Similarly, March (1991) describes this contradiction in his work on exploitation and exploration and characterized both activities as fundamentally contradictory organizational processes. Since then, an increasing number of scholars have tried to resolve what Christensen later called the 'innovator's dilemma' (Christensen 1997), namely, how to balance exploitation and exploration simultaneously to realize an ambidextrous organization (e.g., Tushman and O'Reilly 1997, Gibson and Birkinshaw 2004, Adler et al. 2009). Christensen is pessimistic about the ability of organizations to both exploit and explore at the same time (Christensen and Bower 1996) and argues that attempts to pursue both strategies simultaneously result in firms strategically being 'stuck in the middle' (Porter 1980) and mediocre at both.

In the academic literature, corporate venturing is primarily regarded as an important way to foster innovation, namely, creating a window of new technologies and supporting entrepreneurial innovation within a corporate context<sup>8</sup>.

The first study of this dissertation applies the theory of the ambidextrous organization to venture capital because to date, there has been little to no research on this topic. In so doing, the literature is extended by the development of the new proposed model of 'Ambidextrous Corporate Venturing' (ACV-model).

Accordingly, the ACV-model in the first study advances organizational theory by demonstrating new ways of encouraging entrepreneurial innovation to possibly resolve the

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<sup>7</sup> The author of this dissertation published an outline of the Theory of Ambidextrous Corporate Venturing (ACV-Model) earlier; see also Gold et al. (2010).

<sup>8</sup> Burgelman (1985), Roberts and Berry (1985), Zahra (1996), Chesbrough (2000), Christensen (2004), Schildt et al. (2005), Dushnitsky and Lenox (2006).

innovator's dilemma. The model contains several central components, such as the structural elements (the combination of internal and external venturing), contextual elements (different set of strategies), and the role of senior management, to be tested as the independent variables in the model. These components have an influence on the ambidexterity as an interacting variable, which is measured by the intensity of exploitation and exploration and have eventually a positive effect on the overall long-term performance of the company.

The main contribution of the model to literature is the extension of our understanding of corporate venturing not only as a tool for innovation and exploration, but also as a means to achieve various other goals such as exploitation and efficiency to avoid getting 'stuck in the middle'. The first study also conceptualizes the topic and serves as a theoretical background for the examination of the Spin-Along Approach in the second study.

### **Study 2: Spinning-along Innovations - Case Studies on Corporate Venturing.**

To date, not much empirical research has been conducted on how to realize ambidexterity in practice and how to simultaneously exploit existing and explore new capabilities. The second study intends to fill this gap by asking how spin-alongs should be designed to foster corporate innovation and secure a company's long-term success.

A 'spin-along' is defined as a separate organizational unit like a start-up company that is kept under the control of the parent company to support the innovation activities of the parent and thus the parent's long-term survival and success (Gold et al. 2010). In this way, spin-alongs are sufficiently independent to develop new, innovative products while also being sufficiently connected to the parent firm to use its resources and to benefit from its exploitation capabilities. The underlying research logic of the second study is empirical, and due to the fact that there is no academic theory thus far on the spin-along phenomenon, a grounded theory approach (Glaser and Strauss 1967) was chosen. Therefore, to build theory in the second study, two large in-depth case studies<sup>9</sup> (Eisenhardt 1989) of spin-along activities in two large German corporations were conducted<sup>10</sup>.

The results of the second study show that ambidexterity can be realized through the Spin-Along Approach and by optimizing structural-, contextual- and leadership-based antecedents,

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<sup>9</sup> The two cases under examination were Deutsche Telekom, Europe's largest telecommunications company, and Georg von Holtzbrink, one of Europe's largest publishing houses. Despite being from very different industries, both companies were facing tough competition recently by new software-based tech and internet companies that cannibalize their core business through new and disruptive innovations. However, as it will be demonstrated, both companies were responding very differently to these new challenges.

<sup>10</sup> Some parts of the case studies of these two companies were published earlier. See therefore Michl et al. (2012), a publication where the author of this dissertation was a co-author.

which are strongly interrelated and can also strengthen or weaken one another. The evidence further shows that it is useful to implement a coordinating management layer between the parent company and the spin-along to optimize the antecedents. In this way, an ambidextrous middle management rather than the senior management of the parent handles the conflicting goals of exploitation and exploration and plays a decisive role in realizing ambidexterity. Overall, the Spin-Along Approach could be regarded as a fourth method that unifies the three concepts of “temporal separation”, “structural separation” and “parallel structures”. Through the Spin-Along Approach, organizational ambidexterity can be achieved by increasing exploration and exploitation capabilities while simultaneously balancing them.

The second study also derives practical implications and recommendations for businesses on how to realize ambidexterity and address the ‘innovator’s dilemma’. Based on the case study evidence, it could practically be shown that a legal separation and a certain independency of the spin-along is essential. Furthermore, in practice, a management layer between the spin-alongs and the parent company is advantageous where the senior management plays an important role in creating the preconditions that enable ambidexterity. Another practical recommendation is that an external market orientation is important during all stages of the spin-along process. Further, the permeability between the internal and external domain is also of importance. In this respect, a spin-along most resembles a successful start-up company. Finally, the practical spin-along process of planning and coordination should include the entire potential life-cycle of a project, from an early incubation phase to the late venture stage and the re-integration process after a potential acquisition.

The third study changes perspective again and examines how the environment influences a company and its innovation capabilities.

### **Study 3: Silicon Valley Success Factors - The Concept of Intra-Nationalization.**

There are many studies on the Silicon Valley region and its success, and most of them take a historical view or examine only single aspects of the phenomenon<sup>11</sup>. There has hardly been any research thus far however, that regards the Silicon Valley ecosystem as a whole. Only recently, scholars have started to analyze the region more broadly. The most notable work was produced by Ferrary and Granovetter (2009), who analyzed the innovation capability of Silicon Valley as a technological cluster, and Etzkowitz (2012), who examined the sustainability of the region. Despite these works, there is almost no research that attempts to understand Silicon Valley’s success by systematically examining the region as an ecosystem

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<sup>11</sup> e.g. Saxenian (1990), Markusen (1996), Castilla et al. (2000), Sturgeon (2000), Adams (2005), Lécuyer (2006).

and in its entirety. As a result, academic scholarship has yet to provide an integrated approach in understanding Silicon Valley that analyses the region as a whole, and determines how its configuration provides advantages for the internationalization of start-up companies. The third study intends to fill this gap by determining what the Silicon Valley ecosystem contributes to companies' innovative and international success.

To examine this topic and build a theory on the Silicon Valley ecosystem, the third study collected and analyzed evidence from ten different case studies of internationally successful Silicon Valley start-up companies. Specifically, the factors that the ecosystem provided to the start-ups' international success are elaborated and result in the development of a theoretical framework of the Silicon Valley ecosystem as a whole.

There are five success factors that appear to be important to Silicon Valley companies. These factors include three 'hard factors' – two main factor conditions (capital and talent) and one main demand condition (the United States as a large domestic market). These factors also include two important supporting 'soft factors', specifically a well-developed and dense social network that acts as an underlying web that holds the ecosystem together, and a very specific local business culture that appears to help companies to leverage the other four factors successfully.

This research also demonstrates that the other factors that are traditionally used to explain the dynamics of an economic region (e.g., infrastructure and the role of the government in matters such as taxes or regulations) and the role of supporting industries (Porter 1990) appear to play a rather minor role (if any) for the companies in the Silicon Valley. Furthermore, the evidence indicates that most of these companies expanded internationally early on. They expanded internationally specifically by leveraging the Silicon Valley ecosystem while staying local. Silicon Valley seems to provide all the important factors for successfully going global locally (i.e., within or 'intra' an ecosystem). A phenomenon that is then conceptualized as 'intra-nationalization', a very specific characteristic that the ecosystem provides to foster innovation of Silicon Valley companies and that allows them to be successful internationally. Based on the case study evidence, the third study further provides practical implications and recommendations for governments, policy makers and business managers.

To sum up, this dissertation investigates corporate innovation from three different perspectives with the main motivation to address and possibly resolve the 'innovator's dilemma' and thus guarantee a firm's long-term success in the modern, highly competitive and globalized environment. Each of the three studies contributes to this goal in different

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ways. The first study proposes the theoretical model of ambidextrous corporate venturing as one possible way of addressing the ‘innovator’s dilemma’. The second study approaches the core question of successful corporate innovation from a more practical angle through venture capital and proposes the Spin-Along Approach as a possible solution. Lastly, the third study changes perspective by determining to what extent an environment like the Silicon Valley ecosystem can contribute to innovation and a company’s international success.