

**Yi Ling Wong**

# The Inter-Relationship between Innovation, Growth & Profitability of Germany's Online-Based SMEs

An Empirical Study

**Master's Thesis**

# YOUR KNOWLEDGE HAS VALUE



- We will publish your bachelor's and master's thesis, essays and papers
- Your own eBook and book - sold worldwide in all relevant shops
- Earn money with each sale

Upload your text at [www.GRIN.com](http://www.GRIN.com)  
and publish for free



**Bibliographic information published by the German National Library:**

The German National Library lists this publication in the National Bibliography; detailed bibliographic data are available on the Internet at <http://dnb.dnb.de> .

This book is copyright material and must not be copied, reproduced, transferred, distributed, leased, licensed or publicly performed or used in any way except as specifically permitted in writing by the publishers, as allowed under the terms and conditions under which it was purchased or as strictly permitted by applicable copyright law. Any unauthorized distribution or use of this text may be a direct infringement of the author s and publisher s rights and those responsible may be liable in law accordingly.

**Imprint:**

Copyright © 2014 GRIN Verlag  
ISBN: 9783656840305

**This book at GRIN:**

<https://www.grin.com/document/284157>

**Yi Ling Wong**

# **The Inter-Relationship between Innovation, Growth & Profitability of Germany's Online-Based SMEs**

**An Empirical Study**

## **GRIN - Your knowledge has value**

Since its foundation in 1998, GRIN has specialized in publishing academic texts by students, college teachers and other academics as e-book and printed book. The website [www.grin.com](http://www.grin.com) is an ideal platform for presenting term papers, final papers, scientific essays, dissertations and specialist books.

### **Visit us on the internet:**

<http://www.grin.com/>

<http://www.facebook.com/grincom>

[http://www.twitter.com/grin\\_com](http://www.twitter.com/grin_com)

**BERLIN SCHOOL OF ECONOMICS AND LAW  
MBA Transatlantic Management**

**The Inter-Relationship between  
Innovation, Growth & Profitability  
of Germany's Online-Based SMEs:  
An Empirical Study**

Yi Ling Wong

**MBA Master's Thesis**  
Submitted in partial fulfillment for the degree of  
"Master of Business Administration"

**Date: 15 October 2014**

## Statement of Originality

I hereby certify that this dissertation and the research to which it refers are entirely the product of my own work. Any ideas, quotations or sources used are correctly identifiable in the text and have been fully acknowledged in accordance with the standard referencing practices.

Dissertation title	<b>The Inter-Relationship between Innovation, Growth &amp; Profitability of Germany's Online-Based SMEs: An Empirical Study</b>
Researcher/Author	<b>Yi Ling Wong</b>

Date of submission	<b>15.10.2014</b>
--------------------	-------------------

Word count	<b>18900</b>
------------	--------------

MBA Transatlantic Management 2013/2014

### Other contributors

This research project is not possible without support of SoSci Survey and various online-based companies and startups in Germany which have been kind enough to contribute their time and expertise to this research.

**Yi Ling Wong**

Berlin, 15.10.2014

## Contents

Abstract .....	7
1. Introduction .....	7
1.1 Research Problem .....	7
1.2 Research Questions and Objectives .....	10
1.3 Outline of the Thesis .....	11
2. Background .....	11
2.1 The Internet as a Platform for Business .....	11
The Impacts on SMEs.....	13
Rough History and some Drawbacks.....	13
The Future: The Internet of Things.....	14
Online-Based Business and Revenue Models.....	15
2.2 Internet Business in Germany.....	18
The Online-based Company .....	18
Current Situation in Germany .....	18
SMEs in Germany.....	21
2.3 Definitions & Dimensions of Innovation in Online-based Businesses ....	22
What is Innovation?.....	22
Drivers of Innovation .....	23
The Innovation Process .....	24
Innovation Management for Success .....	25
Innovation Types and Classifications.....	26
3. Literature Review & Hypotheses Development .....	28
3.1 Literature on Innovation-Size & Innovation-Profitability Relationships	28
3.2 Literature on Size-Profitability Relationship .....	31

3.3	Literature on Innovation-Growth & Innovation-Profitability Improvement Relationship .....	32
3.4	Literature on Growth - Change in Profitability Relationship .....	34
3.5	An Overview of Past Literature .....	36
4.	Analytical Framework & Conceptual Model.....	38
4.1	Measurement Model .....	39
	Innovation.....	39
	Growth.....	40
	Profitability .....	41
5.	Methodology .....	42
5.1	Mixed-methods Research .....	42
5.2	Quantitative Research through Online Survey .....	43
	Subjects and Participants .....	43
	Materials and Tools .....	44
	Design .....	46
	Procedure .....	63
5.3	Qualitative Research .....	66
	Participants.....	66
	Materials.....	68
	Design .....	68
	Procedure .....	70
6.	Findings.....	71
6.1	Survey Data .....	71
	Graphical Representation of Collected Data .....	71
6.2	Summary of Regression Analysis .....	75

Power and Sample Size Analysis.....	76
6.3 Interview Findings.....	77
Expert Interviews.....	77
Short Interviews .....	78
7. Analysis and Discussion .....	78
7.1 Theoretical Conclusions .....	78
H1: Innovation-Size.....	78
H2.1: Innovation-Profitability .....	79
H2.2 Innovation-Earnings .....	79
H3: Profitability-Size .....	79
H4: Growth-Innovation.....	80
H5: Change in Profitability-Innovation .....	81
H6: Growth-Change in Profitability .....	82
7.2 Limitations .....	83
7.3 Recommendations for Further Study .....	86
8. Conclusion .....	86
9. Notes.....	89
10. Bibliography.....	95
11. Appendices .....	101
Appendix A.....	101
Appendix B.....	102
Appendix C.....	103
Appendix D .....	104
Appendix E.....	105

## Tables and Figures

Table 1 B2C Online-based Business Models.....	16
Table 2 B2B Online-based Business Models.....	16
Table 3 Other Emerging Online-based Business Models .....	17
Table 4 Online-based Business Revenue Models .....	17
Table 5 SME-definition of ©IfM Bonn.....	21
Table 6 Summary of Literature Review .....	36
Table 7 Survey Questions and Corresponding Measurement Variables.....	48
Table 8 Variables in the relationships modeled and tested in this study .....	64
Table 9 Data Summary for all Relationships.....	75
Table 10 Sample Sizes and Detectable Slopes of $\Delta$ PR-INN Relationship to approximately 80% Power.....	82
Table 11 Sample Sizes and Detectable Slopes of GR- $\Delta$ PR Relationship to approximately 80% Power.....	83
Table 12 Summary of Findings .....	88
Figure 1 Economic Surplus of Internet Consumerism in Different Countries (Manyika & Roxburgh, 2011, pg 5) .....	12
Figure 2 B2C E-Commerce Revenues Worldwide from 2012 with Estimates until 2017 .....	15
Figure 3 Fraction of Companies Generating Sales over the Internet in 2013 in European Countries.....	19
Figure 4 Top 10 EU Countries according to E-Commerce Fraction of Total Revenues in2013 .....	20
Figure 5 E-Commerce Revenues in Germany from 1999 to 2013 and the Prognosis for 2014.....	21
Figure 6 Main phases of the innovation process (Herzog, 2008, pg 11) .....	24
Figure 7 Cooper's stage-gate process (Cooper, 2001, pg 130).....	25
Figure 8 Firm Size and Innovative Activities in Low and High Tech Industries. (Audretsch & Acs, 1991) .....	29

Figure 9 Conceptual Model of Relationships between Innovation and Firm Performance in an Internet SME .....	38
Figure 10 Gretl Built-in Function for Regression Slope CI .....	60
Figure 11 Summary results for 1000 random samples of the Monte Carlo simulation for PSS analysis .....	66
Figure 12 Plot of data for Firm Size-Innovation Relationship .....	72
Figure 13 Plot of data for Profitability-Innovation Relationship .....	72
Figure 14 Plot of data for Absolute Earnings-Innovation Relationship .....	73
Figure 15 Plot of data for Firm Size-Profitability Relationship .....	73
Figure 16 Plot of data for Innovation-Growth Relationship.....	74
Figure 17 Plot of data for Innovation-Change in Profitability Relationship .....	74
Figure 18 Plot of data for Change in Profitability-Growth Relationship .....	75
Figure 19 Power and effect size for $\Delta PR$ -INN depending on sample size .....	76
Figure 20 Power and effect size for GR- $\Delta PR$ depending on sample size.....	76

## Abstract

This research aims to understand how innovation affects and is affected by a firm's financial performance. It focuses particularly on the Internet industry and collects both quantitative and qualitative data from online-based SMEs in Germany. The results reveal that among online-businesses, the size of the company in terms of revenue is positively related to the level of innovation, whereas lower profitability and smaller absolute earnings seem to encourage higher levels of innovation. Companies with higher revenues are found to earn generally lower profit margins. It was also found that companies that experienced a reduction in annual revenue have a tendency to increase innovation levels. No significant effects were found between innovation levels and change in profitability. Similarly, no significant effects were found between change in profitability and growth. Among online-based SMEs, this study highlights the importance of innovation as an instrument employed by distressed companies to improve their performance. It also shows that there may be a tendency for the companies that are more profitable to focus less on innovation.

## Keywords

*Innovation, size, profitability, growth, performance, SME, Mittelstand, Internet business, online-based business, e-commerce, e-business*

## 1. Introduction

### 1.1 Research Problem

In a 2013 ranking of the largest Internet companies worldwide by market capitalization, it is remarkable that in an era where industries and markets are progressively migrating online, only one of the companies, *United Internet* is birthed in Germany<sup>1</sup>. Germany, the largest national economy in Europe, the 4<sup>th</sup> largest world economy by nominal GDP<sup>2</sup>, and 3<sup>rd</sup> largest exporter in the world<sup>3</sup>, seems to be falling behind not only in the domain of online-based businesses but also in its innovation ranking, being placed a mere 13<sup>th</sup> in the Global Innovation Index<sup>4</sup>, behind other countries far less significant in economic power.

Even then, from a temporal perspective, *United Internet* is old compared to the average Internet company, having been founded in 1988 in Montabaur in Germany. Focusing on the younger generation of companies in the sector by analyzing the digital startups industry, it is again a disconcerting fact that only one Germany-based company, *Zalando*, takes a spot, albeit at the lower end of the ranking, in the list of the top ten most valuable startups in 2014<sup>5</sup>. In another evaluation by some of the most active investors in the sector, out of the twenty-five fastest growing Internet companies in Europe that are nominated, only two are German-based, one of which is again *Zalando* (Informilo, 2013).

The question of whether Germany's current low innovation rating have anything to do with its inability to produce more successful online-based businesses to rival its true peers such as the USA and China, can be only be answered by analyzing in depth the role of innovation in the development of an Internet company in current times. Only then, can one understand the forces behind the relatively low-performing albeit growing digital industry in Germany.

Particularly interesting to this topic are small-and-medium-sized online-based companies. According to a report by McKinsey in 2011, it was found that small and medium sized enterprises (SME) and startups are the biggest beneficiaries of the widespread use of the Internet. Online, they are able to leverage on the same kind of reach and capabilities that were once only accessible by large companies (Manyika & Roxburgh, 2011). Also, without being burdened by large overheads, bureaucracy and the inertia that are characteristic of large companies, smaller firms enjoy the flexibility and agility to adapt, explore opportunities, and become more competitive in terms of value creation and innovation. These are important traits to have in a rapidly changing environment characteristic of this digitalized era.

Innovation has long been considered to be essential to the success of entrepreneurial ventures and small firms (Fiol 1996). Various research has shown that innovation stimulates a small firm's growth (e.g., Wolff and Pett 2006; Motwani et al. 1999; Hax and Majluf 1991) and also provides a key source of

competitive advantage in the absence of scale economies (Lewis et al. 2002). It is also considered as a critical factor for the long term sustainability of e-commerce and e-business (Hasan & Harris, 2009).

However, in the face of the intense competition faced by Internet-based companies in today's marketplace for Internet-based businesses due to minimal barriers to new entrants and competitors, the first mover advantage is lost relatively quickly (Mellahi & Johnson, 2000; Liang, Czaplewski, Klein & Jiang 2009) and sustainable competitive advantage is almost impossible. Innovation faces constant challenges of imitation and erosion. It has been found that only 4 percent of all new product innovations beat the expected return on investment (Nussbaum, Berner, and Brady 2005). Another study has argued that being first-to-market leads rather to a long-term profit disadvantage due to the high costs involved in innovation which eventually overwhelms sales gains from any pioneering advantages (Boulding & Christen, 2003).

On the other hand, a company that fails to continually invest in innovation places itself at greater risk of having products and services marginalized by technologically superior competitors (Nikolaeva, 2007; Utterback & Abernathy, 1975).

This seemingly no-win situation is also elegantly described by Christensen & Raynor in their book *The Innovator's Solution*, "There is powerful evidence that once a company's core business has matured, the pursuit of new platforms for growth entails daunting risk. Roughly one company in ten is able to sustain the kind of growth that translates into an above-average increase in shareholder returns over more than a few years."<sup>6</sup> They explain further that the equity markets put a high valuation on the expected rate of growth of a company, effectively pressuring management to have to choose between pursuing growth and face high risks of failure, or not to pursue the kind of growth that is expected by its shareholders and lose much of its market value (Christensen & Raynor, 2003).