

## 1 Introduction and purpose of the study

### 1.1 Background and motivation

In recent decades, a number of trends have shaped the environment in which businesses operate. With regard to the supply side, markets have opened to competition from around the globe (M. P. Miles & Covin 2002, pp.21–22). On the demand side, customers have become increasingly sophisticated and informed (Danneels 2002, p.1095). Moreover, a reduction in technology lifecycles (Morris et al. 2008, pp.4–5, 188–189) paired with transformative technological changes and discontinuities have led to an increasingly **dynamic business environment** (Sood & Tellis 2010). Together, these developments have increased the need for organizations to **continuously re-invent** themselves to remain economically successful (Teece et al. 1997, p.509; Helfat & Peteraf 2003, p.1007; Garvin & Levesque 2006, p.102).

Many organizations have countered these threats by expanding internationally (Zahra & Hayton 2008, p.197) and by increasing efficiency in their operations, including cost cutting or downsizing (M. P. Miles & Covin 2002, pp.21–36; Garvin & Levesque 2006, p.102; Robeson & O'Connor 2007, p.121). However, growth that relies solely on leveraging existing products and markets through incremental innovations is limited; empirical research has **linked innovations that are more radical to superior long-term performance** (Biggadike 1979; Zahra 1996b; Christensen 1997; Sorescu et al. 2003). Moreover, these innovations can be a means of differentiation from competitors (Lynn et al. 1996, p.10), thus enabling the respective firm to temporarily capture monopoly rents (E. J. Kleinschmidt & Cooper 1991, p.240; Kock 2007, p.6). In addition, consumers often associate highly innovative products with higher relative advantage (Veryzer 1998, p.138). However, with higher degrees of innovativeness, the market, technology, resource and organizational **uncertainties tend to grow** (Leifer et al. 2000, pp.18–24), thus increasing the complexity and risk profile of the underlying projects (Block & MacMillan 1993, p.14; Leifer et al. 2000, pp.18–24; C. W. L. Hill & Rothaermel 2003, p.259; Hauschildt & Salomo 2005, p.6). Moreover, **project efficiency tends to be lower for highly innovative projects** as a result of longer development times (Biggadike 1979; Griffin 1997, p.31; Leifer et al. 2000, pp.16–18), a the tendency to follow non-linear trajectories and to involve non-repetitive processes

(Leifer et al. 2000, pp.18–19), as well as a higher overall resource consumption (Lynn et al. 1996, p.10).

In response, established **companies seek a balance** between engaging in fields of business with which they are familiar and competent to exploit and simultaneously exploring activities that generate novel streams of revenue to create sustainable long-term competitiveness (Fast 1979, p.272; Zahra 1991, pp.260–261; Tushman & O'Reilly 1996, p.8; Ahuja & Lampert 2001, p.539).

Although scholars acknowledge that large, established companies are capable of developing and commercializing new products that provide incremental benefits (O'Connor et al. 2008, p.70), a number of studies indicate that **the development of radical innovations is a challenge** for these companies (Van de Ven 1986; Christensen 1997; Leifer et al. 2000; Ahuja & Lampert 2001; C. W. L. Hill & Rothaermel 2003). This situation is partly due to the nature of radical innovations, but in addition, companies tend to prefer the familiar, thus constraining future behavior, especially with regard to drastic departures from known terrain (Teece et al. 1997, pp.522–523). In particular large established firms are inclined to **maintain well-known routines and to favor efficiency and automation** (Grant 1996, pp.113–115). Ultimately, what were previously core capabilities may become core rigidities (Leonard-Barton 1992, p.111) or even **core incompetencies** (Dougherty 1995, p.113). Therefore, it is crucial for established companies to overcome these challenges and develop capabilities for systematically managing radical innovations (O'Connor et al. 2008, p.70).

## 1.2 Research focus

Over the past decades, researchers from various disciplines have investigated practices that provide established companies with the means to transform radical innovations into new businesses. These researchers include von Hippel (1977), Fast (1978), Nathusius (1979), Hisrich and Peters (1986), Burgelman (1983), MacMillan et al. (1986), Sykes (1986), Block and MacMillan (1993), Rice et al. (1998), Leifer et al. (2000), Rice et al. (2000), Rice et al. (2001), O'Connor and Rice (2001), Miles and Covin (2002), Birkinshaw and Hill (2003), Birkinshaw and Hill (2005), Hill and Birkinshaw (2006), Zahra et al. (2006), O'Connor and DeMartino (2006), Covin and

Miles (2007), O'Connor (2008), and Gassmann et al. (2012). Moreover, a series of studies was conducted under the umbrella of the InnovationsKompass (2001), a longitudinal, quantitative research project initiated by practitioners and academia, and with over 140 companies participating. Publications in this context include, amongst others, Gemünden et al. (2005; 2007), Kock (2007), Kock et al. (2010; 2011), Salomo (2003), Salomo et al. (2003; 2007), Talke (2007), and Talke et al. (2010; 2011). Their findings suggest that to create new businesses from radical innovations, **practices are required that differ from those needed to manage incremental innovation projects.**

Instead of relying on the sporadic efforts of corporate champions, some **scholars suggest a comprehensive system** to repeatedly deal with highly innovative entrepreneurial endeavors (O'Connor & DeMartino 2006; O'Connor 2008), thus enabling large companies to engage in highly relevant entrepreneurial endeavors. A such system, which is referred to as **New Business Creation (NBC) system**, consists of a number of elements, for instance, appropriate organizational structures (Leifer et al. 2001; O'Connor & Ayers 2005) and processes (Song & Montoya-Weiss 1998; Veryzer 1998), human resources management practices (O'Connor & McDermott 2004) and performance measurement procedures (R. Kanter 1985, p.74; Leifer et al. 2000, p.186; Paulson et al. 2007; O'Connor 2008).

More specifically, the author of the present study observed that companies tend to make design decisions with regard to an NBC system's elements along **two main dimensions**: There is the **informal side of NBC**, which is concerned with human resources-related aspects of creating radically new business. It is concerned with the activities, roles, competencies and motivation of individual actors in NBC-related tasks as well as cultural drivers. The **formal side of NBC** focuses on the structural, process, and results-oriented aspects of highly innovative undertakings. Particularly with an increasing size of an NBC system and a longer track record in engaging in highly innovative projects, this design dimension gains in importance. The two identified dimensions seem to mutually influence and complement each other and represent the building blocks of an NBC system. This is also reflected in the structure of this research: the present study is part of a larger effort conducted by a team of two researchers: while Fowinkel (2013) has investigated the informal side of NBC, the present thesis looks into aspects relating to the formal dimension.

Over the past two decades, firms have shifted from a strategy of hope (Roussel et al. 1991, pp.25–30; Godener & Soderquist 2004, p.191) to a more closely managed approach to innovation (Cooper 1990; Wheelwright & K. . Clark 1992; Werner & Souder 1997; T. Davila 2000; Kerssens-van Drongelen et al. 2000; Driva et al. 2000; Chiesa & Frattini 2007; Chiesa, Frattini, Lazzarotti, et al. 2009a). Companies have embraced formal approaches to managing innovation activities (A. Davila et al. 2004, p.28; A. Davila et al. 2009, p.285), and **measurement systems are a crucial element in assessing and actively managing the innovation process** (Cooper 1990; Meyer et al. 1997; Werner & Souder 1997; Kerssens-van Drongelen & Bilderbeek 1999; Driva et al. 2000; Kerssens-van Drongelen et al. 2000; Frattini et al. 2006; Chiesa & Frattini 2007). Scholars acknowledge that the measurement of performance plays a critical role in stimulating organizational learning (Simons 1990, p.142; Lebas 1995, p.24), motivating personnel (Simons 1990, p.142), achieving improvement (Lebas 1995, p.24), and coordinating actions (Lebas 1995, p.24). Performance measurements may also contribute to the flexibility and speed of managers' decision-making processes, which are key factors in successfully managing innovations (Pavitt et al. 1989, p.84; Leifer et al. 2000, p.59). Moreover, visibility on the performance of a company's innovation activity has become a key variable in the investment decisions of fund managers (Limberg 2008, pp.1–2; Low & Siesfeld 1998, pp.24–30), thus making the topic a top management priority. However, it is a challenging and often delicate task to assess the performance of innovation projects, particularly given that measuring the performance of **highly innovative NBC projects requires methodologies** different from those to assess incremental innovations (Kock et al. 2011). The inability to demonstrate the multi-faceted contribution of NBC activities to the parent company may impact the NBC system itself; its role might be questioned, especially in economically challenging times.<sup>1</sup>

### 1.3 Objectives and research approach

The present research aims to provide insight into the field of NBC and related performance measurement practices from a practitioner's and a theoretical perspective.

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<sup>1</sup> In fact, this is reflected in the short lifetime of NBC systems, which tend to disappear after approximately four years in operation (Burgelman & Välikangas 2005, p.27; Chesbrough 2000, p.31).

This ambition is driven by the fact that **research on NBC is still limited**. The high level of confidentiality about these activities as well as the relatively short lifetime of approximately four years of these units (Burgelman & Välikangas 2005, p.27; Chesbrough 2000, p.31) partly explain this observation. Furthermore, prior research on NBC has focused primarily on North American companies (Narayanan et al. 2009, p.59), which may differ considerably in terms of strategy and structure from European companies, which are the subject of the present study. In contrast, performance measurement is a relatively well-researched phenomenon. However, **less attention has been paid to the elements and the overall design of an integrated performance measurement system (PMS)** (Chiesa & Frattini 2007, p.284), particularly in the context of a **highly innovative setting**.

Accordingly, the **central research question** addressed in this thesis can be summarized as follows:

*How do companies design new business creation systems and related performance measurement practices?*

This guiding research question can be **decomposed into a set of sub-questions**:

- What are the central variables in the design of NBC systems and how can the different designs be categorized and explained?
- What are the constitutive elements of a PMS for an NBC system? How are a PMS' elements designed and how do they interact?
- What are relevant contextual factors and how and why do they influence the PMS' design?

Given the research field addressed by the above questions is still relatively unexplored, a **case study strategy** will be employed.

## 1.4 Structure of dissertation

The thesis is structured into six chapters: The introduction (Chapter 1) aims to explain the motivation, relevance and objectives of the present study. Relevant academic streams are reviewed and discussed in Chapter 2 to develop the theoretical basis, to illustrate the literature gap, and to derive the research questions. Chapter 3 focuses on the research strategy, appropriate sampling, data collection and data analysis

techniques. In Chapters 4 and 5, the empirical data is presented and discussed in a single and a cross-case study format. Chapter 6 draws conclusions, describes the contribution to extant theory and management practice, and discusses the limitations of the present research as well as avenues for future research.

New Business Creation  
Systems for Institutionalized Radical Innovation  
Management

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2014, XIII, 216 p. 14 illus., Softcover

ISBN: 978-3-658-06046-6