



Universiteit
Leiden
The Netherlands

Corporate Venture Management in SMEs : evidence from the German IT consulting industry

Gard, J.

Citation

Gard, J. (2015, December 2). *Corporate Venture Management in SMEs : evidence from the German IT consulting industry*. SIKS Dissertation Series. Faculteit der Wiskunde en Natuurwetenschappen, Leiden. Retrieved from <https://hdl.handle.net/1887/36592>

Version: Not Applicable (or Unknown)

License: [Leiden University Non-exclusive license](#)

Downloaded from: <https://hdl.handle.net/1887/36592>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/36592> holds various files of this Leiden University dissertation.

Author: Gard, Jérôme

Title: Corporate venture management in SMEs : evidence from the German IT consulting industry

Issue Date: 2015-12-02

CORPORATE VENTURE
MANAGEMENT
IN SMES

EVIDENCE FROM THE GERMAN
IT CONSULTING INDUSTRY

JÉRÔME GARD

CORPORATE VENTURE MANAGEMENT IN SMES

EVIDENCE FROM THE GERMAN
IT CONSULTING INDUSTRY

PROEFSCHRIFT

ter verkrijging van
de graad van Doctor aan de Universiteit Leiden,
op gezag van de Rector Magnificus prof.mr. C.J.J.M. Stolker,
volgens besluit van het College voor Promoties
te verdedigen op woensdag 2 december 2015
klokke 11:15 uur

door

Jérôme Gard
geboren te Ottweiler, Duitsland
in 1983

Samenstelling van de promotiecommissie:

Promotors:	Prof. dr. B.R. Katzy	Universiteit Leiden
	Prof. dr. H.J. van den Herik	Universiteit Leiden
	Prof. dr. G.H. Baltes	University of Applied Sciences Konstanz
Overige leden:	Prof. dr. J.N. Kok	Universiteit Leiden
	Prof. dr. A. Plaat	Universiteit Leiden
	Prof. dr. K.J. Wolstencroft	Universiteit Leiden
	Prof. dr. F. Miralles	La Salle Ramon Llull University
	Prof. dr. E.O. Postma	Tilburg University

The research reported in this thesis was performed at the Institut für Strategische Innovation und Technologiemanagement (IST) at the Faculty of Engineering, the University of Applied Sciences Konstanz, Germany and the Leiden Institute of Advanced Computer Science (LIACS) at the Faculty of Science, Leiden University, the Netherlands.



The research reported in this thesis has been funded by the Bundesministerium für Bildung und Forschung (BMBF) as part of the FHprofUnt program. The research is part of the larger project: Entwicklung einer Gesamtlösung für den Einsatz integrierter strategischer Planung im technologienorientierten Mittelstand, project number: 17053X10.



Dissertation Series No. 2015-32

The reported research has been carried out under the auspices of SIKS, the Dutch Research School for Information and Knowledge Systems.

Cover design by Beate Reichel

ISBN 978-94-9190-118-8

© 2015 Jérôme Gard

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means (electronically, mechanically, photocopying, recording or otherwise) without the written permission of both the copyright owner and the author of the book.

*To my parents for their support
throughout my entire academic career*

Preface

Joseph Schumpeter (1883-1950) describes in his famous textbook “The Theory of Economic Development” the phenomenon of ‘creative destruction’ – the development of new solutions that cause significant change in whole industries. As a student, I recognized the power of creative destruction when following the downfall of global players such as Kodak and Nokia. I asked myself how these corporations should have organized innovation to adapt successfully to the technological shifts that caused their collapse. Inspired by this question, I decided to pursue a PhD study at the Leiden University with the aim to examine how corporations renew their business portfolio in anticipation of changing business conditions.

Soon, I read about a form of self-organized innovation that enables corporations to effectively renew their business portfolio – corporate ventures. The idea that corporations renew their business portfolio by continuously entering novel business domains with small entrepreneurial teams was fascinating. However, I could not find any empirically evaluated management model that would tell corporate executives how to manage corporate ventures effectively. As an engineer, I was curious to investigate corporate venture management, not knowing that my research would provide a first empirical model that reveals essential principles for effective corporate venture management.

For accomplishing my PhD research I received support from many people who I would like to acknowledge in the following. First, I had the honor to receive optimistic, motivating and thorough guidance from my first promotor Professor Bernhard Katzy and my co-promotor Professor Guido Baltes. Then the team was broadened by my second promotor Professor Jaap van den Herik. In particular, I own many thanks to Bernhard Katzy for supporting my research and providing the freedom to follow my own path. A special gratitude goes to Guido Baltes for providing a great

work environment, promoting my work, teaching me how to write scientific texts and qualifying me as a senior manager. Furthermore, I owe many thanks to Jaap van den Herik for his precise and accurate guidance throughout the final stage of my PhD. In particular, I would like to mention his enthusiasm and professional way to improve my writing skills.

Throughout the whole PhD process, I received support from the international graduate school on Networks, Information Technology & Innovation Management (NITIM). During the summer schools in Rijeka, Constance, Tampere and Munich, the faculty provided great feedback and guidance. I would like to thank particularly, Paola Bielli from the Bocconi University, Ozgur Dedehayir from the Tampere University of Technology, Peter Harland from the IHI Zittau, Stefan Klein from the University Münster, Ulrike Lechner from the University Bw Munich, Nathalie Mitev from the London School of Economics, Andras Nemeslaki from the Corvinus University, Roland Ortt from the TU Delft and Klaus Sailer from the Strascheg Center for Entrepreneurship. In particular, I had the pleasure to work with Francesc Miralles from the La Salle Ramon Llull University who provided constructive feedback on the first draft of my thesis.

Concerning my PhD exchange at the Stellenbosch University in South Africa, I would like to acknowledge, Margit Plahl and Gunter Voigt from the University of Applied Sciences Konstanz for their administrative support. Moreover, I would like to express my gratitude to Corne Schutte and Henno Gous from the Stellenbosch University for being my hosts and for their expertise on data analysis.

Over the years, I was also fortunate to be accompanied by various special people. For mental support, I would like to acknowledge Anna Schneider, Lara Hetkamp, Jan-Hendrik Schmidt, Ben Kraus, Thomas Holzmann and Christoph Stettina. I mention Thorsten Kliewe for good advice and expertise with respect to data acquisition. In gratitude for her love, encouragement and mental

support in a challenging period in my PhD research, I acknowledge Marieke Stamm. Finally, I am grateful to my parents for their unconditional support with respect to my career development.

CONTENTS

Preface	VII
Contents	XI
List of Abbreviations	XV
List of Figures	XVI
List of Tables	XVII
List of Definitions	XVIII
1 Understanding Successful Corporate Venture Management	1
1.1 Motivation	2
1.2 Problem Statement and Research Questions	4
1.3 Research Objective and Research Methodology	7
1.3.1 Exploring the Autonomy of Corporate Ventures	8
1.3.2 Operationalizing a Multidimensional Autonomy Construct.....	8
1.3.3 Evaluating and Adapting the Construct	9
1.3.4 Applying the Autonomy Construct	9
1.4 Structure of the Study.....	11
2 Related Work and Theoretical Embedding	15
2.1 The Challenge to Renew the Business Portfolio Strategically	15
2.1.1 Dual Capacity	16
2.1.2 Dual Structures	16
2.1.3 Dual Structures through Corporate Ventures	17
2.2 Resolving the Complexity of Corporation-Venture Relations	18
2.2.1 A Resource-Based View	19
2.2.2 An Organizational Design-Based View	20
2.2.3 A Dynamic Capability-Based View	21

3 Exploring the Autonomy of Corporate Ventures	27
3.1 The Relevance of Autonomy to Explore New Businesses	28
3.2 Research Method.....	30
3.2.1 Research Approach.....	30
3.2.2 Data Collection.....	31
3.2.3 Analysis of the Interview Data.....	32
3.3 Case Studies	34
3.3.1 The Case of Company 4 (Photovoltaic Industry)	34
3.3.2 The Case of Company 5 (Information Technology Industry)	41
3.3.3 Comparing the Autonomy of the Venture Managers in the Two Cases.....	48
3.4 Abstracting Four Distinct Autonomy Dimensions from the Cases.....	51
3.4.1 Functional Autonomy	52
3.4.2 Decision Autonomy.....	52
3.4.3 Strategic Autonomy.....	53
3.4.4 Job Autonomy.....	54
3.5 Chapter Conclusion.....	55
4 Operationalizing a Multidimensional Autonomy Construct	57
4.1 The Semi-Autonomous Nature of Corporate Ventures	58
4.2 Autonomy of Corporate Ventures.....	59
4.3 Model Development.....	61
4.3.1 Functional Autonomy.....	61
4.3.2 Decision Autonomy.....	64
4.3.3 Strategic Autonomy.....	66
4.3.4 Job Autonomy.....	67
4.3.5 Summarizing the Model.....	67
4.4 Operationalization of the Measurement Scales	69
4.4.1 Functional Importance.....	70
4.4.2 Functional Autonomy.....	72
4.4.3 Decision Autonomy.....	73
4.4.4 Strategic Autonomy.....	74
4.4.5 Job Autonomy.....	75
4.4.6 Corporate Venture Success.....	77
4.5 Chapter Conclusion.....	78

5 Evaluating and Adapting the Autonomy Construct	79
5.1 Data Set Used to Evaluate the Autonomy Construct.....	80
5.1.1 Sample Framing	80
5.1.2 Data collection.....	82
5.1.3 Identification of the Target Population in the Collected Sample	84
5.2 Construct Validity and Construct Reliability.....	89
5.2.1 Evaluating the Appropriateness of the Data.....	89
5.2.2 Component Extraction.....	91
5.2.3 Component Rotation	97
5.2.4 Cronbach's Alpha.....	100
5.2.5 Results of the Validity Analysis and Reliability Analysis.....	101
5.3 Chapter Conclusion.....	101
6 Applying the Autonomy Construct	103
6.1 The Challenge to Manage Corporate Ventures	104
6.2 The Relevance of Exploitation Priority	107
6.3 Theory and Hypotheses Development.....	109
6.3.1 Strategic Autonomy and Corporate Venture Success	109
6.3.2 Job Autonomy and Corporate Venture Success	111
6.3.3 The Moderating Role of Exploitation Priority.....	112
6.4 Research Design.....	115
6.4.1 Measures.....	116
6.4.2 Method Validity.....	122
6.4.3 Model Diagnostics.....	124
6.5 Results of the Data Analysis	129
6.6 Discussion	134
6.7 Chapter Conclusion.....	138
6.7.1 Answer to the RQ3.....	138
6.7.2 Answer to the PS.....	138
7 Answering the Problem Statement and Identifying the Contributions	141
7.1 Answers to the Three Research Questions	141
7.1.1 The Dimensions Reflecting the Autonomy of Venture Managers.....	141
7.1.2 Integrating the Autonomy Dimensions in a Multidimensional Construct....	144

7.1.3	Revealing the Impact of Autonomy on Corporate Venture Success.....	145
7.2	Answer to the Problem Statement.....	147
7.2.1	The Model For Successful Corporate Venture Management.....	147
7.2.2	Realizing Effective Venture Management Through Management Routines	149
7.3	Contributions.....	149
7.3.1	Theoretical Contributions.....	150
7.3.2	Practical Contributions.....	151
7.4	Limitations of the Research	152
7.5	Directions for Future Research	154
	References.....	157
	Appendices.....	173
	Summary.....	219
	Samenvatting.....	227
	Curriculum Vitae.....	231
	List of Publications.....	233
	SIKS Dissertation Series.....	235

LIST OF ABBREVIATIONS

The list below contains the abbreviations that are used in this thesis. Normal lexical abbreviations, such as, ‘e.g.’ and ‘i.e.’, are not listed. The same applies for the names of corporations, such as SAP.

FTE	Full-time equivalent
GDP	Gross Domestic Product
HR	Human Resource
IT	Information Technology
KMO	Kaiser-Meyer-Olkin
KPI	Key Performance Indicator
NACE	Nomenclature Générale des Activités Économiques dans les Communautés Européennes
OEM	Original Equipment Manufacturer
PCA	Principal Component Analysis
PLM	Product-Lifecycle Management
PS	Problem Statement
PV	Photovoltaic
R&D	Research and Development
ROA	Return on Assets
ROE	Return on Equity
ROI	Return on Investment
RQ	Research Question
SME	Small and Medium Enterprise
SPSS	Statistical Package for Social Science
VIF	Variance Inflation Factor

LIST OF FIGURES

Figure 1.1: Thesis Structure.....	14
Figure 4.1: The Impact of Functional Autonomy on Corporate Venture Success	62
Figure 4.2: Functional Importance Amplifies the Impact of Functional Autonomy	63
Figure 4.3: The Impact of Decision Autonomy on Corporate Venture Success	65
Figure 4.4: Functional Importance Amplifies the Impact of Decision Autonomy	65
Figure 4.5: The Impact of Strategic Autonomy on Corporate Venture Success	66
Figure 4.6: The Impact of Job Autonomy on Corporate Venture Success.....	67
Figure 4.7: A Theoretical Model Associating Autonomy with Corporate Venture Success.....	68
Figure 5.1: Scree Plot of the Component Eigenvalues.....	95
Figure 5.2: The Adapted Autonomy Construct	102
Figure 6.1: The Hypothesized Model Relationships.....	109
Figure 6.2: Interaction Effect between Strategic Autonomy and Exploitation Priority.....	133
Figure 6.3: Interaction Effect between Job Autonomy and Exploitation Priority	134

LIST OF TABLES

Table 1.1: Research Steps	10
Table 4.1: Functional Importance Measurement Scale	72
Table 4.2: Functional Autonomy Measurement Scale.....	73
Table 4.3: Decision Autonomy Measurement Scale.....	74
Table 4.4: Strategic Autonomy Measurement Scale.....	75
Table 4.5: Job Autonomy Measurement Scale	76
Table 4.6: Corporate Venture Success Measurement Scale.....	78
Table 5.1: Respondent Groups in the Sample Frame	85
Table 5.2: List of Items Referring to the Four Autonomy Scales.....	89
Table 5.3: Correlation Matrix of Expected Variables	92
Table 5.4: Eigenvalues Extracted through the Initial Principal Component Analysis	94
Table 5.5: Results of the Parallel Analysis.....	96
Table 5.6: Component Correlation Matrix.....	98
Table 5.7: Component Matrix after Initial Component Rotation	99
Table 5.8: Rotated Component Solution.....	100
Table 6.1: Exploitation Priority Measurement Scale.....	119
Table 6.2: Results of the Skewness Analysis.....	125
Table 6.3: Descriptive Statistics and Correlation Analysis.....	130
Table 6.4: Results from Multiple Regression Resting Effects on Corporate Venture Success..	131

LIST OF DEFINITIONS

Definition 1.1: Corporate Venture.....	3
Definition 1.2: Corporate Management.....	5
Definition 1.3: Venture Manager	5
Definition 1.4: Construct	8
Definition 2.1: Management Routines.....	22
Definition 4.1: Functional Importance	70
Definition 4.2: Functional Autonomy.....	72
Definition 4.3: Decision Autonomy.....	73
Definition 4.4: Strategic Autonomy.....	74
Definition 4.5: Job Autonomy	75
Definition 4.6: Corporate Venture Success.....	77
Definition 5.1: Variable Reduction Techniques.....	89
Definition 5.2: Correlation Matrix.....	90
Definition 5.3: Kaiser-Meyer-Olkin	90
Definition 5.4: Bartlett’s Test of Sphericity.....	90
Definition 5.5: Principal Component Analysis.....	92
Definition 5.6: Eigenvalues	92
Definition 5.7: Kaiser’s Criterion	93
Definition 5.8: Scree Plot.....	94
Definition 5.9: Parallel Analysis	95
Definition 5.10: Oblimin.....	97
Definition 5.11: Varimax Rotation.....	98

Definition 5.12: Cronbach's Alpha.....	100
Definition 6.1: Exploitation Priority.....	107
Definition 6.2: Skewness Analysis	124
Definition 6.3: Residual Plots	126
Definition 6.4: Heteroscedasticity	127
Definition 6.5: Koenker Test.....	127
Definition 6.6: Multicollinearity	128
Definition 6.7: Variance Inflation Factor.....	128

