WHO IS THE CORPORATE ENTREPRENEUR? INSIGHTS FROM OPPORTUNITY DISCOVERY AND CREATION THEORY

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ABSTRACT

Recent research has begun to address and even compare nascent entrepreneurship and nascent corporate entrepreneurship. An opportunity based view holds great potential to integrate both streams of research, but also presents challenges in how we define corporate entrepreneurship. We extend (corporate) entrepreneurship literature to the opportunity identification phase by providing a framework to classify different types of corporate entrepreneurship. Through analysis of a large dataset on nascent (corporate) entrepreneurship (PSEDII) we show that these corporate entrepreneurs differ largely from each other in terms of human capital. Prior studies have indicated that independent and corporate entrepreneurs pursue different types of opportunities and utilize different strategies. Our findings from the opportunity identification phase challenge those differences and seem to indicate a difference between the opportunities corporate entrepreneurs identify versus the opportunities they exploit.

INTRODUCTION

The successful identification and exploitation of new business opportunities is of paramount importance for firm performance (Zahra and Covin, 1995). Firms can thereby draw on opportunities generated within their firm as well as on opportunities identified in the independent context (Gans and Stern, 2003; Shane and Eckhardt, 2003). Prior studies have indicated that independent and corporate entrepreneurs pursue different opportunities, apply different learning strategies and use and possess different resources (Honig, 2001; Parker, 2009; Shrader and Simon, 1997). We therefore need an understanding of who corporate entrepreneurs are if managers want to support them in generating opportunities.

Existing corporate entrepreneurship research tends to define corporate entrepreneurship as having positive outcomes for firms in terms of innovation, venturing or renewal activities (Guth and Ginsberg, 1990; Sharma and Chrisman, 1999; Zahra, 1996). Yet, such a definition might lead to a biased understanding of the identification of opportunities. During the process of identifying an opportunity it is often extremely hard to predict whether an opportunity has a relevant outcome for the organization, so focusing on outcomes may cause a firm to miss out on valuable opportunities. For example, Christensen (1997) showed that in some cases employees of established disk drive manufacturers identified an opportunity for a new standard of disk drives before they were on the market. Yet, these opportunities were dismissed by top management as not relevant for their current customers (Christensen, 1997). Only to find out later that new entrants adopting this new disk drive standard had taken over the industry. Nurturing those employees as corporate entrepreneurs might have saved several of those incumbent firms.

In this paper we address this gap in the literature by using discovery and creation theory to define who entrepreneurs and corporate entrepreneurs are when focusing on the identification of opportunities. We argue that there are significant differences in terms of social and human capital and outcomes of the opportunity identification process depending on how the corporate entrepreneur is defined. We utilize data from a longitudinal dataset of entrepreneurial emergence (PSEDII) to compare different sets of (corporate) entrepreneurs. We will discuss our findings and the implications it has for the practice of corporate entrepreneurship and future research. We envisage making at least two contributions to the literature.

First, we apply an opportunity-based lens to the corporate context. It has been suggested there are differences and similarities between the opportunity development processes of independent and corporate entrepreneurs (Shane and Eckhardt, 2003), but studies including corporate entrepreneurs are strongly lacking. Prior studies have shown that there are differences in human and social capital and opportunities between nascent entrepreneurs and nascent corporate entrepreneurs (cf. Parker, 2009; Honig, 2001). We extend this line of research by utilizing discovery and creation theory (cf. Alvarez and Barney, 2007; Zahra, 2008) to show that there are also differences between types of corporate entrepreneurs.

Second, we use opportunity discovery and creation theory to redefine the notion of a corporate entrepreneur. Prior corporate entrepreneurship studies tended to focus on the exploitation process and defined corporate entrepreneurship according to outcomes (cf. Simsek et al., 2007; Zahra, 1996). We argue that by focusing on the identification phase of the opportunity development process, we need to redefine who the corporate entrepreneur is. Through a discovery and creation lens, we provide avenues for future research into nascent corporate entrepreneurship.

LITERATURE REVIEW

Who is the Corporate Entrepreneur?

We identified three streams in corporate entrepreneurship research. First is the “outcome-driven” view that looks at antecedents and outcomes of venturing, innovation and renewal (cf. Guth and Ginsberg, 1990; Zahra, 1996; Sharma and Chrisman, 1999; Simsek et al., 2007). The second is the “context-driven” view of corporate entrepreneurship that focuses on designing a corporate context to facilitate corporate entrepreneurship (cf. Brown et al., 2001; Stevenson and Jarillo, 1990). The third is a smaller stream of research that we label the “individual-driven” view that started to compare entrepreneurs and corporate entrepreneurs in terms of their social and human capital (cf. Honig, 2001; Parker, 2009). Each of these views has different assumptions on who corporate entrepreneurs are.

Outcome-driven view

After an extensive literature review Sharma and Chrisman (1999: 18) defined corporate entrepreneurship as “the process whereby an individual or a group of individuals, in association with an existing organization, create a new organization or instigate renewal or innovation within that organization.” This stream of research has provided great insight into outcomes of CE in terms of firm performance (Zahra and Covin, 1995; Yiu and Lau, 2008), role of the competitive environment (Simsek et al., 2007), social capital (Yiu and Lau, 2008), governance (Zahra, 1996), and organizational antecedents (Burgers et al., 2009).

Sharma and Chrisman’s definition presents two common themes in this stream of corporate entrepreneurship research. One, it is executed by an individual or group in association with that established organization. Often the association is referred to as being an employee for that existing organization, but that individual could work together with that established organization through corporate venture capital and certain alliances (cf. Keil et al., 2008; Van de Vrande et al., 2009). Shell’s GameChanger program is for example also open for outsiders that present opportunities in which Shell has an interest. Two, the outcomes (venturing, renewal, and innovation) have relevance for an established organization. In short, a corporate entrepreneur:

- Can be any employee working within a company or a non-employee working with that company;
- And their opportunity has direct relevance to that company.

A potential issue with this view is that focusing on outcomes can often only be done ex post, as it is nearly impossible to establish before processes of opportunity creation have taken place what the exact outcome will be (Alvarez and Barney, 2007). Moreover, whether the outcome is ultimately favorable and endorsed by the organization may be the result of political or strategic decision-making influenced by the dominant logic of managers (Burgelman, 1983; Tripsas and Gavetti, 2000). Thus, an opportunity might be perceived by one top manager as useful for the corporation (and hence corporate entrepreneurship), while another top manager might view the same opportunity as not relevant for the organization (and hence no CE). The relevance will ultimately be a key factor in the decision what to do with the opportunity, but the point we are trying to make here is that it may not be the most suitable factor to determine corporate entrepreneurs during the identification phase.

Context-driven view

Stevenson and Jarillo defined entrepreneurship as "a process by which individuals- either on their own or inside organizations- pursue opportunities without regard to the resources they currently control" (1990: 23). Their definition views entrepreneurship more as a contextual phenomenon. Many studies have focused on identifying aspects within the corporate context that drive corporate entrepreneurship (Brown et al., 2001; Hornsby et al., 2002; Kuratko et al., 1990). It links closely to a large body of literature focusing on how to assess and influence the entrepreneurial orientation of organizations (Covin and Slevin, 1989; Covin et al., 2006; Lumpkin and Dess, 1996; Lyon et al., 2000).

By focusing on the defining role of the context, we could argue that every employee of a company who pursues opportunities is a corporate entrepreneur, while someone pursuing an opportunity outside the corporate context is an independent entrepreneur. This definition also allows room for a dynamic in the opportunity development process, as the context in which the opportunity is pursued might change from independent to corporate or vice versa (Shane and Eckhardt, 2003; Gans and Stern, 2003). An unresolved issue with this definition is that it is a bit ambiguous what inside an organization means. Does it relate to people who pursue opportunities during work time such as Art Fry, the inventor of the post-it note? What if an employee is working on an idea for the company outside his/her normal work hours? This bootlegging is not uncommon for corporate entrepreneurs during early stages (Burgelman, 1983). In fact Art Fry reportedly came up with the idea for the post-it note in church. More clearly defining the corporate entrepreneur is important in a contextual view, as an employee actively working on opportunities in a venturing department has access to different resources and knowledge than an employee in a production department and hence may come up with different opportunities. In short, a corporate entrepreneur

- is an employee pursuing an opportunity;
- might or might not use company resources to do so;
- might or might not do this during work time, as part of their job.

The individual-driven view

Studies comparing nascent entrepreneurs and nascent corporate entrepreneurs defined corporate entrepreneurs more narrowly as starting a business as part of their current job and having an equity stake in the new venture sponsored by their organization (cf. Honig, 2001; Parker, 2009). One of the defining characteristics of independent entrepreneurs is their role as a (part) owner of a new venture. By holding aspects such as ownership and establishment of an independent entity constant (cf. Parker, 2009), one can easier compare independent and corporate entrepreneurs. Thus, according to the "individual view", corporate entrepreneurs:

- pursue opportunities as part of their job;
- and aim to receive an equity stake in the new venture.

Yet, such a precise definition excludes other corporate entrepreneurs. Entrepreneurial opportunities may arise from anywhere in the organization (Burgelman, 1983), and many corporate entrepreneurs do not necessarily have equity stakes in the corporate venture. In fact, Art Fry who launched the post-it notes business for 3M would not be a corporate entrepreneur according to this definition, as he had no stake in the business. Receiving a stake in the business as a corporate entrepreneur that is sponsored by a corporation will only be possible in two situations. The first is that the venture will be spun-off. The second is if the employee receives some sort of "phantom stock" in an internal venture that will not become an independent entity (Chesbrough, 2000).

Based on this literature review, there seems to be consensus that corporate entrepreneurs are employed by a company (or cooperating with a company). There are three other relevant, potentially overlapping dimensions for which there is less consensus (see Figure 1):

1) Whether the opportunity is for the company they work for.
2) Whether they pursue this opportunity as part of their work activities.
3) Whether they expect an equity stake in the venture.

Insert Figure 1 about here

Figure 1 suggests seven types of corporate entrepreneurs based on the three dimensions identified above.

I. *The intrapreneur*: This is the typical intrapreneur (cf. Pinchot, 1985) in which someone in the organization comes up with a relevant opportunity for their company. This can be any employee in the company. Since it is not part of their job, employees need to be stimulated to develop opportunities. The main way of doing this is setting a supportive corporate context, as these employees are not necessarily motivated by potentially huge rewards in the form of an equity stake.

II. *The intrapreneur going CVC*: a similar employee to type I, but this intrapreneur is more motivated by the financial gains through an equity stake. Managers would have to set reward systems that allow this intrapreneur to gain equity stakes through a corporate venture capital unit or by offering phantom stock. Since this is an opportunity relevant for the company, the issue of managing control of the venture is critical for the company.

III. *The typical corporate entrepreneur*: an employee who pursues an opportunity for their company as part of their job (e.g. 3M's Art Fry). This type of employee works purposefully on ideas that are relevant for the company. The key issue for a company is setting out a roadmap that leaves enough flexibility to develop unusual or unforeseen opportunities for the company, but enough structure to ensure relevance for the company.

IV. *The Corporate entrepreneur going CVC*: An employee pursuing opportunities as part of their job and wanting an equity stake in the venture presents an interesting situation. They get paid to pursue opportunities for their organization, but once they have done so, they demand additional compensation in terms of an equity stake. However, it could be that they are not so much driven by the monetary rewards, but by the desire to have greater autonomy in their work (Hornsby et al., 1993). This is the corporate entrepreneur identified in the "individual-driven" view by Honig (2001) and Parker (2009). For the organization it is important to assess whether this is a core opportunity for the company. If it is not, a spin-off might be a feasible method, but otherwise complete control is important to integrate it in the company (Burgelman, 1984).

V. *The corporate entrepreneur going independent:* the employee may have come up with an opportunity during their job, but the idea is not relevant for nor taken up by the organization (e.g. a Microsoft business developer starting a restaurant). It could be a highly promising business opportunity, but when it has no strategic relevance for the organization, organizations should be careful not to emulate practices of venture capitalists (Chesbrough, 2000). However, since the opportunity was developed as part of a corporate entrepreneur's job, the company may want to investigate IP rights and potentially demand compensation (Anton and Yao, 1995).

VI. *The employee going independent:* an employee pursuing an opportunity that has no relevance for the company. This is a typical entrepreneur who works outside work hours in their "garage" on an opportunity. Once, the opportunity gains sufficient momentum, these entrepreneurs will leave their companies and start for themselves.

VII. *The Quitter/ Seller*: a corporate entrepreneur whose opportunity is not interesting for the company nor is he/she starting a venture by taking an equity stake. This might be a typical inventor who lacks the entrepreneurial savvy to build a business around it. The opportunity might end up in a drawer somewhere or sold to an entrepreneur or company who is interested in the idea. The DOS-operating system that made Microsoft's breakthrough was purchased for less than $100k from Seattle Computer Products, whose engineer Tim Paterson had developed the product.

Figure 1 shows that there are different groups of employees that could potentially be included in a definition of corporate entrepreneurs. Whether one includes one or more of these sets of employees in a definition of corporate entrepreneurs should not be an arbitrary selection, but it should be based on theoretical arguments. We will turn to opportunity discovery and creation theory to better understand which employees should be viewed as corporate entrepreneurs. We will provide some comparative statistics based on PSEDII-data to show differences between sets of corporate entrepreneurs.

METHODS

To conduct the analyses, we used the Panel Study on Entrepreneurial Dynamics II (PSEDII) datasets that are publicly available from the University of Michigan website. The PSEDII study surveys members of the adult population attempting to start a new business, in an attempt to understand their characteristics and the process of starting a new business. The data collection consists of two main parts: the screener questionnaire to identify eligible respondents and the follow-up surveys, conducted in waves A, B, C, and D. For an elaborate discussion on the data collection process, please refer to http://psed.isr.umich.edu/psed/data and Reynolds et al. (2004).

The screener data was used to determine the extent of opportunity discovery between employed versus unemployed respondents and also to determine the human capital variables. To identify the characteristics of the opportunities discovered, data from wave A was used.

To determine the different groups of independent and corporate entrepreneurship, the following classification table was used:

	CE_EMP		*CE_JOB*	
	E	CE	CEJ	CEJE
Employment status	Retired Not employed	Full time Part time	Full time Part time	Full time Part time
Currently trying to start a new business	Yes	Yes		
Currently trying to start a new business for employer	No	No	Yes	Yes
Current owner of a business	No	No	No	No
Own all or part of this business			None	All Part

For the definition of the variables, we followed Parker (2009). For the different age categories, dummy variables were used to indicate whether or not a respondent belonged to that specific category. A similar approach was used for the education variables. The variable *Internet* is a dummy variable indicating whether or not the respondents had internet access at home. Furthermore, dummy variables were used to indicate whether a respondent was *Household Head*, *Married*, *Female*, or has *Young Children*. The variable *Household Size* captures the number of people in the household. Finally, dummy variables were included to indicate whether the respondent has an *African-American* heritage, and to indicate whether the respondent's current occupation is *white collar*, *blue collar* or else.

To describe the characteristics of the opportunities that were pursued by the respondents, we used a number of product related dummy variables. *Unique product* was set to 1 if the respondent indicated that some or all of their potential customers would consider the product to be new and unfamiliar. *Competitor info* indicates whether the respondent has already made an effort to collect information about potential competitors. The variable *High tech* indicates whether the respondent considers the new business to be high tech, while *New tech* refers to products that require technologies that were generally unavailable five years ago. Finally, the variable *Quality* indicates whether the new business will compete on quality (as opposed to price).

RESULTS

Corporate Entrepreneurship in the Opportunity Identification Phase

Research into opportunities has shifted our attention from opportunities that were already being exploited in ventures towards earlier stages of recognizing an opportunity. This is an important step, as focusing on those opportunities already selected gave rise to selection bias (Cassar and Craig, 2009; Davidsson, 2008). In particular companies might benefit from a shift in focus, as the challenge for managers is often not in managing the pipeline of ideas, but in getting sufficient high-quality ideas in the pipeline (Birkinshaw and Hill, 2007). Understanding how employees identify opportunities and factors that inhibit or help them to move the idea from identification to exploitation would greatly enrich our understanding of corporate entrepreneurship. Following research on opportunities, we identify to distinct phases in the opportunity development process: an identification phase and an exploitation phase (cf. Ardichvili et al., 2003; Ucbasaran et al., 2008). The opportunity identification phase consists of activities such as recognizing the opportunity, developing the product/ service and business and evaluating aspects such as feasibility analyses (Ardichvili et al., 2003). It basically involves all activities before the opportunity is commercialized and exploited.

Debates have emerged whether opportunities are discovered or created. Shane’s work suggest that opportunities are already out there, and (corporate) entrepreneurs just need to discover them (Shane, 2000; Eckhardt and Shane, 2003). Ardichvili et al. (2003) recognized that parts of an opportunity might be discovered, but argued that opportunities are predominantly being created by the actions of (corporate) entrepreneurs. Alvarez and Barney (2007) suggest opportunities could be discovered or created, depending on their context. Zahra (2008) argued that creation and discovery of opportunities might act as a virtuous circle in which discovered opportunities provide input for the creation of additional opportunities and so on. Even though discovery and creation might co-exist and even reinforce each other (Zahra, 2008), they rest on fundamentally different premises (Alvarez and Barney, 2007). As such, discovery and creation theory are likely to have different implications for who the corporate entrepreneur is.

Characteristics of corporate entrepreneurs according to opportunity discovery theory

Discovery theory argues that opportunities are out there, waiting to be discovered by (corporate) entrepreneurs (Shane, 2000). Opportunities are not visible to everyone, because of the way information is distributed in society (Eckhardt and Shane, 2003; Kirzner, 1973; Shane, 2000). If and what type of opportunity someone discovers is strongly dependent on a person’s prior knowledge (Shane, 2000; Venkataraman, 1997). Social capital in terms of who one knows may also act as a source of knowledge that may lead to the discovery of opportunities (Arenius and De Clercq, 2005; Davidsson and Honig, 2003).

Employees absorb new knowledge and gain access to new sources of social capital through their work for their employer that they wouldn’t have had if they were not working for that company. Studies have shown that knowledge gained through work experience drives the discovery of opportunities (Gilad et al., 1988; Shane, 2000; Vesper, 1980). Since it is the company’s knowledge that aided the discovery of the opportunity, a firm could potentially claim part of the intellectual property of the opportunity (Anton and Yao, 1995). As such, according to *discovery theory*, a *corporate entrepreneur* is an employee who discovers an opportunity. An *independent entrepreneur* is someone who discovers an opportunity whilst not employed by an organization.

Ceteris paribus, an employee has a wider access to knowledge and social capital then a non-employee as they can access the exact same type of knowledge with the exception of the knowledge within that company (Arenius and De Clercq, 2005). A comparison of opportunity discovery by employees versus unemployed persons shows that people who are employed are significantly more likely to be engaging in the discovery of opportunities (see Table 1). In addition, Table 2 shows that there are large differences in terms of characteristics of those entrepreneurs and corporate entrepreneurs. Corporate entrepreneurs tend to be overrepresented in the middle age (35-54), tend to be more frequently married, and better educated then non-employed entrepreneurs. Whereas for independent entrepreneurship the propensity of females to engage in the pursuit of opportunities is almost equal to males (47% is female), corporate entrepreneurship tends to be a much more male dominated activity (64% is male, 36% female).

Insert Tables 1 and 2 about here

Types of opportunities

Knowledge diversity leads to more unique opportunities, as radically new ideas often emerge on the intersection of different sets of knowledge (Jansen et al., 2006). Art Fry reportedly discovered the opportunity for the post it note when his bookmark kept falling out of his hymnal during church which intersects experiences in church and his work at 3M, a large producer of adhesives. Given that individuals in a corporate context have access to a wider variety of social and human capital we might also expect corporate entrepreneurs to develop more unique opportunities then independent entrepreneurs (Parker, 2009).

Not only will employees have a tendency to discover more unique opportunities, it is also likely that they are only interested in pursuing more unique opportunities, due to its greater pay-off. Opportunity cost theory suggests that employees will only pursue an opportunity if potential profits exceed their salary, which might rule out the pursuit of more incremental opportunities. Unemployed people would have lower thresholds, hence more likely to take up a greater variety of opportunities further strengthening the discovery effect due to human and social capital.

Interestingly, Table 2 shows there are no significant differences between corporate entrepreneurs and independent entrepreneurs with regard to the opportunities they pursue. This finding has significant implications for (corporate) entrepreneurship theory. The general consensus in the literature seemed to be that entrepreneurs tend to use different strategies and exploit different opportunities (cf. Shrader and Simon, 1997). This may be true for the exploitation phase of opportunities, but when looking at the identification phase, there seems to be no significant differences between corporate and independent entrepreneurs. A potential explanation could be that organizations tend to select more incremental opportunities for exploitation and those more novel opportunities might be pursued outside the organization (Burgelman, 1991; 2002). Thus it is not so much the lack of identification of novel opportunities, it is the corporate ability to recognize and accept those novel opportunities that is the potential problem. Unfortunately, PSEDII data does not provide a comparison of exploitation of corporate versus entrepreneurial opportunities.

Characteristics of corporate entrepreneurship following creation theory

Creation theory argues that opportunities can only be understood after an iterative, enacted process (Alvarez and Barney, 2007; Baker and Nelson, 2005). During the process of creation it is often unclear what the links of the opportunity with market needs and/ or resources are (Alvarez and Barney, 2007) and hence if the opportunity has relevance to the organization. Opportunity creation is the result process of activities rather than a set of knowledge and social network relations. Individuals are working on an opportunity until an “aha” moment occurs (Lumpkin et al., 2004). They may first create an opportunity in terms of a new technology or market need, but may only later gain sufficient insight into a viable business opportunity (Bhave, 1994). The creation process may be characterized by experimenting with a variety of small probes (Brown and Eisenhardt, 1997) or bricolage (Baker and Nelson, 2005). Hence, corporate entrepreneurship according to creation theory should be defined based on by whom and where the creation activities are performed. Creation activity that involves resources and people from the organization during work hours should be classified as corporate entrepreneurship. Likewise, an employee who spends all her free time working on an opportunity in the garage of their own home is independent entrepreneurship. According to *creation theory*, a *corporate entrepreneur* is an individual who conducts at least part of their creation activities at work using corporate resources, people, and/ or time. *Independent entrepreneurs* are individuals who create opportunities without any association to a company in the creation process.

Opportunity discovery may take place without putting in any effort, but an opportunity creation process is a continuous process to uncover the opportunity and its potential value. Creating an opportunity will not occur without a (corporate) entrepreneur putting in a significant effort. PSEDII identifies two types of corporate entrepreneurs according to creation logic. Those who create opportunities as part of their job (III and VII in Figure 1) and those who create opportunities as part of their job and want an equity stake in the new venture (IV and V in Figure 1). Table 3 shows that both groups are significantly different from each other and we should therefore be careful in how we define the corporate entrepreneur, as several of these variables (age, education, etc) have important influences on the opportunity identification process. Those corporate entrepreneurs expecting an equity stake in the venture seem to be significantly overrepresented in the younger age category (18-24) and as a result less likely to be married or a household head. The ratio of females working on opportunities as part of their job is higher than those working on opportunities while employed (41% versus 36%). However, those that want an equity stake as well seemed to be predominantly male (79% to 21%). It also seems that corporate entrepreneurs wanting an equity stake see themselves more often as blue collar workers, whereas corporate entrepreneurs who develop opportunities as part of their job tend to view themselves predominantly as white collar workers. Those corporate entrepreneurs wanting an equity stake tend also to be less educated (see Table 3).

Insert Table 3 about here

Types of opportunities

Opportunity creation processes tend to be path-dependent (Alvarez and Barney, 2007) and strongly influenced by the corporate context (Burgelman, 2002). Corporate entrepreneurs creating opportunities as part of their job, will likely focus on activities that they perceive to fit with the current organizational strategy (Burgelman, 1983). Even if unintended, dominant logics in organizations may prefer local search over more distant search. This would limit the uniqueness of opportunities such corporate entrepreneurs create. Even if they work towards more unique opportunities, it is likely that such opportunities will quickly be selected out (Burgelman, 2002). In terms of types of opportunities corporate entrepreneurs (IV and V) create there are no significant differences with unemployed and employed entrepreneurs. Unfortunately PSEDII does not have data on the opportunities corporate entrepreneurs create opportunities as part of their job (III and VII) without demanding an equity stake. The only difference is that those corporate entrepreneurs engage more in B2B sales (see also Parker, 2009). An explanation could be that those corporate entrepreneurs create opportunities that are of interest to the company, but of little strategic importance, and are therefore spun-off and become a supplier of the company (Burgelman, 1984).

DISCUSSION

We started out by defining who the corporate entrepreneur is in the opportunity identification phase. Prior literature had defined corporate entrepreneurs along the lines of being employed by a company, producing entrepreneurial opportunities with relevance for their company, pursuing opportunities as part of their job, or receiving an equity stake in the new venture. Yet, some of those definitions are at odds with the opportunity identification process, as relevant outcomes can often only be established ex post (Alvarez and Barney, 2007). We drew on opportunity discovery and creation theory to extend research on the corporate entrepreneur to the opportunity identification phase. Based on these theories we came to different definitions of who the corporate entrepreneur is and argued that there might be important differences between those different sets of corporate entrepreneurs and their opportunities. We investigated these differences utilizing the PSEDII dataset, a large, random sample of entrepreneurs and corporate entrepreneurs. Our findings indicated some major differences between the groups and they challenged some existing views on corporate entrepreneurship. We make several contributions to corporate entrepreneurship literature and suggest several directions for future research based on our study.

Research on corporate entrepreneurship and opportunities has so far ignored the individual (Hill and Birkinshaw, 2010; O'Connor and Rice, 2001). Yet, personal characteristics such as human capital and prior knowledge may strongly influence the types of opportunities people identify (Shane, 2000; Davidsson and Honig, 2003). To support the identification of opportunities firms first need to gain understanding of who the corporate entrepreneur is. We extended the tenets of opportunity discovery and creation theory to define the corporate entrepreneur. Opportunity discovery theory argues that the discovery of opportunities is largely a function of the knowledge someone has accumulated (Shane, 2000). Thus corporate entrepreneurs can be defined as those people who discover opportunities while making use of corporate knowledge. Opportunity creation theory argues that opportunities are created through experimenting, learning and investing effort and resources (Ardichvili et al., 2003). This suggests that according to opportunity creation theory corporate entrepreneurs are those employees who receive time and resources from their employer to pursue opportunities as part of their job. This has far-reaching consequences for organizational design, as the former extends to potentially all employees and supportive contexts need to be set for the whole organization (cf. Kuratko et al., 1990; Hornsby et al., 2002), whereas according to creation theory corporate entrepreneurship is more limited to skunk works and venturing departments (cf. Peters and Waterman, 1992).

Our findings show that there are important differences between the different sets of corporate entrepreneurs in terms of their traits such as age and human capital in terms of education. Prior research has pondered the question of whether entrepreneurs differ from non-entrepreneurs and Busenitz and Barney (1997) came to the conclusion that the groups did not significantly differ. Interestingly our data shows there are significant differences between groups of (corporate) entrepreneurs. We should be cautious with drawing inferences here, as the corporate entrepreneurs are partly defined by their job and hence may be preselected on their traits. But these characteristics do influence the identification of opportunities (cf. Davidsson and Honig, 2003), so the existence of trait differences between these groups could have significant implications for the opportunity identification processes and their outcomes.

Surprisingly, despite the differences between the groups of corporate entrepreneurs there seemed to be no differences between the opportunities they identify in terms of uniqueness and the strategies they apply. This is contrary to prior findings that found the strategies and opportunities between independent and corporate entrepreneurs differ (cf. Shrader and Simon, 1997). Yet, these studies focused on the differences in terms of exploiting opportunities in which the relevance aspect becomes much more important in corporate entrepreneurship. Birkinshaw and Hill (2007) suggested that the problem for organizations is not so much the managing the exploitation of opportunities but getting sufficient opportunities in the pipeline. Our findings show that the issue for organizations is not in identifying opportunities, as there seem to be no differences between entrepreneurs and corporate entrepreneurs in terms of the opportunities they identify, but it might be more in how organizations evaluate and select those opportunities.

Suggestions for Future Research Directions

An interesting avenue of future research is to uncover what happens between the phases of opportunity identification and exploitation that creates the differences between independent and corporate entrepreneurs in terms of the opportunities they identify and exploit. Haynie et al. (2009) suggested that entrepreneurs evaluate the opportunities and take into account current as well as future resources. Prior studies have shown that firms tend to select opportunities that fit with their dominant logic and sets of current resources (Burgelman, 1991; 2002), which may limit corporate entrepreneurs to exploit less novel opportunities. Independent entrepreneurs, however, are more resource constraint and may therefore place greater emphasis on future resources. Future research should take into account both contexts by tracking opportunities over time and observing how evaluation and selection mechanisms make an even distribution of opportunities in the identification phase into an uneven distribution in the exploitation phase. Given the long time lags and potentially high attrition rates of opportunities, assessing the identification and exploitation stage of the same opportunities may not be a desirable feature, but not the most feasible. An approach such as CAUSEE (cf. Davidsson and Reynolds, 2009) that includes both nascent opportunities as well as those in young firm stages may be a more pragmatically feasible approach to compare opportunities in both stages.

The literature review and Figure 1 showed there are many ways of defining corporate entrepreneurs and we show that this might have implications for the findings we obtain. Future research should pursue further theorizing on who the corporate entrepreneur is to come to meaningful categories that aide research and practice. Discovery and creation theory, behavioral and cognitive learning theories, as well as insights from human and social capital may hold great promise in advancing the quest for the corporate entrepreneur.

The data showed there is a large distinction between male and female corporate entrepreneurs in terms of their propensity to pursue opportunities. For independent entrepreneurs there is only a marginal difference, but for entrepreneurs that are currently employed the ratio of female entrepreneurs drops significantly, in particular when they do it next to their job or when they demand an equity stake. Future research may want to explore this difference from a variety of work and family related factors.

Another direction for future research may be to enhance a PSEDII-type study by including questions on whether the opportunities are intended for the company of for the (corporate) entrepreneur themselves. Such a study would truly enrich our insights into the opportunity development process. Such an approach would have to overcome significant methodological hurdles, as corporate entrepreneurial projects often have many fathers or the project is passed from one manager to the other. This makes comparison between those projects difficult. Considering the significant costs involved with random sampling, a more pragmatic approach may be to approach a limited set of companies and survey all their employees to what screen if and what type of opportunities they have or are in the process of identifying.

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Figure 1: Types of "corporate entrepreneurs"

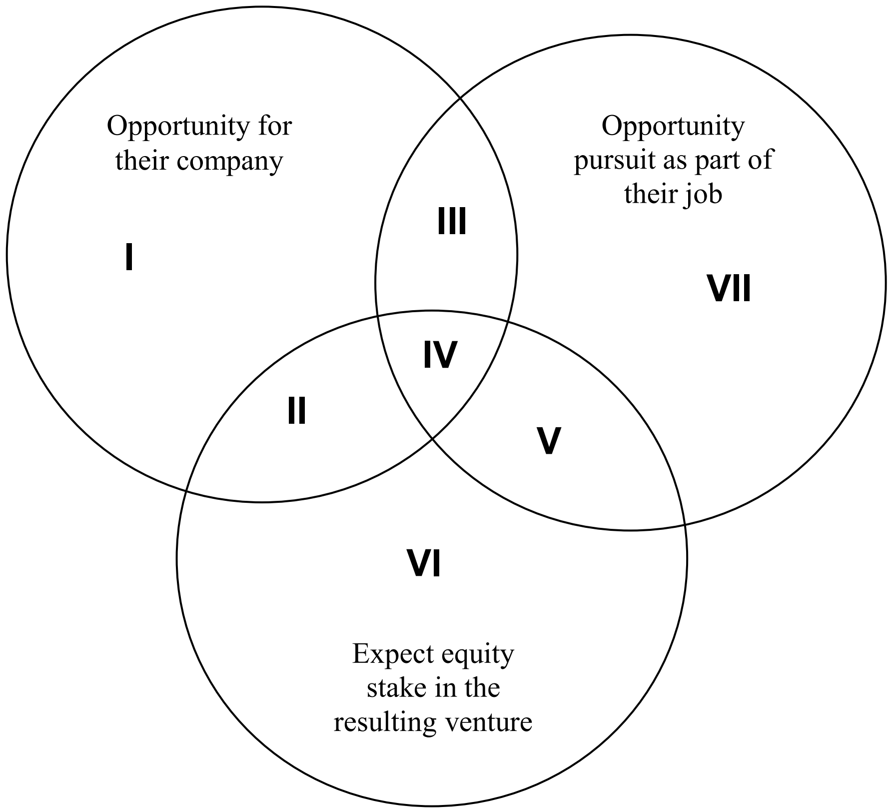

Table 1 Opportunity discovery by corporate entrepreneurs (in terms of being employed) versus those who are not employed

	Not employed	*Employed*	*p*
Opportunity discovery	*0.0334* (*0.0016*)	*0.0485* (*0.0016*)	*0.00*
t-test statistic		*-6.5046*	
Degrees of freedom		*30977*	

Table 2. Corporate entrepreneurs (in terms of being employed) versus those who are not employed

Variable	*E*	*CE*	*p* *CE, E*
Human capital			
Age18_24	0.1003	0.1186	0.38
Age25_34	0.1748	0.2177	0.11
Age35_44	0.1777	0.2658	***0.00***
Age45_54	0.1719	0.2568	***0.00***
Internet	0.6103	0.7553	***0.00***
Household Head	0.8825	0.8799	0.90
Married	0.4642	0.5616	***0.00***
Female	0.4670	0.3589	***0.00***
Young Children	0.1891	0.1862	0.91
Household Size	3.5903	3.6622	0.89
African American	0.1232	0.1291	0.79
White Collar	0.0000	0.5706	***0.00***
Blue Collar	0.0000	0.2853	***0.00***
High School	0.2923	0.2267	***0.02***
Some College	0.2894	0.2387	***0.08***
College Degree	0.2120	0.3108	***0.00***
Post Graduate	0.0831	0.1246	***0.04***
Characteristics of opportunity			
Unique Product	0.4870	0.4892	0.97
Competitor Info	0.4609	0.5000	0.51
HighTech	0.2174	0.2043	0.79
NewTech	0.2000	0.2204	0.68
Quality	0.3826	0.4355	0.37

Notes:

E = independent entrepreneur (i.e. not employed)

CE = corporate entrepreneur (i.e. employed)

Table 3. Corporate entrepreneurs (in terms of having an equity stake in the venture) versus corporate entrepreneurs that do not have an equity stake

Variable	*CEJ*	*CEJE*	*p CEJE, CEJ*	*p CEJ, E*	*p CEJ, CE*	*p CEJE, E*	*p CEJE, CE*
Human capital							
Age18_24	0.0645	0.2356	***0.00***	0.19	***0.05***	***0.00***	***0.00***
Age25_34	0.2194	0.2044	0.73	0.24	0.96	0.37	0.68
Age35_44	0.2387	0.2444	0.90	0.11	0.49	***0.05***	0.53
Age45_54	0.2774	0.2000	***0.08***	***0.01***	0.60	0.40	0.09
Internet	0.7806	0.7022	***0.09***	***0.00***	0.51	***0.02***	0.12
Household Head	0.9548	0.8222	***0.00***	***0.01***	***0.01***	***0.04***	***0.03***
Married	0.7161	0.4578	***0.00***	***0.00***	***0.00***	0.88	***0.01***
Female	0.4065	0.2133	***0.00***	0.21	0.27	***0.00***	***0.00***
Young Children	0.1806	0.2356	0.20	0.82	0.87	0.18	0.11
Household Size	4.7677	3.9378	0.47	0.25	0.17	0.65	0.66
African American	0.0645	0.1689	***0.00***	***0.05***	***0.02***	0.12	0.14
White Collar	0.7935	0.5911	***0.00***	***0.00***	***0.00***	***0.00***	0.59
Blue Collar	0.1484	0.3022	***0.00***	***0.00***	***0.00***	***0.00***	0.63
High School	0.1742	0.3022	***0.00***	***0.01***	0.15	0.80	***0.02***
Some College	0.1806	0.2000	0.64	***0.01***	0.12	***0.02***	0.23
College Degree	0.3806	0.2489	***0.01***	***0.00***	***0.09***	0.30	0.08
Post Graduate	0.2194	0.1289	***0.02***	***0.00***	***0.00***	***0.08***	0.87
Characteristics of opportunity							
Unique Product		0.4892				0.76	0.71
Competitor Info		0.5000				0.17	0.37
HighTech		0.2043				0.80	0.60
NewTech		0.2204				0.26	0.40
Quality		0.4355				0.61	0.79

Notes:

CEJ = corporate entrepreneur, pursuing entrepreneurship as part of his/her job (but no equity stake in the venture)

CEJE = corporate entrepreneur, pursuing entrepreneurship as part of his/her job and having an equity stake in the venture