

Predicting Founding Success and New Venture Survival: A Longitudinal Study

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Abstract

Based on a model consisting of the person, resource/environment, and founding process, this paper examines founding success (who started up a business?) and new venture success/ failure (which businesses survived?). The study analyzes a sample of nascent entrepreneurs observed over seven years. Characteristics of the person affect founding success, but not survival. Resource and environment aspects did not show an effect on founding success or survival. Aspects of the founding process serve to explain founding success and survival.

Introduction

Entrepreneurship is frequently defined in terms of new venture creation. As researchers have become aware that it is essential to look at the entire creation process (conception to adolescence; Reynolds 2000) to investigate the phenomenon properly, new data sets aside from public records as well as new methods and definitions are needed (Johnson et al. 2006). The infeasibility of using public data alone for the analysis of new venture creation is relevant in the early phases of the startup process. Many aspiring business founders do not succeed in creating new ventures which ultimately appear in public records. Therefore, studies based on public databases tend to omit interesting cases and are especially prone to ‘survival bias’ and ‘hindsight bias’ (Johnson et al. 2006). In particular, such a study approach is not able to address the success factors of business foundation (i.e., what distinguishes startup processes which lead to active ventures from those which do not?). Not surprisingly, numerous studies have analyzed the success of newly established active ventures, but only few have analyzed the founding success of nascent ventures.

The recognition of this limitation of public data has stimulated new approaches and brought about new data sets which include nascent businesses. There are two widely known data sets which concen-

trate on the phenomenon of nascent entrepreneurship: The Panel Study of Entrepreneurial Dynamics (PSED) (e.g. Reynolds 2000, 2007, Shaver et al. 2001) and the Global Entrepreneurship Monitor (GEM) (e.g. Minniti et al. 2006, Reynolds et al. 2004).

One major focus of the Vienna Entrepreneurship Studies (VES; Frank et al. 1999, Frank et al. 2007, Keßler, 2007, Korunka et al. 2003), which form the basis for this paper, is on the analysis of nascent entrepreneurship. Launched as early as 1998, the VES use a research approach which aims to cover all phases of the startup process. Whereas the GEM's data sets are cross-sectional, the PSED and VES are truly longitudinal studies. However, the VES cover a far longer observation period than the PSED. Analyzing a long time span between cause and effect may reduce the tendency to discriminate against cases that take longer to achieve eventual success, thus allowing the true effect of the explanatory variables to shine through (Davidsson 2006). The VES include a representative subsample of 290 nascent entrepreneurs observed over a time span of seven years and surveyed at three points in time (1998, 2001 and 2005). The VES' long observation period and three measurement points enable us not only to analyze factors in founding success (three years after Survey 1), but also to analyze success factors in new venture survival (seven years after Survey 1). The underlying framework allows us to cover the dimensions of person, resources, environment and founding process as predictors of founding success and new venture survival.

The goal of this paper is to test a model predicting the founding success and new venture survival of nascent businesses on the basis of characteristics of the entrepreneurial person, resource / environment characteristics, and founding process characteristics.

Theoretical Framework and Model Development

A Delimitation of 'Nascent Entrepreneurship'

In analogy to biological development, the venture creation process can be divided into four stages (conception, gestation, infancy and adolescence) with three transitions (Reynolds 2000). The first transition starts when one or more persons ('nascent entrepreneurs') who commit time and resources to found a new firm. Accordingly, a 'nascent entrepreneur' is 'someone who initiates activities that are intended to culminate in a viable business startup' (Aldrich 1999). Nascent entrepreneurship can therefore be defined as a process of a selective chain of decisions which begin with the communication of startup intentions and end – in the case of success – with the start of business (e.g., the first sales revenues) (Frank 2003).

In his review of 'nascent entrepreneurship', Davidsson (2006) distinguishes three sub-dimensions: person factors leading to nascent entrepreneur status; the discovery process and the exploitation process. Similarly, Johnson et al. (2006) distinguish two major questions underlying research on nascent entrepreneurship: Why are some people engaged in nascent entrepreneurship and others not? Why do some nascent entrepreneurs make the transition into business, while others continue working on their business ideas, or abandon them?

The VES use a definition of nascent entrepreneurship that covers a time span which begins with the initial communication of startup intentions, continues with the transition into active business as defined by the actual start of business activities (first sales revenues), and includes the ensuing survival or failure of the new venture. Thus the studies cover the subject of nascent entrepreneurship as well as

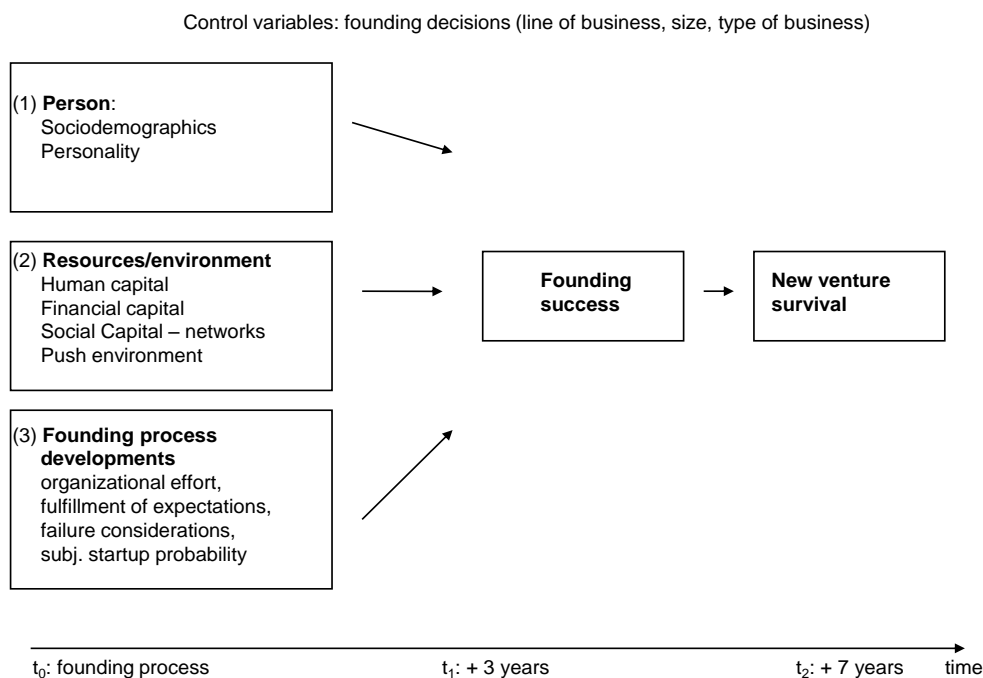
that of new venture survival/failure. The focus of this paper is the prediction of founding success, that is, the successful transition of a nascent venture into an active venture (over an observation period of three years: $t_0/1998 - t_1/2001$) and new venture survival (over an observation period of seven years: $t_0/1998 - t_2/2005$).

Another essential delimitation in the VES concerns the level of analysis. The VES define specific venture-individual(s) combinations as their focal research units.

The model for predicting founding success and new venture survival

The frame of reference for the VES is the configuration approach (Mugler 1998). This model transposes the configuration ideas of Miller (1987), onto the field of small enterprises. The model concept was transferred specifically to startups and combined with the framework developed by Gartner (1985) for the purpose of describing new venture creation. This finally led to four dimensions ('imperatives'): the (entrepreneurial) person, (founding) environment, (founding) resources and (founding) process. Figure 1 shows the conceptual study model.

Figure 1: Research Model



As already mentioned in the introduction, the paper's basic assumption is that characteristics of nascent entrepreneurship have significant explanatory power for founding success and new venture survival. This argument can be reinforced with empirical findings (Begley and Boyd 1987, Cromie 2000, Rauch and Frese 2007a): Personal traits are considered as stable and will, therefore, not change significantly when passing from conception to adolescence. In addition, empirical findings confirm that new ventures very seldom grow (Gimeno et al. 1997, Wiklund et al. 2003) and change their product-market combinations, therefore, there will be no significant changes when passing from gestation to adolescence. With regard to networks as component of the environmental dimension it can be expected that they do not change significantly (Hansen and Allen 1992), although some authors (Larson

and Starr 1993) argue that network development and organizational emergence take place in parallel. Concerning the process dimension the effects of initial organizing directly influence survival (Brush et al. 2008). In sum, the initial decisions of entrepreneurs have long lasting implications for their ventures (Bamfort et al. 2004, Boeker 1989), suggesting the attempt to explain founding success and new venture survival with one set of variables. On the basis of this integrative view we specify the model dimensions and formulate and test our underlying hypotheses.

The suggestions of Learned (1992) were included in multiple dimensions of the model: Specific personality traits (internal locus of control, need for achievement, risk-taking propensity) were inserted into the ‘person’ dimension together with certain sociodemographic characteristics. The relevance of personality traits to the success of the nascent entrepreneurship phase was also confirmed in a meta-analysis conducted by Rauch and Frese (2007b) who revealed that personality traits have a weak but stable influence not only founding success, but also on business survival:

H1a: Characteristics of the person founding a business affect founding success.

H1b: Characteristics of the person founding a business affect new venture survival.

Available resources in the form of financial capital (Parker and Belghitar 2006, Van Gelderen et al., 2005) and startup-relevant human capital (experiences in managing a business, Wagner 2003) are major aspects of the resource dimension. The importance of financial and human capital in startup realization has frequently been highlighted in the literature (Brüderl et al. 1996). Hansen and Allen (1992) as well as Larson and Starr (1993) focus on the significance of networks for new business startups. Davidsson and Honig (2003) show the importance of human *and* especially social capital. These examples demonstrate that resources and environment in case of nascent entrepreneurship and young ventures are closely interwoven. Social networks facilitate resource mobilisation and are critical for efficient acquisition. Networks can offer special information and non-material supports; at the same time the human capital and financial resources may develop their effects more efficiently in a supportive network-based environment (Aldrich 1999). We, therefore, aggregate the resource and environment variables into one dimension. The resource and environment dimension is completed by the aspect of a ‘push’ environment (i.e., launching the startup process out of motivation due to (threat of) unemployment). Empirical startup research shows that only a small portion of all startups realizes growth, especially in terms of number of employees (Brüderl et al. 1996). This means that surviving startups are rather stable concerning resources, like their networks with customers. In recognition of the importance of resources and the environment for founding success, the following hypotheses deals with these aspects:

H2a: The founder's resources and environment affect founding success.

H2b: The founder's resources and environment affect new venture survival.

The founding process dimension again refers to the work of Learned (1992) and also includes the suggestions of Bird (1992), as ‘sense making’ (Learned, 1992) and ‘small wins’ (Bird 1992) are integrated into this conception in the form of fulfillment of expectations, failure considerations and the subjective assessment of startup probability. In the approach taken by Bird (1992), the startup endeavor gains legitimacy by fulfilling certain temporal expectations. In this context, ‘symbolic marker events’, which are used to review adherence to the schedule, play an especially important role. Remaining on schedule leads to ‘small wins’, which reduce the complexity of the process. In addition, developments in the startup process are described using the organizational effort aspect, which depends on the complexity of the respective startup environment and thus has an individual specifying

effect on the process as described in the model put forth by Hansen and Allen (1992). The last two hypotheses underlying our model account for the importance of developments in the founding process:

H3a: Aspects of the founding process explain founding success.

H3b: Aspects of the founding process explain new venture survival.

The considerations taken into account thus far warrant the assumption that founding success and new venture survival can be explained with the same model: We assume that neither the person nor the resource/environment and process dimensions change substantially for most new ventures from gestation to adolescence. This suggests that ventures which are founded/not founded as well as those which survive/do not survive should be clearly discriminable, thus pointing to high expected explanatory power in the model.

Though, one could argue that high founding rates may reduce business survival rates: The easier it is for nascent entrepreneurs to start, the lower the new venture survival rate will be. Thus, creating highly conducive founding conditions may simultaneously promote the failure of new businesses. However, this conflict of objectives does not necessarily exist when founding and survival processes are analyzed on an individual venture level (Brixy and Grotz 2007). Furthermore, in a research approach focusing on individual venture level, it is useful to develop a framework which explains founding success and new venture survival. The claim of this paper is to test a unified model for founding success and new venture survival.

Method

Observation Period

Our total observation period of seven years, including an observation section of at least four years for new venture survival (t_1 : 2001 – t_2 : 2005), permits us to assume that most of the businesses had gone through the adolescence phase by the time of the third survey.

In order to attain the goal of the study, it was necessary to collect and analyze a large and representative sample of nascent entrepreneurs. A truly longitudinal approach had to be realized, with data collected at three points in time: (1) at a point where the nascent entrepreneurs were actively engaged in the process of founding their businesses (t_0); (2) at a point where the successful establishment of the previously planned business could be expected (t_1 : about 3 years after the first survey; founding success); (3) at a point in time which indicates that the businesses have survived (t_2 : about 7-8 years after the first survey and 4 years after the second survey; new venture survival).

With two longitudinal measurements taken three and seven years after the initial survey, our conception spans a sufficiently long period to allow the true effect to manifest itself and enables us to compare predictors of founding success *and* new venture survival. Using a second longitudinal measurement which goes beyond the nascent entrepreneurship phase and extends into the phases of infancy and adolescence (Reynolds 2000) allows us to test the usefulness of a nascent entrepreneurship model for the prediction of new venture survival.

Sampling strategies

In order to ensure at least partial representativeness for a sample of nascent entrepreneurs, we contacted support institutions and initiatives where one would expect to encounter people planning to start a new venture: (i) general support institutions for nascent entrepreneurs address a wide range of persons at the beginning of the startup process and in concrete realization steps leading up to the actual start of business operations. These persons were reached directly through the support organization staff. (ii) At financial support institutions, an address database including mainly new business owner-managers is available. This group was reached by means of a mail survey. (iii) At a 'business startup information day' in Vienna, mainly nascent entrepreneurs in very early stages could be expected. This group was contacted in person.

The baseline wave of data collection (t_0) took place in spring 1998 as part of a larger study on nascent entrepreneurs and young business owner-managers. A comprehensive questionnaire which measured the dimensions of the conceptual model and included a post-paid return envelope was distributed with the help of the support organizations or by mail.

The data set for this part of the study consisted of 486 complete records on persons in different stages of the business founding process (nascent entrepreneurs). Most of these persons were actively planning to open a business in the near future ($n=340$), while some ($n=146$) had temporarily abandoned the founding process at the time of the survey. 382 of the respondents voluntarily included their names and addresses on the questionnaire and agreed to be contacted in further waves of data collection. The second wave of data collection (t_1) took place in fall 2001. A telephone interview based on structured interview guidelines was used to collect information about the status and development of the previously planned businesses. We were able to conduct 290 complete telephone interviews (response rate: 76%). The third wave of data collection (t_2) took place in fall 2005. Again, the nascent entrepreneurs were contacted by telephone to collect data on the current status of their businesses. This time we were able to conduct 227 complete interviews (response rate compared to t_1 : 78%; compared to t_0 : 59%). The missing cases in t_1 and t_2 consisted of persons we were not able to reach, mainly because of address and/or name changes. Only a few of the business owner-managers were no longer willing to participate.

Measurements

Independent variables

The questionnaire used for data collection at t_0 consisted of items and scales measuring aspects of the person, resources/environment, the founding process and the control variables (Korunka et al. 2003). The control variables (type of business, i.e., full-time vs. sideline startups and individual vs. team startups: , business size, line of business) were measured using single items. Internal locus of control, need for achievement and risk-taking propensity were measured with scales widely used in German-speaking countries (Frese 1998, Krampen 1991, Modick 1977). Financial capital, the existence of family role models, and the push environment were measured by means of single items. For human capital and networks, scales were developed specifically for this study.

All multi-item scales were transformed to a similar range of 0-100. Table 1 provides information on the scales and their statistical characteristics. All scales show at least acceptable internal consistencies (Cronbach's Alphas between .68 and .82; see Table 1).

Dependent variables

As suggested by Reynolds and Miller (1992), founding success is measured as the realization of the planned venture using the individual variable of 'first sales' (based on a point in time) in order to have an equally valid point of reference for all startups. Other definitions discussed in the literature, such as personal commitment, outside financial support, first hire (Carter et al. 1996, Hansen 2000, Reynolds and Miller 1992), were either regarded as more difficult to measure (e.g., commitment) or flawed due to industry or size effects (e.g., outside financial support, first hire). In particular, the high proportion of very small businesses and single-person startups precluded the use of indicators which involved size effects. As our data is based on a point in time during the preparation and startup phase, we did not have access to the data required for a time period-based definition of startup realization such as the event histories discussed by Delmar and Shane (2004). The second dependent variable, new venture survival, was measured by asking the entrepreneurs directly whether their venture was in active business at the time of the third survey (t_2).

Table 1 illustrates the operationalization of the model dimensions (variables).

Results

For our statistical analyses, we used only complete data sets ($t_0 / t_1 / t_2$; $n=227$). Based on the available indices of representativeness (line of business, business size/financial capital, sex and age of the founder), the sample can be described as representative of Austrian business founders (Schwarz and Grieshuber 2003).

We tested our hypotheses using logistic regression models. The state of the business at t_1 ('founded'/'not founded') was used to predict founding success, while the state of the business at t_2 ('founded and survived'/'founded and did not survive' or 'not founded') was used to predict new venture survival.

The correlations between the predictor variables show an expected pattern. The correlations between the predictors and the two target variables show slight differences, indicating partly different predictor patterns for founding success and new venture survival.

The control variables were entered en bloc in the analyses, followed by a block of variables pertaining to the person (H1a/H1b), a block of resource/environment variables (H2a/H2b) and a block of founding process variables (H3a/H3b).

In total, 122 of the 227 nascent entrepreneurs (53.7%) had founded their businesses by t_1 . At t_2 , 96 (42.3%) of the nascent businesses had survived.

Table 1: Scales/items used for model test

Dimension	Item example / Source	Scale type	Mean (SD) / %
Control variables			
Full-time business	The business is the founder's full-time job. (yes/no)	Single item	Yes: 64.3%
Team of founders	The business was founded by a team of founders.	Single item	Yes: 25.6%
Business size (capital requirements)	Median split (under €36,000 / over €36,000) ¹	Single item	Above median: 32.2%
Line of business: Commerce	yes/no	Single item	Yes: 66.1%
Line of business: Trades	yes/no	Single item	Yes: 19.8%
Person			
Sex		Single item	Men: 73.1%
Age	Age of business founder (median split: younger/older than 34 years) ¹	Single item	Above median: 41.0%
Internal locus of control	Krampen (1991)	Scale (8 items; Alpha=.68)	80.0 (9.9)
Need for achievement	Modick (1977)	Scale (7 items; Alpha=.72)	78.8 (9.8)
Risk-taking propensity	Frese (1998)	Scale (8 items; Alpha=.70)	54.2 (11.1)
Resources/Environment			
Financial capital	Above-average income and/or existing financial securities (yes/no)	Single item	Yes: 78.4%
Human capital	Experience in managing a business	Scale (5 items; Alpha=.82)	11.9 (20.6)
Social capital: Networks	Previous contacts to customers	Scale (8 items; Alpha=.75)	41.8 (24.2)
Social capital: Family role models	Successful business founder in the family (yes/no)	Single item	Yes: 24.2%
Push environment	The business was founded due to the threat of unemployment and/or the threat of a massive loss of income. (yes/no)	Single item	Yes: 37.0%
Founding process			
Organizational effort	At least two founding actions have been taken (e.g., contact to a founding support agency; yes/no; 5 items).	Single item	Yes: 70.5%
Realistic expectations	Expectations have been met/exceeded in at least one of the two areas 'founding conception/product idea' and 'financing'. (yes/no)	Single item	Yes: 70.5%
Subjective assessment of startup probability	What is the probability that you will actually start your planned business?	Single item	63.8% (33.9)
Considerations of possible failure	Plans have been made for a possible business failure (yes/no)	Single item	Yes: 53.3%
Dependent variables			
<i>Founding success (t₁)</i>	Did you open the previously planned business, and has it produced sales? (Telephone interview)	Single item	t ₁ : 57.3%
<i>New venture survival (t₂)</i>	Does the business still exist and carry on business activities? (Telephone interview)	Single item	t ₂ : 42.3%

Note: 1...The median split is based on the sample of business owner-managers in the same study.

Founding success

Table 2 shows the main results of the logistic regression analysis using the founding state at t_1 as dependent variable.

The full model explains a good part of the variance (Nagelkerke's $R^2 = .39$). The control variables significantly affect founding success; higher founding rates are observed in commerce and for full-time businesses, while lower founding rates are found in teams of founders. The only significant predictor within the 'person' dimension is high risk-taking propensity, which increases founding success. No significant effects of resources and the environment are found. The founding process indicators also explain a substantial part. Both organizational efforts regarding the planned business and a high subjective assessment of startup probability lead to a significantly enhanced rate of founding success.

New venture survival

Table 3 shows the main results of the logistic regression analysis using the survival state at t_2 as dependent variable.

Again, a fair – and only slightly smaller – part of the variance is explained by the full model (Nagelkerke's $R^2 = .36$).

The results show a similar pattern of explanation compared to the founding success model. The control variables significantly affect new venture survival once again; higher survival rates are observed in commerce and for full-time businesses, while lower survival rates are observed where teams of founders are involved. No significant effects are observed in factors related to the person and the resource/environment variables. This represents the only difference compared to the founding success model.

Once again, the founding process explains a considerable part of the variance. High organizational effort (i.e., founding activities) and a high subjective assessment of startup probability lead to a significantly enhanced new venture survival rate.

As a result, we can at least partially confirm our hypotheses: *H1a: Characteristics of the person founding a business affect founding success.* A high risk-taking propensity increases the person's chances of starting the business.

H1b: Characteristics of the person founding a business affect new venture survival. This hypothesis was not confirmed. This result implies that the impact of factors related to the person on success diminishes with the progression of the founding process.

Table 2: Founding success. Main results from logistic regression analysis (dependent variable: business founded as of t₁)

Model	Full model χ^2 (df)	Hosmer-Lemeshow χ^2	Full model Pseudo R ² (Nagelkerke)	Additional block $\Delta \chi^2$ (df)	Significant single predictors in model block			
					Predictor	B	Wald	Exp(B)
Control Variables	23.83** (5)	2.16 n.s.	.13	-	Line of business: Commerce**	1.21	8.05	3.36
					Full-time business**	1.01	11.09	2.75
					Team of founders*	-.72	4.85	.49
Control variables + person	38.68** (10)	5.56 n.s.	.21	14.84* (5)	Risk-taking propensity**	.04	9.93	1.05
Control variables + person + resources/environment	40.86** (15)	3.38 n.s.	.22	2.18 (5)	-			
Control variables + person + resources/environment + founding process	78.12** (19)	11.34 n.s.	.39	37.27** (4)	Organizational effort*	.86	5.49	2.37
					Subjective assessment of startup probability**	.03	18.91	1.03

* p < .05; ** p < .01

Table 3: New venture survival. Main results from logistic regression analysis (dependent variable: new venture survival at t₂)

Model	Full model χ^2 (df)	Hosmer- Lemeshow χ^2	Full model Pseudo R ² (Nagelkerke)	Additional block $\Delta \chi^2$ (df)	Significant single predictors in model block			
					Predictor	B	Wald	Exp(B)
Control Variables	24.37** (5)	4.28 n.s.	.14	-	Line of business: Commerce** Full-time business* Team of founders**	1.47 .67 -.92	9.54 4.62 7.02	4.34 1.95 .40
Control variables + person	34.14** (10)	2.86 n.s.	.19	9.77 (5)	-			
Control variables + person + resources/environment	36.28** (15)	6.06 n.s.	.20	2.14 (5)	-			
Control variables + person + resources/environment + founding process	69.57** (19)	9.22 n.s.	.36	33.29** (4)	Organizational effort* Subjective assessment of startup probability**	.77 .03	4.19 17.61	2.16 1.03

* p < .05; ** p < .01

H2a: The founder's resources and environment affect founding success.

H2b: The founder's resources and environment affect new venture survival.

These two hypotheses could not be confirmed. This result implies that – when analyzed individually – the contextual social and economic factors which were included in the model on the basis of the literature did not have a significant influence on founding success and new venture survival.

H3a: Founding process aspects explain founding success.

H3b: Founding process aspects explain new venture survival.

We were able to confirm both of these hypotheses. Both organizational effort and a high subjective assessment of startup probability lead to a significantly enhanced rate of founding success. Organizational effort (i.e., founding activities) and the subjective assessment of startup probability were also found to be significant predictors of new venture survival.

Therefore, aspects of the founding process have a strong and significant effect on both founding success and new venture survival. At least for this group of predictors, the research model meets our research assumption of a single explanatory framework for founding success and new venture survival. The special relevance of the process dimension is in line with many other theoretical (Bhave 1994, Frank 1997) and empirical (Brush et al. 2008, Carter et al. 1996, Delmar and Shane 2004) findings.

Discussion

The results show that the unified model for founding success and new venture survival is able to explain a good part of the variance. Both models are statistically significant. The configurative approach has proven adequate. However, it is important to emphasize that only aspects of the founding process influence both founding success and new venture survival, whereas factors related to the person and the resource/environment dimensions contribute only a small part. More importantly, a professionally planned and executed founding process serves to enhance not only founding success but also new venture survival. The special relevance of the process dimension combined with the relatively low importance of the person and resource/environment dimensions can be explained by the fact that the process dimension incorporates personal and resource/environment aspects indirectly. Personal and resource/environment aspects are part of the process because founders interact with the environment in order to gain support and resources.

Since the VES data was collected using a longitudinal approach, the results may be interpreted as causal effects. The target variables ‘founding success’ and ‘new venture survival’ are measured objectively and are therefore not falsified by personal perceptions. Considering these ‘objective’ target variables and the long observation period, the explained variance in the regression analyses is noticeably high. On the other hand, it is necessary to emphasize that most of the predictor variables are based on self-perceptions. Another methodological constraint results from the fact that the founding process was measured at one point in time (t_0). Considering the methodological strengths and weaknesses, we reason that the observed effects are stable and may be generalized and interpreted as causal relationships.

Our results show a striking similarity to the findings reported in Reynolds’ (2007) PSED overview: The importance of process variables for founding success represents the main parallel, as in both cases the successful transition to a new firm is closely related to the intensity of effort the nascent entrepreneur devotes to the initiative. In this context, both the PSED and our study show that the activity pur-

sued in the startup process (organizational effort) has a major impact on founding success. Liao and Gartner (2006) showed that both the founding success and (short-term) new venture survival of nascent entrepreneurs improved when the nascent entrepreneur engaged in early and careful planning activities. In the VES, we not only found similar results, we have also been able to show that careful planning activities are significant predictors of new venture survival. As a result, these specific variables need to be included in further research in this field. Our results support the assumption that there is a continuous logic of development which allows us to explain founding success, new venture survival and failure on the basis of these processes.

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