Author: Gard, Jérôme
Title: Corporate venture management in SMEs : evidence from the German IT consulting industry
Issue Date: 2015-12-02

Chapter 7

Answering the Problem Statement and Identifying the Contributions

This chapter provides the conclusive answers to the research questions (RQs) and to the problem statement (PS), formulated in Chapter 1. The answers to the three research questions RQ1 to RQ3 are given in the Chapters 3 to 6 and are summarized in Section 7.1. The problem statement is answered in Section 7.2 based on the empirical model (Table 6.4, Model 3) that is evaluated statistically in Chapter 6. The theoretical and practical implications of the thesis are presented in Section 7.3. The limitations of the research results are reported in Section 7.4. Recommendations for future research endeavors are given in Section 7.5.

7.1 ANSWERS TO THE THREE RESEARCH QUESTIONS

In this section, the three research questions (RQs) are answered. Guided by the research questions, the thesis seeks to explore the dimensions that are underpinning the autonomy of venture managers (RQ_1) and operationalize these autonomy dimensions into a multidimensional measurement instrument (RQ_2) that enables to investigate the relations between the autonomy dimensions and corporate ventures success (RQ_3). The answers that are given to the three research questions throughout the thesis are summarized in the Subsections 7.1.1 to 7.1.3.

7.1.1 THE DIMENSIONS REFLECTING THE AUTONOMY OF VENTURE MANAGERS

Chapter 2 highlights that corporate ventures are an effective means for corporations to enter novel business domains as an attempt to renew the corporate business portfolio strategically. However, corporations often fail with these initiatives which is attributed to mismanagement through corporate management (cf. Ginsberg & Hay, 1994; Birkinshaw & Hill, 2005). Managing corporate ventures is a challenge as corporate ventures are semi-autonomous subunits (cf. Kuratko, 2010). While corporate ventures are somehow related to the corporation, it is essential that corporate management grants venture managers with sufficient autonomy to enable effective engagement in venture activities (cf. McGrath, 2001). However, the literature review (see Chapter 2) shows that it is not well understood what kind of autonomy should be granted to venture managers. In order to shed some light upon this matter, we formulated three research questions that built on one another. The first research question intending to explore what kind of autonomy venture managers may enjoy is formulated as follows.

RQ1: *What are the dimensions reflecting the autonomy that corporate management grants to venture managers?*

Chapter 3 provides an answer to the RQ1. The chapter shows that venture managers have a pivotal role to enter novel business domains with their corporate venture teams. Consistent with the literature, we found that venture managers develop the new business through explorative activities (i.e., experimentation, improvisation and search) which is workable when venture managers are granted with sufficient autonomy (cf. McGrath, 2001). In addition to what is already known in literature, we provide some evidence that the autonomy of venture managers is reflected in the following four autonomy dimensions: (a) functional autonomy, (b) decision autonomy, (c) strategic autonomy and (d) job autonomy. The autonomy dimensions are described in the following.

Ad (a), corporate ventures with full functional autonomy would represent a cross-functional team that includes representatives from all business functions (e.g., sales, marketing, R&D) which are required to develop the new business. Correspondingly, functional autonomy indicates the extent to which the venture managers can act autonomously with their teams without relying on external expertise on function.

Ad (b), decision autonomy is the authority of venture managers to make operational decisions without approval through corporate management. This authority enables venture managers to bypass hierarchical analytical decision procedures which are often associated with time consuming approval meetings with corporate management. Thus, decision autonomy may provide venture managers with the flexibility that is necessary for responsive decision making.

Ad (c), strategic autonomy is the authority of venture managers to make strategic decisions without approval. Strategic decisions may refer to strategic issues such as new market activities, new product and service developments as well as change in practices and policies (cf. Andersen, 2004). Granting venture managers with strategic autonomy enables venture managers to engage in strategy probing (cf. Andersen, 2004) which provides the necessary space for new and effective strategic action to evolve.

Ad (d), job autonomy is the authority of venture managers to make work-mode decisions without approval. This authority reflects the freedom that venture managers hold in their job with respect to work methods, including the choice of procedures adopted by the team, the scheduling of the team's work activities and the choice of criteria used to evaluate the work performance of the team. Thus, job autonomy enables the venture manager to perform his jobs outside the corporate standard procedures.

The following research question is addressed in order to operationalize an instrument that enables to measure the autonomy of the venture managers based on the four autonomy dimensions.

7.1.2 INTEGRATING THE AUTONOMY DIMENSIONS IN A MULTIDIMENSIONAL CONSTRUCT

As shown in Chapter 4 (Section 4.1), the autonomy of venture managers may reflect various conditions, such as loose versus tight control, centralized versus decentralized decision-making, dependent versus independent venture operations and dependency versus independency on corporate resources. A multidimensional autonomy construct (measurement instrument) is accordingly proposed to precisely measure the autonomy of venture managers. However, the literature review conducted in Chapter 2 highlights that an appropriate measurement instrument is yet to be provided. Building on the answers given to RQ1, an initial four-dimensional measurement instrument (functional autonomy, decision autonomy, strategic autonomy and job autonomy) is operationalized in Chapter 4. The initial measurement instrument is evaluated statistically and adapted in Chapter 5. Thereby, the thesis provides an answer to the following research question.

RQ2: *How can the autonomy dimensions identified by RQ1 be operationalized in a construct that enables us to measure the autonomy of venture managers?*

In Chapter 4, a theoretical model (Figure 4.7) is developed based on literature research. The model positions the four autonomy dimensions, namely, functional autonomy, decision autonomy, strategic autonomy and job autonomy as distinct (unrelated) dimensions and associates them with corporate venture success. The variables of the model are operationalized which provides an initial four-dimensional measurement instrument that allows to measure the autonomy of venture managers at various dimensions and degrees.

In Chapter 5, the validity and the reliability of the initial four-dimensional measurement instrument (developed in Chapter 4) is evaluated. The initial measurement instrument had to be adapted in order to ensure good validity and reliability. Variable reduction techniques are applied to evaluate and adapt the instrument. The study follows therefore the four step procedure described by Field (2013). *In the first step*, it is shown (based on the correlation matrix, the Kaiser-Meyer-Olkin index and the Bartlett's test of sphericity) that the data is suitable to apply variable reduction techniques (e.g., Principal Component Analysis or Principal Factor Analysis). *In the second step*, Principal Component Analysis is found to be the appropriate technique and Parallel Analysis provides evidence that the number of components to extract should be four. *In the third step*, it is evaluated that Varimax rotation is the appropriate rotation method. The results of the Varimax rotation show that most of the items of the functional autonomy measure and the decision autonomy measure do not load appropriately as the component loadings are below the .6 threshold and the cross-loadings are above the .3 threshold (Table 5.7). Therefore, the items of both measures are excluded to test whether results can be improved. The Varimax rotation with the items for the strategic autonomy measure and the job autonomy measure retained provides a two-dimensional component solution (Table 5.8) with good construct validity (with component loadings above .6 and cross-loadings below .3). *In the fourth step*, Cronbach's Alpha coefficients are computed for the measures of strategic autonomy and job autonomy. Results confirm good internal consistency for both autonomy measures (with Alpha coefficient above .8). Thus, Chapter 5 reveals a two-dimensional instrument that enables to measure the autonomy of the venture manager.

7.1.3 REVEALING THE IMPACT OF AUTONOMY ON CORPORATE VENTURE SUCCESS

RQ3 is addressed to evaluate whether strategic autonomy and job autonomy are associated with corporate venture success. The evaluated measurement instrument (Chapter 5) enables us to investigate the association of strategic autonomy and job autonomy with corporate venture success. For that purpose, a questionnaire is distributed in the German IT consulting industry. The answers of 87 venture managers are analyzed through multiple regression analysis in Chapter 6. The results provide an answer the following research question.

RQ3: How are the autonomy dimensions related to the success of the corporate ventures?

Before linear multiple regression analysis is conducted to answer the question, (1) the general methodology is evaluated, (2) it is tested whether linear regression analysis is appropriate and if data analysis is constrained through potential outliers and (3) whether heteroscedasticity and multicollinearity effects are present. Ad (1), corporate venture research may generally be subject to the following five methodological limitations: hindsight bias, success bias, social desirability bias, non-response bias and common source bias. It is however shown in Subsection 6.4.2 that none of these limitations constrains the data analysis in such a way that further analysis is impossible. Ad (2), skewness analysis and residual analyses are performed in Subsection 6.4.3 and confirm that data analysis is not constrained through outliers in a way that data analysis is impossible and the data is appropriate for linear regression analysis, after the skewness of two control variables (number of FTEs employed the firm and number of FTEs employed at corporate venture) is corrected through log transformation. Ad (3), heteroscedasticity analysis and multicollinearity analysis are performed in Subsection 6.4.3 and confirm that data is homoscedastic and multicollinearity is not present. Having evaluated the research methodology and the appropriateness of the data to apply linear regression analysis, the relationships of strategic autonomy and job autonomy with corporate venture success is analyzed in Section 6.5. The results of the regression analysis reveal an empirical model (Model 2 of Table 6.4) which shows that strategic autonomy and job autonomy are both positively related with corporate venture success. These regression results provide an answer to RQ3.

7.2 ANSWER TO THE PROBLEM STATEMENT

In the following, the problem statement (PS) is answered based on the results of the regression analysis performed in Chapter 6. The consecutive research carried out to answer the three research questions (RQ1 to RQ3) led to the empirical results reported in Chapter 6, which enable us to answer the problem statement. The problem statement reads as follows.

PS: How can corporate management effectively manage corporate ventures?

The research results of Chapter 6 reveal an empirical model (Model 3 of Table 6.4, illustrated in Figure 6.1) that shows how corporate management can effectively manage corporate ventures. The answer to the problem statement is given in Subsection 7.2.1 where the empirical model is described and the essence of the model is summarized in three principles. Additionally, it is discussed in Subsection 7.2.2 how corporate managers may realize the model through management routines.

7.2.1 THE MODEL FOR SUCCESSFUL CORPORATE VENTURE MANAGEMENT

The empirical model provides evidence that strategic autonomy and job autonomy are both positively associated with corporate venture success. The model shows further that the positive relations of strategic autonomy and job autonomy with corporate venture success are further amplified when the achievement of exploitative objectives is emphasized at the same time. The essence of these empirical model is summarized below in order to provide an answer the problem statement.

First, corporate managers should allow venture managers to make strategic decisions without their approval (strategic autonomy). The authority to make autonomous strategic decisions (i.e., new market activities, new product and service developments and change in practices and policies) provides venture managers with the freedom to act independently and engage in autonomy actions (cf. Andersen, 2004). Autonomous actions are a “form of efficient low-risk strategy probing based on active search” which enables effective strategic influence to emerge from the venture manager (cf. Andersen & Nielsen, 2007: 22).

Second, corporate managers should grant venture managers with the authority to make work-mode decisions without their approval (job autonomy). Work-mode decisions refer to the work methods including the procedures the venture adopts, the scheduling of venture activities and the criteria used to evaluate work performance of venture activities. Job autonomy provides venture managers with the freedom necessary to break out of established routines, procedures and norms of the corporate mainstream business in order to develop work methods that fit the novel task environment of the new business domain.

Third, granting venture managers with essential freedom to act (i.e., strategic autonomy and job autonomy) does not imply that corporate management should reduce the influence on the activities of venture managers to a minimum. In fact, our model shows that the positive influence of strategic autonomy and job autonomy on corporate venture success is amplified when venture managers are simultaneously enforced through business policy to consider exploitation priority (e.g., improving achieved solutions, penetrate more deeply in existing customer segments and routinize established operations) in their strategic and work-mode decisions. It is therefore concluded that corporate management (a) should grant venture managers with essential freedom to act for inventing the new business and (b) should ensure at the same time that general efficiency requirements are also achieved.

7.2.2 REALIZING EFFECTIVE VENTURE MANAGEMENT THROUGH MANAGEMENT ROUTINES

While the principles of the empirical model provides straight forward recommendations, it is not obvious how corporate managers may effectively realize them. As is reported in Chapter 2 (Subsection 2.2.3), I build on the dynamic capability-based view to address the challenge of corporate management to manage corporate ventures effectively. The dynamic capability-based view associates effective management with routines (cf. Strehle, 2006; Teece, 2012) which are described as the recurrent interaction patterns carried out among multiple actors (cf. Becker, 2004). The routines refer in the context of corporate venture management to the regular and recurring meetings between the corporate management and the venture managers (management routines). The corporate management can exercise influence and control over the venture managers in the management routines. Correspondingly, corporate managers can realize effective corporate venture management (according to our empirical mode) by establishing management routines in which they: (a) limit their control to provide venture managers with the authority to make strategic decisions (strategic autonomy) as well as work-mode decisions (job autonomy) without their approval and simultaneously (b) exercise sufficient influence on the venture manager to ensure some exploitation priority in the venture manager's decision making.

7.3 CONTRIBUTIONS

The contributions of the thesis are twofold. *First*, our results hold essential theoretical implications that contribute to the current body of knowledge meant for corporate venture scholars. *Second*, the study contributes important practical implications that are of relevance for corporate management in charge for supervising venture managers. In the Subsections 7.3.1 and 7.3.2, I summarize the theoretical and practical contributions.

7.3.1 THEORETICAL CONTRIBUTIONS

The results of this thesis contributes to the theoretical discussion in four ways. *First*, the research contributes to the current conceptual understanding of the instrument that allows to measure the autonomy of venture managers. The literature review (Chapter 2) shows that the autonomy of venture managers is primarily measured through the extent to which venture managers are authorized to make decisions without approval (see, e.g., Crockett et al., 2013). We explore the relevance of two distinct aspect of decision authority (strategic autonomy and job autonomy). The distinction between strategic decisions and work-mode decisions is not made before by corporate venture scholars. Thus, we contribute a new instrument that enables researchers to measure more precisely the autonomy of venture managers than the established instruments. Applying our measurement instrument in future research may essentially contribute to the controversial discussion (see Chapter 2) concerning the relationship between decision authority and corporate venture success.

Second, the thesis is among the first research products that investigate whether the principles of segregation also applies to SMEs. Even though SMEs are less formalized organizations, still our results provide evidence that the segregation of corporate ventures from mainstream business in terms of power dispersion (strategic autonomy and job autonomy) can have a positive influence on the success of corporate ventures. So far, the necessity to segregate corporate ventures has only been shown in the context of large, formalized corporations (cf. Johnson, 2012).

Third, our findings show further how to realize the segregation of corporate ventures. The dispersion of decision power grants autonomy to corporate ventures and thereby contributes to segregation. Our results provide missing evidence that the segregation of corporate ventures through the dispersion of power concerning strategic decisions as well as work-mode decisions can positively influence the success of corporate ventures. So far, prior research has associated segregation of corporate ventures with the structural differentiation of venture activities from corporate mainstream activities (cf. Burgers et al., 2009).

Fourth, following the dynamic capability-based view, we acknowledge that management routines through which corporate management and venture managers interact are essential for effective venture management. Corporate managers can realize effective venture management by limiting their control (i.e., grant venture managers with decision authority) and exercising influence (i.e., pushing venture managers to achieve exploitative objectives) in the management routines. As shown in Chapter 2, prior research has followed the resource-based view and the organizational design-based view without providing a sound explanation for effective corporate venture management. Thus, our research results contribute to the current body of knowledge by corporate venture scholars as we reveal that the dynamic capability-based view may provide an alternative analytical lens to investigate the management of corporate ventures.

7.3.2 PRACTICAL CONTRIBUTIONS

The research conducted in this thesis reveals an empirical model that provides straight forward recommendations for corporate managers to evaluate/improve their venture management practice. Corporate venture activities and their outcomes are associated with increased unpredictability. Corporate managers may, as a result, follow their intuition to increase control in order to reduce the information asymmetry that generally exists between them and the venture managers. However, increased control chokes the explorative behavior of venture managers. Corporate managers should therefore give up excessive control and pass on the authority to make strategic decisions as well as work-mode decisions to the venture managers in order to increase the probability for corporate venture success.

Granting increased decision authority may allow venture managers to effectively engage in venture activities (cf. McGrath, 2001) but also increases the risk that general efficiency requirements (i.e., profitability) are left unfulfilled. Our empirical model shows that corporate managers should not only grant venture managers with increased decision authority but should simultaneously enforce venture managers to achieve exploitative objectives. Correspondingly, we may conclude that a "guided hands-off strategy" which combines decision authority with continuous pushes towards exploitative objectives is promising to manage corporate ventures effectively.

7.4 LIMITATIONS OF THE RESEARCH

While we have taken reasonable precaution to ensure the reliability and the validity of our research results, the generalizability of our findings may be limited due to the following five aspects.

First, the research carried out throughout the thesis (data set A, B and C) has focused on SMEs. Future research is necessary to evaluate whether our findings also hold for large multinational corporations (MNCs).

Second, the three data sets (A, B and C) on which this thesis builds are collected in Germany. The German 'Mittelstand' (SMEs) is known for its international competitiveness (e.g., the hidden champions which are globally market leadership in niches). Correspondingly, SMEs in other countries may potentially learn from the practice of German SMEs. Nevertheless, cross-cultural differences may exist that limit the transferability of our findings. It is recognized that cultural differences across countries may influence entrepreneurial behavior within corporations (cf. Morris, Davis, & Allen, 1994). Future research is required to evaluate whether our findings are also applicable to other national and geographical contexts.

Third, the sample (data set C) of the research carried out in Chapter 6 is limited to corporations in the IT consulting industry. Thus, the results associated with our empirical model may not reflect effective corporate venture management in other industries. Cross-industry research may provide clarity.

Fourth, the level of dynamism in the German IT consulting industry is relatively high with a mean value of 17.87 (s.d. 3.23) on a maximum scale of 24. Prior research has shown that the effectiveness of autonomy is increased in industries with high levels of dynamism relatively to industries with low levels of dynamism (cf. Andersen, 2004). Thus, our findings may not be transferable to corporations that operate in industries with low levels dynamism.

Fifth, the generalizability of our results may also be limited due to the sample size (87 observations only). However, it is acknowledged that an ultimate source which would allow to identify corporate ventures does not exist (cf. Birkinshaw & Hill, 2005). Multiple studies by corporate venture scholars state that it is particularly difficult to collect large data sets on corporate ventures (Kuratko et al., 2009; Johnson, 2012; Crockett et al., 2013; Garrett & Covin, 2013; Garrett & Neubaum, 2013). As already discussed in Section 5.1, small sample sizes are acceptable as no other source is available. The following studies published in corporate venture scholars provide evidence that our sample size of n=87 is acceptable in our research domain. The study by Johnson (2012) has a sample size of n=64, the study published by Crockett et al. (2013) has a sample size of n=78, the study of Thornhill and Amit (2000) has a sample size of n=102, the study of Birkinshaw and Hill (2005) has a sample size of n=95 and the studies published by Garrett and Covin (2013), Garrett and Neubaum (2013) and Kuratko et al. (2009) have a sample size of n=145.

7.5 DIRECTIONS FOR FUTURE RESEARCH

This section provides three recommendations for future research. *First*, our regression results show a positive relationship of strategic autonomy and job autonomy with corporate venture success. Although the validity and the reliability of these results are carefully checked, it is also true that our results do not provide evidence for a causal relationship between the two autonomy dimensions and corporate venture success. A longitudinal study is therefore recommended in which the interplay of strategic autonomy and job autonomy with corporate venture success can be examined over time. Such a longitudinal study may further benefit from including a variable (e.g., as a dependent variable) that measures the explorative behavior of corporate venture teams. The link between decision authority and explorative activities has been made in previous studies (cf. McGrath, 2001). However, the interaction of strategic autonomy and job autonomy (as distinct aspects of decision authority) and explorative behavior may be essential to understand the causal linkage between autonomy and corporate venture success.

Second, the power of strategic autonomy and job autonomy to predict corporate venture success may be influenced by internal and external factors as it is indicated in prior studies. As highlighted in the limitations (Section 7.4), external factors, such as industry characteristics and cultural aspects may have an influence on the relation between autonomy and corporate venture success. Cross-cultural and cross-industry studies may thus provide a valuable contribution to further understand the conditions in which strategic autonomy and job autonomy are effective. Future research should also include internal factors such as top management team characteristics, trust between corporate management and venture management as well as the entrepreneurial orientation of a firm, as these internal factors may also influence the effectiveness of autonomy.

Third, the thesis demonstrates that corporate venture management is associated with the management routines in which corporate management and venture manager engage in interaction.

While our research results enable us to describe parts of this interaction, we also acknowledge that the total interaction patterns are not well understood. The research design of the thesis does not enable us to provide an extensive and detailed description of the entire interaction patterns of corporate management and venture managers. Qualitative research might be the most promising research methodology to broadly observe and describe the interaction patterns. Qualitative research is known for its appropriateness to carry out in-depth observations, which is required to generate an extensive and detailed understanding of the interaction carried out in management.