



Developing new ideas: Spin-outs, spinoffs, or internal divisions



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ABSTRACT

This paper proposes a theory of how employee-driven innovations are developed. An employee with private information about the value of his idea can create a spin-out, work in a division of the parent firm, or work for a spinoff of the parent firm. Developing an idea in a spinoff allows the parent firm to offer a performance-based contract, which mitigates the adverse selection problem but also decreases the firm's incentives to invest in the project. Therefore, inefficient spin-outs are driven by the informational asymmetry and the endogenous investment of the parent firm. The characteristics of the innovation, the employee's managerial talent, and the firm's performance in its core activity affect the likelihood a spin-out is created. The implementation of employees' ideas in turn affects the innovation process. Ideas with a lower probability of being good are more likely to be explored by an employee within the firm than by an outsider.

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1. Introduction

Generating and developing new ideas are important drivers of economic growth. New ideas can emerge in different ways, but many are created by employees within existing firms. The aim of this paper is to propose a theory of how these ideas are developed and analyze how the development decision is related to the characteristics of the industry, of the parent firm, and of the innovation. The modalities of new idea's development affect the agents' incentives to innovate. The paper analyzes these incentives and characterizes the different profiles of innovation initiated within and outside existing corporations.

An employee with an idea can leave the firm and develop the idea in a new independent venture (spin-out). The evidence suggests that many of the new ideas implemented in new ventures were generated while the employee worked for a parent firm in the same industry. [Bhide \(1994\)](#) highlights that '71% of all founders had replicated or modified an idea encountered through previous employment'.¹ [Gompers et al. \(2005\)](#) find that 45% of all venture capital-backed startups are spawned by public companies. However, a considerable part of innovative activity occurs within corporations. The parent firm's involvement in developing the ideas may take different forms,² some of the ideas are developed internally while others are spun off and implemented in firm's subsidiaries.³ This raises the following questions: What determines if an idea will be

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¹ The sample: 100 founders of the 1989 Inc 500 fastest-growing private companies.

² An example of such involvement are the corporate venturing programs. Those programs finance external or internal projects. In the latter case, the program's aim was to allow the employees to develop their innovations while relying on the company for financial, legal and marketing support.

³ In the finance literature, a spinoff is created when a public company distributes its equity ownership in a subsidiary to its shareholders, the parent shareholders receive a subsidiary stock in proportion to their ownership in the parent firm. In the model, the term spinoff is used in a broader sense.

implemented internally or in a spinoff? Is the possibility for the firm to create subsidiaries enough to prevent inefficient spin-out creations? Understanding the path of idea development within firms allows us to understand what differentiates it from the possibilities offered to innovations initiated outside the firm. This raises a new question, what are the differences in the portfolios of innovative ideas explored within and outside the firm?

To address these questions, I proceed in two steps. First, I analyze the stage of idea implementation of employee-driven innovations related to the parent firm's capability. Second, I compare the incentives to innovate for agents within and outside the firm and discuss differences in patterns of innovation.

Employees come up with innovative ideas: a new technology, a new production process, or a new product. Since the analysis is about employee-driven innovations, I assume (i) that the employee has better knowledge than anybody else about the value of his innovation and (ii) that he is critical for the implementation of the idea. For each employee, the parent employer decides whether to keep him or not, and if the employee is retained whether to let him develop his idea (in a division or in a spinoff) or allocate him to the firm's core activity. In the latter case, the project is not implemented. The parent firm can contribute to the performance of the new idea by allocating resources to it. The allocation of resources to a new idea has an opportunity cost, and the amount to be allocated depends on the corporation's share in the new idea.

If the idea is developed in a division of the firm, then the idea's performance cannot be disentangled from the overall performance of the corporation. The employer can offer only a fixed wage contract to an employee. In this case, the firm is a residual claimant of the idea's profits and therefore has strong incentives to invest in the new activity. The downside is that since the employee's reward is not based on performance, the information asymmetry problem is very strong. Indeed, to prevent an employee with a bad idea from pretending he has a good one, the employer must offer him the same reward as to an employee with a good idea.

Alternatively, the parent firm may allow an employee with a good idea to develop it in a spinoff (subsidiary of the firm). In this case, the firm can offer a performance-based contract to mitigate the information asymmetry problem. However, giving up a share of the cash flows to the employee reduces the firm's share and therefore the firm's incentives to invest. This limits the share that can be offered to the employee and therefore the extent to which the adverse selection problem can be mitigated. The decision to develop an idea internally or in a spinoff trades off the rent extraction of the employees with bad ideas with the efficient investment by the parent firm.

Due to the information asymmetry, keeping employees with good ideas in a division or in a spinoff comes at a cost, namely, increased wages for employees with bad ideas. Therefore, when the probability that an idea is good is low or when the rent left to agents with bad ideas is high, the employer lets employees with good ideas leave the firm and create inefficient spin-outs. The spin-outs implement good ideas by founders whose ability is lower than the ability of those who develop ideas in the parent firm's subsidiaries.

The consequence of the internal idea implementation process is that in case an employee comes up with a bad idea his expected payoff is higher than the expected payoff of an agent who comes up with a bad idea outside the firm. Therefore, the incentives to innovate within and outside the firm are different, which affects the characteristics of the pool of available ideas. The pool of internal innovations includes ideas with a lower likelihood of being good and a higher risk than the pool of outside innovations does.

Spin-out creation has attracted a substantial attention in terms of theoretical and empirical analysis. In what follows, I will discuss the contribution of the paper to the existing theories, the empirical evidence and how my results relate to it are discussed in the paper. One strand of the theoretical literature explains employees' departures as efficient outcomes (Pakes and Nitzan, 1983; Klepper and Sleeper, 2005; Cassiman and Ueda, 2006 among others). In these papers, spin-outs arise because the idea is less valuable if it is developed by the parent employer than in an independent new venture.

A second strand, which this paper is more closely related to, aims to explain the existence of inefficient spin-outs. Hellmann (2007) shows that when employees face a multitasking problem – work on the firm's core activity or innovate, committing *ex ante* not to develop employees' ideas and allow them to leave the firm *ex post*, reduces the incentives to innovate and increases the employee's effort in the core activity. In the present paper, the mechanism driving inefficient spin-outs is a mix of adverse selection between the employee and the parent firm and the need to motivate the firm to invest in the project. Similar to Hellmann, I also consider the employee's incentives to innovate. However, the focus of my paper is on the resulting different profiles of innovation initiated within the firm and innovation initiated outside the firm.

Amador and Landier (2003) study the implementation of employees' ideas within corporations or by venture capitalists when the entrepreneurs are overly optimistic about the quality of their ideas. The trade-off is between an exogenously set lower implementation cost if the idea is developed internally (by the parent employer), but also reduced contractual flexibility due to the impossibility to write a performance-based contract when the company finances the new project. Hvide and Kristiansen (2012) and Gambardell and Panico (2009) consider better informed researchers and some advantage from working with the parent firm. Hvide and Kristiansen (2012) consider a trade-off between increased outcome due to complementarities when the idea is developed internally and impossibility to write performance-based contracts in that case. Gambardell and Panico (2009) consider that the principal can use the delegation of decision-making authority in order to provide incentives to the privately informed researcher. My paper shows that in a setting where the parent firm's investment is endogenous, allowing the parent employer to write performance-based contracts (by allowing him to develop the employee's idea in a subsidiary) does not prevent the existence of spin-outs. Also, differently from Hvide and Kristiansen (2012) and Gambardell and Panico (2009), I show that the quality of the ideas developed in spin-outs depends on the degree of fit of the new idea with the activity of the parent firm. As the degree of fit decreases the quality of the ideas implemented in spin-outs increases.

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